



CANADIAN EDITION



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NO. 231



THE OLD FARMER'S 2023 ALMANAC



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‡According to Nielsen data.

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NUMBER TWO HUNDRED AND THIRTY-ONE

THE OLD FARMER'S ALMANAC

CALCULATED ON A NEW AND IMPROVED PLAN FOR THE YEAR OF OUR LORD

2023

Being 3rd after Leap Year and (until July 1) 155th year of Canadian Confederation

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AND CALCULATIONS TO ANSWER FOR ALL THE CANADIAN PROVINCES.

Containing, besides the large number of Astronomical Calculations and
the Farmer's Calendar for every month in the year, a variety of
NEW, USEFUL, & ENTERTAINING MATTER.

ESTABLISHED IN 1792
BY ROBERT B. THOMAS (1766-1846)



*The moments fly—a minute's gone;
The minutes fly—an hour is run;
The day is fled—the night is here;
Thus flies a week, a month, a year!*

—Author unknown

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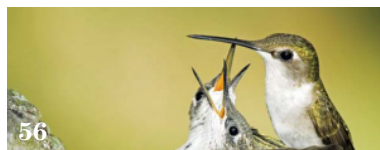
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“SOMETIMES DRY, SOMETIMES WETTLED”

Hello, friends! For the past year or so, we have been doggedly attentive to the mission set forth by our founder, Robert B. Thomas (pictured on the cover): to make this edition, like every previous one, “useful, with a pleasant degree of humor.” Indeed, although putting together each Almanac is serious business, if truth be told, we do have a lot of laughs throughout the process—in meetings, in discussions about articles, even when titling stories—and a theme of humor and good cheer has always been present in this book.

Consider, for instance, our Essay Contest. We choose topics that we hope will inspire you to submit your most entertaining tales. Winning entries are often sentimental, but sometimes they are silly—and that’s okay. We all need a lift.

Our Anecdotes & Pleasantries are intended to bring smiles or, at least, a good-spirited groan.

Even weather forecasts can have a humorous aspect. *What?* Well, certainly not our state-of-the-art, science-based predictions for the various regions of the continent—these are no laughing matter.

I refer you instead to the other weather predictions, the ones that appear in italic type, vertically, on the Right-Hand Calendar Pages.

These whimsical verses—formulated with as few syllables as possible—contain a modicum of truth: Each month’s rhyme is loosely based on our data-driven prognostications, playfully interpreted to capture the character of the season, occasionally with invented words. (What rhymes with “wettled”? See page 139.)

The literary form—called “doggerel”—is considered by many to be low art, but creating it demands a high degree of verbal dexterity and a vivid imagination. Our late colleague, Tim Clark—a wit in his own right—employed both of these memorably across his 42 years of doggereling. (See page 101 for more about Tim.)

“Well-versed” in all things Almanac, Managing Editor Jack Burnett will now be writing this time-honored part of the book with what no doubt will continue to be “a pleasant degree of humor” for long into the future, we hope.

–J. S., June 2022

However, it is by our works and not our words that we would be judged. These, we hope, will sustain us in the humble though proud station we have so long held in the name of

Your obedient servant,





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2023 TRENDS



ON THE FARM

Higher fertilizer costs are spurring more farmers to invest in conservation and soil health practices to get more yield with less cost.

—Stefan Gailans, research and field crops director, Practical Farmers of Iowa

CROPLAND COSTS

Average rental cost per acre (2021):

- \$35 in Oklahoma
- \$331 in California

Average value per acre (2021):

- \$1,050 in Montana
- \$14,800 in New Jersey

GROWING, ORGANICALLY

■ **16,585:** organic farms in the U.S.

■ **5.5 million:** acres in use for organic production in the U.S.

BUZZWORD

Grow-cers: grocery stores that sell produce from on-site indoor farms

■ **60,611:** acres on conventional farms in the U.S. that are going organic
—Organic Survey, 2020

FIELD NOTES

■ Nonfamily transitions are becoming common,

as retiring farmers without a family successor want to ensure that their land goes to a farmer.

—Darcy Smith, B.C. land-matching program manager, Young Agrarians

FARMERS ARE . . .

■ selling beef direct-to-consumer and “meat box” subscriptions
—Caitlyn Lamm, spokesperson, Iowa Farm Bureau Federation

■ offering shares for flours, dry beans, and grains

FACTS TO PONDER AND FORECASTS TO WATCH FOR

Compiled by Stacey Kusterbeck

BY THE NUMBERS

8.4% of Canadian farmers have a written succession plan.

182: matches made between beginner farmers and farmers with land to spare, under Young Agrarians' British Columbia land-matching program

\$2.8 billion: value of direct-to-consumer sales for U.S. farms

1,798,439: number of small family farms in the U.S. (with gross cash farm income of less than \$350,000)

■ joining with other farmers to obtain and distribute larger orders

FARM TECH IN USE

■ devices that detect emissions from tomato plants indicating whitefly infestations

■ nanoscale sensors inside plant leaves that detect water needs

■ autonomous tractors that take readings of soil quality

COMING SOON

■ specially bred honeybees that thrive on select diets—artificial nutrition or plants that are prevalent in the region

■ signaling devices that disrupt mating calls of glassy-winged sharpshooters (large leafhopper insects) to keep them from spreading disease in grape vineyards

ECO-CONSCIOUS FARMERS . . .

■ surround fields with early- and late-blooming flowers to help beneficial insects

■ “potty-train” cows to go in designated areas to control ammonia waste (one farmed cow produces 8 gallons of urine daily)

PEOPLE ARE TALKING ABOUT . . .

■ milk produced by heritage-breed Guernseys that's high in beta-carotene

■ urban farmers cultivating people's backyards and giving owners produce as rent

THEY'RE HIRING . . .

■ staff for indoor aeroponic (soilless) farms at public housing developments, where produce is grown year-round for residents

■ urban vertical gardeners who can rappel up tall buildings to tend plants on the buildings' exterior

(continued)





IN THE GARDEN

We are witnessing the end of the long reign of 'Red Delicious'. There is a welcome acceptance of apples that are not solid red, with different flavor profiles, and dwarf varieties.

—Bob Osborne, author, *Hardy Apples: Growing Apples in Cold Climates* (Firefly Books, 2022)

GOOD APPLES

In-demand varieties:

- 'Gala' and 'Ambrosia'
- historical apples
- disease-resistant cultivars

WE'RE FOCUSED ON . . .

- pollinator-friendly, water-wise gardens with plants that are different from our neighbors'.
—Kathleen Hennessy, chief marketing officer, Axiom
- feeding the soil microbial life with compost, compost tea, and worm castings.
—Christy Wilhelmi, author, *Garden Variety* (William Morrow, 2022)

- turning yards into self-sustaining ecosystems so that there's less work,

more productivity, and more resistance to diseases and pests.
—Stephanie Rose, founder, *Gardentherapy.ca*

BY THE NUMBERS

54% of young adults (ages 18 to 34) would rather go to a garden center than a nightclub.

48% of gardeners are planning to start seeds indoors for the first time.

\$2.6 billion: expected U.S. sales of bird feeders and feed by 2026

- plants that do more: pollinator-friendly, ornamental, and edible, with higher yields.
—Diane Blazek, executive director, *All-America Selections, National Garden Bureau*

- creating greenspace courtyards to connect with nature through garden sanctuaries outdoors or lush, vibrant foliage indoors.
—Egypt Sherrod, real estate broker and star of HGTV's *Married to Real Estate*

(continued)

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U.S. GARDENERS' GROWING PASSIONS

- **72%:** flowers
- **66%:** vegetables
- **41%:** houseplants
- **26%:** fruit trees
- **19%:** berries

—*Axiom*

TOPS IN CROPS

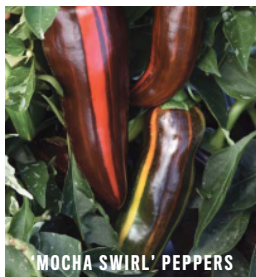
- For Millennials: organic vegetables, herbs, fruit
 - For baby boomers: vegetables (not necessarily organic), flowers
 - For all gardeners: tomatoes, pumpkins, garlic, squashes, herbs
- W. Atlee Burpee & Co.*

TOP INTERESTS WORLDWIDE

- container gardens
- vertical gardens
- composting

NEW VEGGIE VARIETIES

- 'Armenian Pale' green cucumber, 'Rainbow Candy Crush' hybrid kale, 'Taboo' lettuce, 'Ketchup 'n' Fries' cherry tomato and yellow potato, Fiesta Blend radish
- Jung Seed Company*
- 'Twister' cauliflower, 'Merlin' hybrid crisp



cucumber, 'Mocha Swirl' and 'Nibbler Red' sweet peppers, 'Honeye' strawberry

—*W. Atlee Burpee & Co.*

- 'Prospera' mildew-resistant basil, 'Starstuck' crunchy lettuce blend, 'Enroza' beefsteak tomato

—*Johnny's Selected Seeds*

- 'Berlin Berlicum' carrot, 'Mini-Me' cucumber, 'Bauer' oakleaf lettuce, 'Gum Drop Black' hybrid cherry tomato

—*Park Seed*

CONTAINMENT TRENDS

- plant containers of different sizes, side-by-



side, to suggest a wild meadow on balconies, sidewalks, or rooftops

- pairing naturally incompatible plants in nearby containers

HERE, HERE, HERBALS!

We're growing ingredients for home and body care use . . .

- *For cleaning products:* sage, with infusions of orange peels in vinegar; rosemary, with lemons in alcohol

- *For lotions, salves, lip balms:* lavender, calendula, and rose (with grapeseed or olive oil and melted beeswax)

—*Stephanie Rose*

MILLENNIALS' #1 GARDENING OBSTACLES

- *For men:* lack of time
- *For women:* lack of money

HOW'S IT GROWING?

- **16%** of U.S. gardens weren't as successful as growers had hoped.
- **38%** of gardens were very successful.
- **20%** of gardeners do so to lower stress.

—*Axiom*

(continued)

RMER'S ALMANAC

LUSH

BGA
TR

THE O

D LAWN
-0-2

TO 5,000
RN YOUR LA

10000 to 15000 Sq. Ft. (1/2 acre)
2022
50000

WILL NOT BURN YOUR LAWN* ~ NO MANURE ~ NO OFFENSIVE ODORS

THE OLD FARMER'S ALMANAC

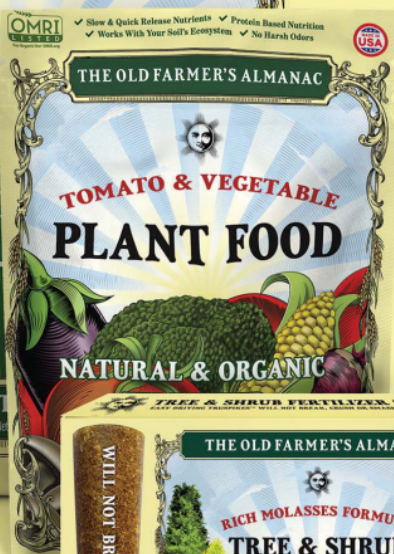
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LAWN FOOD

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10-0-2

COVERS UP TO

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BUZZWORD

Climatarians: folks who eat local foods that are in season and avoid plastic packaging

GOOD EATS

In-store meal advisors are helping shoppers by suggesting plant-based or gluten-free diet-friendly meals.

—Jo-Ann McArthur, president, Nourish Food Marketing

PEOPLE ARE TALKING ABOUT . . .

- food labels that develop bumps when the food is no longer safe to eat
- restaurants using robots to prepare food, serve diners, and clean floors and equipment
- bars serving low- or no alcohol or low-sugar libations
- ordering “surprise” bags of leftover (usually expensive)

BY THE NUMBERS

48% of Canadians don't buy groceries online because they want to select their own produce.

63% of Canadians cook dinner from scratch most days.

58% of U.S. consumers would buy imperfect produce for a discount.

food from restaurants and groceries at less than menu/store prices

FOOD FADS

Earth-friendly options:

- seaweed burgers that sequester carbon
- vodka made by capturing CO₂ from the air
- skincare goods made from food waste: skin cream from coffee; eye care products from avocado and citrus peels; shower gel from misshapen cucumbers

MOUTHFULS

■ *U.S. flavor of choice:*

salt—in sauces, seaweeds, and cocktails; on fries seasoned with furikake (a Japanese condiment)

■ *Canada flavor of choice:*

butter—on burgers, in kombu (edible kelp); yeast butters; herbal or browned butters in cocktails; buttermilk; butterscotch; nut butters

—Technomic

■ *Global food favorite:*

egg sandwiches, with homemade sauces

(continued)

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YOUR HEALTH OUTLOOK

More people are actively managing their cognitive health.

—The Hartman Group

WE'RE SEEING . . .

- greater availability of primary care providers such as nurse practitioners, osteopaths, and integrative doctors

- easier access to health information to share as we choose

—Raquel Garzon, M.D., president/founder, Revitalize Project

- more food-as-medicine treatment plans: “prescriptions” for beans/legumes, whole grains, fruit, vegetables, herbs/spices, and water

—Kristi Artz, M.D., medical director, Spectrum Health Lifestyle Medicine

BY THE NUMBERS

48% of U.S. adults say that access to walking, hiking, and biking trails is “very” or “extremely” important.

58% of U.S. adults spend more than 30 minutes a day outside.

—National Recreation and Park Association

OUTDOORS IS “IN”

- We’re hiking into forests to work on tree-mounted desks.

- We’re analyzing recordings from

wilderness areas to identify Earth’s quietest places (those with no more than one human-source sound every 15 minutes).

- Therapists are booking sessions on nature trails.

- Doctors will check our time indoors and prescribe time in nature accordingly.

HEALTHY AT HOME

“Hospitals without walls” will blend inpatient care with community- and home-based care.

—Tina Wheeler, health care sector leader, Deloitte, LLP

(continued)

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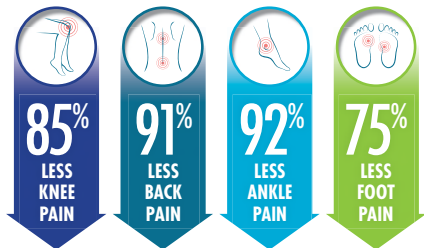
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BUZZWORDS

Email apnea: characterized by temporary stops in breathing while reading and responding to emails

PEOPLE ARE TALKING ABOUT . . .

- saunas that collapse to the size of a bookcase or are mobile chair/desk units for working on laptops
- bedside devices that play soothing sounds when they detect that we're restless

TAKE A BREATHER

Doctors will recognize lung capacity as a vital sign.

—Cindy Conlon, J.D., Ph.D.,
breathing instructor,
Northwestern University

MOODS, WELL-MANAGED

People are happier when:

- in parks
- near bodies of water
- hiking or walking with friends

—World Happiness Report



MONEY MATTERS

People are renegotiating salaries and changing jobs—or even careers.

—Lisa Hannam, executive editor, MoneySense

CUSTOMER RECOGNITION

In the future, stores will be identifying the customer at check-in rather than checkout.

—Euromonitor International's webinar "Commerce 2040: The Future of the Store in a Digital World"

SMART MONEY MOVES

- downloading data that Web sites have about you, then uploading it to sell elsewhere
- buying REITs (real estate investment trusts) with properties in your neighborhood

WORKERS WANT MORE

- Companies will be competing on who can offer the best lifestyle, not pay alone.

—Jason Feifer, editor in chief, Entrepreneur

In demand:

- flexible hours
- free childcare and education
- remote work

REPAIR IS ALL THE RAGE

Planned obsolescence is losing traction, and repair is climbing

(continued)

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The U.S. Mint Just Struck Morgan Silver Dollars for the First Time in 100 Years!

One of the most revered, most-collected, vintage U.S. Silver Dollars ever, the last Morgan Silver Dollar was last struck for circulation in 1921. Morgans, struck in 90% silver, were the preferred currency of cowboys, ranchers and outlaws and earned a reputation as the coin that built the Wild West.

Celebrating the 100th Anniversary with Legal-Tender Morgans

Honoring the 100th Anniversary of the last year they were minted, the U.S. Mint struck five different versions of Morgan Silver Dollars in 2021, paying tribute to each of the mints that struck the coin. The coins here honor the historic New Orleans Mint and feature an "O" privy mark, a small differentiating mark. They were minted at the Philadelphia Mint because the New Orleans Mint no longer exists. These beautiful coins are different than the originals because they're struck in 99.9%

fine silver instead of 90% silver, and they were struck using modern technology that enhances the details of the iconic design.

Very Limited. Sold Out at the Mint!

Production of these gorgeous coins was limited to just 175,000, a ridiculously low number. Not surprisingly, they sold out almost instantly! That means you need to hurry to add these bright, shiny, new legal-tender Morgan Silver Dollars with the New Orleans privy mark, struck in 99.9% PURE Silver, to your collection. Call 1-888-395-3219 to secure yours now. PLUS, you'll receive a BONUS American Collectors Pack, valued at \$25, FREE with your order. Call now. These will not last!

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the list of consumer priorities.

—WGSN (formerly Worth Global Style Network)

- Companies will be required to rate their products on repairability.
- Subscription services will offer ongoing appliance repairs for a set fee.
- Speakers and phones will have modular designs so that separate parts can be replaced.

TOMORROW'S ECONOMY

- Companies are realizing that the future of our economy lives in rural America.

—Rebekah Collinsworth, spokesperson, Center on Rural Innovation

BY THE NUMBERS

19% of U.S. adults have made financial decisions based on horoscopes.

53% aren't sure how much is in their bank account because they're afraid to check.

\$400: median amount that people are owed by friends or family



AROUND THE HOUSE

Architects are building homes with accessible design features—zero-step entry points, full bathrooms on the main floor, and wider doorways—to avoid renovations later.

—Kelly Martin, M.S., interior design lecturer, Auburn University

FUTURE HOMES

- “iceberg” houses with multilevel basements
- houses that rotate, for varying views
- removable roofs on houses (for adding floors later)

LET THE SUN SHINE IN

We want natural light in skylights, domes, peekaboo doors—for health and wellness and to seem spacious.

—Egypt Sherrod

Popular features . . .

- floor-to-ceiling windows
- oculus (round) windows in hallways
- patio doors that fold to open an entire wall
- glass wall dividers
- walls of windows in kitchens

TO MAKE AGING EASIER:

- Houses are being designed for three generations.

(continued)

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BUZZWORDS

Digital nomads: remote technology workers who move often and value independence

- Communities are hiring staff to introduce multi-generational residents to one another.
- Folks are helping older neighbors with chores and errands for reduced rent, while seniors, in turn, help with child care.

COMING OR HERE . . .

- electric trucks that power owners' homes during outages
- toilets that offer recipes based on an analysis of the user's diet

THE VALUE OF OLD

- We'll see second-hand furniture tagged with previous owners' stories: how they used pieces and why they gave them up.
- Bathrooms are going really retro, with authentic vintage toilet seats, tanks, and lids.

- Frayed rugs and old couches are being repaired (not replaced).

STYLE-SETTERS

In the kitchen . . .

- mismatched china patterns bought used
- mixed metal faucets, hardware, and light fixtures

In the bath . . .

- sound and light systems

- voice-operated tubs (you direct the water's depth and temperature)

In the bedroom . . .

- wallpapered closets

In the backyard . . .

- woodburning "smokeless" fire pits (that double as grills)
- vine-covered pergolas for privacy

OPEN HOUSES ARE BEING DIVIDED

Open floor plans have fallen out of favor; we are closing off with . . .

- curtains on ceiling tracks
- back-to-back bookshelves or a bookcase backed up to a dresser
- old doors, cut to fit floor-to-ceiling, as partitions
- barn doors in large rooms

—Anna Ruth Gatlin, Ph.D., interior design assistant professor, Auburn University

(continued)

BY THE NUMBERS

74% of

Americans worry about the smell of their homes.

76% of renters

would rather own homes.

2% of homeowners would rather rent.

1,000: minimum number of books for a "home library"

8 degrees F:

difference in temperature between surrounding air and a roof painted ultra-white (the paint absorbs almost no sunlight)



5th Generation Nitric Oxide Breakthrough Proven in Studies to Restore Maximum Blood Flow in Minutes

A newly improved version of America's best-selling male supplement gives older guys the results they enjoyed in their youth

America's best-selling male performance enhancer just got a lot better.

It's the latest breakthrough for nitric oxide – the molecule that makes pleasure possible by increasing blood flow where you need it most.

Nitric oxide (NO) won the Nobel Prize in 1998 for heart health, although it soon became clear NO was the key to satisfying sexual health for men.

And this new discovery increases nitric oxide availability resulting in even quicker, stronger and longer-lasting pleasure.

One double-blind, placebo-controlled study (the "gold-standard" of medical research) involved a group of 60-year-old men. Within minutes of their first dose, their blood flow measurably increased.

"It's amazing," remarks nitric oxide expert and regenerative medicine MD, Dr. Al Sears. "And it's encouraging for millions of men who are looking for support in the bedroom."

WHY SO MUCH EXCITEMENT?

Despite the staggering amount of money men spend annually on older nitric oxide therapies, there's one well-known problem with them.

They don't always work for everyone. Because if they're not bioavailable, your body can't absorb the nutrients that relax your blood vessels. And that can lead to disappointment and failed intimacy.

Until now, there's never been a reliable solution. But with over two decades of helping men with nitric oxide boosters, Dr. Al Sears discovered that a precise combination of nutrients and amino ac-

ids fix this "glitch," resulting in significantly stronger blood flow.

This led to his NEW "5th Generation" formula called **Primal Max Red**. Taken as a powder mixed in water or juice, **Primal Max Red** contains a huge 9,000 mg per serving. Far more than most other options. It's becoming so popular, it often goes on backorder.

Everyone who takes it reports a big difference. "I have the energy to perform three times in one day, WOW! That has not happened in years. Oh, by the way I am 62," says Jonathan K. from Birmingham, AL.

HOW IT WORKS

Loss of staying power starts with your blood vessels. Specifically, the inside layer called the endothelium where nitric oxide is made. Nitric oxide is required to expand the blood vessels when the opportunity strikes... This releases a potent rush of blood for satisfying nights and enhanced pleasure.

Here's the bad news. Nitric oxide levels start declining in your 30s. And by age 70, nitric oxide production can drop by as much as 75 percent. This makes supplementing with a reliable nitric oxide booster like **Primal Max Red** essential for every man, regardless of their current age.

There's not enough space here to fully explain how it works, so Dr. Sears will send anyone who orders **Primal Max Red** a free special report that provides all the details, plus tips on how to get the best results.

FREE BONUS TESTOSTERONE BOOSTER

Every order also gets Dr. Sears'



A new discovery that increases nitric oxide availability resulting in quicker, stronger and longer-lasting performance.

testosterone boosting formula **Primal Max Black** for free.

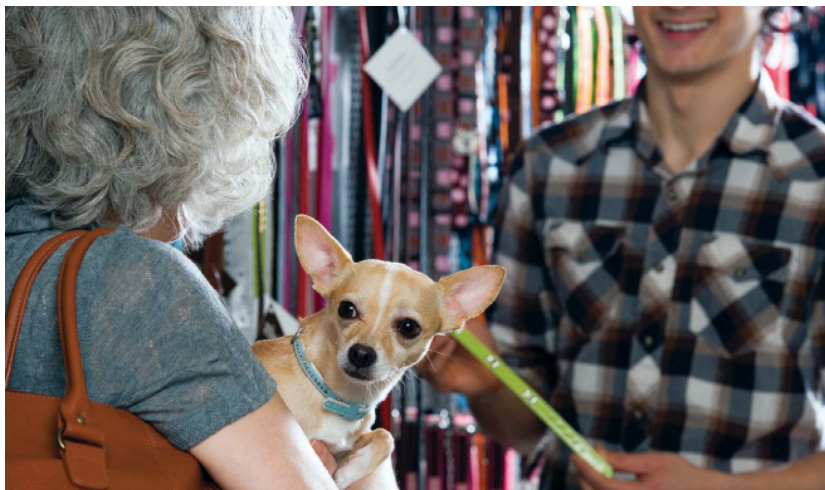
"If you want passionate pleasure, nitric oxide lets you rise to the occasion, and testosterone gives you the drive and stamina," says Dr. Sears. "You get both with **Primal Max Red** and **Primal Max Black**."

HOW TO GET PRIMAL MAX

To secure free bottles of **Primal Max Black** and get the hot, new **Primal Max Red** formula, buyers should contact the Sears Health Hotline at **1-800-906-4782 TODAY**. "It's not available in retail stores yet," says Dr. Sears. "The Hotline allows us to ship directly to the customer." Dr. Sears feels so strongly about **Primal Max**, all orders are backed by a 100% money-back guarantee. "Just send me back the bottle and any unused product within 90 days from purchase date, and I'll send you all your money back."

Call NOW at **1-800-906-4782** to secure your supply of **Primal Max Red** and free bottles of **Primal Max Black**. Use Promo Code **OFAPMX0822** when you call. Lines are frequently busy, but all calls will be answered!

THESE STATEMENTS HAVE NOT BEEN EVALUATED BY THE FOOD AND DRUG ADMINISTRATION. THIS PRODUCT IS NOT INTENDED TO DIAGNOSE, TREAT, CURE OR PREVENT ANY DISEASE. RESULTS MAY VARY



OUR ANIMAL FRIENDS

As regional pet specialty stores expand rapidly, big box stores are losing customers, often because of subpar customer service.

—Phillip Cooper, president, *PetIndustryExpert.com*

PEOPLE ARE TALKING ABOUT . . .

- insulated homes made from rubber tires for stray city cats
- pet food refill stations in stores: Shoppers bring reusable containers.
- canine treats that modify oral bacteria and combat bad breath with a minty smell for hours
- plant-based dog treats that taste and smell like real meat

BY THE NUMBERS

62% of pet owners say that a pet helps them to exercise.

83% of dogs and **17%** of cats have health insurance.

PET INDUSTRY UPDATE

- More pet firms are selling to consumers on their Web sites to increase profits and customer loyalty.

ALL IN THE FAMILY

- People want portable, adaptable, low-maintenance dog breeds.

—Brandi Munden, vice president of communications and public relations, American Kennel Club

- The American public will be going outside the dog and cat category when selecting a companion animal.

—Glenn A. Polyn, editor in chief, *Pet Age*

(continued)

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*Norway rats, roof rats and house mice may consume a lethal dose in a single night's feeding with first dead rats and mice appearing four or five days after feeding begins.
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From the landmark book *Grow Young* with HGH comes the most powerful, over-the-counter health supplement in the history of man. Human growth hormone was first discovered in 1920 and has long been thought by the medical community to be necessary only to stimulate the body to full adult size and therefore unnecessary past the age of 20. Recent studies, however, have overturned this notion completely, discovering instead that the natural decline of Human Growth Hormone (HGH), from ages 21 to 61 (the average age at which there is only a trace left in the body) and is the main reason why the body ages and fails to regenerate itself to its 25 year-old biological age.

Like a picked flower cut from the source,

we gradually wilt physically and mentally and become vulnerable to a host of degenerative diseases, that we simply weren't susceptible to in our early adult years.

Modern medical science now regards aging as a disease that is treatable and preventable and that "aging", the disease, is actually a compilation of various diseases and pathologies, from everything, like a rise in blood glucose and pressure to diabetes, skin wrinkling and so on. All of these aging symptoms can be stopped and rolled back by maintaining Growth Hormone levels in the blood at the same levels HGH existed in the blood when we were 25 years old.

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- **Normalizes blood pressure**
- Controlled mood swings
- Wrinkle disappearance
- Reverse many degenerative disease symptoms
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cell in the human body for HGH, so its regenerative and healing effects are very comprehensive.

Growth Hormone, first synthesized in 1985 under the Reagan Orphan drug act, to treat dwarfism, was quickly recognized to stop aging in its tracks and reverse it to a remarkable degree. Since then, only the lucky and the rich have had access to it at the cost of \$10,000 US per year.

The next big breakthrough was to come in 1997 when a group of doctors and scientists, developed an all-natural source product which would cause your own natural HGH to be released again and do all the remarkable things it did for you in your 20's. Now available to every adult for about the price of a coffee and donut a day.

GHR is now available in America, just in time for the aging Baby Boomers and everyone else from age 30 to 90 who doesn't want to age rapidly but would rather stay young, beautiful and healthy all of the time.

The new HGH releasers are winning converts from the synthetic HGH users as well, since GHR is just as effective, is oral instead of self-injectable and is very affordable.

GHR is a natural releaser, has no known side effects, unlike the synthetic version and has no known drug interactions. Progressive doctors admit that this is the direction medicine is seeking to go, to get the body to heal itself instead of employing drugs. GHR is truly a revolutionary paradigm shift in medicine and, like any modern leap frog advance, many others will be left in the dust holding their limited, or useless drugs and remedies.

It is now thought that HGH is so comprehensive in its healing and regenerative powers that it is today, where the computer indus-

try was twenty years ago, that it will displace so many prescription and non-prescription drugs and health remedies that it is staggering to think of.

The president of BIE Health Products stated in a recent interview, "I've been waiting for these products since the 70's. We knew they would come, if only we could stay healthy and live long enough to see them! If you want to stay on top of your game, physically and mentally as you age, this product is a boon, especially for the highly skilled professionals who have made large investments in their education, and experience. Also with the failure of Congress to honor our seniors with pharmaceutical coverage policy, it's more important than ever to take pro-active steps to safeguard your health. Continued use of GHR will make a radical difference in your health, HGH is particularly helpful to the elderly

who, given a choice, would rather stay independent in their own home, strong, healthy and alert enough to manage their own affairs, exercise and stay involved in their communities. Frank, age 85, walks two miles a day, plays golf, belongs to a dance club for seniors, had a girl friend again and doesn't need Vi-

agra, passed his driver's test and is hardly ever home when we call - GHR delivers."

HGH is known to relieve symptoms of Asthma, Angina, Chronic Fatigue, Constipation, Lower back pain and Sciatica, Cataracts and Macular Degeneration, Menopause, Fibromyalgia, Regular and Diabetic Neuropathy, Hepatitis, helps Kidney Dialysis and Heart and Stroke recovery.

For more information or to order call

877-849-4777

www.biehealth.ca



- Municipalities are changing codes to allow miniature goats as pets.

In-demand pets . . .

- small mammals—guinea pigs, hamsters, rabbits
- reptiles—bearded dragons, geckos, snakes
- birds

TOPS IN PET TOYS

- playthings made of firehose material
- chew toys with crannies for dabs of natural nut butters
- recyclable toys (returned for re-manufacturing)

PAMPERING FOR PAWS

- Doggy day care centers offer rubber floors to ease older pooches' joints.



- Hotels download a guest's pet photos from social media, display the pics in the guest's room, and offer maps to pet-friendly restaurants.

- Realtors appeal to dog owners with videos of a seller's dog "showing" the home—as well as local parks.

- Dating sites match like-minded pet owners ("Should pets sleep in an owner's bed?") or connect dogs with other canines in the area.



THE BEST PET TECH

- collars with sensors that open pet doors if the pet is near or alert vets if a pet is licking or scratching excessively

- video games through which players take over a doggy day care center and learn about caring for different breeds

PET AND PEOPLE PERKS

Pet owners will not only take better care of their pets but also expect the flexibility to live, work, travel, and spend more time with them.

—Steve Feldman, president, Human Animal Bond Research Institute

The trends . . .

- vests with metal spikes and Kevlar or nylon whiskers to prevent dogs from being carried away by coyotes or eagles

- companies that hire people to walk employees' dogs, reserve space for the dogs at meetings, and set up dog-free zones for allergy sufferers

(continued)



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(Time 12/1/86; Newsweek 1/12/87)

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♥ **Maggie (NY)** "When I have the Athena on, people will stop me and say 'oh my god, you smell so good.' The UPS man was the real clincher. For years this man would come in, nod hello and leave. But once I put on the 10:13 he walked in, stopped, turned around and stared. 'Has anyone told you you are so beautiful?'"

♥ **Dirk (FL)** "I wear 10X every day. I teach physics in the local high school, I was called into the principal's office. She said, 'You are affecting the women teachers. There is something about you... Can you tone it down?' It also didn't hurt the attention my wife gave me. I am enjoying it enormously."



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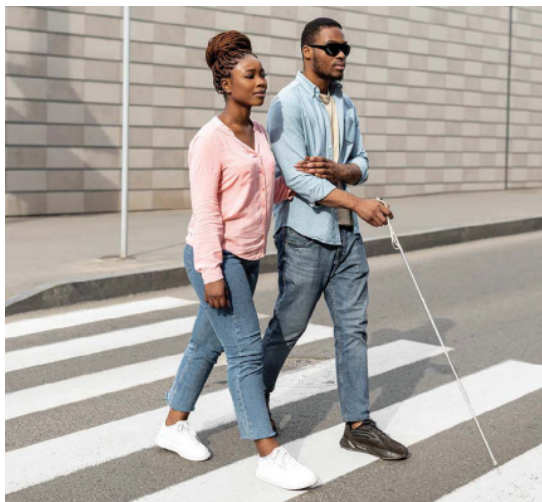
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CULTURE

Apps will pair vision-impaired people with sighted volunteers for assistance in getting around urban areas.

IT'S A TREE COUNTRY

- We're renting potted Christmas trees to be returned to the nursery after the holidays.
- Cities are mapping their trees' locations online, with weeding and watering times.
- App tools measure trees' rainwater over a month, and people commit to watering trees regularly.
- Scientists are mixing the DNA of ancient

giant sequoias and redwoods and planting the disease-resistant seeds.

- Municipalities are planting shade trees in yards at no charge if residents agree to water them.

WE'RE ON THE MOVE . . .

- in vintage hot rods and roadsters with electric power trains
- in older cars retrofitted with smart technology

- in electric campers that we maneuver remotely to change campsites or hitch up to a tow vehicle
- in vehicles that warn of items left behind or request that rubbish be removed

TECH FOR THE TIMES

- Autonomous autos drop passengers at a designated spot in a lot, then park elsewhere and return for them when needed.

BY THE NUMBERS

\$50 billion:

expected growth of air taxi market over the next 5 years

300 miles: range per charge of an all-electric pickup truck

79% of us want to work from elsewhere (not home or office)

10: online accounts the average American can not access, monthly, due to forgotten passwords

■ Robots are taught via photos to recognize cigarette butts and remove them from beaches.

On the horizon . . .

■ loud devices that will make waves to push toxic particles into the atmosphere and leave healthier air below

■ trucks that will store exhaust on board to offload later and/or store underground

■ speakers that will emit sound waves to block street noise from apartments

GROUP PROJECTS

■ Volunteers are collecting discarded glass bottles to be crushed into sand and used as construction material.

SMART IDEAS

■ signs on town benches that invite people to sit and chat

■ compilations of daily date-stamped 1-second videos, shot over months or years

■ hotel guest rooms used as workspaces during office hours



FASHION

Demand for all-natural eco-materials—from mushroom fabrics to pineapple leather—will spark new collaborations between farmers and fashion houses.

—Skyler Hubler, senior cultural strategist, TBWA\Worldwide

TODAY'S TRAPPINGS

■ paint-flecked vintage painters' overalls or clothes and shoes with newly splattered paint

■ workout garb with weights sewn into the fabric

■ hiking boots made from regenerative (recycled) leather or with outsoles that can be removed and recycled

BUZZWORDS

Farm-to-closet: clothing made by apparel companies that invest in regenerative farming

THE LOOKS FOR WOMEN

■ mismatched clothes: striped shirts with flowered pants or

(continued)



skirts and blouses with same-color polka dots

- bib overalls
- leather sandals, with cotton ankle socks

THE LOOKS FOR MEN

- Western: ornate cowboy boots, straight-cut jeans, snap-front shirts
- single-color outfits: pink, beige, crimson, or emerald



- cashmere baseball caps in navy, gray, or black

- black leggings with sport coats

SEW NICE CLOTHES, WITH . . .

- knitwear with scannable tags that tell the story of the sheep that produced the wool (e.g., when they were last shorn, whether they had lambs, etc.)

- “yo-yo” guarantees: the option to return jeans for a larger or smaller size in the future (the denim is resold or recycled)

- guaranteed repairs for the life of a garment

- compostable or water-soluble packaging

- on-demand manufacturing, with discounts for orders that can wait

SECOND ACTS

- new and used garments placed together in ads and on store racks

- used clothing sold by the pound

- secondhand clothing for sale on supermarket shelves

IN DEMAND BY ALL

- mosquito-proof fabrics
- flax and hemp cloth
- human hair “yarn” textiles ■

BY THE NUMBERS

31% of Americans never want to wear a button-down shirt or dress pants again.

10% would take a pay cut rather than have to get dressed for work every day.

60% think that we should know the materials used in a garment.

38% know the materials used in their garments.

23% repair their clothing.

\$51 billion: estimated value of secondhand clothing market in 2023 (up from **\$24 billion** in 2019)

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No previous medical experience required. Compare the money you can make!

Coders earn great money because they make a lot of money for the people they work for. Entering the correct codes on medical claims can mean the difference in thousands of dollars in profits for doctors, hospitals and clinics. Since each and every medical procedure must be coded, there's plenty of work available for well-trained Medical Coding Specialists.



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'TABASCO' PEPPERS
RATE BETWEEN 30,000
AND 50,000 ON THE
SCOVILLE SCALE OF
HEAT LEVELS.



TURN UP THE HEAT!

BY DANISE COON

Chile peppers span centuries and cultures. They originated as small, round, berrylike fruit on wild vining plants in the Amazon rain forest between Bolivia and Brazil thousands of years ago. Indigenous peoples gathered and later cultivated the peppers, and birds helped to disperse the seeds. Through natural and human selection, every size, shape, and color of chile that we enjoy today originated from these tiny, very hot fruit.

(continued)

GARDENING



HOT STUFF FIVE WAYS

There are five species of domesticated chiles:

- *Capsicum annum* houses most of the more commonly used peppers, including bell. Most peppers are sweet or hot, the latter being the type that produce capsaicin. Bell peppers do not produce capsaicin and thus are considered sweet.

Also in this group are the serrano, cherry, jalapeño, and famous New Mexican-type pepper known by many

DID YOU KNOW?

Store-bought pepperoni and other red meats, makeup, fish and canary foods, and many other products contain the natural coloring agent extracted from red chiles. If you use patches or cream to relieve muscle aches, you'll find that their effective ingredient is likely to be capsaicin extracted from chiles.

as the Hatch chile, not to be confused with its Anaheim counterpart.

These two names—Hatch and Anaheim—are almost misnomers in the world of chiles. “Hatch” pepper is not an actual variety; varieties such as ‘NuMex Big Jim’, ‘NuMex Sandia’ (“NuMex” indicates that the fruit is a hybrid), and ‘New Mexico 6-4’ are grown in New Mexico’s Hatch Valley. The Anaheim pepper, grown in Anaheim, California, is another type of New



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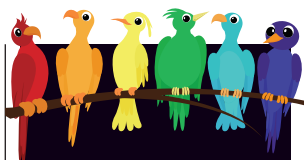
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GARDENING

Mexican pepper. A farmer named Emilio Ortega is credited with having brought seeds from the New Mexican pepper to Anaheim, where it thrived. After years of cultivation in this area, it has become its own variety.

- *C. chinense* includes some of the hottest chiles in the world, including the habanero and the Scotch bonnet, as well as ‘Trinidad Moruga Scorpion’ and ‘Bhut Jolokia’; the last two are known as “superhots,” with Scoville Heat Unit counts above 1 million. (The Scoville Heat Unit is a measurement on the eponymous scale invented by a chemist named Wilbur Scoville. The higher the number of Scoville Heat Units assigned, the hotter the pepper is. Today, liquid chromatography is used to detect molecules of



NATURE'S SEED-SAVERS

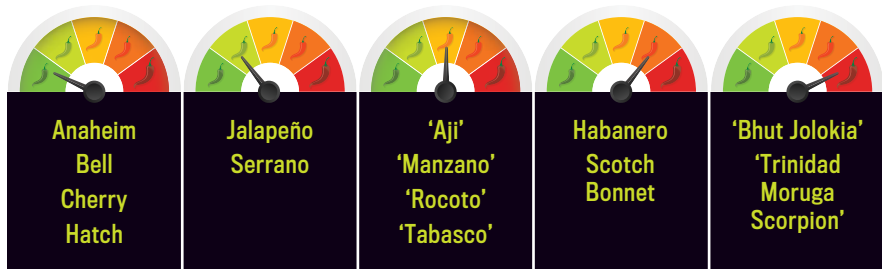
Birds are the natural disseminators of chiles. Unlike mammals, birds do not have receptors in their mouths or on their tongue to feel the burn from capsaicin. Birds can eat a lot of very hot chiles and pass the seeds intact through their digestive systems; mammals' digestive systems crush the seed and its embryo. Scientists believe that capsaicin—the alkaloid that gives chiles their distinctive heat—evolved in chiles to keep mammals from eating them.

capsaicin and give each type of chile its own measurement value.)

- *C. baccatum* includes the ‘Aji’, which is mainly grown and used in South America.
- ‘Tabasco’ peppers, from which Tabasco sauce is made, are *C. frutescens*.
- *C. pubescens* includes the ‘Rocoto’ and ‘Manzano’, both stuffing peppers used mainly in Peru and Chile.

GROWING HOT OR HOTTER

Chiles are relatively easy to grow and can thrive in most hardiness zones. However, gardeners in Zones 1a through 3b and most of Canada should start seedlings indoors to allow from 120 to 150 days to harvest for most *C. annuum* and 150 to 180 days for most *C. chinense*; the growing times for all



other species of chiles fall in between 120 and 180 days.

Most *C. annuum* seeds will germinate in 10 to 14 days in a fine seedling mix that is kept moist (not soggy). *C. chinense* typically needs 16 to 28 days to germinate. Using bottom heat can reduce germination time for all chile seeds.

Most varieties of chile peppers can be grown in full sun in raised beds, directly in ground, or in pots. Use well-draining soil that is high in organic matter and has a neutral pH. (It is difficult to grow chiles in clay soil, which must be amended for success.) Apply a well-balanced fertilizer every 2 weeks during the active growing season. Chiles prefer moist soil that is allowed to dry slightly between waterings; the roots of chile plants can not tolerate wet or soggy conditions.

Harvest chiles at the ripe green stage or the fully ripe stage, which can be red, yellow, orange, brown, white, or any shade in between.

Freshly harvested chiles can be used raw in salads, stews, soups, or sauces, except for the long, green, New Mexican chiles, which must be roasted so that their thick outer skin can be peeled off. (This roasting process is a cultural event in New Mexico that runs from mid-August through September, during the green chile harvest season.) Chiles can be used fresh or dried.



CHILE PEPPER RISTRA

WELCOME SIGNS

In New Mexico, dried, red, New Mexican-type chiles are used to make the iconic *ristra* that many people hang on their front door as a “Welcome” sign or in the kitchen to be used in cooking or for decoration.

To make a *ristra*, use string to tie together clusters of three to five red, ripe (not dried), New Mexican-type chiles with the stem on. Tie each cluster to a 3- to 4-foot double strand of string. Continue tying peppers together in clusters and then onto the string, being sure to keep a little space between the clusters, until you have reached the desired length. It takes about 130 to 150 chiles to make a 2½-foot *ristra*. ■

Danise Coon is a native New Mexican and research associate for the New Mexico State University Extension Plant Sciences Department. She has more than 20 years of experience in chile pepper science and has helped to develop more than a dozen varieties of chiles for home gardeners and high-scale production.

THE OLD FARMER'S GUIDE TO

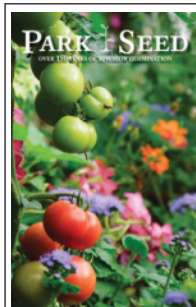
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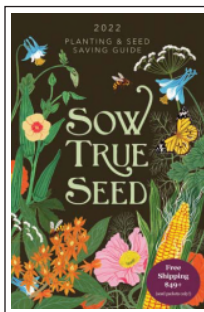


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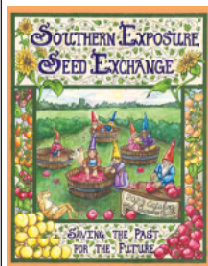


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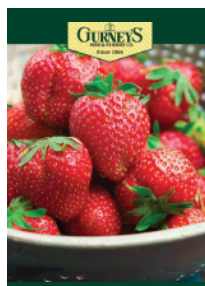
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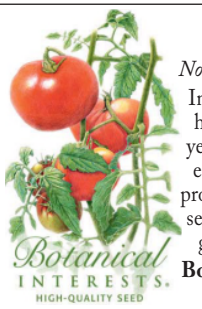
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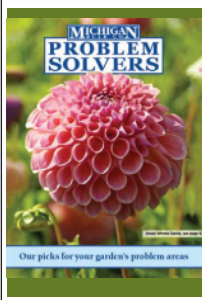


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BY
DOREEN G.
HOWARDWITH
ALMANAC
EDITORS

PERENNIALS

HOW TO ENJOY CAREFREE, LONG-LASTING
COLOR UNDER MOST CLIMATIC
CONDITIONS IN THE U.S. AND CANADA

When you plant a flowering perennial, you expect it to perform magnificently year after year, with little or no attention, right? But will it? Maybe. Put that plant in a climate that it doesn't like—and watch out! It is liable to become finicky and attract diseases, refuse to flower, or even rot in the ground. Here's why: Local soil, temperature range, and rainfall can make or break a perennial. As you plan your garden, take note of the climatic conditions in your area and seek native or adapted flowers.

The areas here are based broadly on our weather regions; gardeners in Alaska and Hawaii may find options for micro-climatic conditions. Also, consider your immediate vicinity. To learn about new varieties developed to withstand the rigors of your climate, visit your local garden center.

The plants listed are chosen for long bloom, cutting, beauty, color en masse, or ease of growing; some fit more than one category. *(continued)*

WHEN PERENNIALS BECOME ESTABLISHED, MAINTENANCE IS MINIMAL: A LITTLE FERTILIZER ONCE OR TWICE A YEAR, AN OCCASIONAL PRUNING, AND THINNING EVERY COUPLE OF YEARS.



1 NEW ENGLAND ASTER

5 OBEDIENT PLANT





2 BUTTERFLY WEED



3 JOE PYE WEED



4 RUSSIAN SAGE

6 DELPHINIUM



7 CUTLEAF CONEFLOWER



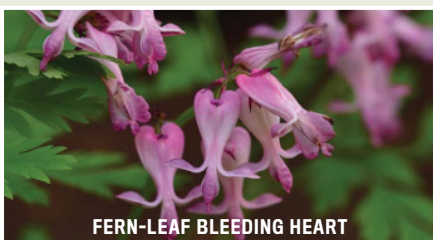
8 WOOD LILY



1. THE NORTHEAST

Gardeners in New England, the Upper Great Lakes, and eastern Canada experience a range of weather extremes. Winters are cold and summers are cool to warm, so cold tolerance is a must. Gardeners are advised to pay close attention to zone recommendations; if a plant is borderline, it probably won't make it. More reliable are tough native perennials or plants that originated in cold climates or perennials that have deep or spreading root systems; these can regenerate from root bits that don't die in deep freezes.

- 'Purple Dome' New England aster* (*Symphotrichum novae-angliae*)
- Fern-leaf bleeding heart* (*Dicentra eximia*)
- Garden phlox*: pink, purple, and white (*Phlox paniculata*)
- Musk mallow (*Malva moschata*)



2. THE MID-ATLANTIC/OHIO VALLEY

Throughout this area, native perennials such as black-eyed Susan stretch endlessly across fields. Savvy gardeners fill their perennial beds with these; some display them proudly on their vehicles: In Virginia, some auto license plates feature native flowers.

- Butterfly weed* (*Asclepias tuberosa*)
 - Ox eye daisy (*Leucanthemum vulgare*)
 - Black-eyed Susan* (*Rudbeckia hirta*)
 - Purple Mexican sage (*Salvia leucantha*)
- (continued)

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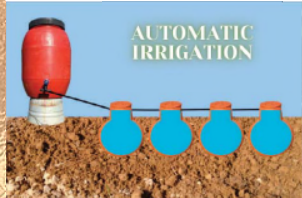
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3. THE DEEP SOUTH

Gardeners in this area have to contend with mild winters, which is problematic for many perennials because most of them require a few months of dormancy. Perennials can look different in the South: The plants are small—the heat beats them down—and they tend to be shorter than they might be elsewhere. The bloom period is short, too—with luck, about 1 to 2 weeks.

- Joe Pye weed* (*Eutrochium purpureum*)
- Lenten rose (*Helleborus orientalis*)
- Swamp sunflower* (*Helianthus angustifolius*)
- ‘Honorine Jobert’ Japanese anemone (*Anemone x hybrida*)

4. THE MIDWEST/GREAT PLAINS/PRAIRIES

The Midwest and contiguous areas north into Canada are famous for arctic winds in January and withering heat waves in July. Plants have to be both cold- and heat-tolerant or be protected. Many gardeners use their house as a thermal sink (absorbing heat during the day and radiating it back to the plants at night). To survive the severe winters, perennials must be heavily mulched with porous materials such as hay or evergreen boughs. This shields the plants and soil from the sun, prevents ground thaw, and allows air circulation. In the summer, mulch with denser materials, such as shredded leaves or wood chips, to cool the soil and prevent evaporation. Put heat-sensitive perennials in beds that receive afternoon shade.

- Russian sage (*Perovskia atriplicifolia*)
- ‘Magnus’ purple coneflower* (*Echinacea purpurea*)
- ‘Autumn Joy’ sedum (*Hylotelephium* [aka *Sedum*] *spectabile*)
- Perennial sweet pea (*Lathyrus latifolius*)

(continued)



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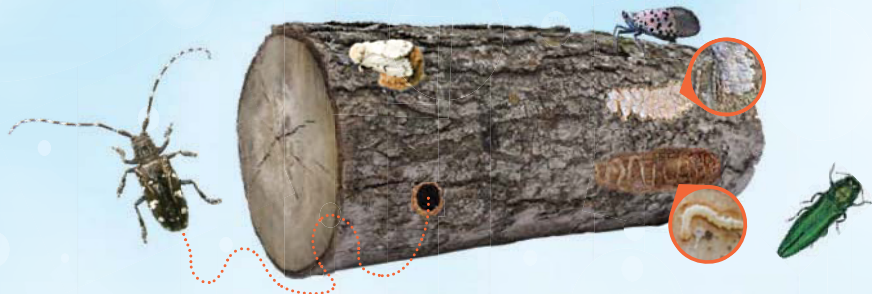
Pests like the invasive emerald ash borer can hitchhike in your firewood. You can prevent the spread of these damaging insects and diseases by following these firewood tips:

- ▶ Buy locally harvested firewood at or near your destination.
- ▶ Buy certified heat-treated firewood ahead of time, if available.
- ▶ Gather firewood on site when permitted.

What might be in your **firewood**?

SPONGY MOTH* is a devastating pest of oaks and other trees. Moths lay tan patches of eggs on firewood, campers, vehicles, patio furniture — anything outside! When these items are moved to new areas, this pest gets a free ride.

SPOTTED LANTERNFLY sucks sap from dozens of tree and plant species. This pest loves tree-of-heaven but will feed on black walnut, white oak, sycamore, and grape. Like the spongy moth, this pest lays clusters of eggs on just about any dry surface, from landscaping stone to firewood!



ASIAN LONGHORNED BEETLE will tunnel through, and destroy, over 20 species of trees — especially maple trees. The larvae of this beetle bore into tree branches and trunks, making it an easy pest to accidentally transport in firewood.

EMERALD ASH BORER — the infamous killer of ash trees — is found in forests and city trees across much of the eastern and central United States. This insect is notoriously good at hitching rides in infested firewood. Don't give this tree-killing bug a ride to a new forest, or a new state!

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This graphic is for illustrative purposes only. Many of these pests will only infest certain types of trees, making it very unlikely for a single log to contain all species as shown.

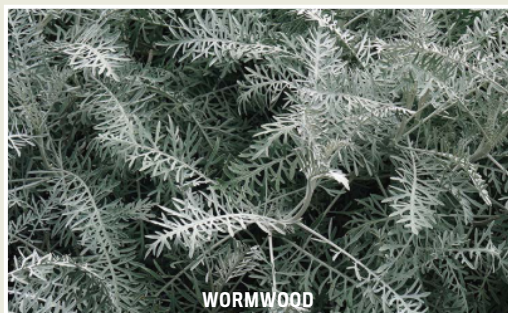
Visit dontmovefirewood.org for more information.

*Spongy moth was formerly named "gypsy moth"

*Indicates a native plant.

BEARDED
IRIS

YARROW



WORMWOOD

5. TEXAS/OKLAHOMA

This area's temperate spring sometimes stretches into June, when extreme heat then overtakes the summer months. To cool the soil, many gardeners top all of their beds with plenty of mulch in the belief that any perennial does better with it. Heat-resistant varieties and native plants that thrive in hot, dry areas are recommended.

- Obedient plant* (*Physostegia virginiana*)
- German bearded iris (*Iris germanica*)
- 'Paprika' yarrow (*Achillea millefolium*)
- 'Powis Castle' wormwood (*Artemisia arborescens*)

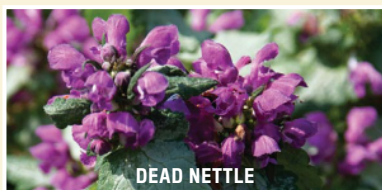
6. THE ROCKY MOUNTAINS

The weather in the mountains is nearly perfect for many perennials, with warm days and cool nights in the summer. Note: *nearly* perfect. The growing seasons in Vail, Colorado, and Banff, Alberta, for example, are both only about 90 days, on average—although not the same days. The first fall freeze comes to Vail around September 5; Banff's first freeze arrives around August 19. Beware of plants that promise early- and late-season color.

- 'Magic Fountains' delphinium (*Delphinium elatum*)
 - Iceland poppy (*Papaver nudicaule*)
 - Colorado columbine* (*Aquilegia caerulea*)
 - 'Lami Dark Purple' dead nettle (*Lamium maculatum*)
- (continued)



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COLUMBINE

DEAD NETTLE

CoQ10's Failure Leaves Millions Wanting

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Millions of Americans take the supplement known as CoQ10. It's the "jet fuel" that supercharges your cells' power generators, known as mitochondria.

As you age, you have fewer mitochondria than you did when you were young. In fact, by age 67, you have just 20% of the mitochondria you had at age 25. But if you're taking CoQ10, there's something important you should know.

As powerful as CoQ10 is, there is a critical thing it fails to do... It can't create new mitochondria to replace the ones you lost.

Taking CoQ10 is not enough

"There's a little-known NASA nutrient that multiplies the number of new power generators in your cells by up to 55%," says Dr. Al Sears, medical director of the Sears Institute for Anti-Aging Medicine in Royal Palm Beach, Florida. "Science once thought this was impossible. But now you can maintain a youthful brain and body again."

"I tell my patients the most important thing I can do is increase their 'health span.' This is the length of time you can live with all your youthful abilities and faculties intact."

Multiply the "Power Generators" in Your Cells

Dr. Sears recently released an energy-supporting supplement based on this NASA nutrient that has become so popular, he's having trouble keeping it in stock.

Dr. Sears is the author of over 500 scientific papers on anti-aging and recently spoke at the Palm Beach Health & Wellness Festival featuring Dr. Oz and special guest Suzanne Somers. Thousands of people listened to Dr. Sears speak on his anti-aging breakthroughs and attended his book signing at the event.

Medical professionals as well as the general public were astonished to hear about the newly discovered nutrient that multiplies mitochondria... Shattering the limitations of traditional CoQ10 supplements.

Why Mitochondria Matter

A single cell in your body can con-

tain between 200 to 2,000 mitochondria on average, with the "energy hungry" organs like the heart and brain having hundreds of thousands. These metabolically active organs are the first to feel threatened when mitochondria decline.

But because of natural aging, stress, and poor diet, these power generators produce less and less energy over time. In fact, the Mitochondria Research Society reports 50 million U.S. adults notice more intense, age-related changes because of aging mitochondria.

Common ailments often associated with aging — like memory loss, declining vision, and fatigue — can all be connected to a decrease in mitochondria.

Birth of New Mitochondria

Dr. Sears combined the most powerful form of CoQ10 available — called ubiquinol — with a unique, newly discovered natural compound called PQQ that has the remarkable ability to grow new mitochondria. Together, the two powerhouses are now available in a supplement called **Ultra Accel II**.

Discovered by a NASA probe in space dust, PQQ (Pyrroloquinoline quinone) stimulates something called "mitochondrial biogenesis" — a unique process that actually boosts the number of healthy mitochondria in your cells.

In a study published in the Journal of Nutrition, mice fed PQQ grew a staggering number of new mitochondria, showing an increase of more than 55% in just eight weeks.

The mice with the strongest mitochondria showed few signs of aging — even when they were the equivalent of 80 years old.

Science Stands Behind the Power of PQQ

Biochemical Pharmacology reports that PQQ is up to 5,000 times more efficient in sustaining energy production than common antioxidants.

"With the PQQ in **Ultra Accel II**, I have energy I never thought possible at my age," says Colleen R., one of Dr. Sears' patients. "I am in my 70s but feel



NASA-discovered nutrient is stunning the medical world by activating more youthful energy, vitality and health than CoQ10.

40 again. I think clearly, move with real energy and sleep like a baby."

The demand for this supplement is so high, Dr. Sears is having trouble keeping it in stock. "My patients tell me they feel better than they have in years. This is ideal for people who are feeling or looking old and run down... or for those who are tired or growing more forgetful. It surprises many you can support a long and robust health span simply by adding this simple routine of taking **Ultra Accel II** every day."

"The most rewarding aspect of practicing medicine is watching my patients get the joy back in their lives. **Ultra Accel II** sends a wake-up call to every cell in their bodies... And they actually feel young again."

How to Get Ultra Accel

To secure the hot, new **Ultra Accel** formula, buyers should contact the Sears Health Hotline at **1-800-714-0700 TODAY**. "It's not available in retail stores yet," says Dr. Sears. "The Hotline allows us to ship directly to the customer." Dr. Sears feels so strongly about **Ultra Accel**, all orders are backed by a 100% money-back guarantee. "Just send me back the bottle and any unused product within 90 days from purchase date, and I'll send you all your money back."

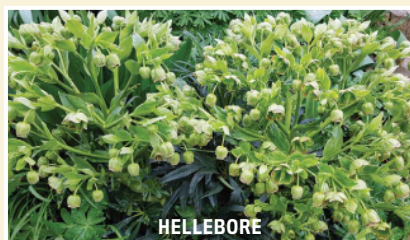
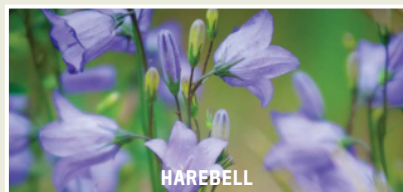
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7 THE SOUTHWEST

Here plants have to survive with little or no water and live in the adobe clay of coastal areas or thin sandy soil of interior deserts. Instead of arguing with the land, gardeners are advised to make peace with it by planting only what will grow easily. Any plant that doesn't need rich, amended soil or abundant water will thrive in the hot, dry Southwest. Look for perennials labeled "Xeriscape" or "native."

- Cutleaf coneflower* (*Rudbeckia laciniata*)
- Blanket flower* (*Gaillardia pinnatifida*)
- Bee balm* (*Monarda*)
- Harebell* (*Campanula rotundifolia*)



8 THE NORTHWEST

Plants bloom 2 to 3 weeks longer in the Pacific Northwest than they do elsewhere—but they also tend to suffer from too much rain in winter. Gardeners here lose more plants to root rot than to winter cold. One solution is to create mini-berms on which to plant: Spread a 12- to 18-inch-thick layer of sand on the ground and top it with another 12 inches of garden soil. With the improved drainage, your perennials should be about 20 percent larger than normal. Given that outcome, allow more space between plants than is recommended because they get much bigger.

- Wood lily* (*Lilium philadelphicum*)
- Hellebore (*Helleborus foetidus*)
- 'Barnsley' tree mallow (*Lavatera thuringiaca*)
- Orange sedge (*Carex flagellifera*) ■

Doreen G. Howard, who gardened in nearly every climate zone in the United States, was a frequent contributor to Almanac publications.



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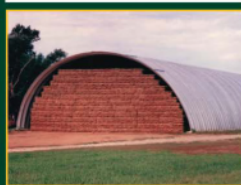


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The MYTH and MYSTERY of MISTLETOE

Or, would you stand under a “dung twig”?

BY KAREN BERTELSEN • ILLUSTRATIONS BY TIM ROBINSON

Twinkling lights, poinsettias, and shortbread cookies are all Christmas traditions that are welcomed with open arms and mouths in my house. On the other hand, mistletoe—the Spin-the-Bottle of the greenery world—has never once hung from any of my doorways. I will squash several full-size pine trees into my home (which is quite an accomplishment when you consider that I do not in fact live in a national park), and I bake enough gingerbread to build entire villages. I watch Hallmark

holiday movies until I’m convinced that I will one day meet a lawyer-turned-rancher who has a side hobby of making artisan Christmas ornaments out of wood that he carved from the tree planted by his now-deceased parents.

But I don’t hang mistletoe. The lovely traditions with which so many of us grew up have their evergreen-scented roots in the Victorian era. The 1800s brought us Christmas trees and popularized turkey dinners, caroling, and hanging poop on a stick in doorways. This poop stick is what we now know as mistletoe.

The history of mistletoe goes all the way back to Greek and Norse mythology, with a lengthy stay in paganism before seeping into Christianity. In fact, the bubbling cauldron of exaggerations, myths, and misleading information surrounding mistletoe goes so far back that I’m afraid I’m going to have to stick with the boring facts as I tell the tale of this festive foliage.

THE NAME

In the early Middle Ages, when the Old English language was just becoming popular, a lot of stuff had to get named—like, everything



FOLKLORE

in the world had to be assigned a word. It took me 2 months to name my cat, so I'm having a really hard time imagining the undertaking of naming every single thing in existence.

Whoever got put in charge of naming mistletoe decided to name it based on the way it grows. It was widely believed that mistletoe was planted by birds who ate its berries and then pooped them out onto tree branches, which is where mistletoe grows—on trees. So, the guy naming mistletoe called it “misteltan,” which gets its meaning from the Anglo-Saxon words *mistel* (meaning dung) and *tan* (meaning twig). This, of course, translates to “dung twig,” and since nothing says “let’s make out” more than poop sticks, the tradition of kissing under mistletoe was born.

THE KISSING

The custom of kissing beneath the mistletoe first became popular among the serving class in England before it was adopted by the upper class. Actually—you



know what?—let me rephrase that: It was popular among the men in both classes. The women, I'm sure, would have preferred to eat their own hair than stand anywhere near the mistletoe. First of all, they'd probably already endured a really long day of avoiding unwanted kissing, and, second of all, according to the “rules,” anywhere mistletoe was hung, a man was given the privilege of kissing any woman he wanted to. Lest you think that it

seems like the privilege was a teensy bit off balance in this scenario, you can take comfort in knowing that the woman was given the privilege of saying no. But if she did so, it was said that she would endure a lifetime of bad luck, not marry within that year, and essentially set herself up to be a warty spinster till the end.

THE PLANT

This plant that we've all come to know as the symbol of love, fertility, and smooches (you know, the



If you end up under the mistletoe in Europe, be sure to keep your lips closed and have handy a medical kit stocked with all of your basic poison antidote essentials.

poop twig) is a real-life horror show. The plant is so terrifying that we should really be associating it with Halloween or the scariest holiday of them all—Black Friday.

There are more than 1,300 species of mistletoe that grow on every continent other than Antarctica, but that's not the scary part. The real problem is that the mistletoe species that we associate with kissing is a parasitic

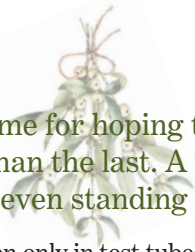
or semi-parasitic plant that germinates on tree branches before attaching itself to the circulatory system of its host and sucking the life out of it. Merry Christmas.

You might be wondering how those seeds really get on the branches to germinate. Many of them do in fact land there after being pooped out by birds that have eaten mistletoe berries, but certain mistletoe

species have another way of seed-spreading. When the moment is right and their seeds are ready, these mistletoes will projectile-vomit their seeds at almost 60 miles per hour across the landscape, infecting whatever tree might happen to be in their path.

THE POISON

Oh. And if you're in Europe, it's poisonous. Therefore, if you do



The holidays are a time for hoping that the next year will be as good or better than the last. A time for happiness and family and, yes, maybe even standing under the mistletoe.

willingly end up under the mistletoe, be sure to keep your lips closed and have handy a medical kit stocked with all of your basic poison antidote essentials. The American variety of mistletoe might give you a little stomach distress, but that's about it.

BUT WAIT!

Ready for this seemingly unredeemable plant to parasitically attach itself to that spot in your heart reserved for love? Mistletoe can kill cancer cells. This has been

proven only in test tubes, but doctors have been prescribing mistletoe extract for cancer patients in the United Kingdom and elsewhere in Europe for decades. Mistletoe's potential for killing cancer has been the subject of study in a clinical trial at Johns Hopkins University. This remedy hasn't been approved by the U.S. Food and Drug Administration or even 100% proven in patients, but it offers hope.

And the holidays are a time for hope. A time

for hoping that the next year will be as good or better than the last. A time for happiness and family and, yes, maybe even standing under the mistletoe. Doing so may not be for just anyone, you understand, but if that lawyer/rancher happens to be walking down the hall with a wooden ornament in his hands, for instance . . . well, this might not be such a bad tradition after all. ■

Karen Bertelsen of Hamilton, Ontario, is the founder of the lifestyle blog *The Art of Doing Stuff*.

Facts and Lore

- There are more than 1,300 species of mistletoe in the world. Dwarf species are native to the western United States and Canada.
- Birds that consume (and excrete) mistletoe berries include cedar waxwings, American robins, hermit thrushes, mourning doves, and eastern bluebirds.
- The great purple, thicket, and Johnson's hairstreak butterflies live in and on mistletoe.
- Norse (ancient Scandinavian) mythology holds that the plant symbolizes love and that no harm should come to those who stand underneath it.
- Ancient Druids (Celtic cultures) hung mistletoe over doorways to ward off evil spirits

- during winter solstice festivities.
- American writer Washington Irving (1783–1859) popularized the European custom of kissing under the mistletoe among early Americans by referring to it in his short story "Christmas Eve" in 1820.
- Most mistletoe species will thrive on almost any deciduous tree, but they flourish on the soft wood of old apple trees.
- The branches of mature parasitic mistletoe growing on a tree can sometimes take the shape of a basket as much as 5 feet wide and up to 50 pounds in weight. Such an infestation, sometimes called a "witch's broom," can kill its host tree. —K. B.

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WHY BIRDS FEATHER THEIR NESTS

... AND OTHER SECRETS OF AVIAN ABODES

BY KATHERINE SWARTS

Believe it or not, birds do not live in nests as people live in houses. Most wild birds do not have permanent homes: They move around as suits their situation. Nests are built not as long-term homes but as nurseries where eggs and babies stay until the young birds can survive in the open.

Except for egg-incubating parents and families with nestlings, birds rarely sleep in their nests, either; in fact, few songbirds return to a nest after the young can fly. (One reason: The “nursery” can accumulate excessive wear and tear. Some birds, such as mourning doves, build flimsy nests that barely hold together for the 3-week incubate-and-brood period.) A few larger species do reuse nests, but only during actual nesting seasons, returning year after year to build fresh “egg sections” on top. Some bald eagle

Hummingbirds
blend their nest
with tree branches
by weaving in
natural objects.



nests “grow” for over 30 years and reach 8 feet in diameter!

At bedtime, birds go to roosts—whatever safe, comfortable places they can find, whether this means a well-sheltered tree branch or a cozy hole under an eave. Whether they’re nesting or roosting, birds know how to select and furnish a place for their survival.

**PROTECTION
AGAINST PREDATION**

Especially with eggs or helpless young in the nest, birds are constant targets for predators, from larger birds to climbing snakes to domestic cats. To outsmart these enemies, birds rely on two tactics: camouflage and making a nest difficult to reach.

- Hummingbirds’ nests are woven from natural objects to blend in with tree branches. Common materials include lichens, leaf scraps, and “thread” plucked from spider webs (which also lets the nest stretch as the young grow).

- Cactus wrens are well named: The sharp-spined cholla cactus that they favor for nest locations discourages predators from investigating too closely. These birds build empty “dummy” nests in addition to their real ones, banking on predators being unable to locate them among the decoys.

- Flycatchers weave snakeskin (or discarded snakeskin-like plastic strips) into their nests, a practice that has a scarecrow-like effect against squirrels and other nest raiders.

- Many seabirds lay pear-shape eggs on cliffs where few predators can climb. The eggs’ shape keeps them from rolling off the cliff. Thousands of birds will nest within wing’s-reach of each



Cactus wrens build nests in the sharp-spined cholla cactus to discourage predators.



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other for a safety-in-numbers effect (many species that nest near beaches or wetlands gather in similar loose-flock arrangements).

A big, tough neighbor also discourages predators from trying a nest raid. House sparrows are known to slip their nests between the twigs in bald eagle nests; black-chinned hummingbirds nest near Cooper's hawks; snow geese in Canada will choose sites in a snowy owl's territory; egrets in southern wetlands build nests above alligator ponds to keep egg-eating raccoons away. The best "guard neighbors" are either too big to be interested in a comparatively tiny nest or (as with nonclimbing alligators) unable to reach the nest themselves.

Black-necked stilts (small, long-legged, wetland birds) will fake an "incubation pose" to decoy predators from their real nest locations.

To avoid being "followed home," many birds vary the routes by which they



Royal terns nest within wing's-reach of each other for protection.

approach their nests and roosts. Before entering a tree hole or nest box, they often perch on the entrance to check inside from a safe fly-away position.

PROTECTION AGAINST WEATHER

Heat waves, cold snaps, and high water cause problems for birds just as for humans. Feathers are naturally weather-resistant, so much of a bird's protection depends on

simply staying clean and well groomed. For nesting and roosting, they have other tricks.

- Loons, grebes, and coots, which nest in wetlands, build "floating nests" of aquatic vegetation as insurance against flooding. As it decays, the vegetation also generates extra warmth for the nest.
- Canada jays, a boreal forest species, situate their nests for southern exposure to ensure extra sunlight and warmth in the

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NATURE

chilly Canada–Alaska climate.

Nestling songbirds hatch with their insulating feathers yet to grow, so parents line the nest with warm materials, including their own feathers and feathers from other birds. Some “plucky” species will actually pull insulating fur from dogs and other animals.

Tufted titmice are notorious for doing this.

On frigid nights, birds snuggle into old nest holes or whatever warm spots they can find, often piling into groups for extra insulation.

Like most animals (and humans), birds spend a lot of time resting in the shade (preferably near a cool water

dip) on very hot days.

Thanks to a natural “locking tendon” in their legs and feet, perching birds can stay on branches during strong winds (and even in their sleep) without much effort.

When the weather turns extreme, birds head for thick vegetation, sheltered tree cavities, or any available port—as did the Cooper’s hawk that a Houston taxi driver found crouched in his cab during Hurricane Harvey in 2017.

PROTECTION IN URBAN ENVIRONS

Birds excel in nesting and roosting for survival not just in wild settings. Many species have mastered the art of living near humans.

- Wrens are famous for their nesting ingenuity. They like tree holes and nest boxes but have been found incubating in door wreaths, on car bumpers, and in the pockets of coats left hanging outside.
- Barn swallows frequently nest under



Wetland nesters like grebes build “floating nests” of aquatic vegetation as insurance against flooding.

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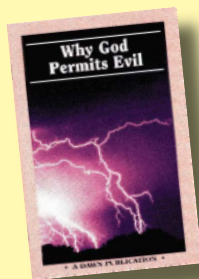
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the eaves of human-occupied buildings. (I once witnessed a pair feeding their young over a ticket booth at SeaWorld San Antonio.) They seem to sense that humans will indulge them while also scaring predators away.

- Purple martins, the largest swallows in North America, have practically abandoned

wild nesting, opting for colonies based in nest boxes. Other colony-nesting swallows attach mud nests under traffic overpasses in enormous numbers, oblivious to the cars and trucks roaring overhead.

- Peregrine falcons and red-tailed hawks have been highly successful in using skyscraper ledges as nest sites.

Many birds weave human discards—paper, candy wrappers, twine—into their nests. House finches have even been observed pulling wires from window screens. ■

Katherine Swarts is a longtime birder and a resident of Houston, Texas—home to nesting and roosting birds from purple martins to robins, from cardinals to bald eagles.

PROTECTION THAT YOU CAN PROVIDE

Regardless of whether they typically live near us, birds appreciate our help with their safe quarters. Here's what you can do.

- If there are old trees in your yard, leave them standing unless they are a genuine safety hazard. Birds love them for nesting holes, perches, and edible-insect attractors.



A HOUSE WREN PREPPING A NEST BOX

- Buy or build nest boxes. Read the instructions carefully: Small differences in size and positioning can make big differences in whether birds use a box.
- Plant native flora on your property, including adequate cover for songbirds hiding from predators. Add a running water feature for additional bird-attraction value.

- Resist the temptation to keep

souvenirs when cleaning out boxes after nesting season. There are bird-protection laws (notably the Migratory Bird Treaty Act of 1918) against unauthorized possession of feathers, eggshells, or nests from most native North American birds.

- If you want your nest box to double as a winter roost, clean it of any harmful dirt or parasites; plug extra ventilation holes to keep the cold out; and raise the box to 10 feet off the ground (birds feel safer up high).

- You can also install a separate roost box for winter use: Check online or at a wildlife center for instructions.

Have fun watching your feathered neighbors make themselves at home! —K. S.

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BY THE NUMBERS

North America is home to some 1.5 million Ukrainian-Americans and 1.3 million Ukrainian-Canadians.



DELICIOUS DISHES FROM A UKRAINIAN CHRISTMAS

One in an occasional series on cultural traditions

BY BETTY SCHILL

For some 79 percent of Ukrainian-Americans and -Canadians, Christmas is the favorite or most important holiday of the year—and for good reason. A time for family, feasting, and celebration, the Ukrainian Christmas tradition begins on December 24 (or January 6 in the Gregorian calendar for certain denominations) and involves a 12-course dinner called *Sviata Vecheria*, or Holy Supper. This tradition differs in detail from family to family, but certain aspects remain the same. The number of dishes is symbolic of the 12 Apostles, and aspects of the meal evoke the Nativity scene.

(continued)





Kolachi

This meal begins when the first star of the evening appears, symbolizing the trek of the three Wise Men. In farming communities, the head of the household might bring in a sheaf of wheat, called a *didukh* (grandfather spirit), a symbol of the gathering together of the family. In cities, this tradition has been modified and the sheaf replaced by a few stalks of wheat in a vase. In some Ukrainian homes, hay is put under the table or under the tablecloth as a reminder of Christ's humble birth in a manger.

When all of the family is at the table, they sing the Ukrainian carol "*Boh predvichny*" ("God Eternal") and then offer a prayer to bless the food. A lit candle burns in a window to welcome any homeless people. An extra place at the table is set for the souls of those family members who have died. A *kolach* (braided, ring-shaped bread) with a candle in the middle serves as the centerpiece of the table. (continued)



Kutia



Borsch

The totally meatless dinner starts with *kutia*, a preparation of cooked wheat dressed with honey, poppy seeds, and nuts. Many other traditional Ukrainian dishes may then also be served, including *borsch* (beet soup); baked or fried fish; pickled herring; *holubtsi* (stuffed cabbage); *varenyky* (filled dumplings, similar to Polish *pierogies*); *pidpenky* (mushrooms in gravy); and mashed beans. The dinner ends with a dessert of stewed dried fruit (compote) and *pampushky* (poppy-seed buns) or *makivnyk* (poppy-seed roll). Everyone must have at least a small serving of each dish.

After the meal, according to custom, the family joins in singing Christmas carols and general merry-making. The evening culminates in attendance at mass, often beginning before midnight and ending after.

This holiday season, try something different with a few traditional Ukrainian dishes.

(see recipes, page 198)

Photo: MarynaVoronova/Getty Images



2022 RECIPE CONTEST WINNERS

We asked you for your best recipes using bananas, excluding breads, and we received many delicious dishes. Sincere thanks to all of you who took the time to submit recipes—we wish that we could acknowledge you all!



FIRST PRIZE (TIE)
**BANANA-STUFFED PEANUT
BUTTER FRENCH TOAST**
(recipe on page 76)


**STYLING AND PHOTOGRAPHY:
SAMANTHA JONES/QUINN BREIN COMMUNICATIONS**

FIRST PRIZE (TIE)
**SPICY BANANA
SHRIMP STIR-FRY**
(recipe on page 76)



(continued)

FOOD



SECOND PRIZE
GO BANANAS POPS
(recipe on page 77)

THIRD PRIZE
**EASY STICKY
BANANA SQUARES**
(recipe on page 77)



(continued)

FOOD

FIRST PRIZE (TIE): \$300

BANANA-STUFFED PEANUT BUTTER FRENCH TOAST

2 eggs

¼ cup milk

½ cup peanut butter, divided

1 tablespoon sugar

¼ teaspoon ground cinnamon

4 slices bread

1 medium banana, cut into ¼-inch slices

1 tablespoon butter

confectioners' sugar, for sprinkling

maple syrup, for serving (optional)

In a bowl, whisk together eggs, milk, ¼ cup of peanut butter, sugar, and cinnamon.

Spread remaining peanut butter on two bread slices and top with bananas. Cover with remaining bread to make two sandwiches.

In a frying pan over medium heat, melt butter.

Dunk each side of the sandwiches into egg mixture, allowing mixture to slightly soak into both sides. Place in pan and cook for 3 to 4 minutes per side, or until golden.

Serve sprinkled with confectioners' sugar and drizzled with maple syrup (if using).

Makes 2 servings.

—Anna Benefiel, Stayton, Oregon

FIRST PRIZE (TIE): \$300

SPICY BANANA SHRIMP STIR-FRY

DRESSING:

3 tablespoons extra-virgin olive oil

2 teaspoons fresh lime juice

2 teaspoons minced or grated fresh ginger

2 teaspoons soy sauce

2 teaspoons agave syrup or honey
salt and freshly ground black pepper,
to taste

STIR-FRY:

½ pound angel hair pasta

1½ tablespoons canola oil

2 tablespoons finely minced red onion

1 serrano pepper, seeded and
finely minced

2 cloves garlic, minced

2 ripe bananas, cut into ½-inch pieces

1½ cups diced fresh pineapple

1 pound medium shrimp, peeled and
deveined

salt and freshly ground black pepper,
to taste

¼ cup chopped fresh cilantro,
for garnish

For dressing: In a bowl, whisk together all of the ingredients. Set aside.

For stir-fry: Cook pasta according to directions. Drain and keep warm.

Meanwhile, in a wok or large skillet over medium-high heat, warm canola oil. Add onions and peppers and stir-fry for 1 to 2 minutes. Add garlic and stir-fry for 30 seconds more. Add bananas, pineapple, and shrimp and continue to stir-fry until shrimp are fully cooked. Season with salt and black pepper. Add pasta to wok and toss to combine.

Re-whisk dressing, then stir into wok mixture. Turn off heat and let sit for 1 to 2 minutes. Taste again for seasonings, adding more salt and black pepper if desired. Garnish with cilantro and serve.

Makes 4 servings.

—Frank Millard, Edgerton, Wisconsin



SECOND PRIZE: \$200**GO BANANAS POPS**

- 3 medium bananas, ripe but firm
- 3 tablespoons finely chopped dry roasted peanuts
- 3 tablespoons coarsely crushed mini pretzels
- 2 tablespoons mini semisweet chocolate chips
- 1 package (10 ounces) sea salt caramel baking chips
- 1 teaspoon vegetable oil
- special equipment:**
- 9 pop or craft sticks for handles

Line a baking sheet with wax paper.

Cut ends off bananas and then cut crosswise into thirds. Insert a pop stick halfway into one cut end of each banana piece.

In a bowl, combine peanuts, pretzels, and chocolate chips.

In a heatproof bowl, toss together caramel chips and oil. Set bowl over a saucepan of simmering water (water not touching bowl). Once chips soften, stir until melted and smooth.

Dip banana pieces into melted caramel until coated, using a small spoon to help to evenly coat them. Push bananas into peanut mixture and, using your fingers, sprinkle mixture over bananas, turning each one to evenly coat. Place bananas on prepared baking sheet and freeze for 20 minutes, or until firm.

Makes 9 servings.

—Cole Goerg, Neenah, Wisconsin

THIRD PRIZE: \$100**EASY STICKY BANANA SQUARES**

- 1½ cups all-purpose flour
- ⅔ cup butter, softened
- 3 tablespoons brown sugar
- ¼ cup (½ stick) butter
- 1 package (10 ounces) mini marshmallows
- 4 medium bananas, cut into ¼-inch slices

Preheat oven to 350°F. Spray an 8-inch baking dish with nonstick cooking spray.

In a bowl, combine flour, softened butter, and brown sugar. Stir until crumbly; press into prepared baking dish. Bake for 15 minutes, then set aside to cool.

In a nonstick saucepan over medium-low heat, melt butter. Add marshmallows and stir until melted. Remove from heat and gently stir in bananas. Quickly spread over crust. Allow to cool completely before slicing into squares. Cover and refrigerate leftovers.

Makes 12 squares.

—Loretta Russell, Edmonton, Alberta ■

ENTER THE 2023 RECIPE CONTEST: GINGER

Got a great recipe using ginger that's loved by family and friends? Send it in and it could win! See contest rules on page 251.

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MAKING A

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NORTH HAVEN, MAINE

When Karen Cooper saw a friend eating seaweed salad a few years ago, it seemed pretty unappetizing. Then she tried it and found it to be quite tasty; she had no idea that she'd grow it one day.

Lobster fishing in Maine's Penobscot Bay has been Cooper's livelihood for 30 years (she's a 3rd-generation lobsterman, fishing up to 200 traps). She loves it: "It's the fun of not knowing. You go out every day and find out if you set the traps in the right place. Are they full of lobsters or not?"

Looking to make some off-season money, Cooper became curious about seaweed and got an aquaculture lease to harvest and sell kelp. This required almost no capital investment (only the cost of the chain and line) and logistically was a perfect fit. Lobstering runs from June through October; kelp is seeded in November and harvested in

May. "So, we are working on the water all year 'round," she notes.

The kelp thrived: The microscopic seeds looked like slime for weeks but grew many feet long. "I don't even have a houseplant, other than a few shrubs outside—I can't grow anything, but if it has to do with the ocean, I can probably do it," Cooper reports. Today, she harvests and sells 15,000 pounds of kelp annually.

This successful side venture spurred Cooper to start another one—harvesting sea salt and selling it in jars at local gift shops. This is all a reflection of the diversification that will be required of the next generation of lobstermen—including her nephew, who helps to harvest the kelp: "He loves lobster fishing," Cooper says, "but it's not going to be around forever, so he needs to think about what he can do to make a living on the ocean." *(continued)*

A woman with blonde hair tied back, wearing a red wetsuit, is holding a large, dense bundle of harvested seaweed. She is looking off to the side with a focused expression. The background shows the interior of a boat or a structure with wooden beams and windows. The overall scene is outdoors, likely on a boat or a pier.

GROW OF IT

BY KAREN
DAVIDSON AND
STACEY
KUSTERBECK

"I CAN'T GROW
ANYTHING, BUT IF
IT HAS TO DO WITH
THE OCEAN, I CAN
PROBABLY DO IT."

LIFE WATER GARDENS

NORWAY HOUSE, MANITOBA

The town of Norway House is rich in history as the inland depot of the Hudson's Bay Company, but to this day, it's in perennial need of fresh vegetables. While the Cree Nation is surrounded by the bounties of fishing, trapping, and logging, its cultural gardening history strays little beyond root vegetables. Any aboveground crop risks being nipped at -5°C (23°F) in the third week of June, and any remaining hope can be strangled with the same lows as early as September 5.

In 2019, exactly this kind of cold weather was a reminder that the 8,000 citizens of Norway House lacked secure, affordable food. This motivated Virginia Muswagon and Ian Maxwell to start Life Water Gardens. As co-managers, they tend a prefabricated container outfitted for growing lettuces, kale, pak choi, and herbs hydroponically year-round.

"At first, I was curious about planting seeds into rockwool that felt like firm candy floss," recalls Muswagon,

"and I was surprised by the microscopic size of mint seeds." Ever resourceful, she bent a drinking straw into a tiny shovel for planting three to five mint seeds into each nesting cube.

Those rookie days have now evolved into the routine harvesting of 450 herbs and greens plants each week. The local hospital and school have been converted into customers by the consistent quality of the produce. Flame-colored lettuces for burgers and salads sell like "Wildfire" (which is the lettuce mix's name).

The community at large is somewhere between agnostic and enthusiastic about the whole enterprise. As Maxwell explains, "There's still disbelief that these pristine vegetables are real and that they're grown right here in the north."

Muswagon, however, is determined to make believers out of her neighbors. Her hook? At promotional events, she serves a kale-Saskatoon berry smoothie. *(continued)*



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NORMA'S PRODUCE AT PENN FARM

COLONIAL BEACH, VIRGINIA

As migrant farmworkers, Dora and Leopoldo Beltran followed the harvest across five U.S. states for decades. When one farm owner retired 20 years ago, he encouraged the Beltrons to take over the operation, which sold tomatoes and squash wholesale. They eventually



40,000 pounds of produce per week at nine area farmers' markets. "Now, we have a fully operational farm where we can decide what we want to do with the land," comments their son, Leopoldo Jr. The changes have paid off: "It makes it worthwhile when we can meet our customers and see that someone is enjoying what we do," he says.

Some regulars preorder seasonal produce online for convenience. Others appreciate some expert help in choosing their selections. "One customer says, 'Do your magic,' knowing that I will pick out the best cantaloupe for him," he reports.

Five years ago, the family made another big change, installing four high tunnels, which enable them to farm in the winter. Being able to sell year-round has proven to be a big advantage. "This is what people want—not just beets and carrots that will survive the cold, but a variety of things—asparagus and fresh salads, for example," continues Leopoldo Jr. "In April, we have tomatoes, squash, and cucumbers months ahead of everybody else."

The elder Beltrons still are in charge, but Leopoldo Jr. is preparing to take over and expand operations even more with value-added products (jams, jellies, and pickled vegetables), community-supported agriculture, fruit orchards, and flowers. "We are always open to finding different ways to sell what we grow and add to what we are already doing," he says.

(continued)

bought 46 acres and leased 35 more beside Virginia's Rappahannock River.

Naming their enterprise after their firstborn, Norma, the new owners made two big decisions right away: to grow dozens of varieties of fruit, vegetables, and herbs and to sell directly to consumers. Today, they sell some

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GILL FAMILY ORCHARDS

KELOWNA, BRITISH COLUMBIA

In 2018, Mani Gill abandoned a safe job—a 10-year banking career—to return to his family’s farmer roots near Kelowna.

“This is what I was meant to do,” says Gill. “It’s not work—it’s a passion.”

This work ethic comes naturally from his parents, who immigrated from India’s Punjab region to the Okanagan Valley in the 1980s to work as laborers. As a young teenager, Gill recalls, he picked cherries, changed water pivots, and drove a tractor under the blazing sun near Osoyoos, which—with its desertlike geography—is often cited as the hottest place in Canada. Before long, his parents had acquired their own acreage, moving 80 miles north to the cooler temperatures of Kelowna.

Today, Gill and his brother Jasmeet manage 100 acres of vineyards and orchards. None of them expected the unusual heat dome of 2021 that settled over the valley in late June, with temperatures that spiked to 45°C (113°F) for several days.

This nature-borne oven meant that

the early-maturing cherry varieties of some growers basically became baked on the trees and rendered unmarketable. Fortunately, the Gill family was able to employ microjet sprinklers at ground level to keep their orchards cooled. Their ‘Lapins’ and ‘Staccato’ cherry varieties were saved, although at smaller-than-usual sizes. Another beneficial factor was that the orchards are planted in an east–west direction, which meant that the tree canopies protected the maturing fruit.

“Climate change is happening,” comments Gill. “We’ve never seen these temperatures in Kelowna before.”

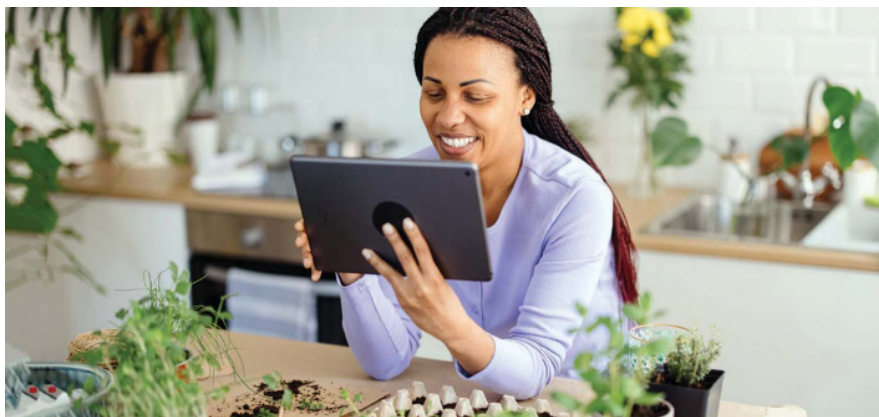
Thanks to access to irrigation water, the Gill family has managed to sustain their orchards and vineyards.

“Every year, there’s something new to face, whether it’s frost or heat. It’s part of the business,” observes Gill. “Next year, we’ll be prepared.”

Rather than counting work hours, he and his wife Kamal are now counting their blessings while raising their two children. *(continued)*



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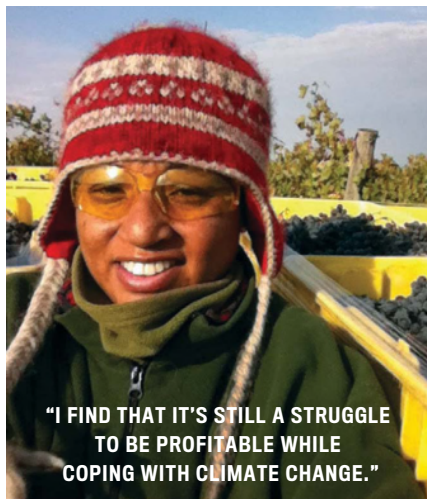
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SAUNDERS FAMILY FARM & VINEYARD

BEAMSVILLE, ONTARIO

Do no harm, embrace life. Ann-Marie Saunders's motto is as natural as the millennia-old limestone escarpment that overlooks her family's farm. Purchased by her parents in the mid-1960s, their certified-organic, 12-acre vineyard is a work in progress by regenerative standards. As she explains, many conventional agricultural practices are interventionist, using pesticides to kill unwanted weeds or insects, while regenerative practices are preservationist.



"I FIND THAT IT'S STILL A STRUGGLE TO BE PROFITABLE WHILE COPING WITH CLIMATE CHANGE."

"This is a way of harnessing biology rather than using reductive chemistry," notes Saunders. "It feels experimental in some senses, but it's a way to keep everything alive."

For example, grapevines, brush, and leaves are shredded and composted for a year. Once in spring and once in fall,

the compost is bagged and placed in a 300-gallon brewer, where it is then aerated for a day along with vermicompost and water. Brimming with life-giving microbes, the steeped compost tea is then sprayed onto the soil. For further soil enrichment, Muscovy duck manure is sourced from the neighbor's farm.

To aid in soil regeneration, the vineyard walkways are planted with clay-busting daikon radishes, nitrogen-fixing clovers, and pollinator-attracting buckwheat. Along with vegetation such as naturally wild carrots, these plants are allowed to grow to waist height before being mown down about twice annually. What looks to be a messy plant menagerie is—upon closer inspection—buzzing with beneficial insects, some of which eat into the populations of leaf-sucking bugs such as aphids, leafhoppers, and mites.

"Another reason to keep the plant mixture long is to prevent soil erosion," reports Saunders. "After heavy rains, we have no runoff, no puddles."

Come fall, their hand-harvested grapes are sought by local winemakers who value their ecological methods. Incessant rains can diminish yields, but it's the winemakers who ultimately determine how a vintage fares.

"I find that it's still a struggle to be profitable while coping with climate change," adds Saunders. "The biggest challenge, however, lies in being patient with existing systems that are sometimes slow to change." *(continued)*

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LUSK, WYOMING

When trying to get a foothold in the ranching business as a recent college graduate, Sage Askin had plenty of knowledge (a degree in rangeland ecology and watershed management, plus five minors: forestry, reclamation and restoration ecology, agro-ecology, soil science, and wildlife and fisheries biology) and years of experience in raising steers and working on a ranch. He had very few assets, though—just \$1,000 from his last paycheck, a paid-for pickup, a trailer, and a horse.

He tried to obtain a revolving line of credit to buy land. “With no equity, they looked at me as if I were crazy when I asked for \$300,000 to follow my dream,” says Askin. Soaring land prices stood in the way. “Just 10 or 20 years ago, you could still buy land with the crop produced. No longer is this the case, with ag land in America often two or three times its ‘productive

value,” observes Askin.

Instead of giving up on ranching, Askin decided to run an ad saying “Ranch lease wanted—Young aspiring rancher” in a local newspaper. Today, Sage and Faith Askin run a diversified operation on 75,000 acres of leased land: They offer custom grazing and run three bands of sheep on seven different ranches. “The dream didn’t change, but the road has not been the way that I’d envisioned,” says Askin.

They and 13 employees follow an intensive regenerative adaptive grazing program, with cattle moved every 1 to 3 days in springtime and some pastures rested for the entire year. “We can make the soil better, which makes the plants better, which benefits us all,” notes Askin, who offers this advice to young ranchers: “Network every chance that you get—and don’t be afraid to take the plunge and do something different.” ■



Canadian profiles are by **Karen Davidson**, editor of *The Grower*, a leading Canadian horticultural magazine, and frequent contributor to the Almanac. U.S. profiles are by **Stacey Kusterbeck**, a regular contributor to the Almanac.



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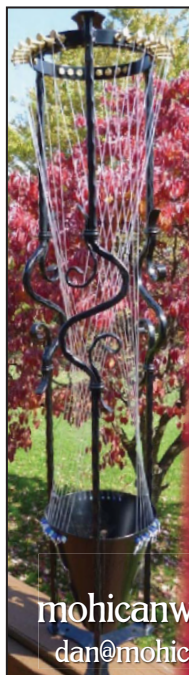
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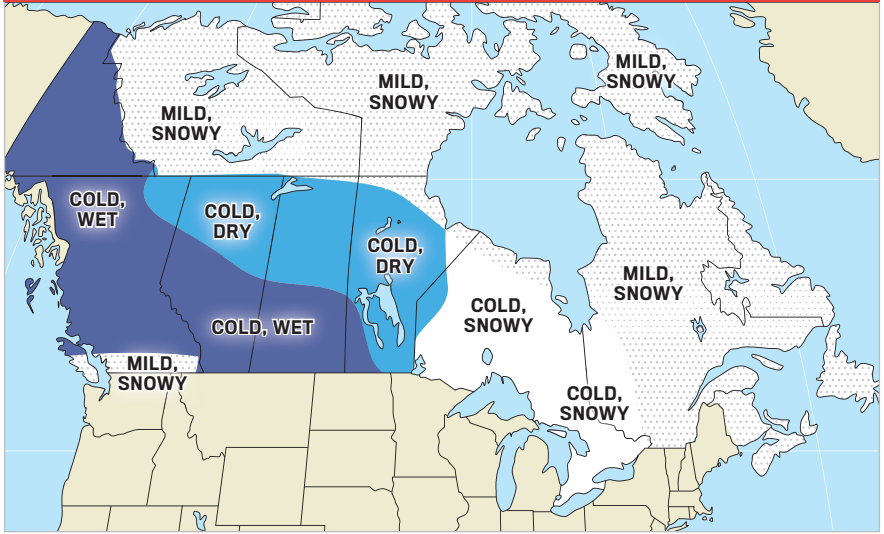
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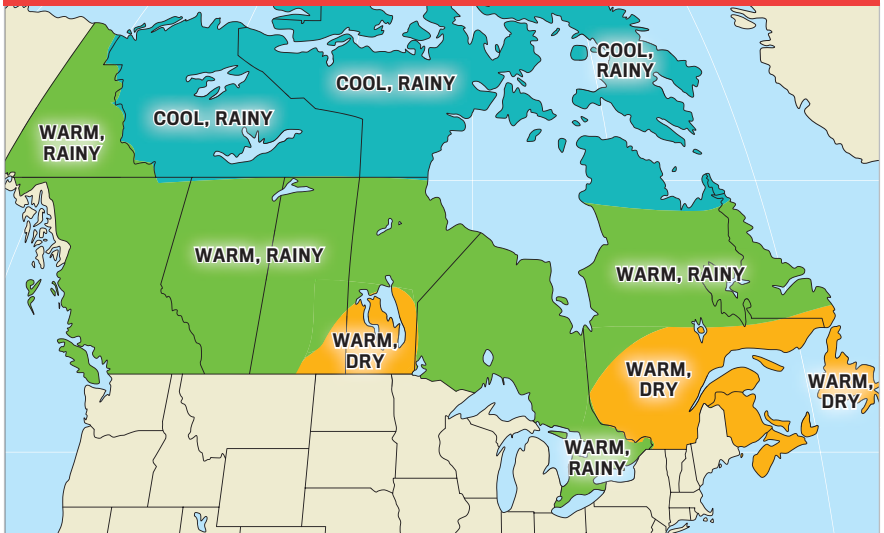
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WINTER 2022-23



These weather maps correspond to the winter and summer predictions in the General Weather Forecast (opposite) and on the regional forecast pages, 211-216. To learn more about how we make our forecasts, turn to page 209.

SUMMER 2023



THE GENERAL WEATHER REPORT AND FORECAST

FOR REGIONAL FORECASTS, SEE PAGES 211-216.

Most of Canada will have a colder-than-normal winter season, but summer in many places will be warmer than normal. Contributing factors will include relatively low sunspot activity in Solar Cycle 25, plus the effects of a neutral to perhaps weak El Niño, a warm Atlantic Multidecadal Oscillation, a neutral to positive North Atlantic Oscillation, and a negative Pacific Decadal Oscillation.

WINTER will be colder than normal from southwest Quebec through southern Ontario and across the Prairies into central and northern British Columbia and up into the Yukon. Temperatures will be near or above normal elsewhere. Precipitation will be above normal across much of the country, except for a swath running from northwestern Ontario up through the Prairies to northeastern British Columbia. Snowfall will be greater than normal from Atlantic Canada through Quebec and much of Ontario, across southern British Columbia, and in the Northwest Territories and Nunavut. It will be near to below normal elsewhere.

SPRING will be warmer than normal in southern Quebec, the Prairies, and the Yukon, with near- or below-normal temperatures elsewhere. Precipitation will be below normal from southern Atlantic Canada westward through southern Que-

bec and in southwest British Columbia. It will be near or above normal elsewhere.

SUMMER will be warmer than normal across much of the country, although cooler than normal in northern Quebec, Nunavut, and the Northwest Territories. Precipitation will be below normal from Atlantic Canada through southern Quebec and in southern Manitoba and Saskatchewan. It will be near to above normal elsewhere. In Atlantic Canada, watch for a late August **HURRICANE**.

AUTUMN will be warmer than normal from southern Ontario westward through the Prairies and southern British Columbia and across the Yukon and southern Northwest Territories. Temperatures will be near to below normal elsewhere. Precipitation will be below normal over Atlantic Canada and southern Quebec and from western Ontario into the eastern Prairies. It will be near to above normal elsewhere.

How Accurate Was Our Forecast Last Winter?

Examining a representative city in each region shows that our forecast accuracy rate was 100% in the direction of the temperature departure from normal. In four out of the seven regions, the error was 0.5 degree C or less, and the error was less than a degree in six out of seven regions. Our forecasts of the direction of the departure in precipitation were correct in five of the seven regions, which computes to a 71.4% accuracy rate. Our overall combined accuracy rate of 85.7% was above our traditional accuracy rate of 80%. Snowfall was below normal as we expected from Ontario to the Prairies, while British Columbia received more snow than we forecast.

The average difference between our winter season temperature forecasts and the actual temperatures was 0.97 degree C. Some representative cities are shown below.

| REGION/ CITY | Nov.-Mar. Temp Departure From Normal (degrees) | | REGION/ CITY | Nov.-Mar. Temp Departure From Normal (degrees) | |
|--------------------|--|--------|----------------------|--|--------|
| | PREDICTED | ACTUAL | | PREDICTED | ACTUAL |
| 1. St. John's, NL | 0.3 | 1.2 | 5. Prince George, BC | 1.3 | 0.8 |
| 2. Ottawa, ON | -0.2 | -0.4 | 6. Watson Lake, YT | 4.2 | 0.2 |
| 3. Thunder Bay, ON | -1.4 | -0.7 | 7. Resolute, NWT | 3.4 | 3.3 |
| 4. Calgary, AB | 1.6 | 1.2 | | | |

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OUR CONTRIBUTORS

BOB BERMAN, our astronomy editor, leads annual tours to Chilean observatories as well as to view solar eclipses and the northern lights. He is the author of *Zoom* (Little Brown, 2015) and *Earth-Shattering: Violent Supernovas, Galactic Explosions, Biological Mayhem, Nuclear Meltdowns, and Other Hazards to Life in Our Universe* (Little Brown, 2019).

JACK BURNETT, the Almanac's managing editor, writes the weather doggerel verse that runs down the center of the Right-Hand Calendar Pages.

BETHANY E. COBB, our astronomer, is an Associate Professor of Honors and Physics at George Washington University. In addition to conducting research on gamma-ray bursts and teaching astronomy and physics courses to non-science majors, she enjoys rock climbing, figure skating, and reading science fiction.

CELESTE LONGACRE, our astrologer, often refers to astrology as "a study of timing, and timing is everything." A New Hampshire native, she has been a practicing astrologer for more than 40 years. Her book, *Celeste's Garden Delights* (2015), is available at CelesteLongacre.com.

Meteorologists **BOB SMERBECK** and **BRIAN THOMPSON** made the weather predictions, in consultation with Michael Steinberg, our meteorologist since 1996. Bob and Brian bring not just a total of 51 years of forecasting expertise to the task but also some unique early accomplishments: a portable, wood-and-PVC-pipe tornado machine built by Bob and prescient 5-day forecasts made by Brian—in fourth grade.

TED WILLIAMS, a Massachusetts-based nature writer, pens the Farmer's Calendar essays. He serves on the Circle of Chiefs of the Outdoor Writers Association of America and is national chair of the Native Fish Coalition as well as the author of *Earth Almanac* (Storey Publishing, 2020).



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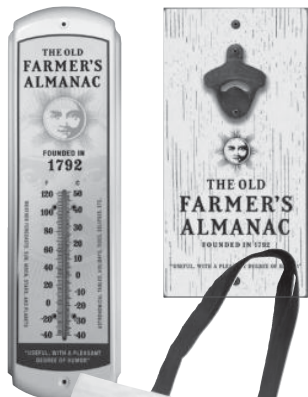
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IN MEMORIAM



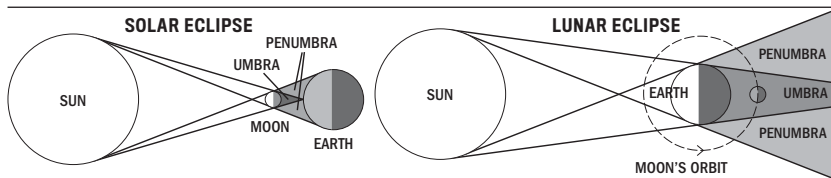
Tim Clark (1950–2021) began work as an editor and writer at Yankee Publishing in 1980. During his 41 years here, he was a prolific contributor to both *Yankee* magazine and the Almanac, but his desire to provide useful information with our “pleasant degree of humor,” plus a lifelong interest in folklore, made him singularly suited to the Almanac. This was Tim. When a story idea or strange angle on a topic came to him, he lit up. His Almanac chronicles covered the origins of napping, the nuances of noise, the fastest man’s last death-defying ride, 20/20 vision (for 2020), and the end of the Civil War, among many others. Folklore was his forte; his essays on beekeeping, teeth, “shoe-perstitutions,” and the Moon, as well as all manner of home remedies, lent credibility and charm to many mysterious traditions and practices.

His inimitable how to’s—have a baby, clean your chimney, tell when someone’s lying, become a prophet, avoid dying, prevent balding, fall asleep, appear to know more than you really do, and be immortal—are legendary in Almanac annals. Even his silly inquiries, like “How Happy Is a Clam?” on page 188, make a certain sense. Still, Tim may have taken greatest joy and pride in writing the weather doggerel on the Right-Hand Calendar Pages. So fond of this form was he that he composed his corporate retirement farewell in verse (*below*) a year and half before he died. He wrote it for us, his colleagues, yes, but also for anyone who might ever be in need of a smile. Rest in peace and boundless curiosity, Tim.

*And so my Yankee sojourn ends,
With thanks to you, my loving friends,
Expressed in this neglected genre,
With due respect and utmost honor.
For you, I'd send a fulsome bloggerel,
Compose a tuneful Indian raggarel,
Consume a New Year's Eve
eggnoggerel,
Revive the long-extinguished quaggarel.
Here's a toast in Navy groggerel:
May all you live high on the hoggerel,
Leap slim and spry as any froggerel,
Heroes of a Viking saggarel!
No more: Before I start to sloggerel,
My arteries begin to cloggerel,
Become a bump upon a loggerel,
I'll halt this halting hound of doggerel. ■*

ASTRONOMY
ECLIPSES

There will be four eclipses in 2023, two of the Sun and two of the Moon. Solar eclipses are visible only in certain areas and require eye protection to be viewed safely. Lunar eclipses are technically visible from the entire night side of Earth, but during a penumbral eclipse, the dimming of the Moon's illumination is slight. See the **Astronomical Glossary, page 110**, for explanations of the different types of eclipses.



APRIL 19-20: ANNULAR TOTAL ECLIPSE OF THE SUN. This hybrid eclipse, which is seen as annular or total depending on viewing location along its path, is not visible from North America. (It is visible only from the southern Indian Ocean, parts of Antarctica, most of Australasia, Indonesia, Philippines, most of Oceania, and the western Pacific Ocean.)

MAY 5: PENUMBRAL ECLIPSE OF THE MOON. This eclipse is not visible from North America. (The eclipse is visible only from Antarctica, Oceania, Australasia, Asia, Europe, Africa, and South Georgia and the South Sandwich Islands.)

OCTOBER 14: ANNULAR ECLIPSE OF THE SUN. This eclipse is at least partially visible from most of North America. The annular phase is visible in a narrow path that runs through Oregon, Nevada, Utah, Arizona, New Mexico, and Texas. The eclipse begins at 11:04 A.M. EDT (8:04 A.M. PDT) and ends at 4:55 P.M. EDT (1:55 P.M. PDT).

OCTOBER 28: PARTIAL ECLIPSE OF THE MOON. This eclipse is visible from northeastern North America. The Moon will rise during the eclipse and observers will only see a penumbral eclipse. The Moon will enter the penumbra at 2:00 P.M. EDT and the umbra at 3:35 P.M. EDT. The Moon will leave the umbra at 4:54 P.M. EDT and the

penumbra at 6:28 P.M. EDT.

TRANSIT OF MERCURY. Mercury's proximity to the Sun makes it difficult to observe. In 2023, Mercury is best viewed from the Northern Hemisphere just after sunset in the second week of April and shortly before sunrise in late September. Spot Mercury close to Jupiter after sunset on March 26, 27, or 28. Look for a conjunction between Mercury and Venus on the evening of July 26—Mars will also be nearby.

THE MOON'S PATH

The Moon's path across the sky changes with the seasons. Full Moons are very high in the sky (at midnight) between November and February and very low in the sky between May and July.

FULL-MOON DATES (ET)

| | 2023 | 2024 | 2025 | 2026 | 2027 |
|-------|--------|------|------|--------|------|
| JAN. | 6 | 25 | 13 | 3 | 22 |
| FEB. | 5 | 24 | 12 | 1 | 20 |
| MAR. | 7 | 25 | 14 | 3 | 22 |
| APR. | 6 | 23 | 12 | 1 | 20 |
| MAY | 5 | 23 | 12 | 1 & 31 | 20 |
| JUNE | 3 | 21 | 11 | 29 | 18 |
| JULY | 3 | 21 | 10 | 29 | 18 |
| AUG. | 1 & 30 | 19 | 9 | 28 | 17 |
| SEPT. | 29 | 17 | 7 | 26 | 15 |
| OCT. | 28 | 17 | 6 | 26 | 15 |
| NOV. | 27 | 15 | 5 | 24 | 13 |
| DEC. | 26 | 15 | 4 | 23 | 13 |



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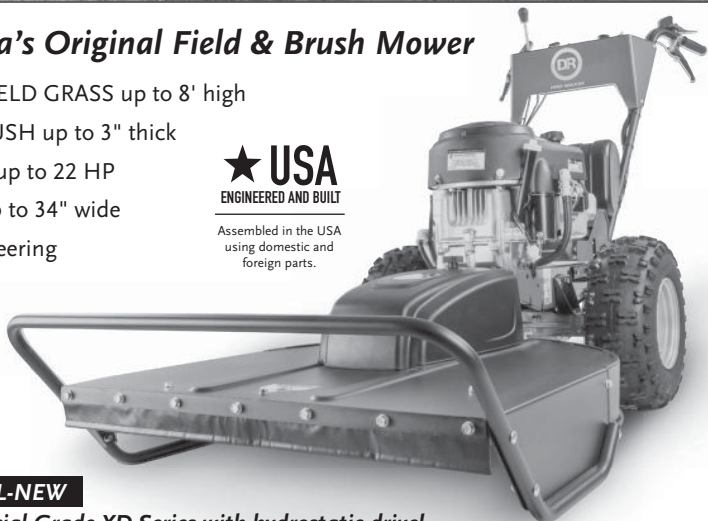
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BRIGHT STARS

TRANSIT TIMES

This table shows the time (ET) and altitude of a star as it transits the meridian (i.e., reaches its highest elevation while passing over the horizon's south point) at Ottawa on the dates shown. The transit time on any other date differs from that of the nearest date listed by approximately 4 minutes per day. To find the time of a star's transit for your location, convert its time at Ottawa using Key Letter C (see **Time Corrections, page 240**).

| STAR | CONSTELLATION | MAGNITUDE | TIME OF TRANSIT (ET) | | | | | | ALTITUDE (DEGREES) |
|------------|---------------|-----------|----------------------|--------------|--------------|--------------|--------------|--------------|--------------------|
| | | | JAN. 1 | MAR. 1 | MAY 1 | JULY 1 | SEPT. 1 | NOV. 1 | |
| Altair | Aquila | 0.8 | 1:10 | 9:18 | 6:18 | 2:19 | 10:11 | 6:11 | 56.3 |
| Deneb | Cygnus | 1.3 | 2:00 | 10:08 | 7:09 | 3:09 | 11:01 | 7:01 | 92.8 |
| Fomalhaut | Psc. Aus. | 1.2 | 4:17 | 12:25 | 9:25 | 5:25 | 1:21 | 9:18 | 17.8 |
| Algol | Perseus | 2.2 | 8:27 | 4:35 | 1:35 | 9:35 | 5:31 | 1:32 | 88.5 |
| Aldebaran | Taurus | 0.9 | 9:54 | 6:02 | 3:02 | 11:02 | 6:59 | 2:59 | 64.1 |
| Rigel | Orion | 0.1 | 10:32 | 6:40 | 3:41 | 11:41 | 7:37 | 3:37 | 39.4 |
| Capella | Auriga | 0.1 | 10:35 | 6:43 | 3:43 | 11:43 | 7:40 | 3:40 | 93.6 |
| Bellatrix | Orion | 1.6 | 10:43 | 6:51 | 3:51 | 11:51 | 7:48 | 3:48 | 54.0 |
| Betelgeuse | Orion | var. 0.4 | 11:13 | 7:21 | 4:21 | 12:21 | 8:18 | 4:18 | 55.0 |
| Sirius | Can. Maj. | -1.4 | 12:07 | 8:11 | 5:11 | 1:11 | 9:07 | 5:07 | 31.0 |
| Procyon | Can. Min. | 0.4 | 1:01 | 9:05 | 6:05 | 2:05 | 10:01 | 6:02 | 52.9 |
| Pollux | Gemini | 1.2 | 1:07 | 9:11 | 6:11 | 2:11 | 10:08 | 6:08 | 75.7 |
| Regulus | Leo | 1.4 | 3:29 | 11:34 | 8:34 | 4:34 | 12:30 | 8:30 | 59.7 |
| Spica | Virgo | var. 1.0 | 6:46 | 2:54 | 11:50 | 7:50 | 3:46 | 11:47 | 36.6 |
| Arcturus | Boötes | -0.1 | 7:36 | 3:44 | 12:44 | 8:40 | 4:37 | 12:37 | 66.9 |
| Antares | Scorpius | var. 0.9 | 9:50 | 5:58 | 2:58 | 10:54 | 6:50 | 2:50 | 21.3 |
| Vega | Lyra | 0 | 11:56 | 8:04 | 5:04 | 1:05 | 8:57 | 4:57 | 86.4 |

RISE AND SET TIMES

To find the time of a star's rising at Ottawa on any date, subtract the interval shown at right from the star's transit time on that date; add the interval to find the star's setting time. To find the rising and setting times for your city, convert the Ottawa transit times above using the Key Letter shown at right before applying the interval (see **Time Corrections, page 240**). Deneb, Algol, Capella, and Vega are circumpolar stars—they never set but appear to circle the celestial north pole.

| STAR | INTERVAL (H.M.) | RISE KEY | RISE DIR.* | SETTING KEY | SETTING DIR.* |
|------------|-----------------|----------|------------|-------------|---------------|
| Altair | 6 36 | B | EbN | E | WbN |
| Fomalhaut | 3 59 | E | SE | D | SW |
| Aldebaran | 7 06 | B | ENE | D | WNW |
| Rigel | 5 33 | D | EbS | B | WbS |
| Bellatrix | 6 27 | B | EbN | D | WbN |
| Betelgeuse | 6 31 | B | EbN | D | WbN |
| Sirius | 5 00 | D | ESE | B | WSW |
| Procyon | 6 23 | B | EbN | D | WbN |
| Pollux | 8 01 | A | NE | E | NW |
| Regulus | 6 49 | B | EbN | D | WbN |
| Spica | 5 23 | D | EbS | B | WbS |
| Arcturus | 7 19 | A | ENE | E | WNW |
| Antares | 4 17 | E | SEbE | A | SWbW |

*b = "by"

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Remember when you were a child and got your first bicycle? I do. It gave me a sense of independence . . . I felt like I could go anywhere, and it was so much easier and more enjoyable than walking. Well, at my age, that bike wouldn’t do me much good. Fortunately, there’s a new invention that gives me the freedom and independence to go wherever I want . . . safely and easily. It’s called the Zoomer, and it’s changed my life.

After just one trip around your home in the Zoomer, you’ll marvel at how easy it is to navigate. It is designed to maneuver in tight spaces like doorways, between furniture, and around corners. It can go over thresholds and works great on any kind of floor or carpet. It’s not bulky or cumbersome, so it can roll right up to a table or desk- there’s no need to transfer to a chair. Its



sturdy yet lightweight aluminum frame makes it durable and comfortable. Its dual motors power it at up to 3.7 miles per hour and its automatic electromagnetic brakes stop on a dime. The rechargeable battery powers it for up to 8 miles on a single charge. Plus, its exclusive foldable design enables you to transport it easily and even store it in a closet or under a bed when it’s not in use.

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THE TWILIGHT ZONE/METEOR SHOWERS

Twilight is the time when the sky is partially illuminated preceding sunrise and again following sunset. The ranges of twilight are defined according to the Sun's position below the horizon. **Civil twilight** occurs when the Sun's center is between the horizon and 6 degrees below the horizon (visually, the horizon is clearly defined). **Nautical twilight** occurs when the center is between 6 and 12 degrees below the horizon (the horizon is distinct). **Astronomical twilight** occurs when the center is between 12 and 18 degrees below the horizon (sky illumination is imperceptible). When the center is at 18 degrees (**dawn or dark**) or below, there is no illumination.

LENGTH OF ASTRONOMICAL TWILIGHT (HOURS AND MINUTES)

| LATITUDE | JAN. 1- APR. 10 | APR. 11- MAY 2 | MAY 3- MAY 14 | MAY 15- MAY 25 | MAY 26- JULY 22 | JULY 23- AUG. 3 | AUG. 4- AUG. 14 | AUG. 15- SEPT. 5 | SEPT. 6- DEC. 31 |
|--------------|--------------------|-------------------|------------------|-------------------|--------------------|--------------------|--------------------|---------------------|---------------------|
| 37°N to 42°N | 1 33 | 1 39 | 1 47 | 1 52 | 1 59 | 1 52 | 1 47 | 1 39 | 1 33 |
| 43°N to 47°N | 1 42 | 1 51 | 2 02 | 2 13 | 2 27 | 2 13 | 2 02 | 1 51 | 1 42 |
| 48°N to 49°N | 1 50 | 2 04 | 2 22 | 2 42 | - | 2 42 | 2 22 | 2 04 | 1 33 |
| 50°N to 55°N | 1 54 | 2 15 | 2 52 | 3 25 | - | 3 11 | 2 37 | 2 10 | 1 53 |
| 56°N to 60°N | 2 12 | 3 04 | - | - | - | - | - | 2 46 | 2 11 |

TO DETERMINE THE LENGTH OF TWILIGHT: The length of twilight changes with latitude and the time of year. See the **Time Corrections, page 240**, to find the latitude of your city or the city nearest you. Use that figure in the chart above with the appropriate date to calculate the length of twilight in your area.

TO DETERMINE ARRIVAL OF DAWN OR DARK: Calculate the sunrise/sunset times for your locality using the instructions in **How to Use This Almanac, page 116**.

Subtract the length of twilight from the time of sunrise to determine when dawn breaks. Add the length of twilight to the time of sunset to determine when dark descends.

EXAMPLE:

OTTAWA, ONT. (LATITUDE 45°25')

| | |
|--------------------|--------------|
| Sunrise, August 1 | 5:47 A.M. ET |
| Length of twilight | - 2 13 |
| Dawn breaks | 3:34 A.M. |
| Sunset, August 1 | 8:31 P.M. ET |
| Length of twilight | + 2 13 |
| Dark descends | 10:44 P.M. |

PRINCIPAL METEOR SHOWERS

| SHOWER | BEST VIEWING | POINT OF ORIGIN | DATE OF MAXIMUM* | NO. PER HOUR** | ASSOCIATED COMET |
|-----------------|------------------|-----------------|-------------------|----------------|---------------------|
| Quadrantid | Predawn | N | Jan. 4 | 25 | - |
| Lyrid | Predawn | S | Apr. 22 | 10 | Thatcher |
| Eta Aquarid | Predawn | SE | May 4 | 10 | Halley |
| Delta Aquarid | Predawn | S | July 30 | 10 | - |
| Perseid | Predawn | NE | Aug. 11-13 | 50 | Swift-Tuttle |
| Draconid | Late evening | NW | Oct. 9 | 6 | Giacobini-Zinner |
| Orionid | Predawn | S | Oct. 21-22 | 15 | Halley |
| Northern Taurid | Late evening | S | Nov. 9 | 3 | Encke |
| Leonid | Predawn | S | Nov. 17-18 | 10 | Tempel-Tuttle |
| Andromedid | Late evening | S | Nov. 25-27 | 5 | Biela |
| Geminid | All night | NE | Dec. 13-14 | 75 | - |
| Ursid | Predawn | N | Dec. 22 | 5 | Tuttle |

*May vary by 1 or 2 days

**In a moonless, rural sky

Bold = most prominent

NEW PROSTATE PILL HELPS RELIEVE SYMPTOMS WITHOUT DRUGS OR SURGERY

Combats all-night bathroom urges and embarrassment... *Yet most doctors don't even know about it!*

By Health Writer Peter Metler

Thanks to a brand new discovery made from a rare prostate relief plant; thousands of men across America are taking their lives back from "prostate hell". This remarkable new natural supplement helps you:

- **MINIMIZE** constant urges to urinate
- **END** embarrassing sexual "let-downs"
- **SUPPORT** a strong, healthy urine flow
- **GET** a restful night of uninterrupted sleep
- **STOP** false alarms, dribbles
- **ENJOY** a truly empty bladder

More men than ever before are dealing with prostate problems that range from annoying to downright EMBARRASSING! But now, research has discovered a new solution so remarkable that helps alleviate symptoms associated with an enlarged prostate (sexual failure, lost sleep, bladder discomfort and urgent runs to the bathroom). Like nothing before!

Yet 9 out of 10 doctors don't know about it! Here's why: Due to strict managed health care constrictions, many MD's are struggling to keep their practices afloat. "Unfortunately, there's no money in prescribing natural products. They aren't nearly as profitable," says a confidential source. Instead, doctors rely on toxic drugs that help, but could leave you sexually "powerless" (or a lot worse)!

On a CNN Special, Medical Correspondent Dr. Steve Salvatore shocked America by quoting a statistic from the prestigious Journal of American Medical Association that stated, "... about 60% of men who go under the knife for a prostatectomy are left UNABLE to perform sexually!"

PROSTATE PROBLEM SOLVED!

But now you can now beat the odds. And enjoy better sleep, a powerful urine stream and a long and healthy love life. The secret? You need to load your diet with essential Phyto-Nutrients, (traditionally found in certain fruits, vegetables and grains).

The problem is, most Phyto-Nutrients never get into your bloodstream. They're destroyed

HERE ARE 6 WARNING SIGNS YOU BETTER NOT IGNORE

- ✓ Waking up 2 to 6 times a night to urinate
- ✓ A constant feeling that you have to "go"... but can't
- ✓ A burning sensation when you do go
- ✓ A weak urine stream
- ✓ A feeling that your bladder is never completely empty
- ✓ Embarrassing sputtering, dripping & staining

by today's food preparation methods (cooking, long storage times and food additives).

YEARS OF RESEARCH

Thankfully, a small company (Wellness Logix™) out of Maine, is on a mission to change that. They've created a product that arms men who suffer with prostate inflammation with new hope. And it's fast becoming the #1 Prostate formula in America.

Prostate IQ™ gives men the super-concentrated dose of Phyto-Nutrients they need to beat prostate symptoms. "You just can't get them from your regular diet" says Daniel. It's taken a long time to understand how to capture the prostate relieving power of this amazing botanical. But their hard work paid off. *Prostate IQ™* is different than any other prostate supplement on the market...

DON'T BE FOOLED BY CHEAP FORMULATIONS!

Many hope you won't notice, but a lot of prostate supplements fall embarrassingly short with their dosages. The formulas may be okay, but they won't do a darn thing for you unless you take 10 or more tablets a day. *Prostate IQ™* contains a whopping 300mg of this special "Smart Prostate Plant". So it's loaded with Phyto-Nutrients. Plus, it gets inside your bloodstream faster and stays inside for maximum results!

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THE VISIBLE PLANETS

Listed here for Ottawa are viewing suggestions for and the rise and set times (ET) of Venus, Mars, Jupiter, and Saturn on specific days each month, as well as when it is best to view Mercury. Approximate rise and set times for other days can be found by interpolation. Use the Key Letters at the right of each listing to convert the times for other localities (see pages 116 and 240).

GET ALL PLANET RISE AND SET TIMES BY POSTAL CODE VIA ALMANAC.CA/2023.

VENUS



Venus is often called our “sister planet,” based on the fact that it’s not only our nearest planetary world but also nearly identical to us in mass as well as size. Starting off in January as an evening star, Venus is at its dimmest magnitude of the year before brightening steadily to a shadow-casting magnitude -4.7 through most of July. Then, after an inferior conjunction on August 13, it’s a riveting morning star for the final 4 months of the year, attaining another dazzling maximum magnitude -4.8 in mid-September. Always enhancing the on-going spectacle, Venus delivers glorious conjunctions, or meet-ups, with the crescent Moon, various planets, and several bright zodiacal stars throughout the year.

| | | | | | | | | | | | |
|---------|-----------|---|---------|-----------|---|----------|-----------|---|---------|-----------|---|
| Jan. 1 | set 5:49 | A | Apr. 1 | set 10:52 | E | July 1 | set 11:04 | D | Oct. 1 | rise 3:16 | B |
| Jan. 11 | set 6:16 | A | Apr. 11 | set 11:17 | E | July 11 | set 10:28 | D | Oct. 11 | rise 3:16 | B |
| Jan. 21 | set 6:44 | B | Apr. 21 | set 11:40 | E | July 21 | set 9:43 | D | Oct. 21 | rise 3:23 | B |
| Feb. 1 | set 7:15 | B | May 1 | set 11:58 | E | Aug. 1 | set 8:42 | D | Nov. 1 | rise 3:37 | C |
| Feb. 11 | set 7:42 | C | May 11 | set 12:09 | E | Aug. 11 | rise 6:38 | B | Nov. 11 | rise 2:53 | C |
| Feb. 21 | set 8:08 | C | May 21 | set 12:13 | E | Aug. 21 | rise 5:31 | B | Nov. 21 | rise 3:11 | C |
| Mar. 1 | set 8:29 | C | June 1 | set 12:07 | E | Sept. 1 | rise 4:28 | B | Dec. 1 | rise 3:32 | D |
| Mar. 11 | set 8:56 | D | June 11 | set 11:53 | E | Sept. 11 | rise 3:49 | B | Dec. 11 | rise 3:55 | D |
| Mar. 21 | set 10:22 | D | June 21 | set 11:32 | E | Sept. 21 | rise 3:26 | B | Dec. 21 | rise 4:18 | D |
| | | | | | | | | | Dec. 31 | rise 4:42 | E |

MARS



This is a bad year for Mars—and a strange one. The Red Planet, which is actually orange with tan or cocoa-color areas, comes nearest Earth every 26 months. So, years when Mars is brilliant and eye-catching alternate with those like 2023, when it has no close encounter, or opposition, with Earth at all. On January 1, Mars starts off in Taurus at a very brilliant magnitude -1.2 , having had its close approach (opposition) just 3 weeks earlier, on December 8. Then it steadily fades, never getting back to even 1st magnitude after April, and has its conjunction behind the Sun on November 18. Indeed, there won’t be a Mars opposition in 2024 either, meaning that we will experience a rare 2-year absence of a Martian close encounter.

| | | | | | | | | | | | |
|---------|----------|---|---------|-----------|---|----------|-----------|---|---------|-----------|---|
| Jan. 1 | set 5:41 | E | Apr. 1 | set 2:40 | E | July 1 | set 11:17 | D | Oct. 1 | set 7:15 | B |
| Jan. 11 | set 4:58 | E | Apr. 11 | set 2:21 | E | July 11 | set 10:51 | D | Oct. 11 | set 6:50 | B |
| Jan. 21 | set 4:20 | E | Apr. 21 | set 2:02 | E | July 21 | set 10:25 | D | Oct. 21 | set 6:26 | B |
| Feb. 1 | set 3:46 | E | May 1 | set 1:42 | E | Aug. 1 | set 9:56 | D | Nov. 1 | set 6:02 | B |
| Feb. 11 | set 3:19 | E | May 11 | set 1:21 | E | Aug. 11 | set 9:29 | C | Nov. 11 | set 4:41 | B |
| Feb. 21 | set 2:56 | E | May 21 | set 1:01 | E | Aug. 21 | set 9:02 | C | Nov. 21 | rise 7:07 | E |
| Mar. 1 | set 2:39 | E | June 1 | set 12:33 | E | Sept. 1 | set 8:33 | C | Dec. 1 | rise 7:05 | E |
| Mar. 11 | set 2:19 | E | June 11 | set 12:10 | E | Sept. 11 | set 8:07 | C | Dec. 11 | rise 7:02 | E |
| Mar. 21 | set 3:00 | E | June 21 | set 11:43 | D | Sept. 21 | set 7:40 | C | Dec. 21 | rise 6:59 | E |
| | | | | | | | | | Dec. 31 | rise 6:54 | E |

BOLD = P.M. LIGHT = A.M.

JUPITER

24

Unlike fast-moving Mercury and Venus and the chameleon Mars, Jupiter is steadier and more predictable. Earth's much faster speed causes it to pass the Gas Giant every 13 months. At such oppositions, Jupiter grows brighter and bigger but not spectacularly so. This makes the planet's opposition on November 3 an occasion of note, especially since optimum viewing conditions will last for a few weeks. Jupiter's brilliance, an impressive magnitude -2.9 , is topped this year only by that of Venus, so its conjunctions with the Moon and other planets are eye-catching affairs.

| | | | | | | | | | | | | | | | |
|---------|-----|-------|---|---------|------|------|---|----------|------|-------|---|---------|------|------|---|
| Jan. 1 | set | 11:24 | C | Apr. 1 | set | 8:06 | D | July 1 | rise | 1:56 | B | Oct. 1 | rise | 8:04 | B |
| Jan. 11 | set | 10:52 | C | Apr. 11 | rise | 6:33 | B | July 11 | rise | 1:21 | B | Oct. 11 | rise | 7:23 | B |
| Jan. 21 | set | 10:21 | C | Apr. 21 | rise | 5:59 | B | July 21 | rise | 12:45 | B | Oct. 21 | rise | 6:40 | B |
| Feb. 1 | set | 9:48 | C | May 1 | rise | 5:25 | B | Aug. 1 | rise | 12:06 | B | Nov. 1 | rise | 5:53 | B |
| Feb. 11 | set | 9:20 | C | May 11 | rise | 4:51 | B | Aug. 11 | rise | 11:25 | B | Nov. 11 | set | 6:10 | D |
| Feb. 21 | set | 8:51 | C | May 21 | rise | 4:17 | B | Aug. 21 | rise | 10:48 | B | Nov. 21 | set | 5:24 | D |
| Mar. 1 | set | 8:29 | C | June 1 | rise | 3:39 | B | Sept. 1 | rise | 10:05 | B | Dec. 1 | set | 4:39 | D |
| Mar. 11 | set | 8:02 | C | June 11 | rise | 3:05 | B | Sept. 11 | rise | 9:26 | B | Dec. 11 | set | 3:56 | D |
| Mar. 21 | set | 8:35 | D | June 21 | rise | 2:31 | B | Sept. 21 | rise | 8:46 | B | Dec. 21 | set | 3:14 | D |
| | | | | | | | | | | | | Dec. 31 | set | 2:34 | D |

SATURN

h

The Ringed Planet starts the year low in the west at dusk, in Aquarius. After its conjunction with Venus on January 22, Saturn sinks lower into twilight before becoming lost by month's end. It emerges in the east as a morning star in April, to remain visible for the rest of the year. Saturn's rings are angled at an intermediate position, observable through any telescope with more than 30 \times magnification. The planet comes up before midnight in July, brightening until its opposition on August 27. In December, Saturn stands on the meridian, due south, at its highest position at nightfall. Look for it to meet the Moon on December 17.

| | | | | | | | | | | | | | | | |
|---------|------|------|---|---------|------|-------|---|----------|------|-------|---|---------|-----|-------|---|
| Jan. 1 | set | 7:58 | B | Apr. 1 | rise | 5:31 | D | July 1 | rise | 11:40 | D | Oct. 1 | set | 3:51 | B |
| Jan. 11 | set | 7:24 | B | Apr. 11 | rise | 4:54 | D | July 11 | rise | 11:01 | D | Oct. 11 | set | 3:09 | B |
| Jan. 21 | set | 6:51 | B | Apr. 21 | rise | 4:17 | D | July 21 | rise | 10:20 | D | Oct. 21 | set | 2:28 | B |
| Feb. 1 | set | 6:14 | B | May 1 | rise | 3:39 | D | Aug. 1 | rise | 9:36 | D | Nov. 1 | set | 1:44 | B |
| Feb. 11 | set | 5:42 | B | May 11 | rise | 3:02 | D | Aug. 11 | rise | 8:55 | D | Nov. 11 | set | 12:05 | B |
| Feb. 21 | rise | 6:54 | D | May 21 | rise | 2:24 | D | Aug. 21 | rise | 8:14 | D | Nov. 21 | set | 11:23 | B |
| Mar. 1 | rise | 6:25 | D | June 1 | rise | 1:42 | D | Sept. 1 | set | 6:00 | B | Dec. 1 | set | 10:46 | B |
| Mar. 11 | rise | 5:48 | D | June 11 | rise | 1:03 | D | Sept. 11 | set | 5:16 | B | Dec. 11 | set | 10:10 | B |
| Mar. 21 | rise | 6:11 | D | June 21 | rise | 12:24 | D | Sept. 21 | set | 4:33 | B | Dec. 21 | set | 9:34 | B |
| | | | | | | | | | | | | Dec. 31 | set | 8:59 | B |

MERCURY

♀

From Earth, Mercury's observed year appears to be only about 4 months long: It spends about 2 months as a morning star visible before dawn and then, after a hiatus, emerges as an evening star low in the west after sunset.

Between these windows of visibility, the planet is either behind the Sun or in front of it, lost in glare. To be observable, Mercury must be at least 5 degrees above the horizon 40 minutes before sunrise or after sunset and boast a brilliance of at least 1st magnitude. This year, its most favorable evening star conditions happen in mid-April, while in the predawn eastern sky, Mercury will be best in early September.

DO NOT CONFUSE: Mars with Taurus's brightest star, Aldebaran, on Feb. 3. Both are orange, but Mars is brighter and higher. • Jupiter with Venus on Feb. 28 and March 1, when they meet at nightfall in the west for the year's best conjunction. Venus is brighter. • Mercury with Mars on Aug. 3, low in the west after sunset. Both are orange, but Mercury is brighter. • Uranus with the stars in Taurus on Nov. 13. Uranus is the green "star" halfway between Jupiter and the Pleiades star cluster.

ASTRONOMICAL GLOSSARY

APHELION (APH.): The point in a planet's orbit that is farthest from the Sun.

APOGEE (APO.): The point in the Moon's orbit that is farthest from Earth.

CELESTIAL EQUATOR (EQ.): The imaginary circle around the celestial sphere that can be thought of as the plane of Earth's equator projected out onto the sphere.

CELESTIAL SPHERE: An imaginary sphere projected into space that represents the entire sky, with an observer on Earth at its center. All celestial bodies other than Earth are imagined as being on its inside surface.

CIRCUMPOLAR: Always visible above the horizon, such as a circumpolar star.

CONJUNCTION: The time at which two or more celestial bodies appear closest in the sky. **Inferior (Inf.):** Mercury or Venus is between the Sun and Earth. **Superior (Sup.):** The Sun is between a planet and Earth. Actual dates for conjunctions are given on the **Right-Hand Calendar Pages, 121–147**; the best times for viewing the closely aligned bodies are given in **Sky Watch** on the **Left-Hand Calendar Pages, 120–146**.

DECLINATION: The celestial latitude of an object in the sky, measured in degrees north or south of the celestial equator; comparable to latitude on Earth. This Almanac gives the Sun's declination at noon.

ECLIPSE, LUNAR: The full Moon enters the shadow of Earth, which cuts off all or part of the sunlight reflected off the Moon. **Total:** The Moon passes completely through the umbra (central dark part) of Earth's shadow. **Partial:** Only part of the Moon passes through the umbra. **Penumbral:** The Moon passes through only the penumbra (area of partial darkness surrounding the umbra). See **page 102** for more information about eclipses.

ECLIPSE, SOLAR: Earth enters the shadow of the new Moon, which cuts off all or part of the Sun's light. **Total:** Earth passes through the umbra (central dark part) of the Moon's shadow, resulting in totality for observers within a narrow band on Earth. **Annular:** The Moon appears silhouetted against the Sun, with a ring of sunlight showing around it. **Partial:** The Moon blocks only part of the Sun.

ECLIPTIC: The apparent annual path of the Sun around the celestial sphere. The plane of the ecliptic is tipped $23\frac{1}{2}^\circ$ from the celestial equator.

ELONGATION: The difference in degrees between the celestial longitudes of a planet and the Sun. **Greatest Elongation (Gr. Elong.):** The greatest apparent distance of a planet from the Sun, as seen from Earth.

EPACT: A number from 1 to 30 that indicates the Moon's age on January 1 at Greenwich, England; used in determining the date of Easter.

EQUINOX: When the Sun crosses the celestial equator. This event occurs two times each year: **Vernal** is around March 20 and **Autumnal** is around September 22.

EVENING STAR: A planet that is above the western horizon at sunset and less than 180° east of the Sun in right ascension.

GOLDEN NUMBER: A number in the 19-year Metonic cycle of the Moon, used in determining the date of Easter. See **page 149** for this year's Golden Number.

MAGNITUDE: A measure of a celestial object's brightness. **Apparent magnitude** measures the brightness of an object as seen from Earth. Objects with an apparent magnitude of 6 or less are observable to the naked eye. The lower the magnitude, the greater the brightness; an object with a magnitude of -1 , e.g., is brighter than one with a magnitude of $+1$.

(continued)

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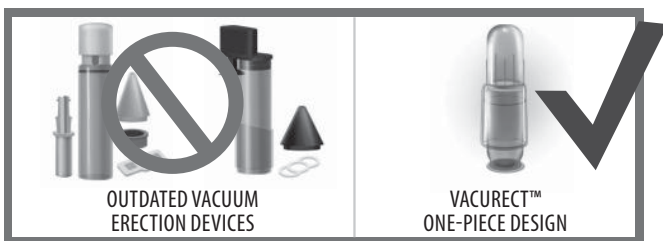
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ASTRONOMICAL GLOSSARY

MIDNIGHT: Astronomically, the time when the Sun is opposite its highest point in the sky. Both 12 hours before and after noon (so, technically, both A.M. and P.M.), midnight in civil time is usually treated as the beginning of the day. It is displayed as 12:00 A.M. on 12-hour digital clocks. On a 24-hour cycle, 00:00, not 24:00, usually indicates midnight.

MOON ON EQUATOR: The Moon is on the celestial equator.

MOON RIDES HIGH/RUNS LOW: The Moon is highest above or farthest below the celestial equator.

MOONRISE/MOONSET: When the Moon rises above or sets below the horizon.

MOON'S PHASES: The changing appearance of the Moon, caused by the different angles at which it is illuminated by the Sun. **First Quarter:** Right half of the Moon is illuminated. **Full:** The Sun and the Moon are in opposition; the entire disk of the Moon is illuminated. **Last Quarter:** Left half of the Moon is illuminated. **New:** The Sun and the Moon are in conjunction; the Moon is darkened because it lines up between Earth and the Sun.

MOON'S PLACE, Astronomical: The position of the Moon within the constellations on the celestial sphere at midnight. **Astrological:** The position of the Moon within the tropical zodiac, whose twelve 30° segments (signs) along the ecliptic were named more than 2,000 years ago after constellations within each area. Because of precession and other factors, the zodiac signs no longer match actual constellation positions.

MORNING STAR: A planet that is above the eastern horizon at sunrise and less than 180° west of the Sun in right ascension.

NODE: Either of the two points where a celestial body's orbit intersects the

ecliptic. **Ascending:** When the body is moving from south to north of the ecliptic. **Descending:** When the body is moving from north to south of the ecliptic.

OCCULTATION (OCCN.): When the Moon or a planet eclipses a star or planet.

OPPOSITION: The Moon or a planet appears on the opposite side of the sky from the Sun (elongation 180°).

PERIGEE (PERIG.): The point in the Moon's orbit that is closest to Earth.

PERIHELION (PERIH.): The point in a planet's orbit that is closest to the Sun.

PRECESSION: The slowly changing position of the stars and equinoxes in the sky caused by a slight wobble as Earth rotates around its axis.

RIGHT ASCENSION (R.A.): The celestial longitude of an object in the sky, measured eastward along the celestial equator in hours of time from the vernal equinox; comparable to longitude on Earth.

SOLSTICE, Summer: When the Sun reaches its greatest declination (23½°) north of the celestial equator, around June 21. **Winter:** When the Sun reaches its greatest declination (23½°) south of the celestial equator, around December 21.

STATIONARY (STAT.): The brief period of apparent halted movement of a planet against the background of the stars shortly before it appears to move backward/westward (retrograde motion) or forward/eastward (direct motion).

SUN FAST/SLOW: When a sundial is ahead of (fast) or behind (slow) clock time.

SUNRISE/SUNSET: The visible rising/setting of the upper edge of the Sun's disk across the unobstructed horizon of an observer whose eyes are 15 feet above ground level.

TWILIGHT: See page 106. ■

Note: These definitions apply to the Northern Hemisphere; some do not hold true for locations in the Southern Hemisphere.



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| JANUARY | | | | | | | FEBRUARY | | | | | | | 2022 | | | | | | | MARCH | | | | | | | APRIL | | | | | | |
|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|------|----|----|----|----|----|----|-------|----|----|----|----|----|----|-------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| 2 | 3 | 4 | 5 | 6 | 7 | 1 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 27 | 28 | | | | | | 27 | 28 | 29 | 30 | 31 | | | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 30 | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| JANUARY | | | | | | | FEBRUARY | | | | | | | 2023 | | | | | | | MARCH | | | | | | | APRIL | | | | | | |
|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|------|----|----|----|----|----|----|-------|----|----|----|----|----|----|-------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 29 | 30 | 31 | | | | | 26 | 27 | 28 | | | | | 26 | 27 | 28 | 29 | 30 | 31 | | 30 | 31 | | | | | | 30 | | | | | | |

| JANUARY | | | | | | | FEBRUARY | | | | | | | 2024 | | | | | | | MARCH | | | | | | | APRIL | | | | | | |
|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|------|----|----|----|----|----|----|-------|----|----|----|----|----|----|-------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | | 25 | 26 | 27 | 28 | 29 | | | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 28 | 29 | 30 | | | | | 28 | 29 | 30 | | | | |

A CALENDAR OF THE HEAVENS FOR 2023



The Calendar Pages (120–147) are the heart of *The Old Farmer's Almanac*. They present sky sightings and astronomical data for the entire year and are what make this book a true almanac, a “calendar of the heavens.” In essence, these pages are unchanged since 1792, when Robert B. Thomas published his first edition. The long columns of numbers and symbols reveal all of nature’s precision, rhythm, and glory, providing an astronomical look at the year 2023.

HOW TO USE THE CALENDAR PAGES

The astronomical data on the **Calendar Pages (120–147)** are calculated for Ottawa, Ontario. Guidance for calculating the times of these events for your locale appears on **pages 116–117**. Note that the results will be *approximate*. Find the *exact* time of any astronomical event at your locale via **Almanac.ca/2023**. You can also go to **Almanac.ca/SkyMap** to print each month’s “Sky Map,” which can be useful for viewing with “Sky Watch” in the Calendar Pages.

For a list of 2023 holidays and observances, see **pages 148–149**. Also check out the **Glossary of Almanac Oddities** on **pages 150–151**, which describes some of the more obscure entries traditionally found on the **Right-Hand Calendar Pages (121–147)**.

ABOUT THE TIMES: All times are given in ET (Eastern Time), except where otherwise noted as NT (Newfoundland Time, +1½ hours), AT (Atlantic Time, +1 hour), CT (Central Time, -1), MT (Mountain Time, -2), or PT (Pacific Time, -3). Between 2:00 A.M., March 12, and 2:00 A.M., November 5, Daylight Saving Time is assumed in those locales where it is observed.

ABOUT THE TIDES: For tidal information, see **pages 120–147, 237, and 238–239**. Tide times and heights also are available via **Almanac.ca/2023**.

The Left-Hand Calendar Pages, 120 to 146

On these pages are the year's astronomical predictions for Ottawa, Ontario (45°25' N, 75°42' W). Learn how to calculate the times of these events for your locale here or via Almanac.ca/2023.

A SAMPLE MONTH

SKY WATCH: The paragraph at the top of each Left-Hand Calendar Page describes the best times to view conjunctions, meteor showers, planets, and more. (Also see [How to Use the Right-Hand Calendar Pages, page 118.](#))

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
|-------------|--------------|-------------|----------------|----------|---------------|---------|------------------------|----------------|------------------------|----------------------------|----------------|----------|---------------|---------|---------------|-----|----|--|
| | | | RISES H. M. | RISE KEY | SETS H. M. | SET KEY | LENGTH OF DAY H. M. | SUN FAST M. | SUN DECLINATION ° I | HIGH TIDE TIMES HALIFAX | RISES H. M. | RISE KEY | SETS H. M. | SET KEY | ASTRON. PLACE | AGE | | |
| 60 | 1 | Fr. | 6:41 | D | 5:50 | B | 11 09 | *15 | 7 s. 30 | 4 | 5 | 3:59 | E | 1:07 | A | SAG | 25 | |
| 61 | 2 | Sa. | 6:40 | D | 5:51 | B | 11 11 | *15 | 7 s. 07 | 5 | 6 | 4:45 | E | 2:01 | A | SAG | 26 | |
| 62 | 3 | F | 6:38 | D | 5:52 | C | 11 14 | *15 | 6 s. 44 | 6 | 6½ | 5:24 | E | 2:58 | A | CAP | 27 | |
| 63 | 4 | M. | 6:36 | D | 5:54 | C | 11 18 | *14 | 6 s. 21 | 6½ | 7½ | 5:58 | D | 3:57 | B | CAP | 28 | |

1. To calculate the sunrise time in your locale: Choose a day. Note its Sun Rise Key Letter. Find your (nearest) city on [page 240](#). Add or subtract the minutes that correspond to the Sun Rise Key Letter to/from the sunrise time for Ottawa.[†]

EXAMPLE:

To calculate the sunrise time in Vancouver, British Columbia, on day 1:

Sunrise, Ottawa,
with Key Letter D (above) 6:41 A.M. ET

Value of Key Letter D
for Vancouver (p. 240) + 17 minutes

Sunrise, Vancouver 6:58 A.M. PT

To calculate your sunset time, repeat, using Ottawa's sunset time and its Sun Set Key Letter value.

2. To calculate the length of day: Choose a day. Note the Sun Rise and Sun Set Key Letters. Find your (nearest) city on [page 240](#). Add or subtract the minutes that correspond to the Sun Set Key Letter to/from Ottawa's

length of day. Reverse the sign (e.g., minus to plus) of the Sun Rise Key Letter minutes. Add or subtract it to/from the first result.

EXAMPLE:

To calculate the length of day in Brandon, Manitoba, on day 1:

Length of day, Ottawa (above) 11h. 09m.
Sunset Key Letter B
for Brandon (p. 240) + 28m.
11h. 37m.

Reverse sunrise Key Letter D
for Brandon (p. 240, +46 to -46) - 46m.

Length of day, Brandon 10h. 51m.

3. Use Sun Fast to change sundial time to clock time. A sundial reads natural (Sun) time, which is neither Standard nor Daylight time. To calculate clock time on a sundial in Ottawa, subtract the minutes given in this column; add the minutes when preceded by an asterisk [*].



[†]For locations where Daylight Saving Time is never observed, subtract 1 hour from results between the second Sunday of March and first Sunday of November.

To convert the time to your (nearest) city, use Key Letter C on **page 240**.

EXAMPLE:

To change sundial to clock time in Ottawa or Thunder Bay, Ont., on day 1:

| | |
|--|-----------------|
| Sundial reading (Ottawa or Thunder Bay) | 12:00 noon |
| Add Sun Fast (p. 116) | + 15 minutes |
| Clock time, Ottawa | 12:15 P.M. ET** |
| Use Key Letter C for Thunder Bay (p. 241) | + 53 minutes |
| Clock time, Thunder Bay | 1:08 P.M. ET** |

**Note: Add 1 hour to the results in locations where Daylight Saving Time is currently observed.

4. This column gives the degrees and minutes of the Sun from the celestial equator at noon ET.

5. This column gives the approximate times of high tides in Halifax. For example, the first high tide occurs at 4:00 A.M. and the second occurs at 5:00 P.M. the same day. (A dash indicates that high tide occurs on or after midnight and is recorded on the next day.) Because of the great variations in tide times and heights on both the east and west coasts, no one locality can be used as a mean. Twice-weekly times and heights of high tides at Churchill, Manitoba, and Vancouver, British Columbia, are provided on **page 238**.

6. To calculate the moonrise time in your locale: Choose a day. Note the Moon Rise Key Letter. Find your (nearest) city on **page 240**. Add or subtract the minutes that correspond to the Moon Rise

Key Letter to/from the moonrise time given for Ottawa. (A dash indicates that the moonrise occurs on/after midnight and is recorded on the next day.) Find the longitude of your (nearest) city on **page 240**. Add a correction in minutes for your city's longitude (see table, bottom left). Use the same procedure with Ottawa's moonset time and the Moon Set Key Letter value to calculate the time of moonset in your locale.†

EXAMPLE:

To calculate the time of moonset in Toronto, Ontario, on day 1:

| | |
|--|--------------|
| Moonset, Ottawa, with Key Letter A (p. 116) | 1:07 P.M. ET |
| Value of Key Letter A for Toronto (p. 241) | + 21 minutes |
| Correction for Toronto longitude, 79° 23' | + 1 minute |
| Moonset, Toronto | 1:29 P.M. ET |

7. This column gives the Moon's *astromical* position among the constellations (not zodiac) at midnight. For *astrological* data, see **pages 224-227**.

Constellations have irregular borders; on successive nights, the midnight Moon may enter one, cross into another, and then move to a new area of the previous. It visits the 12 zodiacal constellations, as well as Auriga (**AUR**), a northern constellation between Perseus and Gemini; Cetus (**CET**), which lies south of the zodiac, just south of Pisces and Aries; Ophiuchus (**OPH**), primarily north of the zodiac but with a small corner between Scorpius and Sagittarius; Orion (**ORI**), whose northern limit first reaches the zodiac between Taurus and Gemini; and Sextans (**SEX**), which lies south of the zodiac except for a corner that just touches it near Leo.

8. This column gives the Moon's age: the number of days since the previous new Moon. (The average length of the lunar month is 29.53 days.) (cont.)

| LONGITUDE OF CITY | CORRECTION MINUTES | LONGITUDE OF CITY | CORRECTION MINUTES |
|-------------------------|-----------------------|-------------------------|-----------------------|
| 58°-76° | 0 | 116°-127° | +4 |
| 77°-89° | +1 | 128°-141° | +5 |
| 90°-102° | +2 | 142°-155° | +6 |
| 103°-115° | +3 | | |

The Right-Hand Calendar Pages, 121 to 147

The Right-Hand Calendar Pages contain celestial events; religious observances; proverbs and poems; civil holidays; historical events; folklore; tide heights; weather prediction rhymes; Farmer's Calendar essays; and more.

A SAMPLE MONTH

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|----------|---|---|---|---|---|---|---|-------------------|-----------------------------------|--|
| 1 | Fr. | ALL FOOLS' • <i>If you want to make a fool of yourself, you'll find a lot of people ready to help you.</i> | | | | | | | <i>Flakes</i> | an inch long, who v | |
| 2 | Sa. | Tap dancer Charles "Honi" Coles born, 1911 • Tides $\left\{ \begin{smallmatrix} 5.1 \\ 5.0 \end{smallmatrix} \right.$ | | | | | | | <i>alive!</i> | in fresh water, pro | |
| 3 | B | 2nd S. of Easter • Writer F. Scott Fitzgerald married Zelda Sayre, 1920 | | | | | | | <i>Spring's</i> | emerged a month d | |
| 4 | M. | Annunciation † • ♂♄♃ • <i>Ben Hur</i> won 11 Academy Awards, 1960 | | | | | | | <i>arrived!</i> | to spend the next 3 | |
| 5 | Tu. | ♃AT♄ • Blizzard left 27.2" snow, St. John's, Nfld., 1999 • Tides $\left\{ \begin{smallmatrix} 5.8 \\ 6.2 \end{smallmatrix} \right.$ | | | | | | | <i>Or is this</i> | on land before ret | |
| 6 | W. | ♃ ^{ON} EQ. • ♂♀♃ • Twin mongoose lemurs born, Busch Gardens, Tampa, Fla., 2012 | | | | | | | <i>warmth</i> | their wet world. You can't mis | |

1. The bold letter is the Dominical Letter (from A to G), a traditional ecclesiastical designation for Sunday determined by the date on which the year's first Sunday falls. For 2023, the Dominical Letter is **A**.

2. Civil holidays and astronomical events.

3. Religious feasts: A[†] indicates a major feast that the church has this year temporarily transferred to a date other than its usual one.

4. Sundays and special holy days.

5. Symbols for notable celestial events. For example, ♂♄♃ on the 4th day means that a conjunction (♄) of Neptune (♃) and the Moon (♃) occurs.

6. Proverbs, poems, and adages.

7. Noteworthy historical events, folklore, and legends.

8. High tide heights, in feet, at Halifax, Nova Scotia.

9. Weather prediction rhyme.

10. Farmer's Calendar essay.

Celestial Symbols

| | | | | |
|-----------|-----------|-----------|----------------------|-------------------|
| ☉ Sun | ♁ Earth | ♅ Uranus | ♄ Conjunction | ♁ Descending node |
| ☾ Moon | ♂ Mars | ♆ Neptune | (on the same | ♁ Opposition |
| ♿ Mercury | ♃ Jupiter | ♇ Pluto | celestial longitude) | (180 degrees |
| ♀ Venus | ♄ Saturn | | | from Sun) |
| | | | ♁ Ascending node | |

PREDICTING EARTHQUAKES

Note the dates in the Right-Hand Calendar Pages when the Moon rides high or runs low. The date of the high begins the most likely 5-day period of earthquakes in the Northern Hemisphere; the date of the low indicates a similar 5-day period in the Southern Hemisphere. Also noted are the 2 days each month when the Moon is on the celestial equator, indicating the most likely time for earthquakes in either hemisphere.

EARTH AT PERIHELION AND APHELION

Perihelion: January 4, 2023 (EST). Earth will be 91,403,034 miles from the Sun. **Aphelion:** July 6, 2023 (EDT). Earth will be 94,506,364 miles from the Sun.

Why We Have Seasons

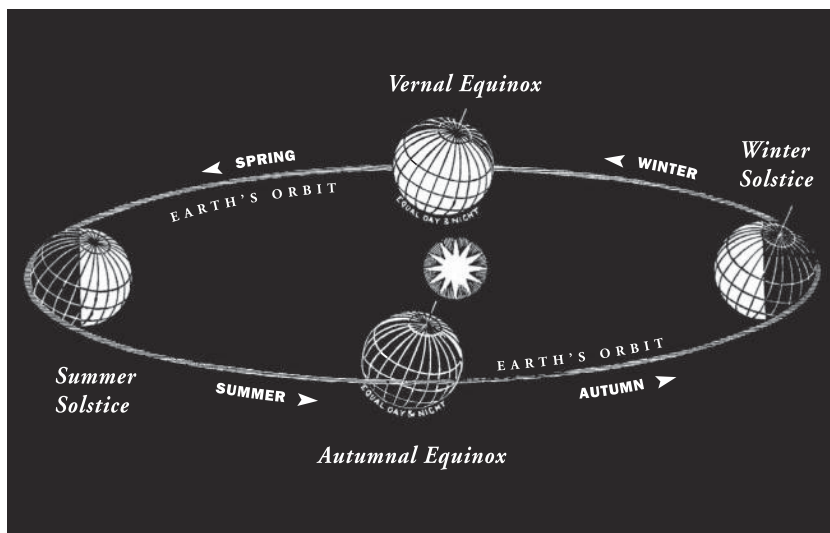


The seasons occur because as Earth revolves around the Sun, its axis remains tilted at 23.5 degrees from the perpendicular. This tilt causes different latitudes on Earth to receive varying amounts of sunlight throughout the year.

In the Northern Hemisphere, the summer solstice marks the beginning of summer and occurs when the North Pole is tilted toward the Sun. The winter solstice marks the beginning of winter and occurs when the North Pole is tilted away from the Sun.

The equinoxes occur when the hemispheres equally face the Sun. At this time, the Sun rises due east and sets due west. The vernal equinox marks the beginning of spring; the autumnal equinox marks the beginning of autumn.

In the Southern Hemisphere, the seasons are the reverse of those in the Northern Hemisphere.



THE FIRST DAYS OF THE 2023 SEASONS

VERNAL (SPRING) EQUINOX: March 20, 5:24 P.M. EDT

SUMMER SOLSTICE: June 21, 10:58 A.M. EDT

AUTUMNAL (FALL) EQUINOX: Sept. 23, 2:50 A.M. EDT

WINTER SOLSTICE: Dec. 21, 10:27 P.M. EST

NOVEMBER 2022

SKY WATCH: Now and for the remainder of the year, the action happens solely in the evening sky, except for on the night of the 7th-8th, when a very nice total eclipse of the Moon is at least partially visible from the entire U.S. and Canada during the second half of the night. West of the Mississippi, the eclipse may be seen in its entirety. The Moon features prominently throughout this month, as it dangles below Saturn on the 1st, closely below Jupiter on the 4th, above Mars on the 10th, below Mars on the 11th, to the left of Virgo's blue star Spica on the 21st, below Saturn again on the 28th, and halfway between Jupiter and Saturn on the 30th.

- ☉ **FIRST QUARTER** 1st day 2:37 A.M. ● **NEW MOON** 23rd day 5:57 P.M.
- ☾ **FULL MOON** 8th day 6:02 A.M. ● **FIRST QUARTER** 30th day 9:37 A.M.
- ☾ **LAST QUARTER** 16th day 8:27 A.M.

After 2:00 A.M. on November 6, Eastern Standard Time is given.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES | | ☀ SETS | | LENGTH OF DAY | SUN FAST | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | | ☾ RISES | | ☾ SETS | | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|---------|----------|-------------|---------|---------------|----------|-----------------|-----------|-------------------------|--------------|---------|--------------|--------|---------|-----------|-----------------|-------|
| | | | H. M. | RISE KEY | H. M. | SET KEY | | | H. M. | M. | ° | ' | H. M. | RISE KEY | H. M. | SET KEY | | | |
| 305 | 1 | Tu. | 7:42 | D | 5:50 | B | 10 08 | 14 | 14 s. 34 | 2 | 2¼ | 3:13 | E | — | — | CAP | 7 | | |
| 306 | 2 | W. | 7:44 | D | 5:49 | B | 10 05 | 14 | 14 s. 53 | 3¼ | 3½ | 3:41 | D | 12:37 | A | CAP | 8 | | |
| 307 | 3 | Th. | 7:45 | D | 5:47 | B | 10 02 | 14 | 15 s. 12 | 4¼ | 4¾ | 4:04 | D | 1:55 | B | AQU | 9 | | |
| 308 | 4 | Fr. | 7:46 | D | 5:46 | B | 10 00 | 14 | 15 s. 30 | 5¼ | 6 | 4:24 | C | 3:11 | B | AQU | 10 | | |
| 309 | 5 | Sa. | 7:48 | D | 5:44 | B | 9 56 | 14 | 15 s. 49 | 6¼ | 6½ | 4:43 | C | 4:25 | C | PSC | 11 | | |
| 310 | 6 | B | 6:49 | D | 4:43 | B | 9 54 | 14 | 16 s. 07 | 6¼ | 6½ | 4:02 | B | 4:37 | C | PSC | 12 | | |
| 311 | 7 | M. | 6:51 | D | 4:42 | B | 9 51 | 14 | 16 s. 24 | 7 | 7¼ | 4:23 | B | 5:48 | D | PSC | 13 | | |
| 312 | 8 | Tu. | 6:52 | D | 4:41 | B | 9 49 | 13 | 16 s. 42 | 7½ | 8 | 4:46 | A | 7:00 | D | ARI | 14 | | |
| 313 | 9 | W. | 6:53 | D | 4:39 | B | 9 46 | 13 | 16 s. 59 | 8¼ | 8¾ | 5:14 | A | 8:11 | E | TAU | 15 | | |
| 314 | 10 | Th. | 6:55 | D | 4:38 | B | 9 43 | 13 | 17 s. 16 | 9 | 9½ | 5:49 | A | 9:19 | E | TAU | 16 | | |
| 315 | 11 | Fr. | 6:56 | D | 4:37 | B | 9 41 | 13 | 17 s. 32 | 9½ | 10¼ | 6:31 | A | 10:23 | E | TAU | 17 | | |
| 316 | 12 | Sa. | 6:57 | E | 4:36 | B | 9 39 | 13 | 17 s. 48 | 10¼ | 11 | 7:22 | A | 11:18 | E | GEM | 18 | | |
| 317 | 13 | B | 6:59 | E | 4:35 | B | 9 36 | 13 | 18 s. 04 | 10¼ | 11½ | 8:20 | A | 12:05 | E | GEM | 19 | | |
| 318 | 14 | M. | 7:00 | E | 4:34 | B | 9 34 | 13 | 18 s. 20 | 11½ | — | 9:23 | A | 12:42 | E | GEM | 20 | | |
| 319 | 15 | Tu. | 7:02 | E | 4:33 | B | 9 31 | 13 | 18 s. 35 | 12¼ | 12¼ | 10:29 | A | 1:12 | E | CAN | 21 | | |
| 320 | 16 | W. | 7:03 | E | 4:32 | B | 9 29 | 12 | 18 s. 50 | 1¼ | 1 | 11:36 | B | 1:36 | D | LEO | 22 | | |
| 321 | 17 | Th. | 7:04 | E | 4:31 | B | 9 27 | 12 | 19 s. 05 | 2¼ | 2¼ | — | — | 1:57 | D | LEO | 23 | | |
| 322 | 18 | Fr. | 7:06 | E | 4:30 | A | 9 24 | 12 | 19 s. 19 | 3½ | 3½ | 12:43 | B | 2:16 | D | LEO | 24 | | |
| 323 | 19 | Sa. | 7:07 | E | 4:29 | A | 9 22 | 12 | 19 s. 33 | 4¼ | 4½ | 1:51 | C | 2:34 | C | VIR | 25 | | |
| 324 | 20 | B | 7:08 | E | 4:28 | A | 9 20 | 12 | 19 s. 47 | 5 | 5¼ | 3:00 | C | 2:52 | C | VIR | 26 | | |
| 325 | 21 | M. | 7:10 | E | 4:27 | A | 9 17 | 11 | 20 s. 00 | 5¼ | 6¼ | 4:13 | D | 3:13 | B | VIR | 27 | | |
| 326 | 22 | Tu. | 7:11 | E | 4:26 | A | 9 15 | 11 | 20 s. 13 | 6¼ | 6¾ | 5:29 | D | 3:37 | B | VIR | 28 | | |
| 327 | 23 | W. | 7:12 | E | 4:26 | A | 9 14 | 11 | 20 s. 26 | 7 | 7½ | 6:50 | E | 4:07 | A | LIB | 0 | | |
| 328 | 24 | Th. | 7:14 | E | 4:25 | A | 9 11 | 10 | 20 s. 38 | 7¼ | 8½ | 8:12 | E | 4:47 | A | SCO | 1 | | |
| 329 | 25 | Fr. | 7:15 | E | 4:24 | A | 9 09 | 10 | 20 s. 50 | 8¼ | 9¼ | 9:31 | E | 5:40 | A | OPH | 2 | | |
| 330 | 26 | Sa. | 7:16 | E | 4:24 | A | 9 08 | 10 | 21 s. 01 | 9¼ | 10 | 10:40 | E | 6:46 | A | SAG | 3 | | |
| 331 | 27 | B | 7:17 | E | 4:23 | A | 9 06 | 9 | 21 s. 12 | 10¼ | 11 | 11:34 | E | 8:04 | A | SAG | 4 | | |
| 332 | 28 | M. | 7:19 | E | 4:23 | A | 9 04 | 9 | 21 s. 22 | 11 | 11¾ | 12:14 | E | 9:25 | A | CAP | 5 | | |
| 333 | 29 | Tu. | 7:20 | E | 4:22 | A | 9 02 | 9 | 21 s. 33 | 12 | — | 12:45 | D | 10:45 | B | CAP | 6 | | |
| 334 | 30 | W. | 7:21 | E | 4:22 | A | 9 01 | 8 | 21 s. 42 | 1 | 1 | 1:10 | D | — | — | AQU | 7 | | |



*Fill your hearts with old-time cheer:
Heaven be thanked for one more year.*
—G. P. Lathrop

Farmer's Calendar

You can measure a kestrel's life span on one hand. But if you're handy, you can increase the chances that this smallest falcon may have a place to lay its eggs, as my neighbor did some 30 years ago.

In 1989, Dave nailed together boards from rough-cut pine, with a hole big enough for his fist to fit. He stationed the box 16 feet up his telephone pole. The first spring, the place stayed vacant. But the second year and ever since, kestrels have been in residence—arriving as early as March 25 or delayed until April 16—depending on the amount of bare ground nearby. Kestrels need snowless patches to hunt mice and other small rodents, and, as the season warms, insects. In late June, Dave spies the nestlings' faces squeezed into the opening; by mid-July, the box is again hollow. In autumn, Dave fetches a ladder to clean his chimney, then he leans it against the pole and climbs up to rake out old bedding. From his pocket he delivers a fistful of clean shavings. On this dim, chill afternoon, he's preparing for the next handful of kestrels that will perch at this opening, taking their first peek at the world.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER |
|--------------|-------------|--|
| 1 | Tu. | All Saints • ☽☾☾ • Space Coast's 321 area code went into effect, Brevard Co., Fla., 1999 • ^{5.3} / _{5.5} <i>Mild</i> |
| 2 | W. | All Souls' • ☾☾☾ • Howard Hughes's <i>Hercules</i> (aka <i>Spruce Goose</i>) wooden aircraft flew 1 mile, 1947 • ^{5.2} / _{5.4} <i>and</i> |
| 3 | Th. | <i>Common sense is not always true.</i> • Tides ^{5.4} / _{5.4} <i>drizzly.</i> |
| 4 | Fr. | ☽☾☾ • ☽☾☾ • Composer Felix Mendelssohn died, 1847 • ^{5.7} / _{5.5} <i>Suddenly</i> |
| 5 | Sa. | Sadie Hawkins • ☾☾☾ • Susan B. Anthony cast ballot, Day • ☾☾☾ • earning \$100 fine, 1872 • <i>gristy:</i> |
| 6 | B | 22nd S. af. ♀. • DAYLIGHT SAVING TIME ENDS, 2:00 A.M. • ^{6.2} / _{5.8} <i>raining</i> |
| 7 | M. | Magnitude 6.3 earthquake struck off coast of Vancouver Island, B.C., 2012 • ^{6.3} / _{5.8} <i>and sleeting</i> |
| 8 | Tu. | ELECTION FULL DAY (U.S.) • BEAVER • ECLIPSE ☾ • ☾ (AT ☽) • ☽☾☾ • ☽ ^{IN SUP.} ☾ |
| 9 | W. | ☽ AT ☽ • Great Boston fire began, 1872 • 1st launch of NASA's Saturn V rocket, 1967 • ^{6.2} / _{5.7} <i>and</i> |
| 10 | Th. | Montreal Canadiens' Armand Mondou awarded 1st penalty shot in NHL, 1934 • Tides ^{6.1} / _{5.6} <i>freezing,</i> |
| 11 | Fr. | St. Martin of Tours • REMEMBRANCE DAY • ☽☾☾ • ^{5.9} / _{5.5} <i>before</i> |
| 12 | Sa. | Indian Summer • ☾ RIDES HIGH • Rain at seven, fine at eleven. • ^{5.7} / _{5.3} <i>easing.</i> |
| 13 | B | 23rd S. af. ♀. • Memorial dedicated, D.C., 1982 • ^{5.5} / _{5.2} <i>Don't</i> |
| 14 | M. | ☾ AT APO. • Insulin co-discoverer Frederick Banting born, 1891 • Tides ^{5.3} / _— <i>drop</i> |
| 15 | Tu. | Artist Georgia O'Keeffe • 49 tornadoes tore through Midwest, 2005 • ^{5.1} / _{5.1} <i>your</i> |
| 16 | W. | Last Hawaiian king, Kalakaua, born, 1836 • Tides ^{5.0} / _{5.0} <i>guard—</i> |
| 17 | Th. | St. Hugh of Lincoln • 1st U.S. patent for clock granted to Eli Terry, 1797 • Tides ^{5.0} / _{4.9} <i>snowing</i> |
| 18 | Fr. | St. Hilda of Whitby • 1st dated book printed in England, <i>Dictes or Sayengis of the Philosophes</i> , 1477 • <i>hard!</i> |
| 19 | Sa. | ☾ ON EQ. • Cat, missing for 3 yrs., reunited w/ owner after walking into hospital, Berlin, N.H., 2020 • <i>You'll</i> |
| 20 | B | 24th. S. af. P. • Princess Elizabeth (later, Queen Elizabeth II) wed Lt. Philip Mountbatten, 1947 • <i>suffer</i> |
| 21 | M. | "Tweety Bird" cartoon character debuted, 1942 • ^{5.9} / _{5.6} <i>without</i> |
| 22 | Tu. | ☾ AT ☽☾ • ☽☽☾ • Filmmaker Gil Cardinal died, 2015 • ^{6.2} / _{5.8} <i>a</i> |
| 23 | W. | St. Clement • NEW • Pleasant hours • Tides ^{6.5} / _{6.0} <i>muffler!</i> |
| 24 | Th. | THANKSGIVING DAY (U.S.) • ☽☾☾ • ☽☾☾ • ☽ STAT. • ^{6.6} / _{6.0} <i>May</i> |
| 25 | Fr. | ☾ AT PERIG. • Record 4-min., 17.9-sec. mile run by P. Robinson in Antarctica (-13°F windchill), 2017 • <i>your</i> |
| 26 | Sa. | ☾ RUNS LOW • Peanuts cartoonist Charles Schulz born, 1922 • Tides ^{6.6} / _{6.0} <i>feast</i> |
| 27 | B | 1st S. of Advent • ☽☾☾ • Announced: UK's Prince Harry engaged to Meghan Markle, 2017 |
| 28 | M. | ☽☾☾ • 1st ad via skywriting, N.Y.C., 1922 • ^{6.2} / _{5.7} <i>be feastly:</i> |
| 29 | Tu. | Pong coin-operated video game debuted, 1972 • Tides ^{5.9} / _— <i>Outside's</i> |
| 30 | W. | St. Andrew • ☽ AT CLOSEST APPROACH • 405-lb. yellowfin tuna caught, Magdalena Bay, Mexico, 2010 • <i>beastly!</i> |

DECEMBER 2022

SKY WATCH: The Moon is again the star of the celestial show throughout this month, as it dangles below Jupiter on the 1st; floats closely and beautifully above Mars on the 7th, when it is full; dangles below Saturn on the 26th; hangs below Jupiter on the 28th; and stands to the left of Jupiter on the 29th. (It is again beautifully close to Mars on January 3, 2023.) Unfortunately, the Moon plays the role of villain for the Geminid meteors on December 13, when its fat gibbous phase casts unwelcome light. During the final week of the year, Venus may be glimpsed as it returns as an evening star, very low in the southwest. Winter in the Northern Hemisphere begins with the solstice on December 21 at 4:48 P.M. EST.

○ **FULL MOON** 7th day 11:08 P.M. ● **NEW MOON** 23rd day 5:17 A.M.
 ● **LAST QUARTER** 16th day 3:56 A.M. ○ **FIRST QUARTER** 29th day 8:21 P.M.

All times are given in Eastern Standard Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES H. M. | ☀ RISE KEY | ☀ SETS H. M. | ☀ SET KEY | LENGTH OF DAY H. M. | SUN FAST M. | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | | ☾ RISES H. M. | ☾ RISE KEY | ☾ SETS H. M. | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|------------------|------------|-----------------|-----------|------------------------|----------------|-----------------|-------|----------------------------|-----|------------------|------------|-----------------|-----------|-----------------|-------|
| | | | | | | | | | ° | ' | | | | | | | | |
| 335 | 1 | Th. | 7:22 | E | 4:21 | A | 8 59 | 8 | 21 | s. 52 | 2 | 2¼ | 1:31 | C | 12:01 | B | AQU | 8 |
| 336 | 2 | Fr. | 7:23 | E | 4:21 | A | 8 58 | 8 | 22 | s. 01 | 3¼ | 3½ | 1:49 | C | 1:15 | C | PSC | 9 |
| 337 | 3 | Sa. | 7:24 | E | 4:21 | A | 8 57 | 7 | 22 | s. 09 | 4¼ | 4½ | 2:08 | B | 2:26 | C | PSC | 10 |
| 338 | 4 | B | 7:25 | E | 4:20 | A | 8 55 | 7 | 22 | s. 17 | 5 | 5½ | 2:27 | B | 3:37 | D | PSC | 11 |
| 339 | 5 | M. | 7:27 | E | 4:20 | A | 8 53 | 6 | 22 | s. 25 | 5¾ | 6¼ | 2:49 | B | 4:47 | D | ARI | 12 |
| 340 | 6 | Tu. | 7:28 | E | 4:20 | A | 8 52 | 6 | 22 | s. 32 | 6½ | 7 | 3:15 | A | 5:57 | E | ARI | 13 |
| 341 | 7 | W. | 7:29 | E | 4:20 | A | 8 51 | 6 | 22 | s. 39 | 7¼ | 7¾ | 3:47 | A | 7:06 | E | TAU | 14 |
| 342 | 8 | Th. | 7:30 | E | 4:20 | A | 8 50 | 5 | 22 | s. 45 | 7¾ | 8½ | 4:26 | A | 8:11 | E | TAU | 15 |
| 343 | 9 | Fr. | 7:31 | E | 4:20 | A | 8 49 | 5 | 22 | s. 51 | 8½ | 9¼ | 5:14 | A | 9:10 | E | TAU | 16 |
| 344 | 10 | Sa. | 7:31 | E | 4:20 | A | 8 49 | 4 | 22 | s. 56 | 9¼ | 9¾ | 6:10 | A | 10:00 | E | GEM | 17 |
| 345 | 11 | B | 7:32 | E | 4:20 | A | 8 48 | 4 | 23 | s. 01 | 9¼ | 10½ | 7:12 | A | 10:41 | E | GEM | 18 |
| 346 | 12 | M. | 7:33 | E | 4:20 | A | 8 47 | 3 | 23 | s. 06 | 10½ | 11¼ | 8:16 | A | 11:13 | E | CAN | 19 |
| 347 | 13 | Tu. | 7:34 | E | 4:20 | A | 8 46 | 3 | 23 | s. 10 | 11 | — | 9:22 | A | 11:39 | E | LEO | 20 |
| 348 | 14 | W. | 7:35 | E | 4:20 | A | 8 45 | 2 | 23 | s. 14 | 12 | 11¼ | 10:28 | B | 12:01 | D | LEO | 21 |
| 349 | 15 | Th. | 7:36 | E | 4:20 | A | 8 44 | 2 | 23 | s. 17 | 12½ | 12½ | 11:34 | B | 12:20 | D | LEO | 22 |
| 350 | 16 | Fr. | 7:36 | E | 4:20 | A | 8 44 | 1 | 23 | s. 19 | 1¼ | 1¼ | — | — | — | — | VIR | 23 |
| 351 | 17 | Sa. | 7:37 | E | 4:21 | A | 8 44 | 1 | 23 | s. 22 | 2¼ | 2½ | 12:41 | C | 12:55 | C | VIR | 24 |
| 352 | 18 | B | 7:38 | E | 4:21 | A | 8 43 | 1 | 23 | s. 23 | 3¼ | 3½ | 1:50 | C | 1:14 | B | VIR | 25 |
| 353 | 19 | M. | 7:38 | E | 4:21 | A | 8 43 | 0 | 23 | s. 25 | 4 | 4¾ | 3:02 | D | 1:35 | B | VIR | 26 |
| 354 | 20 | Tu. | 7:39 | E | 4:22 | A | 8 43 | 0 | 23 | s. 25 | 5 | 5½ | 4:19 | D | 2:01 | A | LIB | 27 |
| 355 | 21 | W. | 7:39 | E | 4:22 | A | 8 43 | *1 | 23 | s. 26 | 5¾ | 6½ | 5:41 | E | 2:36 | A | LIB | 28 |
| 356 | 22 | Th. | 7:40 | E | 4:23 | A | 8 43 | *1 | 23 | s. 26 | 6½ | 7¼ | 7:02 | E | 3:22 | A | SCO | 29 |
| 357 | 23 | Fr. | 7:40 | E | 4:23 | A | 8 43 | *2 | 23 | s. 25 | 7¼ | 8 | 8:18 | E | 4:24 | A | SAG | 0 |
| 358 | 24 | Sa. | 7:41 | E | 4:24 | A | 8 43 | *2 | 23 | s. 24 | 8¼ | 9 | 9:21 | E | 5:39 | A | SAG | 1 |
| 359 | 25 | B | 7:41 | E | 4:25 | A | 8 44 | *3 | 23 | s. 22 | 9 | 9¾ | 10:09 | E | 7:02 | A | CAP | 2 |
| 360 | 26 | M. | 7:41 | E | 4:25 | A | 8 44 | *3 | 23 | s. 20 | 10 | 10¾ | 10:45 | E | 8:27 | A | CAP | 3 |
| 361 | 27 | Tu. | 7:42 | E | 4:26 | A | 8 44 | *4 | 23 | s. 18 | 10¾ | 11¼ | 11:13 | D | 9:47 | B | AQU | 4 |
| 362 | 28 | W. | 7:42 | E | 4:27 | A | 8 45 | *4 | 23 | s. 15 | 11¼ | — | 11:35 | D | 11:04 | B | AQU | 5 |
| 363 | 29 | Th. | 7:42 | E | 4:28 | A | 8 46 | *5 | 23 | s. 11 | 12½ | 12¾ | 11:55 | C | — | — | PSC | 6 |
| 364 | 30 | Fr. | 7:42 | E | 4:29 | A | 8 47 | *5 | 23 | s. 08 | 1½ | 1¾ | 12:14 | C | 12:17 | C | PSC | 7 |
| 365 | 31 | Sa. | 7:42 | E | 4:29 | A | 8 47 | *6 | 23 | s. 03 | 2½ | 2¾ | 12:33 | B | 1:28 | D | PSC | 8 |



*Holly, fir, and spruce boughs / Green upon the wall,
Spotless snow upon the road— / More going to fall.*
—Unknown

Farmer's Calendar

Plowing the roads of Cabot, Vermont, is the second-best job Walter "Rusty" Churchill's ever had. First best? Dairy farming, which he did for 30 years. He didn't know what he'd do after he sold his cows. He thought about taking a shift at the Cabot Creamery; then someone mentioned a job opening at the town garage and encouraged Rusty to throw his name in for it. They hired another guy, but he didn't last. So that's how, for over a decade now, Rusty's knack for spreading lime and manure and tilling soil makes him an ace at scattering salt and sand and plowing for his hometown. The hours are similar—Thanksgiving, Christmas, New Year's, Easter—he works them all. But, he admits, it's satisfying to clear a path after a huge storm: "Then it seems like you're doing something." Rusty's route includes some of the town's 65 miles of black-top, hilltop, and back roads. "There aren't too many out this early," he says of clearing snow long before sunrise. "You've got Creamery help—they have a shift that starts at 4:00 A.M.—and milk trucks. Otherwise, it's just me. Kinda peaceful. As long as the radio works, I'm all set."

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|--------------------|
| 1 | Th. | ♃♄♃ • ♂♂♃ • Writer USN Capt. Edward L. Beach died, 2002 • Tides {5.6 / 5.3} | <i>Numb</i> |
| 2 | Fr. | St. Viviana • ♃ ON EQ. • 1st pizza party in space, ISS, 2017 • Tides {5.7 / 5.2} | <i>and</i> |
| 3 | Sa. | <i>If things were to be done twice, all would be wise.</i> • Tides {5.8 / 5.3} | <i>number,</i> |
| 4 | B | 2nd S. of Advent • ♀ STAT. • Tides {5.9 / 5.4} | <i>with flakes</i> |
| 5 | M. | ♃ AT ♁ • ♂♂♃ • Ship <i>Mary Celeste</i> found abandoned, 1872 • Tides {6.0 / 5.5} | <i>aswirl;</i> |
| 6 | Tu. | St. Nicholas • Everglades Nat'l Park dedicated, Fla., 1947 • Tides {6.0 / 5.5} | <i>bluster</i> |
| 7 | W. | St. Ambrose • NATIONAL PEARL HARBOR FULL REMEMBRANCE DAY (U.S.) • COLD • OCCN. ♃♃ | |
| 8 | Th. | ♃ AT ♃ • 896 couples in N.H./Mo./Colo. kissed under mistletoe, setting world record, 2019 | <i>ceases,</i> |
| 9 | Fr. | ♃ RIDES HIGH • Canada's 1st coin club, Numismatic Society of Montreal, formed, 1862 • Tides {6.0 / 5.5} | <i>sun</i> |
| 10 | Sa. | St. Eulalia • Poet Emily Dickinson born, 1830 • Tides {5.9 / 5.5} | <i>increases.</i> |
| 11 | B | 3rd S. of Advent • ♃ AT APO. • Good words abandoned, 1872 • Tides {5.8 / 5.4} | <i>Hang</i> |
| 12 | M. | OUR LADY OF GUADALUPE • Apollo 17 astronauts discovered orange soil on Moon, 1972 • Tides {5.7 / 5.3} | <i>your</i> |
| 13 | Tu. | St. Lucia • National Day of the Horse (U.S.) • Tides {5.5 / 5.3} | <i>holly:</i> |
| 14 | W. | Ember • Halcyon • <i>Mariner 2</i> passed Venus (1st Day) • Days begin • successful planetary flyby, 1962 | <i>Don't</i> |
| 15 | Th. | Baseball player Dick Stuart died, 2002 • Tides {5.3 / 5.1} | <i>go</i> |
| 16 | Fr. | Ember Day • Lillian Disney (wife of Walt Disney) died, 1997 • Tides {5.3 / 5.0} | <i>out</i> |
| 17 | Sa. | Ember Day • ♃ ON EQ. • France formally recognized American independence, 1777 | <i>without</i> |
| 18 | B | 4th S. of Advent • Chanukah begins at sundown • Tides {5.5 / 4.9} | <i>your</i> |
| 19 | M. | ♃ AT ♁ • 1st season of National Hockey League (NHL), 1917 • Tides {5.7 / 5.1} | <i>broly!</i> |
| 20 | Tu. | Beware the Russian Coffey, oldest known U.S. WWI veteran at time, died at age 109, 2007 | <i>Leave</i> |
| 21 | W. | St. Thomas • WINTER SOLSTICE • ♀ GR. ELONG. (20° EAST) • Tides {6.2 / 5.6} | <i>Santa</i> |
| 22 | Th. | U.S. first lady Claudia "Lady Bird" Johnson born, 1912 • Tides {6.5 / 5.8} | <i>a</i> |
| 23 | Fr. | NEW • ♃ RUNS LOW • Saturn's moon Rhea discovered, 1672 • Tides {6.7 / 6.0} | <i>snack</i> |
| 24 | Sa. | ♃ AT PERIG. • ♀♂♃ • ♀♀♃ • ♂♂♃ • Tides {6.8 / 6.1} | <i>to</i> |
| 25 | B | Christmas • <i>If windy on Christmas Day, trees will bring much fruit.</i> • Tides {6.7 / 6.1} | <i>be</i> |
| 26 | M. | St. Stephen • BOXING • FIRST DAY OF DAY • KWANZAA • ♃ ♃♃ • Tides {6.6 / 6.1} | <i>sure</i> |
| 27 | Tu. | St. John • Chemist Louis Pasteur born, 1822 • 141-lb. 8-oz. Pacific sailfish caught on 4# test line, Piñas Bay, Panama, 1992 | |
| 28 | W. | Holy Innocents • ♂♂♃ • ♀ STAT. • Comic book writer Stan Lee born, 1922 | <i>he comes</i> |
| 29 | Th. | ♃ ON EQ. • ♀♀♃ • ♃♄♃ • Dec. 28–29: 25.5" snow in 24 hrs., Victoria, B.C., 1996 | <i>back.</i> |
| 30 | Fr. | Samoa skipped this day to move from eastern to western side of International Date Line, 2011 • Tides {5.8 / 5.2} | <i>Adieu,</i> |
| 31 | Sa. | St. Sylvester • Gymnast Gabby Douglas born, 1995 • Tides {5.7 / 5.0} | <i>??!</i> |

JANUARY

SKY WATCH: The year begins with our two nearest planetary neighbors displaying opposite properties. January 1 finds Mars at its brightest of the entire year, while Venus is at its dimmest of 2023. However, Venus is on an upward trajectory, appearing higher and brighter each evening. Saturn is the closest bright “star” far above Venus. Observers will enjoy watching Venus and Saturn draw closer every night before a meeting on the 22nd. Meanwhile, the year’s closest Moon occurs on the 21st at a surface-to-surface distance from Earth of just 216,500 miles. Unfortunately, the Moon is in its new phase and therefore not visible. During late January, spectacle abounds at nightfall in the southern sky featuring the Moon, three planets, and eight of the brightest stars, all surrounding Orion.

○ **FULL MOON** 6th day 6:08 P.M. ● **NEW MOON** 21st day 3:53 P.M.
 ◎ **LAST QUARTER** 14th day 9:10 P.M. ○ **FIRST QUARTER** 28th day 10:19 A.M.

All times are given in Eastern Standard Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES | | ☀ SETS | | LENGTH OF DAY | SUN FAST | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | ☾ RISES | | ☾ SETS | | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE | | |
|-------------|--------------|-------------|---------|----------|-------------|---------|---------------|----------|-----------------|-----|-------------------------|--------------|---|--------------|----------|-----------|-----------------|-------|-------|---------|
| | | | H. M. | RISE KEY | H. M. | SET KEY | | | H. M. | M. | | ° | I | H. M. | RISE KEY | | | | H. M. | SET KEY |
| | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | A | 7:43 | E | 4:30 | A | 8 47 | *6 | 22 s. 58 | 3¼ | 4 | 12:54 | B | 2:39 | D | ARI | 9 | | | |
| 2 | 2 | M. | 7:43 | E | 4:31 | A | 8 48 | *7 | 22 s. 53 | 4¼ | 5 | 1:19 | A | 3:48 | E | ARI | 10 | | | |
| 3 | 3 | Tu. | 7:43 | E | 4:32 | A | 8 49 | *7 | 22 s. 47 | 5¼ | 6 | 1:48 | A | 4:57 | E | TAU | 11 | | | |
| 4 | 4 | W. | 7:42 | E | 4:33 | A | 8 51 | *8 | 22 s. 41 | 6 | 6% | 2:24 | A | 6:03 | E | TAU | 12 | | | |
| 5 | 5 | Th. | 7:42 | E | 4:34 | A | 8 52 | *8 | 22 s. 35 | 6¾ | 7½ | 3:09 | A | 7:03 | E | TAU | 13 | | | |
| 6 | 6 | Fr. | 7:42 | E | 4:35 | A | 8 53 | *9 | 22 s. 28 | 7½ | 8% | 4:03 | A | 7:56 | E | GEM | 14 | | | |
| 7 | 7 | Sa. | 7:42 | E | 4:36 | A | 8 54 | *9 | 22 s. 20 | 8¼ | 9 | 5:03 | A | 8:39 | E | GEM | 15 | | | |
| 8 | 8 | A | 7:42 | E | 4:37 | A | 8 55 | *9 | 22 s. 12 | 8¾ | 9½ | 6:07 | A | 9:14 | E | CAN | 16 | | | |
| 9 | 9 | M. | 7:41 | E | 4:39 | A | 8 58 | *10 | 22 s. 04 | 9½ | 10% | 7:12 | A | 9:42 | E | CAN | 17 | | | |
| 10 | 10 | Tu. | 7:41 | E | 4:40 | A | 8 59 | *10 | 21 s. 55 | 10 | 10% | 8:18 | B | 10:05 | D | LEO | 18 | | | |
| 11 | 11 | W. | 7:41 | E | 4:41 | A | 9 00 | *11 | 21 s. 46 | 10¾ | 11% | 9:23 | B | 10:25 | D | LEO | 19 | | | |
| 12 | 12 | Th. | 7:40 | E | 4:42 | A | 9 02 | *11 | 21 s. 36 | 11¼ | — | 10:28 | C | 10:42 | C | LEO | 20 | | | |
| 13 | 13 | Fr. | 7:40 | E | 4:43 | A | 9 03 | *11 | 21 s. 26 | 12 | 12 | 11:35 | C | 10:59 | C | VIR | 21 | | | |
| 14 | 14 | Sa. | 7:39 | E | 4:45 | A | 9 06 | *12 | 21 s. 15 | 12½ | 12% | — | — | 11:17 | B | VIR | 22 | | | |
| 15 | 15 | A | 7:39 | E | 4:46 | A | 9 07 | *12 | 21 s. 04 | 1¼ | 1% | 12:44 | D | 11:36 | B | VIR | 23 | | | |
| 16 | 16 | M. | 7:38 | E | 4:47 | A | 9 09 | *12 | 20 s. 53 | 2¼ | 2% | 1:56 | D | 11:59 | B | LIB | 24 | | | |
| 17 | 17 | Tu. | 7:38 | E | 4:48 | A | 9 10 | *13 | 20 s. 41 | 3¼ | 4 | 3:13 | E | 12:28 | A | LIB | 25 | | | |
| 18 | 18 | W. | 7:37 | E | 4:50 | A | 9 13 | *13 | 20 s. 29 | 4¼ | 5% | 4:32 | E | 1:07 | A | SCO | 26 | | | |
| 19 | 19 | Th. | 7:36 | E | 4:51 | A | 9 15 | *13 | 20 s. 17 | 5¼ | 6% | 5:50 | E | 1:59 | A | OPH | 27 | | | |
| 20 | 20 | Fr. | 7:35 | E | 4:52 | A | 9 17 | *14 | 20 s. 04 | 6¼ | 7 | 7:00 | E | 3:08 | A | SAG | 28 | | | |
| 21 | 21 | Sa. | 7:35 | E | 4:54 | A | 9 19 | *14 | 19 s. 51 | 7 | 8 | 7:56 | E | 4:29 | A | SAG | 0 | | | |
| 22 | 22 | A | 7:34 | E | 4:55 | A | 9 21 | *14 | 19 s. 37 | 8 | 8% | 8:39 | E | 5:56 | A | CAP | 1 | | | |
| 23 | 23 | M. | 7:33 | E | 4:57 | A | 9 24 | *15 | 19 s. 23 | 8¾ | 9% | 9:11 | D | 7:21 | B | CAP | 2 | | | |
| 24 | 24 | Tu. | 7:32 | E | 4:58 | A | 9 26 | *15 | 19 s. 09 | 9½ | 10% | 9:36 | D | 8:43 | B | AQU | 3 | | | |
| 25 | 25 | W. | 7:31 | E | 4:59 | B | 9 28 | *15 | 18 s. 54 | 10½ | 11% | 9:58 | C | 10:01 | C | AQU | 4 | | | |
| 26 | 26 | Th. | 7:30 | E | 5:01 | B | 9 31 | *15 | 18 s. 39 | 11¼ | — | 10:18 | C | 11:15 | C | CET | 5 | | | |
| 27 | 27 | Fr. | 7:29 | E | 5:02 | B | 9 33 | *15 | 18 s. 23 | 12 | 12% | 10:37 | B | — | — | PSC | 6 | | | |
| 28 | 28 | Sa. | 7:28 | E | 5:04 | B | 9 36 | *16 | 18 s. 08 | 12¾ | 1 | 10:58 | B | 12:28 | D | ARI | 7 | | | |
| 29 | 29 | A | 7:27 | E | 5:05 | B | 9 38 | *16 | 17 s. 52 | 1½ | 2 | 11:21 | A | 1:39 | D | ARI | 8 | | | |
| 30 | 30 | M. | 7:26 | E | 5:07 | B | 9 41 | *16 | 17 s. 35 | 2½ | 3% | 11:49 | A | 2:49 | E | TAU | 9 | | | |
| 31 | 31 | Tu. | 7:25 | D | 5:08 | B | 9 43 | *16 | 17 s. 19 | 3½ | 4½ | 12:24 | A | 3:56 | E | TAU | 10 | | | |



*Happy, happy New Year! . . .
We with a welcome greet, / His knocking at our door.*
—Rev. A. William Fiske

Farmer's Calendar

Legend has it that on Twelfth Night (January 5), wild animals can speak. This is certainly true for chickadees, not that they shut up during the rest of the year. If you learn their language, they'll even tell you what they're doing.

Winter is the best time to study these garrulous little birds because they have the silent woods mostly to themselves. Now they flit about in small flocks, hanging from boughs and plucking insect eggs. They have at least 15 distinct vocalizations, and each bird has a dominance rank within the flock.

The familiar "chickadee" call may mean "Hi, how are you all doing?" "Dee-dee-dee-dee" signals alarm. (Eavesdropping nuthatches will "retweet" these alarm calls to their neighbors.) A "Chi-besh" means "Get away—I outrank you."

Members out of visual range keep in contact with a high-pitched "tseet-tseet." The sweet, clear "fee-bee" song of the male (often confused with the raspier song of the male eastern phoebe and heard more as winter progresses) indicates early breeding behavior.

A bird that spots a predator freezes the flock with this warning, spoken in perfect English: "See! See! See! See!"

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER |
|--------------|-------------|---|
| 1 | A | 1st S. Holy NEW YEAR'S . ☾AT ☉•♂♀♁•OCCN. ☽☾ <i>New af. Ch. Name DAY</i> |
| 2 | M. | Ga. became 4th 28-lb. 13-oz. tautog caught, U.S. state, 1788 • Ocean City, Md., 2015 <i>Year's babe in</i> |
| 3 | Tu. | ♂♂ Environmental activist Greta Thunberg born, 2003 • Tides {5.6/5.1} <i>swaddling</i> |
| 4 | W. | St. Elizabeth Ann Seton • ⊕ ^{AT} PERHELION • {5.6/5.2} <i>clothes</i> |
| 5 | Th. | Twelfth Night • ☾RIDES HIGH • Reggie Jackson elected to National Baseball Hall of Fame, 1993 <i>needs a</i> |
| 6 | Fr. | ♁ Epiphany • FULL ☉ • Jan. 6-8: Nor'easter w/ record snow hit U.S. East Coast, 1996 <i>parka</i> |
| 7 | Sa. | Orthodox Christmas (Julian) • Distaff • ♀ IN INF. ♂ • Tides {5.9/5.4} <i>for the</i> |
| 8 | A | 1st S. af. ♁. ☾•☾ ^{AT} AFO. • Entertainer Elvis Presley born, 1935 • {5.9/5.4} <i>snows!</i> |
| 9 | M. | Plough Monday • Conn. became 5th U.S. state, 1788 • {5.8/5.5} <i>Great</i> |
| 10 | Tu. | Thomas Paine's <i>Common Sense</i> published, 1776 • {5.7/5.5} <i>for</i> |
| 11 | W. | <i>Man's best candle is his understanding.</i> • Tides {5.6/5.5} <i>skating,</i> |
| 12 | Th. | ♂ STAT. • Charleston Museum, 1st museum in America, founded, Charleston, S.C., 1773 <i>but cold is</i> |
| 13 | Fr. | St. Hilary • ☾ON EQ. • Meeting to organize National Geographic Society, D.C., 1888 <i>grating.</i> |
| 14 | Sa. | 40,000 pounds liquid chocolate flooded I-40 due to overturned tanker near Flagstaff, Ariz., 2019 • {5.5/5.0} <i>Shovelers</i> |
| 15 | A | 2nd S. af. ♁. • <i>The wind keeps not always in one quarter.</i> • {4.8/5.5} <i>muttering,</i> |
| 16 | M. | MARTIN LUTHER KING JR.'S BIRTHDAY, OBSERVED (U.S.). ☾AT ☽ • Tides {4.5/4.8} <i>flurries</i> |
| 17 | Tu. | U.S. statesman Benjamin Franklin born, 1706 • Singer Eartha Kitt born, 1927 • {5.6/4.9} <i>fluttering.</i> |
| 18 | W. | ♁☾•♀ STAT. • Meteorite (0.66 lb.) crashed through doctors' office, Lorton, Va., 2010 <i>Brief</i> |
| 19 | Th. | Mother Joseph of the Sacred Heart died, 1902 • Actress Jean Stapleton born, 1923 <i>spell of</i> |
| 20 | Fr. | ☾ ^{RUNS LOW} • ♂♂☾ • Naomi Fraley, "We Can Do It!" 1943 poster inspiration, died, 2018 <i>dripping,</i> |
| 21 | Sa. | NEW • ☾AT PERIG. • ♁☾ • Tides {6.6/6.0} <i>then icy hand</i> |
| 22 | A | 3rd S. af. ♁. • LUNAR NEW YEAR (CHINA) • ♂♀♁ • ☽ STAT. <i>gripping,</i> |
| 23 | M. | ♂♀☾•♂♁☾ • Eldfell volcano began to form, Heimay Island, Iceland, 1973 <i>refusing</i> |
| 24 | Tu. | Gold discovered at Sutter's Mill, starting California Gold Rush, Coloma, Calif., 1848 • {6.6/6.4} <i>to ever</i> |
| 25 | W. | Conversion of Paul • ♂♁☾•♂♁☾ • January thaw typically of Paul • ♁ begins about now. <i>let go.</i> |
| 26 | Th. | Sts. Timothy & Titus • ☾ON EQ. • Tides {6.0/6.1} <i>Clear and</i> |
| 27 | Fr. | Jan. 26-29: Atmospheric river caused major West Coast storm, 2021 • Tides {5.6/5.1} <i>frigid,</i> |
| 28 | Sa. | St. Thomas Aquinas • ☾AT ☽ • ♂♁☾ • Astronomer Helen Hogg died, 1993 <i>everything</i> |
| 29 | A | 4th S. af. ♁. • <i>Hearts may agree though heads differ.</i> • {5.6/4.9} <i>rigid.</i> |
| 30 | M. | OCCN. ♂☾ • ♀ GR. ELONG. • Aviator Orville Wright died, 1948 <i>More snow,</i> |
| 31 | Tu. | Raccoons Explorer I, 1st successful mate now. U.S. satellite, launched, 1958 • {5.2/4.6} <i>you know?!</i> |

FEBRUARY

SKY WATCH: As evening twilight fades on the 1st, Saturn may finally be too low, its long evening star apparition ending. On the 3rd, the Moon meets Pollux, the brighter of the legendary Gemini twins. Mars, dimming but still very bright at magnitude -0.2, remains above Taurus's famous orange star, Aldebaran, and outshines it. From the 7th to the 28th, brightening Venus draws closer to Jupiter. On the 27th, the crescent Moon closely meets Mars, while Venus and Jupiter come together nearby. On the 28th, the night's brightest stars begin to merge to create an amazing configuration. This Venus/Jupiter conjunction shouldn't be missed, although they are so low in the fading evening twilight that they require a totally unblocked western horizon for viewing.

○ **FULL MOON** 5th day 1:29 P.M. ● **NEW MOON** 20th day 2:06 A.M.
 ● **LAST QUARTER** 13th day 11:01 A.M. ● **FIRST QUARTER** 27th day 3:06 A.M.

All times are given in Eastern Standard Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES | | ☀ SETS | | LENGTH OF DAY | SUN FAST | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | | ☾ RISES | ☾ SETS | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE | |
|-------------|--------------|-------------|---------|----------|-------------|---------|---------------|----------|-----------------|-------|-------------------------|-----|--------------|----------|-----------|-----------------|-------|-------|
| | | | H. M. | RISE KEY | H. M. | SET KEY | | | H. M. | M. | ° | ' | H. M. | RISE KEY | | | | H. M. |
| 32 | 1 | W. | 7:24 | D | 5:09 | B | 9 45 | *16 | 17 | s. 02 | 4% | 5% | 1:06 | A | 4:58 | E | TAU | 11 |
| 33 | 2 | Th. | 7:23 | D | 5:11 | B | 9 48 | *16 | 16 | s. 44 | 5% | 6½ | 1:56 | A | 5:53 | E | GEM | 12 |
| 34 | 3 | Fr. | 7:21 | D | 5:12 | B | 9 51 | *16 | 16 | s. 27 | 6½ | 7% | 2:55 | A | 6:39 | E | GEM | 13 |
| 35 | 4 | Sa. | 7:20 | D | 5:14 | B | 9 54 | *17 | 16 | s. 09 | 7% | 8 | 3:58 | A | 7:16 | E | CAN | 14 |
| 36 | 5 | A | 7:19 | D | 5:15 | B | 9 56 | *17 | 15 | s. 51 | 8 | 8½ | 5:04 | A | 7:46 | E | CAN | 15 |
| 37 | 6 | M. | 7:17 | D | 5:17 | B | 10 00 | *17 | 15 | s. 32 | 8½ | 9 | 6:10 | B | 8:10 | D | LEO | 16 |
| 38 | 7 | Tu. | 7:16 | D | 5:18 | B | 10 02 | *17 | 15 | s. 14 | 9 | 9% | 7:15 | B | 8:30 | D | LEO | 17 |
| 39 | 8 | W. | 7:15 | D | 5:20 | B | 10 05 | *17 | 14 | s. 55 | 9% | 10% | 8:21 | C | 8:48 | D | LEO | 18 |
| 40 | 9 | Th. | 7:13 | D | 5:21 | B | 10 08 | *17 | 14 | s. 36 | 10% | 10% | 9:26 | C | 9:05 | C | VIR | 19 |
| 41 | 10 | Fr. | 7:12 | D | 5:23 | B | 10 11 | *17 | 14 | s. 16 | 11 | 11% | 10:34 | D | 9:22 | C | VIR | 20 |
| 42 | 11 | Sa. | 7:11 | D | 5:24 | B | 10 13 | *17 | 13 | s. 57 | 11½ | — | 11:43 | D | 9:40 | B | VIR | 21 |
| 43 | 12 | A | 7:09 | D | 5:25 | B | 10 16 | *17 | 13 | s. 37 | 12 | 12% | — | — | 10:01 | B | VIR | 22 |
| 44 | 13 | M. | 7:08 | D | 5:27 | B | 10 19 | *17 | 13 | s. 17 | 12½ | 1 | 12:56 | E | 10:26 | A | LIB | 23 |
| 45 | 14 | Tu. | 7:06 | D | 5:28 | B | 10 22 | *17 | 12 | s. 56 | 1½ | 2% | 2:12 | E | 10:59 | A | SCO | 24 |
| 46 | 15 | W. | 7:05 | D | 5:30 | B | 10 25 | *17 | 12 | s. 36 | 2½ | 3% | 3:29 | E | 11:44 | A | OPH | 25 |
| 47 | 16 | Th. | 7:03 | D | 5:31 | B | 10 28 | *17 | 12 | s. 15 | 3½ | 4% | 4:40 | E | 12:42 | A | SAG | 26 |
| 48 | 17 | Fr. | 7:01 | D | 5:33 | B | 10 32 | *17 | 11 | s. 54 | 4% | 6 | 5:41 | E | 1:56 | A | SAG | 27 |
| 49 | 18 | Sa. | 7:00 | D | 5:34 | B | 10 34 | *17 | 11 | s. 33 | 6 | 6% | 6:29 | E | 3:20 | A | CAP | 28 |
| 50 | 19 | A | 6:58 | D | 5:36 | B | 10 38 | *17 | 11 | s. 11 | 7 | 7% | 7:06 | E | 4:46 | A | CAP | 29 |
| 51 | 20 | M. | 6:57 | D | 5:37 | B | 10 40 | *16 | 10 | s. 50 | 7% | 8½ | 7:34 | D | 6:12 | B | AQU | 0 |
| 52 | 21 | Tu. | 6:55 | D | 5:38 | B | 10 43 | *16 | 10 | s. 28 | 8½ | 9% | 7:58 | D | 7:33 | B | AQU | 1 |
| 53 | 22 | W. | 6:53 | D | 5:40 | B | 10 47 | *16 | 10 | s. 06 | 9½ | 10 | 8:19 | C | 8:52 | C | PSC | 2 |
| 54 | 23 | Th. | 6:52 | D | 5:41 | B | 10 49 | *16 | 9 | s. 44 | 10% | 10% | 8:39 | B | 10:08 | D | PSC | 3 |
| 55 | 24 | Fr. | 6:50 | D | 5:43 | B | 10 53 | *16 | 9 | s. 22 | 11 | 11% | 8:59 | B | 11:23 | D | PSC | 4 |
| 56 | 25 | Sa. | 6:48 | D | 5:44 | B | 10 56 | *16 | 9 | s. 00 | 11% | — | 9:22 | A | — | — | ARI | 5 |
| 57 | 26 | A | 6:47 | D | 5:45 | B | 10 58 | *16 | 8 | s. 38 | 12 | 12% | 9:49 | A | 12:35 | E | ARI | 6 |
| 58 | 27 | M. | 6:45 | D | 5:47 | B | 11 02 | *15 | 8 | s. 15 | 12% | 1½ | 10:21 | A | 1:46 | E | TAU | 7 |
| 59 | 28 | Tu. | 6:43 | D | 5:48 | B | 11 05 | *15 | 7 | s. 52 | 1% | 2½ | 11:01 | A | 2:51 | E | TAU | 8 |



*Love is a plant of holier birth
Than aught that takes its root on earth.*
—Henry Neale

Farmer's Calendar

Among the treasures to be collected from the winter woods are pinecones—the reproductive structures of an ancient genus that preceded flowering plants by more than 150 million years and whose Carboniferous Period contemporaries are now coal. The cones that you'll want to pick up are the larger females that have dried and dropped their seeds.

Hard pines such as the red, lodgepole, shortleaf, longleaf, slash, ponderosa, pitch, loblolly, and Coulter generally produce woody, thick-scale cones armored with pricklers. Soft pines such as the eastern white, western white, sugar, whitebark, limber, foxtail, bristlecone, and pinyon usually produce softer, smoother, more elongated cones. A sugar pine cone can be 2 feet long. A Coulter pine cone can weigh 11 pounds.

Dry, seedless cones of hard pines make superb bird feeders. Fill all nooks with natural peanut butter, then roll them in birdseed. Soft-pine cones are best for fire starters. Hook wires to the tops of dry, seedless ones and soak them in melted paraffin or candle wax. Add crayons for the desired cone color. For white flames, coat waxed cones with Epsom salts; for yellow flames, table salt; for violet flames, salt substitute.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER |
|--------------|-------------|--|
| 1 | W. | St. Bridgid • Space Shuttle <i>Columbia</i> disaster, 2003 • Tides {5.2/4.8} <i>Beyond</i> |
| 2 | Th. | Candlemas • Groundhog Day • ☾ RIDES HIGH • {5.3/4.9} <i>a shadow</i> |
| 3 | Fr. | <i>A February spring is not worth a pin.</i> • Tides {5.4/5.1} <i>of doubt,</i> |
| 4 | Sa. | ☾ ^{AT} APO. • 5,622 ice lanterns displayed, setting world record, State College, Pa., 2017 <i>winter is</i> |
| 5 | A | Septuagesima • FULL SNOW • Journalist Ralph McGill born, 1898 <i>now about.</i> |
| 6 | M. | Barbara Ann Scott won Canada's 1st Olympic gold medal for figure skating, 1948 <i>Cold spell's</i> |
| 7 | Tu. | 1st ballet performance (<i>The Deserter</i>) in U.S., Bowery Theater, N.Y.C., 1827 • {5.8/5.6} <i>got sock-o,</i> |
| 8 | W. | College of William & Mary chartered, 1693 • Tides {5.8/5.7} <i>chill takes</i> |
| 9 | Th. | ☾ ^{ON} EQ. • U.S. president William Harrison born, 1773 • {5.6/5.7} <i>its toll!</i> |
| 10 | Fr. | ☽♀♂ • Treaty of Paris signed, formally ending French and Indian War, 1763 <i>Time for</i> |
| 11 | Sa. | 1st La-Z-Boy reclining chair designed, 1928 • Landsat 8 satellite launched, 2013 • {5.3/5.7} <i>hot choco and</i> |
| 12 | A | Sexagesima • ☾ ^{AT} ♀♂ • U.S. president Abe Lincoln born, 1809 <i>a souper bowl!</i> |
| 13 | M. | Test pilot Chuck Yeager born, 1923 • Love knows no measure. • {5.6/4.9} <i>Extra covers</i> |
| 14 | Tu. | Sts. Cyril & Methodius • VALENTINE'S DAY • {5.5/4.7} <i>for lovers.</i> |
| 15 | W. | NATIONAL FLAG OF CANADA DAY • ☽♂♂♂ • Social reformer Susan B. Anthony born, 1820 <i>Sometimes</i> |
| 16 | Th. | ☾ ^{RUNS} LOW • ☽♂☉ • Nylon ("Linear Condensation Polymers") patented, 1937 <i>cold,</i> |
| 17 | Fr. | ♂♀☾ • Winter's back breaks. • -60°F, Esker, Lab., 1973 • Tides {5.7/5.3} <i>sometimes</i> |
| 18 | Sa. | ♂♀☾ • Artist Louis Comfort Tiffany born, 1848 • F4 tornado struck Van Wert Co., Ohio, 1992 <i>mild,</i> |
| 19 | A | Quinquagesima • ☾ ^{AT} PERIG. • ☽♂☾ • Copernicus born, 1473 <i>sometimes</i> |
| 20 | M. | PRESIDENTS' DAY (U.S.) • NEW • Abolitionist Frederick Douglass died, 1895 <i>sunny,</i> |
| 21 | Tu. | Shrove Tuesday • ☽♂♀☾ • Half-cent denomination discontinued in U.S., 1857 • {6.6/6.5} <i>seldom</i> |
| 22 | W. | Ash Wednesday • ☾ ^{ON} EQ. • ☽♀☾ • ☽♂☾ • G. Washington born, 1732 <i>wild.</i> |
| 23 | Th. | USS <i>Osmond Ingram</i> , 1st U.S. naval vessel named for enlisted man, launched, 1919 • {6.2/6.4} <i>Now a</i> |
| 24 | Fr. | St. Matthias • ☾ ^{AT} ♀♂ • Programmer/game designer Sid Meier born, 1954 <i>freeze</i> |
| 25 | Sa. | ♂♂☾ • Architect Christopher Wren died, 1723 • Tides {5.5/-} <i>will</i> |
| 26 | A | 1st S. in Lent • <i>Never is a long day.</i> • {5.7/5.1} <i>shiver</i> |
| 27 | M. | Orthodox Lent begins • ☽♂☾ • Tides {5.4/4.8} <i>your</i> |
| 28 | Tu. | St. Romanus • Skunks mate now. • Last episode of <i>M*A*S*H</i> aired on TV, 1983 <i>knees.</i> |

Q: What did one lightbulb say to the other on Valentine's Day?
A: I love you a whole watt.

MARCH

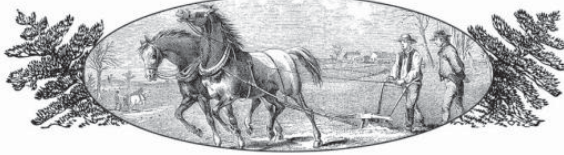
SKY WATCH: On the 1st, Venus and Jupiter are breathtakingly close to each other, low in the west 40 minutes after sunset, creating the year's finest conjunction. On the 2nd, they're visibly separating. During March, Jupiter sinks lower while Venus climbs a bit higher each evening. The crescent Moon dangles below Venus on the 23rd and above it on the 24th. Also on the 24th, binocular users can look for green planet Uranus to the left of the Moon. Since there are no green stars, the color should make it easily identifiable. On the 28th, look for the Moon to hover just above fading Mars. They're part of the impressive gathering of stars and planets that surround Orion in the southwest at nightfall. Spring begins with the vernal equinox on the evening of the 20th at 5:24 P.M. EDT.

- **FULL MOON** 7th day 7:40 A.M. ● **NEW MOON** 21st day 1:23 P.M.
 ● **LAST QUARTER** 14th day 10:08 P.M. ● **FIRST QUARTER** 28th day 10:32 P.M.

After 2:00 A.M. on March 12, Eastern Daylight Time is given.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES | ☀ RISE KEY | | LENGTH OF DAY | SUN FAST | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | ☾ RISES | | ☾ SETS | | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|---------|------------|-------------|---------------|----------|-----------------|---------|-------------------------|------------|--------------|--------|--------------|-----------|-----------------|-------|
| | | | | R | D | | | H. M. | M. | | ° | ' | H. M. | R | | | |
| 60 | 1 | W. | 6:41 | D | 5:50 | B | 11 09 | *15 | 7 s. 30 | 2% | 4 | 11:49 | A | 3:49 | E | GEM | 9 |
| 61 | 2 | Th. | 6:40 | D | 5:51 | B | 11 11 | *15 | 7 s. 07 | 4 | 5¼ | 12:46 | A | 4:38 | E | GEM | 10 |
| 62 | 3 | Fr. | 6:38 | D | 5:52 | C | 11 14 | *15 | 6 s. 44 | 5% | 6¼ | 1:48 | A | 5:18 | E | GEM | 11 |
| 63 | 4 | Sa. | 6:36 | D | 5:54 | C | 11 18 | *14 | 6 s. 21 | 6 | 7 | 2:53 | A | 5:49 | E | CAN | 12 |
| 64 | 5 | A | 6:34 | C | 5:55 | C | 11 21 | *14 | 5 s. 58 | 6% | 7½ | 4:00 | A | 6:15 | E | LEO | 13 |
| 65 | 6 | M. | 6:32 | C | 5:56 | C | 11 24 | *14 | 5 s. 34 | 7½ | 8 | 5:06 | B | 6:36 | D | LEO | 14 |
| 66 | 7 | Tu. | 6:31 | C | 5:58 | C | 11 27 | *14 | 5 s. 11 | 8 | 8½ | 6:12 | B | 6:55 | D | LEO | 15 |
| 67 | 8 | W. | 6:29 | C | 5:59 | C | 11 30 | *13 | 4 s. 48 | 8% | 9 | 7:18 | C | 7:12 | C | VIR | 16 |
| 68 | 9 | Th. | 6:27 | C | 6:00 | C | 11 33 | *13 | 4 s. 24 | 9% | 9½ | 8:25 | C | 7:29 | C | VIR | 17 |
| 69 | 10 | Fr. | 6:25 | C | 6:02 | C | 11 37 | *13 | 4 s. 01 | 9% | 10¼ | 9:35 | D | 7:46 | B | VIR | 18 |
| 70 | 11 | Sa. | 6:23 | C | 6:03 | C | 11 40 | *13 | 3 s. 37 | 10½ | 10¾ | 10:47 | D | 8:06 | B | VIR | 19 |
| 71 | 12 | A | 7:21 | C | 7:05 | C | 11 44 | *12 | 3 s. 14 | 12¼ | — | — | — | 9:29 | A | LIB | 20 |
| 72 | 13 | M. | 7:19 | C | 7:06 | C | 11 47 | *12 | 2 s. 50 | 12¼ | 1 | 1:02 | E | 9:59 | A | LIB | 21 |
| 73 | 14 | Tu. | 7:18 | C | 7:07 | C | 11 49 | *12 | 2 s. 26 | 1 | 1¼ | 2:17 | E | 10:38 | A | SCO | 22 |
| 74 | 15 | W. | 7:16 | C | 7:08 | C | 11 52 | *12 | 2 s. 03 | 2 | 2¼ | 3:29 | E | 11:30 | A | OPH | 23 |
| 75 | 16 | Th. | 7:14 | C | 7:10 | C | 11 56 | *11 | 1 s. 39 | 3 | 4¼ | 4:32 | E | 12:35 | A | SAG | 24 |
| 76 | 17 | Fr. | 7:12 | C | 7:11 | C | 11 59 | *11 | 1 s. 15 | 4¼ | 5¼ | 5:23 | E | 1:53 | A | SAG | 25 |
| 77 | 18 | Sa. | 7:10 | C | 7:12 | C | 12 02 | *11 | 0 s. 51 | 5½ | 6¼ | 6:02 | E | 3:16 | A | CAP | 26 |
| 78 | 19 | A | 7:08 | C | 7:14 | C | 12 06 | *10 | 0 s. 28 | 6% | 7½ | 6:33 | D | 4:41 | B | CAP | 27 |
| 79 | 20 | M. | 7:06 | C | 7:15 | C | 12 09 | *10 | 0 s. 04 | 7% | 8¼ | 6:58 | D | 6:03 | B | AQU | 28 |
| 80 | 21 | Tu. | 7:04 | C | 7:16 | C | 12 12 | *10 | 0 n. 19 | 8½ | 9 | 7:20 | C | 7:23 | C | AQU | 0 |
| 81 | 22 | W. | 7:02 | C | 7:18 | C | 12 16 | *10 | 0 n. 43 | 9% | 9¾ | 7:40 | C | 8:41 | C | CET | 1 |
| 82 | 23 | Th. | 7:01 | C | 7:19 | C | 12 18 | *9 | 1 n. 06 | 10 | 10½ | 8:00 | B | 9:58 | D | PSC | 2 |
| 83 | 24 | Fr. | 6:59 | C | 7:20 | C | 12 21 | *9 | 1 n. 30 | 11 | 11¼ | 8:22 | B | 11:14 | E | ARI | 3 |
| 84 | 25 | Sa. | 6:57 | C | 7:22 | C | 12 25 | *9 | 1 n. 54 | 11¼ | 11¼ | 8:47 | A | — | — | ARI | 4 |
| 85 | 26 | A | 6:55 | C | 7:23 | C | 12 28 | *8 | 2 n. 17 | 12½ | — | 9:17 | A | 12:28 | E | TAU | 5 |
| 86 | 27 | M. | 6:53 | C | 7:24 | C | 12 31 | *8 | 2 n. 41 | 12½ | 1¼ | 9:55 | A | 1:38 | E | TAU | 6 |
| 87 | 28 | Tu. | 6:51 | C | 7:26 | C | 12 35 | *8 | 3 n. 04 | 1¼ | 2 | 10:41 | A | 2:40 | E | TAU | 7 |
| 88 | 29 | W. | 6:49 | C | 7:27 | C | 12 38 | *8 | 3 n. 27 | 2 | 3 | 11:35 | A | 3:34 | E | GEM | 8 |
| 89 | 30 | Th. | 6:47 | C | 7:28 | C | 12 41 | *7 | 3 n. 51 | 3¼ | 4½ | 12:35 | A | 4:17 | E | GEM | 9 |
| 90 | 31 | Fr. | 6:45 | C | 7:29 | C | 12 44 | *7 | 4 n. 14 | 4½ | 5¼ | 1:40 | A | 4:51 | E | CAN | 10 |



*O March that blusters and March that blows,
What color under your footsteps glows!*
—Celia Thaxter, of spring flowers

Farmer's Calendar

Sapsicles—those shards of frozen sap that hang from broken branches of sugar maples, red maples, sweet birches, black walnuts, box elders, and butternuts—seem made for consumption by kids and kids-at-heart. If you concentrate, you can taste the coming spring.

Sapsicles are sweeter than liquid sap because the sugar has been concentrated by evaporation. Look for them on late-winter days after cold nights. When sapsicles melt a bit, you may be sharing them with mourning cloaks, one of the few butterfly species abroad in the warm winter woods. They've pupated during the previous spring or summer and have been hibernating in tree cavities, bark, moss, or leaf litter.

According to some connoisseurs, sweet-birch sapsicles have a faint wintergreen flavor; box-elder sapsicles are said to be vaguely reminiscent of vanilla. Red-maple and black walnut sapsicles are considered superb.

The best 'sicles are produced by sugar maples, which grow from Nova Scotia to Tennessee and west to Ontario and Minnesota. Some of these are 5 feet in diameter and still bear the V-shape scars made by Native Americans who collected their sap to make sugar.

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|-----------------------|
| 1 | W. | Ember Day • St. David • ☾ ^{RIDES HIGH} • Tides { ^{4.8} / _{4.5} | <i>Sunny</i> |
| 2 | Th. | St. Chad • ☽☿♄ • ☽♀♃ • Tides { ^{4.8} / _{4.6} | <i>chill</i> |
| 3 | Fr. | Ember Day • ☾ ^{AT} • Madeleine de Verchères (defended family fort at age 14) born, 1678 | <i>lingers</i> |
| 4 | Sa. | Ember Day • Granite Railway chartered, Quincy, Mass., 1826 • ☽ ^{5.2} / _{5.1} | <i>before</i> |
| 5 | A | 2nd ♄. in ♄ent • Misao Okawa (who lived to be 117 yrs. old), born, 1898 | <i>rain-soaked</i> |
| 6 | M. | U.S. Football League (USFL) began its 1st season, 1983 • Tides { ^{5.6} / _{5.5} | <i>fingers</i> |
| 7 | Tu. | St. Perpetua • ☽ ^{FULL WORM} • Comet Kohoutek discovered, 1973 | <i>again</i> |
| 8 | W. | ☾ ^{ON} • <i>Much would have more and lost all.</i> • ☽ ^{5.7} / _{5.8} | <i>seek</i> |
| 9 | Th. | Hummingbirds migrate north now. • Tides { ^{5.7} / _{5.9} | <i>a comfortable</i> |
| 10 | Fr. | Ojibwe writer Richard Wagamese died, 2017 • Tides { ^{5.6} / _{5.9} | <i>mitten.</i> |
| 11 | Sa. | ☾ ^{AT} • Inventor Philo T. Farnsworth died, 1971 • ☽ ^{5.5} / _{5.8} | <i>Snowing</i> |
| 12 | A | 3rd ♄. in ♄ent • DAYLIGHT SAVING TIME BEGINS, 2:00 A.M. • ☽ ^{5.4} / _— | <i>again—</i> |
| 13 | M. | U.S. first lady Abigail Fillmore born, 1798 • Tides { ^{5.8} / _{5.2} | <i>Remember</i> |
| 14 | Tu. | Pelican Island National Wildlife Refuge (Fla.), 1st in U.S., established, 1903 • ☽ ^{5.6} / _{4.9} | <i>back then</i> |
| 15 | W. | ☾ ^{RUNS LOW} • ☽♃ • Beware the Mathemetician/navigator Nathaniel Bowditch died, 1838. • ☽ ^{5.4} / _{4.7} | <i>when</i> |
| 16 | Th. | ☽♀♃ • Nathaniel Bowditch died, 1838. • ☽ ^{5.3} / _{4.7} | <i>everyone</i> |
| 17 | Fr. | ST. PATRICK'S DAY • ☽♃ • ☽ ^{IN SUP.} • ☽ ^{5.3} / _{5.0} | <i>wasn't</i> |
| 18 | Sa. | Agricultural engineer Wesley Buehler born, 1920 • ☽ ^{5.5} / _{5.4} | <i>frostbitten?</i> |
| 19 | A | 4th ♄. in ♄ent • ☾ ^{AT} • ☽♃ • Tides { ^{5.8} / _{5.8} | <i>Equinox</i> |
| 20 | M. | St. Joseph • ☽ ^{VERNAL} • 32.5" snow, Juneau, Alaska, 1948 | <i>vernal</i> |
| 21 | Tu. | NEW • ☾ ^{ON} • ☽♀♃ • ☽♃ • Tides { ^{6.2} / _{6.5} | <i>springs</i> |
| 22 | W. | Ramadan begins at sundown • ☽♃ • Mime Marcel Marceau born, 1923 | <i>hope eternal</i> |
| 23 | Th. | ☾ ^{AT} • <i>When you do not know what to do—wait.</i> • Tides { ^{6.2} / _{6.5} | <i>for just</i> |
| 24 | Fr. | ☽♀♃ • ☽♃ • 18.7-inch-long goldfish set world record, 2003 • ☽ ^{6.0} / _{6.2} | <i>one warm</i> |
| 25 | Sa. | Annunciation • Chess grandmaster Daniel Yanofsky born, 1925 • ☽ ^{5.7} / _{5.9} | <i>breeze</i> |
| 26 | A | 5th ♄. in ♄ent • <i>Thunder in spring. Cold will bring.</i> • Tides { ^{5.4} / _— | <i>or two.</i> |
| 27 | M. | 5.75" rain, Nashville, Tenn., 2021 • Tides { ^{5.5} / _{5.1} | <i>Ha, ha, ha—</i> |
| 28 | Tu. | ☾ ^{RIDES HIGH} • ☽♀♃ • ☽♃ • Tides { ^{5.2} / _{4.8} | <i>Guess what?</i> |
| 29 | W. | Due to ice jam, Niagara Falls stopped flowing for 1st time in recorded history, 1848 | <i>It's more rain</i> |
| 30 | Th. | Artist Vincent van Gogh born, 1853 • Tides { ^{4.7} / _{4.5} | <i>and snow</i> |
| 31 | Fr. | ☾ ^{AT} • ☽♀♃ • Chipmunks emerge from hibernation now. • ☽ ^{4.6} / _{4.6} | <i>for you!</i> |

APRIL

SKY WATCH: Mercury's brilliant magnitude -1.0 may offer a glimpse soon after sunset despite its extremely low elevation in the west. It gains height each evening but loses brilliance. Mercury's best evening of 2023 is probably on the 11th, when it's at its highest position and still shining at magnitude 0—but it will be dazzling Venus above that draws everyone's attention. Then come a series of close meetings with the crescent Moon: below Mercury on the 20th, halfway between Mercury and Venus on the 21st, below Venus on the 22nd, above Venus on the 23rd, between Mars and Venus on the 24th, and with Mars on the 25th. An annular total eclipse, not visible from the U.S. or Canada, appears as total over westernmost Australia and a string of nearby islands on the 20th (local time).

- **FULL MOON** 6th day 12:35 A.M. ● **NEW MOON** 20th day 12:13 A.M.
 ● **LAST QUARTER** 13th day 5:11 A.M. ● **FIRST QUARTER** 27th day 5:20 P.M.

All times are given in Eastern Daylight Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES | | ☀ SETS | | LENGTH OF DAY | SUN FAST | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | | ☾ RISES | | ☾ SETS | | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|---------|----------|-------------|---------|---------------|----------|-----------------|-----------|-------------------------|--------------|---------|--------------|--------|---------|-----------|-----------------|-------|
| | | | H. M. | RISE KEY | H. M. | SET KEY | | | H. M. | M. | ° | I | H. M. | RISE KEY | H. M. | SET KEY | | | |
| | | | | | | | | | | | | | | | | | | | |
| 91 | 1 | Sa. | 6:43 | C | 7:31 | C | 12 48 | *7 | 4 N. 37 | 5% | 6% | 2:46 | A | 5:19 | E | CAN | 11 | | |
| 92 | 2 | A | 6:42 | C | 7:32 | C | 12 50 | *6 | 5 N. 00 | 6% | 7% | 3:53 | B | 5:41 | D | LEO | 12 | | |
| 93 | 3 | M. | 6:40 | C | 7:33 | D | 12 53 | *6 | 5 N. 23 | 7% | 8 | 4:59 | B | 6:01 | D | LEO | 13 | | |
| 94 | 4 | Tu. | 6:38 | C | 7:35 | D | 12 57 | *6 | 5 N. 46 | 8 | 8% | 6:06 | C | 6:18 | C | LEO | 14 | | |
| 95 | 5 | W. | 6:36 | B | 7:36 | D | 13 00 | *5 | 6 N. 09 | 8% | 9 | 7:14 | C | 6:35 | C | VIR | 15 | | |
| 96 | 6 | Th. | 6:34 | B | 7:37 | D | 13 03 | *5 | 6 N. 32 | 9% | 9½ | 8:23 | D | 6:52 | B | VIR | 16 | | |
| 97 | 7 | Fr. | 6:32 | B | 7:38 | D | 13 06 | *5 | 6 N. 54 | 9% | 10 | 9:36 | D | 7:11 | B | VIR | 17 | | |
| 98 | 8 | Sa. | 6:30 | B | 7:40 | D | 13 10 | *5 | 7 N. 17 | 10% | 10½ | 10:51 | E | 7:33 | A | LIB | 18 | | |
| 99 | 9 | A | 6:29 | B | 7:41 | D | 13 12 | *4 | 7 N. 39 | 11% | 11½ | — | — | 8:01 | A | LIB | 19 | | |
| 100 | 10 | M. | 6:27 | B | 7:42 | D | 13 15 | *4 | 8 N. 01 | 12 | — | 12:08 | E | 8:37 | A | OPH | 20 | | |
| 101 | 11 | Tu. | 6:25 | B | 7:44 | D | 13 19 | *4 | 8 N. 23 | 12 | 12% | 1:21 | E | 9:24 | A | OPH | 21 | | |
| 102 | 12 | W. | 6:23 | B | 7:45 | D | 13 22 | *4 | 8 N. 45 | 12% | 1½ | 2:27 | E | 10:25 | A | SAG | 22 | | |
| 103 | 13 | Th. | 6:21 | B | 7:46 | D | 13 25 | *3 | 9 N. 07 | 1% | 2% | 3:21 | E | 11:38 | A | SAG | 23 | | |
| 104 | 14 | Fr. | 6:20 | B | 7:47 | D | 13 27 | *3 | 9 N. 29 | 2% | 4 | 4:03 | E | 12:58 | A | CAP | 24 | | |
| 105 | 15 | Sa. | 6:18 | B | 7:49 | D | 13 31 | *3 | 9 N. 50 | 4 | 5½ | 4:35 | E | 2:20 | A | CAP | 25 | | |
| 106 | 16 | A | 6:16 | B | 7:50 | D | 13 34 | *3 | 10 N. 12 | 5% | 6½ | 5:01 | D | 3:40 | B | AQU | 26 | | |
| 107 | 17 | M. | 6:14 | B | 7:51 | D | 13 37 | *2 | 10 N. 33 | 6% | 7½ | 5:23 | D | 4:59 | C | AQU | 27 | | |
| 108 | 18 | Tu. | 6:13 | B | 7:53 | D | 13 40 | *2 | 10 N. 54 | 7½ | 8 | 5:43 | C | 6:17 | C | PSC | 28 | | |
| 109 | 19 | W. | 6:11 | B | 7:54 | D | 13 43 | *2 | 11 N. 15 | 8% | 8½ | 6:02 | B | 7:33 | D | PSC | 29 | | |
| 110 | 20 | Th. | 6:09 | B | 7:55 | D | 13 46 | *2 | 11 N. 35 | 9 | 9% | 6:23 | B | 8:50 | D | ARI | 0 | | |
| 111 | 21 | Fr. | 6:07 | B | 7:56 | D | 13 49 | *2 | 11 N. 56 | 9% | 10 | 6:46 | A | 10:05 | E | ARI | 1 | | |
| 112 | 22 | Sa. | 6:06 | B | 7:58 | D | 13 52 | *1 | 12 N. 16 | 10% | 10% | 7:14 | A | 11:19 | E | TAU | 2 | | |
| 113 | 23 | A | 6:04 | B | 7:59 | D | 13 55 | *1 | 12 N. 36 | 11% | 11½ | 7:49 | A | — | — | TAU | 3 | | |
| 114 | 24 | M. | 6:02 | B | 8:00 | D | 13 58 | *1 | 12 N. 56 | 12 | — | 8:31 | A | 12:26 | E | TAU | 4 | | |
| 115 | 25 | Tu. | 6:01 | B | 8:02 | D | 14 01 | *1 | 13 N. 16 | 12 | 12% | 9:23 | A | 1:25 | E | AUR | 5 | | |
| 116 | 26 | W. | 5:59 | B | 8:03 | D | 14 04 | *1 | 13 N. 35 | 12% | 1½ | 10:22 | A | 2:13 | E | GEM | 6 | | |
| 117 | 27 | Th. | 5:58 | B | 8:04 | D | 14 06 | *1 | 13 N. 54 | 1½ | 2½ | 11:26 | A | 2:51 | E | CAN | 7 | | |
| 118 | 28 | Fr. | 5:56 | B | 8:05 | D | 14 09 | 0 | 14 N. 13 | 2½ | 3% | 12:32 | A | 3:21 | E | CAN | 8 | | |
| 119 | 29 | Sa. | 5:54 | B | 8:07 | D | 14 13 | 0 | 14 N. 32 | 3½ | 5 | 1:38 | B | 3:45 | E | LEO | 9 | | |
| 120 | 30 | A | 5:53 | B | 8:08 | D | 14 15 | 0 | 14 N. 50 | 5 | 5% | 2:44 | B | 4:05 | D | LEO | 10 | | |



*Hark! the cock crows, and yon bright star
Tells us the day himself's not far.
—Charles Cotton*

Farmer's Calendar

While a bumblebee may not be the first insect that you see in the spring, it's likely to be the first that you hear. The buzz starts on some hushed morning over snow-bent grass or sun-washed earth split by swelling bulbs.

These big bumblebees are fertilized queens, sole survivors from last autumn. The flight of each is slow and purposeful, not wild and erratic as in the operatic score "Flight of the Bumblebee."

The queen is searching for a nest site—perhaps an abandoned chipmunk burrow—which she'll stuff with grass and moss. Next, she'll make a thimble-size wax pot and fill it with nectar. Finally, she'll knead pollen and nectar into "bee bread." The nectar will sustain her while she's brooding. Larvae will eat the bread.

The bumblebee's fur allows it to live in colder climates than most other insects. One species, *Bombus polaris*, has been reported 62 miles from the North Pole.

North Americans are fond of bumblebees. They're harbingers of fine weather, resemble winged teddy bears, and are so good-natured that getting one to sting you is a major undertaking. But most important, they're ours. Unlike honeybees, they are natives.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|-----------------------|
| 1 | Sa. | ALL FOOLS' • Composer Sergei Rachmaninoff born, 1873 • $\begin{matrix} \{4.8 \\ \{4.9 \end{matrix}$ | <i>Foolin' with</i> |
| 2 | A | Palm Sunday • 199.5+ mph wind gust, Cannon Mtn., N.H., 1973 • $\begin{matrix} \{5.0 \\ \{5.2 \end{matrix}$ | <i>flurries,</i> |
| 3 | M. | <i>The fool's pleasure costs him dear.</i> • Tides $\begin{matrix} \{5.2 \\ \{5.4 \end{matrix}$ | <i>but warming,</i> |
| 4 | Tu. | Canadian statesman U.S. civil rights leader Martin Luther King Jr. assassinated, 1968 | <i>no</i> |
| 5 | W. | Passover begins • \odot ON EQ. • Camel deputized, L.A. Cty. at sundown • Sheriff's Dept., Calif., 2003 | <i>worries.</i> |
| 6 | Th. | Mundy Thursday • FULL MOON • Musician Tammy Wynette died, 1998 • $\begin{matrix} \{5.6 \\ \{5.9 \end{matrix}$ | <i>Showers,</i> |
| 7 | Fr. | Good Friday • \odot AT ♀ • Tides $\begin{matrix} \{5.7 \\ \{6.0 \end{matrix}$ | <i>then</i> |
| 8 | Sa. | Painter Pablo Picasso died, 1973 • Tides $\begin{matrix} \{5.6 \\ \{6.0 \end{matrix}$ | <i>sunny for</i> |
| 9 | A | Easter • <i>A rainy Easter betokens a good harvest.</i> | <i>the Easter</i> |
| 10 | M. | Easter Monday • Naturalist Jack Miner born, 1865 • $\begin{matrix} \{5.4 \\ \{5.8 \end{matrix}$ | <i>bunny.</i> |
| 11 | Tu. | \odot RUNS LOW • \odot GR. ELONG. • Thundersnow, Minn., Charles Gayler received patent for fireproof iron chest, 1833 • $\begin{matrix} \{5.6 \\ \{5.0 \end{matrix}$ | <i>Back and</i> |
| 12 | W. | U.S. president Thomas Jefferson born, 1743 • Tides $\begin{matrix} \{5.4 \\ \{4.9 \end{matrix}$ | <i>forth,</i> |
| 13 | Th. | Dr. Harry Plotz's discovery of cause of typhus formally announced, 1915 • $\begin{matrix} \{5.2 \\ \{4.9 \end{matrix}$ | <i>south</i> |
| 14 | Fr. | \odot AT PERIG. • Actress Elizabeth Montgomery born, 1933 • $\begin{matrix} \{5.2 \\ \{5.2 \end{matrix}$ | <i>and</i> |
| 15 | A | 2nd S. of Easter • Orthodox Easter • Tides $\begin{matrix} \{5.3 \\ \{5.6 \end{matrix}$ | <i>north,</i> |
| 16 | M. | Eastern U.S. heat wave: 80°F, Portland, Maine; 97°F, Newark, N.J., 2002 | <i>spring</i> |
| 17 | Tu. | \odot ON EQ. • "Old" Yankee Stadium opened, N.Y.C., 1923 • Tides $\begin{matrix} \{5.8 \\ \{6.3 \end{matrix}$ | <i>comes</i> |
| 18 | W. | Death of oldest known spider (43-yr.-old trapdoor species) announced, 2018 | <i>forth.</i> |
| 19 | Th. | NEW MOON • ECLIPSE • \odot AT ♀ • Tides $\begin{matrix} \{5.9 \\ \{6.4 \end{matrix}$ | <i>Sun</i> |
| 20 | Fr. | \odot ♄ • \odot ♃ • ♃ STAT. • Tides $\begin{matrix} \{5.9 \\ \{6.2 \end{matrix}$ | <i>and</i> |
| 21 | Sa. | EARTH DAY • TV producer Aaron Spelling born, 1923 • Tides $\begin{matrix} \{5.7 \\ \{6.0 \end{matrix}$ | <i>sprinkles,</i> |
| 22 | A | 3rd S. of Easter • \odot ♄ • 1st YouTube video, "Me at the zoo," uploaded, 2005 | <i>willy-nilly;</i> |
| 23 | M. | St. George • Almanac founder Robert B. Thomas born, 1766 • Spain declared war on U.S., 1898 | <i>first it's</i> |
| 24 | Tu. | St. Mark • \odot RIDES HIGH • \odot ♄ • Tides $\begin{matrix} \{5.4 \\ \{5.1 \end{matrix}$ | <i>warm,</i> |
| 25 | W. | Poplars leaf out • <i>Deep rivers move in silence; shallow brooks are noisy.</i> • $\begin{matrix} \{5.1 \\ \{4.9 \end{matrix}$ | <i>then</i> |
| 26 | Th. | Astronomer John Russell Hind discovered new variable star in Ophiuchus, 1848 • $\begin{matrix} \{4.9 \\ \{4.7 \end{matrix}$ | <i>it's</i> |
| 27 | Fr. | \odot AT APO. • 6.4" hailstone falling in Hondo, Tex., 2021 | <i>chilly.</i> |
| 28 | Sa. | UK's Prince William married Catherine "Kate" Middleton, 2011 • Tides $\begin{matrix} \{4.6 \\ \{4.8 \end{matrix}$ | <i>April's been</i> |
| 29 | A | 4th S. of Easter • U.S. Dept. of the Navy established, 1798 | <i>a daffo-dilly!</i> |
| 30 | | | |

MAY

SKY WATCH: Venus, shining at a dazzling magnitude -4.1, stands visibly high in the west at nightfall on the 1st. In the predawn eastern sky, Mercury also reaches its greatest Sun-separation; however, at magnitude 5, it's much too faint to be seen. The 5th brings a penumbral lunar eclipse, the kind that doesn't change the full Moon's appearance. Unfortunately, it's not visible from the U.S. or Canada. Look for Venus above the Moon on the 22nd and below it on the 23rd. On this same night, the crescent Moon floats between Mars and Venus. At nightfall on the 31st, Mars hovers to the upper left of brilliant Venus, with both of Earth's nearest neighbors having now crossed into Leo.

○ **FULL MOON** 5th day 1:34 P.M. ● **NEW MOON** 19th day 11:53 A.M.
 ● **LAST QUARTER** 12th day 10:28 A.M. ○ **FIRST QUARTER** 27th day 11:22 A.M.

All times are given in Eastern Daylight Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀️ RISES H. M. | 🌅 RISE KEY | ☀️ SETS H. M. | 🌆 SET KEY | LENGTH OF DAY H. M. | SUN FAST M. | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | | ☾ RISES H. M. | 🌅 RISE KEY | ☾ SETS H. M. | 🌆 SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|-------------------|------------|------------------|-----------|------------------------|----------------|-----------------|-----|----------------------------|--------------|------------------|--------------|-----------------|-----------|-----------------|-------|
| | | | | | | | | | ° | ' | | | | | | | | |
| 121 | 1 | M. | 5:51 | B | 8:09 | D | 14 18 | 0 | 15 N. 08 | 6 | 6½ | 3:50 | B | 4:23 | D | LEO | 11 | |
| 122 | 2 | Tu. | 5:50 | B | 8:10 | D | 14 20 | 0 | 15 N. 26 | 6% | 7% | 4:57 | C | 4:40 | C | VIR | 12 | |
| 123 | 3 | W. | 5:48 | B | 8:12 | D | 14 24 | 0 | 15 N. 44 | 7½ | 7% | 6:06 | C | 4:57 | C | VIR | 13 | |
| 124 | 4 | Th. | 5:47 | B | 8:13 | D | 14 26 | 0 | 16 N. 02 | 8% | 8% | 7:18 | D | 5:15 | B | VIR | 14 | |
| 125 | 5 | Fr. | 5:46 | B | 8:14 | D | 14 28 | 0 | 16 N. 19 | 8% | 9 | 8:34 | E | 5:36 | B | LIB | 15 | |
| 126 | 6 | Sa. | 5:44 | B | 8:15 | D | 14 31 | 0 | 16 N. 36 | 9½ | 9½ | 9:52 | E | 6:02 | A | LIB | 16 | |
| 127 | 7 | A | 5:43 | B | 8:17 | E | 14 34 | 1 | 16 N. 52 | 10% | 10% | 11:09 | E | 6:35 | A | SCO | 17 | |
| 128 | 8 | M. | 5:41 | B | 8:18 | E | 14 37 | 1 | 17 N. 09 | 11 | 11 | — | - | 7:20 | A | OPH | 18 | |
| 129 | 9 | Tu. | 5:40 | B | 8:19 | E | 14 39 | 1 | 17 N. 25 | 11% | 11% | 12:20 | E | 8:17 | A | SAG | 19 | |
| 130 | 10 | W. | 5:39 | B | 8:20 | E | 14 41 | 1 | 17 N. 40 | 12% | — | 1:18 | E | 9:28 | A | SAG | 20 | |
| 131 | 11 | Th. | 5:37 | B | 8:22 | E | 14 45 | 1 | 17 N. 56 | 12% | 1½ | 2:04 | E | 10:46 | A | CAP | 21 | |
| 132 | 12 | Fr. | 5:36 | A | 8:23 | E | 14 47 | 1 | 18 N. 11 | 1½ | 2½ | 2:39 | E | 12:08 | A | CAP | 22 | |
| 133 | 13 | Sa. | 5:35 | A | 8:24 | E | 14 49 | 1 | 18 N. 26 | 2% | 3% | 3:06 | D | 1:27 | B | AQU | 23 | |
| 134 | 14 | A | 5:34 | A | 8:25 | E | 14 51 | 1 | 18 N. 41 | 4 | 5 | 3:28 | D | 2:45 | B | AQU | 24 | |
| 135 | 15 | M. | 5:33 | A | 8:26 | E | 14 53 | 1 | 18 N. 55 | 5% | 6 | 3:48 | C | 4:01 | C | PSC | 25 | |
| 136 | 16 | Tu. | 5:32 | A | 8:27 | E | 14 55 | 1 | 19 N. 09 | 6% | 6% | 4:07 | C | 5:15 | C | PSC | 26 | |
| 137 | 17 | W. | 5:30 | A | 8:29 | E | 14 59 | 1 | 19 N. 22 | 7% | 7½ | 4:26 | B | 6:30 | D | PSC | 27 | |
| 138 | 18 | Th. | 5:29 | A | 8:30 | E | 15 01 | 1 | 19 N. 36 | 8 | 8 | 4:48 | B | 7:45 | E | ARI | 28 | |
| 139 | 19 | Fr. | 5:28 | A | 8:31 | E | 15 03 | 1 | 19 N. 49 | 8% | 8% | 5:14 | A | 8:59 | E | ARI | 0 | |
| 140 | 20 | Sa. | 5:27 | A | 8:32 | E | 15 05 | 1 | 20 N. 01 | 9% | 9% | 5:45 | A | 10:10 | E | TAU | 1 | |
| 141 | 21 | A | 5:26 | A | 8:33 | E | 15 07 | 0 | 20 N. 13 | 10% | 10% | 6:24 | A | 11:13 | E | TAU | 2 | |
| 142 | 22 | M. | 5:25 | A | 8:34 | E | 15 09 | 0 | 20 N. 25 | 11 | 11 | 7:12 | A | — | - | GEM | 3 | |
| 143 | 23 | Tu. | 5:24 | A | 8:35 | E | 15 11 | 0 | 20 N. 37 | 11% | 11% | 8:09 | A | 12:06 | E | GEM | 4 | |
| 144 | 24 | W. | 5:24 | A | 8:36 | E | 15 12 | 0 | 20 N. 48 | 12% | — | 9:11 | A | 12:48 | E | GEM | 5 | |
| 145 | 25 | Th. | 5:23 | A | 8:37 | E | 15 14 | 0 | 20 N. 59 | 12½ | 1¼ | 10:17 | A | 1:21 | E | CAN | 6 | |
| 146 | 26 | Fr. | 5:22 | A | 8:38 | E | 15 16 | 0 | 21 N. 10 | 1 | 2 | 11:23 | A | 1:48 | E | LEO | 7 | |
| 147 | 27 | Sa. | 5:21 | A | 8:39 | E | 15 18 | 0 | 21 N. 20 | 2 | 3 | 12:29 | B | 2:09 | D | LEO | 8 | |
| 148 | 28 | A | 5:20 | A | 8:40 | E | 15 20 | 0 | 21 N. 29 | 2% | 4 | 1:34 | B | 2:28 | D | LEO | 9 | |
| 149 | 29 | M. | 5:20 | A | 8:41 | E | 15 21 | 0 | 21 N. 39 | 4 | 4½ | 2:40 | C | 2:45 | C | VIR | 10 | |
| 150 | 30 | Tu. | 5:19 | A | 8:42 | E | 15 23 | 0 | 21 N. 48 | 5 | 5½ | 3:47 | C | 3:01 | C | VIR | 11 | |
| 151 | 31 | W. | 5:18 | A | 8:43 | E | 15 25 | *1 | 21 N. 56 | 6 | 6% | 4:57 | D | 3:18 | B | VIR | 12 | |



*A deep mysterious sympathy doth bind
The human heart to Nature's beauties all.*
—Robert Nicoll

Farmer's Calendar

When buds unfurl east of the Rockies, gray catbirds arrive in congregations aptly called “mewings.” Calls of the male team with melodious, often nocturnal, songs that mimic at least 100 sounds, including mechanical clatter and bird and frog vocalizations. One catbird that resided near a cemetery where “Taps” was frequently played learned part of the score.

The catbird usually sings a mimicked phrase once, while its cousin, the mockingbird, repeats it three or four times. “Catbirds,” observed early 20th-century ornithologist Chester Reed, “seem determined to find out what you are doing, and why you are doing it, and also what you are going to do next. . . . It is in turn a merry jester, a fine musician, a mocking sprite, and a screaming termagant.”

Few birds provide a better excuse for cooling it with the clippers, for thickets thereby preserved provide nesting sites. Watch the wild courtship chases. Puffed up and tail lowered, the male bows until his bill touches the ground, lifts his tail, sashays, struts, and flashes his chestnut rump patch. Both sexes construct “practice nests,” but the final one is usually built by the female.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|--|
| 1 | M. | Sts. Philip & James | MAY DAY • ♀ IN INF. ♂ • { ^{4.8} / _{5.3} } <i>Mayp'les</i> |
| 2 | Tu. | St. Athanasius | • ☾ ON EQ. • ☽ STAT. • Tides { ^{5.0} / _{5.5} } <i>done</i> |
| 3 | W. | <i>A wet May will fill a byre full of hay.</i> | • Tides { ^{5.2} / _{5.7} } <i>budding,</i> |
| 4 | Th. | ☾ AT ☽ • Pringles can designer Fredric Baur died, 2008 | • Tides { ^{5.3} / _{5.9} } <i>watch</i> |
| 5 | Fr. | Vesak • FULL FLOWER ○ • ECLIPSE ☾ • Tides { ^{5.5} / _{6.0} } | <i>out</i> |
| 6 | Sa. | <i>Hindenburg</i> • Swimmer Ethelda 8.74" rain, Groton, disaster, 1937 • Bleibtrey died, 1978 • S.Dak., 2007 | <i>for</i> |
| 7 | A | 5th S. of Easter • U.S. chief justice Salmon P. Chase died, 1873 | <i>flooding!</i> |
| 8 | M. | St. Julian of Norwich • Treaty of Washington signed, 1871 | • Tides { ^{5.6} / _{6.0} } <i>Rainy</i> |
| 9 | Tu. | St. Gregory of Nazianzus • ☾ RUNS • ♂ ☾ ☽ • Tides { ^{5.5} / _{5.9} } | <i>but</i> |
| 10 | W. | ☽ EC • 1st submerged voyage around world completed by submarine USS <i>Triton</i> , 1960 | <i>balmy,</i> |
| 11 | Th. | Three • ☾ AT PERIG. • U.S. state, 1858 • Minn. became 32nd • Composer Irving Berlin born, 1888 | <i>warm</i> |
| 12 | Fr. | Chilly • U.S. and Canada signed NORAD agreement, 1958 | • Tides { ^{5.4} / _{5.2} } <i>just</i> |
| 13 | Sa. | Saints • ♂ ♀ • Cranberries in bud now. | • { ^{5.2} / _{5.3} } <i>like</i> |
| 14 | A | Rogation Sunday • MOTHER'S DAY • ♂ ♀ ☾ • ☽ STAT. | <i>Mommy.</i> |
| 15 | M. | ☾ ON EQ. • Mercury-Atlas 9 (<i>Faith 7</i>) launched, 1963 | • Tides { ^{5.1} / _{5.8} } <i>Still</i> |
| 16 | Tu. | Artist Alfred Pellan • Canadian Victoria born, 1906 • Cross unveiled, 2008 | • { ^{5.3} / _{6.0} } <i>getting</i> |
| 17 | W. | ☾ AT ☽ • ♂ ♀ ☾ • OCCN. ♀ ☾ • Tides { ^{5.4} / _{6.1} } | <i>mild—</i> |
| 18 | Th. | Ascension • ♂ ☽ • Research suggested Stonehenge built around 1848 B.C., 1952 | <i>We'll</i> |
| 19 | Fr. | St. Dunstan • NEW • Advice should precede the act. | • { ^{5.5} / _{6.0} } <i>have no</i> |
| 20 | Sa. | Engineer William Hewlett born, 1913 | • Tides { ^{5.5} / _{5.9} } <i>grumbling</i> |
| 21 | A | 1st S. • Stranded driver played drums on side of af. Asc. • I-695 until help arrived, Baltimore, Md., 2013 | <i>about</i> |
| 22 | M. | VICTORIA DAY • ☾ RIDES • HIGH • Deadly EF5 tornado struck Joplin, Mo., 2011 | <i>lightning</i> |
| 23 | Tu. | ♂ ♀ ☾ • S.C. became 8th U.S. state, 1788 | • { ^{5.2} / _{5.4} } <i>wild and</i> |
| 24 | W. | ♂ ♂ ☾ • Brooklyn Bridge opened, N.Y.C., 1883 | • Tides { ^{5.1} / _— } <i>thunder</i> |
| 25 | Th. | St. Bede • Orthodox Ascension at sundown • Shavuot begins • ☾ AT APO. | <i>rumbling!</i> |
| 26 | Fr. | Challenger Expedition • Astronaut Sally Ride born, 1951 | • { ^{5.0} / _{4.9} } <i>Warm</i> |
| 27 | Sa. | 1st automatic soda fountain dispenser introduced, Chicago World's Fair, Ill., 1933 | • { ^{4.8} / _{4.9} } <i>memories</i> |
| 28 | A | Whit S. • Pentecost • Athlete Jim Thorpe born, 1888 | <i>dear</i> |
| 29 | M. | MEMORIAL DAY • ☾ ON EQ. • ♂ ♀ GR. ELONG. • Wis. became 30th OBSERVED (U.S.) • EQ. • ♀ (25" WEST) • U.S. state, 1848 | <i>but storms</i> |
| 30 | Tu. | <i>Flowers are the 3-lb. 1-oz. blackedged moray caught, pledges of fruit.</i> • Gulf of Mexico, Tex., 1999 | <i>interfere.</i> |
| 31 | W. | Visit. of Mary • Day • World Otter Day • Tides { ^{4.7} / _{5.5} } | |

JUNE

SKY WATCH: In dusk's fading twilight on the 4th, Venus stands 45 degrees from the Sun, in Cancer, at magnitude -4.4 . A much dimmer Mars can be seen to its upper left. On the 14th, early risers can see a Jupiter/crescent Moon conjunction in the predawn twilight. On the 21st, 40 minutes after the Sun sets at its rightmost possible position, a gorgeous three-way conjunction of Venus, Mars, and the crescent Moon occurs. On the next evening, the 22nd, a dim Mars hovers halfway between the crescent Moon and Venus. Venus's absolute maximum brilliance arrives on the 30th and is maintained through July 20. Summer in the Northern Hemisphere begins with the solstice on the 21st at 10:58 A.M. EDT.

○ **FULL MOON** 3rd day 11:42 P.M. ● **NEW MOON** 18th day 12:37 A.M.
 ● **LAST QUARTER** 10th day 3:31 P.M. ○ **FIRST QUARTER** 26th day 3:50 A.M.

All times are given in Eastern Daylight Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES | | ☀ SETS | | LENGTH OF DAY | SUN FAST | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | ☾ RISES | | ☾ SETS | | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|---------|----------|-------------|---------|---------------|----------|-----------------|------------|-------------------------|--------------|---|--------------|----------|-----------|-----------------|-------|
| | | | H. M. | RISE KEY | H. M. | SET KEY | | | H. M. | M. | | ° | ' | H. M. | RISE KEY | | | |
| 152 | 1 | Th. | 5:18 | A | 8:44 | E | 15 26 | *1 | 22 N. 05 | 6% | 7 | 6:11 | D | 3:38 | B | VIR | 13 | |
| 153 | 2 | Fr. | 5:17 | A | 8:45 | E | 15 28 | *1 | 22 N. 13 | 7½ | 7% | 7:29 | E | 4:01 | A | LIB | 14 | |
| 154 | 3 | Sa. | 5:17 | A | 8:46 | E | 15 29 | *1 | 22 N. 20 | 8% | 8% | 8:48 | E | 4:31 | A | SCO | 15 | |
| 155 | 4 | A | 5:16 | A | 8:46 | E | 15 30 | *1 | 22 N. 27 | 9% | 9 | 10:04 | E | 5:11 | A | SCO | 16 | |
| 156 | 5 | M. | 5:16 | A | 8:47 | E | 15 31 | *1 | 22 N. 34 | 10 | 10 | 11:09 | E | 6:05 | A | SAG | 17 | |
| 157 | 6 | Tu. | 5:16 | A | 8:48 | E | 15 32 | *2 | 22 N. 40 | 10% | 10% | — | — | 7:13 | A | SAG | 18 | |
| 158 | 7 | W. | 5:15 | A | 8:49 | E | 15 34 | *2 | 22 N. 46 | 11½ | 11% | 12:01 | E | 8:32 | A | SAG | 19 | |
| 159 | 8 | Th. | 5:15 | A | 8:49 | E | 15 34 | *2 | 22 N. 51 | 12½ | — | 12:40 | E | 9:55 | A | CAP | 20 | |
| 160 | 9 | Fr. | 5:15 | A | 8:50 | E | 15 35 | *2 | 22 N. 57 | 12½ | 1½ | 1:10 | D | 11:16 | B | AQU | 21 | |
| 161 | 10 | Sa. | 5:14 | A | 8:50 | E | 15 36 | *2 | 23 N. 01 | 1½ | 2½ | 1:34 | D | 12:35 | B | AQU | 22 | |
| 162 | 11 | A | 5:14 | A | 8:51 | E | 15 37 | *3 | 23 N. 05 | 2½ | 3½ | 1:54 | C | 1:51 | C | AQU | 23 | |
| 163 | 12 | M. | 5:14 | A | 8:52 | E | 15 38 | *3 | 23 N. 09 | 3½ | 4½ | 2:13 | C | 3:05 | C | CET | 24 | |
| 164 | 13 | Tu. | 5:14 | A | 8:52 | E | 15 38 | *3 | 23 N. 13 | 4% | 5% | 2:32 | B | 4:19 | D | PSC | 25 | |
| 165 | 14 | W. | 5:14 | A | 8:53 | E | 15 39 | *3 | 23 N. 16 | 6 | 6% | 2:53 | B | 5:32 | D | ARI | 26 | |
| 166 | 15 | Th. | 5:14 | A | 8:53 | E | 15 39 | *3 | 23 N. 19 | 6% | 7 | 3:16 | A | 6:45 | E | ARI | 27 | |
| 167 | 16 | Fr. | 5:14 | A | 8:53 | E | 15 39 | *4 | 23 N. 21 | 7% | 7% | 3:45 | A | 7:56 | E | TAU | 28 | |
| 168 | 17 | Sa. | 5:14 | A | 8:54 | E | 15 40 | *4 | 23 N. 23 | 8½ | 8½ | 4:21 | A | 9:02 | E | TAU | 29 | |
| 169 | 18 | A | 5:14 | A | 8:54 | E | 15 40 | *4 | 23 N. 24 | 9% | 9% | 5:05 | A | 9:58 | E | TAU | 0 | |
| 170 | 19 | M. | 5:14 | A | 8:54 | E | 15 40 | *4 | 23 N. 25 | 10 | 10 | 5:59 | A | 10:44 | E | GEM | 1 | |
| 171 | 20 | Tu. | 5:14 | A | 8:55 | E | 15 41 | *5 | 23 N. 26 | 10% | 10% | 7:00 | A | 11:21 | E | GEM | 2 | |
| 172 | 21 | W. | 5:14 | A | 8:55 | E | 15 41 | *5 | 23 N. 26 | 11½ | 11% | 8:04 | A | 11:50 | E | CAN | 3 | |
| 173 | 22 | Th. | 5:15 | A | 8:55 | E | 15 40 | *5 | 23 N. 26 | 12 | — | 9:11 | A | — | — | CAN | 4 | |
| 174 | 23 | Fr. | 5:15 | A | 8:55 | E | 15 40 | *5 | 23 N. 25 | 12 | 12% | 10:16 | B | 12:13 | D | LEO | 5 | |
| 175 | 24 | Sa. | 5:15 | A | 8:55 | E | 15 40 | *5 | 23 N. 24 | 12% | 1½ | 11:21 | B | 12:32 | D | LEO | 6 | |
| 176 | 25 | A | 5:15 | A | 8:55 | E | 15 40 | *6 | 23 N. 22 | 1½ | 2 | 12:25 | C | 12:49 | D | LEO | 7 | |
| 177 | 26 | M. | 5:16 | A | 8:55 | E | 15 39 | *6 | 23 N. 20 | 2½ | 2% | 1:31 | C | 1:05 | C | VIR | 8 | |
| 178 | 27 | Tu. | 5:16 | A | 8:55 | E | 15 39 | *6 | 23 N. 18 | 3 | 3% | 2:38 | D | 1:22 | C | VIR | 9 | |
| 179 | 28 | W. | 5:17 | A | 8:55 | E | 15 38 | *6 | 23 N. 15 | 4½ | 4½ | 3:48 | D | 1:40 | B | VIR | 10 | |
| 180 | 29 | Th. | 5:17 | A | 8:55 | E | 15 38 | *6 | 23 N. 12 | 5% | 5% | 5:03 | E | 2:01 | B | LIB | 11 | |
| 181 | 30 | Fr. | 5:18 | A | 8:55 | E | 15 37 | *7 | 23 N. 09 | 6% | 6% | 6:21 | E | 2:27 | A | LIB | 12 | |



*Flocks of happy-hearted birds
Talking in melodious words.*
—Frank Dempster Sherman

Farmer's Calendar

Never take children on “nature walks.” The term smacks of schoolwork. Take them on “expeditions” and do so with a stated purpose, even if it’s a diversion. Catch pollywogs, for example. Collect chrysalids. Feed slapped mosquitos to water striders.

The most indelible natural history lessons are taught by actions, not words. It took me years to unlearn the lesson taught to me by my grandmother, who, upon encountering a large snapping turtle crossing our woodlot one long-ago June day, fetched an ax-toting woodsman to separate the reptile from its head.

Decades later, a male cousin asked me to kill a milk snake because “snakes alarm my lady friends.” I declined, explaining that the problem was not snakes but instead wrong lessons.

At Trout Lake Camp in Quebec’s Eastern Townships, my young pal Forrest Stearns once dashed up to me, grinning proudly and clutching a writhing garter snake—the first that we’d encountered that year. She had never considered the possibility that someone might recoil in alarm at the sight of a snake because she’d never seen anyone do such a thing. By stopping to admire snakes, her parents had taught her that they’re beautiful and special.

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|--------------------|
| 1 | Th. | ☾ AT ☉ • U.S. Navy Capt. James Lawrence ordered, “Don’t give up the ship!” (War of 1812), 1813 | <i>In the</i> |
| 2 | Fr. | Ember Day • <i>An ounce of patience is worth a pound of brains.</i> • Tides {5.1 / 5.9} | <i>garden’s</i> |
| 3 | Sa. | Ember • FULL STRAWBERRY ☉ • Hale Telescope dedicated, Palomar Obs., Calif., 1948 | <i>thral,</i> |
| 4 | A | Trinity • Orthodox • ♂ ♀ ☽ • ♀ GR. ELONG. (45° EAST) • {5.5 / 6.2} | <i>atop the</i> |
| 5 | M. | St. Boniface • ☾ RNS • Singer Conway Twitty • ☾ LOW • died, 1993 | <i>rows,</i> |
| 6 | Tu. | D-Day, 1944 • ☾ AT PERIG. • Tides {5.6 / 6.1} | <i>cool drops</i> |
| 7 | W. | ♂ ♀ ☾ • Painter Paul Gauguin born, 1848 • {5.6 / 5.9} | <i>fall,</i> |
| 8 | Th. | U.S. Bald Eagle Protection Act approved, 1940 • {5.6 / —} | <i>and</i> |
| 9 | Fr. | ♂ ♀ ☾ • Racehorse Secretariat won Triple Crown, 1973 • Tides {5.7 / 5.5} | <i>everything</i> |
| 10 | Sa. | Possible day of Benjamin Franklin’s kite and key experiment, 1752 • Tides {5.5 / 5.5} | <i>grows.</i> |
| 11 | A | Corpus • Orthodox • ☾ ON EQ. • ♂ ♀ ☾ • {5.2 / 5.5} | <i>Brisk and</i> |
| 12 | M. | St. Barnabas • Jiroemon Kimura, world’s oldest man at time, died at age 116 yrs. 54 days, 2013 | <i>sunny</i> |
| 13 | Tu. | ☾ AT ☉ • Yukon Territory created, 1898 • {4.9 / 5.7} | <i>for that</i> |
| 14 | W. | St. Basil • FLAG DAY (U.S.) • ♂ ♀ ☾ • {5.0 / 5.7} | <i>home run-’!</i> |
| 15 | Th. | ♂ ☽ ☾ • <i>A swarm of bees in June, Is worth a silver spoon.</i> • Tides {5.0 / 5.7} | <i>Temps and</i> |
| 16 | Fr. | ♂ ♀ ☾ • Andrew Jackson Jr. issued patent for eye protectors for chickens, 1903 • {5.1 / 5.7} | <i>skies now</i> |
| 17 | Sa. | Artist Maurits Cornelis Escher born, 1898 • {5.2 / 5.7} | <i>glorious</i> |
| 18 | A | 3rd S. • FATHER’S DAY • NEW • ☾ RIDES HIGH • ♀ STAT. | <i>before</i> |
| 19 | M. | JUNETENTH NATIONAL INDEPENDENCE DAY (U.S.) • Mathematician/philosopher Blaise Pascal born, 1623 | <i>clouds</i> |
| 20 | Tu. | W.Va. became 35th U.S. state, 1863 • Tides {5.2 / 5.5} | <i>then</i> |
| 21 | W. | SUMMER SOLSTICE • ♂ ♀ ☾ • N.H. became 9th U.S. state, 1788 • Ferris wheel debuted, 1893 | <i>rain</i> |
| 22 | Th. | St. Alban • ☾ AT APO. • ♂ ♂ ☾ • Tides {5.2 / —} | <i>victorious.</i> |
| 23 | Fr. | Storms brought flooding to midwestern Ontario, 2017 • Tides {5.2 / 5.2} | <i>Hay’s in</i> |
| 24 | Sa. | Nativ. John the Baptist • MIDSUMMER DAY • {5.0 / 5.1} | <i>the field,</i> |
| 25 | A | 4th S. at. ♀ • Va. became 10th U.S. state, 1788 • Tides {4.9 / 5.1} | <i>sunny and</i> |
| 26 | M. | ☾ ON EQ. • <i>Love is blind but sees afar.</i> • Tides {4.7 / 5.1} | <i>warm—</i> |
| 27 | Tu. | Paddington Bear children’s writer Michael Bond died, 2017 • Tides {4.5 / 5.1} | <i>Do get it</i> |
| 28 | W. | St. Irenaeus • ☾ AT ☉ • Independence National Historical Park created, Philadelphia, Pa., 1948 | <i>in</i> |
| 29 | Th. | Sts. Peter & Paul • 44” snow, Livingston Ranger Station, Alta., 1963 • {4.6 / 5.4} | <i>before the</i> |
| 30 | Fr. | International Asteroid Day • Tides {4.8 / 5.6} | <i>next storm!</i> |

JULY

SKY WATCH: Fading evening twilight on the 1st reveals Venus and Mars next to blue Regulus, Leo's brilliant brightest star. Venus maintains its super-bright magnitude of -4.7 , while Mars has a close conjunction with Regulus from the 9th to the 11th. At the same time, Mercury begins an evening star apparition, starting very low in the west while sporting a magnitude -1.0 . It further brightens and rises each successive evening. The 18th finds Mercury to the left of the thin crescent Moon, with Venus further left. On the 20th, Mars hovers to the left of the Moon, with Venus directly below them. Pluto reaches opposition just before midnight on the 21st but is much too faint for backyard telescopes.

○ **FULL MOON** 3rd day 7:39 A.M. ● **NEW MOON** 17th day 2:32 P.M.
 ● **LAST QUARTER** 9th day 9:48 P.M. ○ **FIRST QUARTER** 25th day 6:07 P.M.

All times are given in Eastern Daylight Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀️ RISES H. M. | ☀️ RISE KEY | ☀️ SETS | | LENGTH OF DAY H. M. | SUN FAST | | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | | ☾ RISES | ☾ RISE KEY | ☾ SETS | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|-------------------|-------------|-------------|---------|------------------------|----------|----------|-----------------|------------|----------------------------|-------|--------------|------------|---------------|-----------|-----------------|-------|
| | | | | | H. M. | SET KEY | | H. M. | M. | ° | ' | H. M. | H. M. | H. M. | | ASTRON. PLACE | | | |
| 182 | 1 | Sa. | 5:18 | A | 8:55 | E | 15 37 | *7 | 23 N. 05 | 7¼ | 7 | 7:40 | E | 3:02 | A | OPH | 13 | | |
| 183 | 2 | A | 5:19 | A | 8:55 | E | 15 36 | *7 | 23 N. 01 | 8 | 8 | 8:51 | E | 3:49 | A | OPH | 14 | | |
| 184 | 3 | M. | 5:19 | A | 8:54 | E | 15 35 | *7 | 22 N. 56 | 8% | 8% | 9:51 | E | 4:51 | A | SAG | 15 | | |
| 185 | 4 | Tu. | 5:20 | A | 8:54 | E | 15 34 | *7 | 22 N. 51 | 9% | 9% | 10:36 | E | 6:08 | A | SAG | 16 | | |
| 186 | 5 | W. | 5:21 | A | 8:54 | E | 15 33 | *7 | 22 N. 45 | 10½ | 10½ | 11:10 | E | 7:32 | A | CAP | 17 | | |
| 187 | 6 | Th. | 5:21 | A | 8:53 | E | 15 32 | *8 | 22 N. 39 | 11½ | 11½ | 11:37 | D | 8:58 | A | CAP | 18 | | |
| 188 | 7 | Fr. | 5:22 | A | 8:53 | E | 15 31 | *8 | 22 N. 33 | 12¼ | — | 11:59 | D | 10:21 | B | AQU | 19 | | |
| 189 | 8 | Sa. | 5:23 | A | 8:53 | E | 15 30 | *8 | 22 N. 26 | 12¼ | 1 | — | — | 11:39 | C | AQU | 20 | | |
| 190 | 9 | A | 5:24 | A | 8:52 | E | 15 28 | *8 | 22 N. 19 | 1¼ | 2 | 12:19 | B | 12:55 | C | PET | 21 | | |
| 191 | 10 | M. | 5:24 | A | 8:52 | E | 15 28 | *8 | 22 N. 12 | 2¼ | 2¼ | 12:38 | B | 2:10 | D | CSC | 22 | | |
| 192 | 11 | Tu. | 5:25 | A | 8:51 | E | 15 26 | *8 | 22 N. 04 | 3¼ | 3¼ | 12:58 | B | 3:23 | D | ARI | 23 | | |
| 193 | 12 | W. | 5:26 | A | 8:50 | E | 15 24 | *9 | 21 N. 55 | 4¼ | 4¼ | 1:20 | A | 4:36 | E | ARI | 24 | | |
| 194 | 13 | Th. | 5:27 | A | 8:50 | E | 15 23 | *9 | 21 N. 47 | 5½ | 5½ | 1:47 | A | 5:47 | E | TAU | 25 | | |
| 195 | 14 | Fr. | 5:28 | A | 8:49 | E | 15 21 | *9 | 21 N. 38 | 6½ | 6½ | 2:20 | A | 6:54 | E | TAU | 26 | | |
| 196 | 15 | Sa. | 5:29 | A | 8:48 | E | 15 19 | *9 | 21 N. 29 | 7½ | 7½ | 3:02 | A | 7:53 | E | TAU | 27 | | |
| 197 | 16 | A | 5:30 | A | 8:48 | E | 15 18 | *9 | 21 N. 19 | 8¼ | 8¼ | 3:52 | A | 8:42 | E | GEM | 28 | | |
| 198 | 17 | M. | 5:31 | A | 8:47 | E | 15 16 | *9 | 21 N. 09 | 9 | 9 | 4:50 | A | 9:21 | E | GEM | 0 | | |
| 199 | 18 | Tu. | 5:32 | A | 8:46 | E | 15 14 | *9 | 20 N. 58 | 9% | 9% | 5:54 | A | 9:52 | E | CAN | 1 | | |
| 200 | 19 | W. | 5:33 | A | 8:45 | E | 15 12 | *9 | 20 N. 47 | 10½ | 10½ | 7:00 | A | 10:17 | E | CAN | 2 | | |
| 201 | 20 | Th. | 5:34 | A | 8:44 | E | 15 10 | *9 | 20 N. 36 | 11 | 11 | 8:06 | B | 10:37 | D | LEO | 3 | | |
| 202 | 21 | Fr. | 5:35 | A | 8:43 | E | 15 08 | *9 | 20 N. 25 | 11½ | 11½ | 9:11 | B | 10:54 | D | LEO | 4 | | |
| 203 | 22 | Sa. | 5:36 | A | 8:42 | E | 15 06 | *9 | 20 N. 13 | 12¼ | — | 10:15 | B | 11:11 | C | LEO | 5 | | |
| 204 | 23 | A | 5:37 | A | 8:41 | E | 15 04 | *9 | 20 N. 01 | 12¼ | 12¼ | 11:19 | C | 11:27 | C | VIR | 6 | | |
| 205 | 24 | M. | 5:38 | A | 8:40 | E | 15 02 | *9 | 19 N. 48 | 1 | 1¼ | 12:24 | C | 11:43 | B | VIR | 7 | | |
| 206 | 25 | Tu. | 5:39 | A | 8:39 | E | 15 00 | *9 | 19 N. 35 | 1½ | 2 | 1:32 | D | — | — | VIR | 8 | | |
| 207 | 26 | W. | 5:40 | A | 8:38 | E | 14 58 | *9 | 19 N. 22 | 2½ | 2½ | 2:43 | D | 12:02 | B | VIR | 9 | | |
| 208 | 27 | Th. | 5:41 | A | 8:37 | E | 14 56 | *9 | 19 N. 09 | 3¼ | 3¼ | 3:58 | E | 12:25 | A | LIB | 10 | | |
| 209 | 28 | Fr. | 5:42 | A | 8:36 | E | 14 54 | *9 | 18 N. 55 | 4½ | 4½ | 5:15 | E | 12:55 | A | SCO | 11 | | |
| 210 | 29 | Sa. | 5:43 | A | 8:35 | E | 14 52 | *9 | 18 N. 41 | 5% | 5% | 6:29 | E | 1:35 | A | OPH | 12 | | |
| 211 | 30 | A | 5:44 | A | 8:33 | E | 14 49 | *9 | 18 N. 26 | 6% | 6% | 7:34 | E | 2:29 | A | SAG | 13 | | |
| 212 | 31 | M. | 5:46 | A | 8:32 | E | 14 46 | *9 | 18 N. 12 | 7% | 7% | 8:26 | E | 3:38 | A | SAG | 14 | | |



*O month of burning suns and mellow moons,
Which warm the heart as would some rare old wine!*
—Elliot Ryder, of July

Farmer's Calendar

In early summer, America's leopards stalk prey through mid-latitude grass. Farther north, you can still hear them roaring (or perhaps more descriptively, "snoring") from on and even below the surface of ponds and dawdling streams.

These are northern leopard frogs, which inhabit much of southern Canada and the northern United States, as well as the Desert Southwest. Watch for these semi-terrestrial amphibians as they hunt crickets, beetles, grasshoppers, worms, spiders, and the like.

You can feed them by hitching a thread to a long stick, loosely tying on a piece of fish or meat, and making the food hop along the ground. They'll snap it up, then stuff it into their mouths with their "hands."

Because of their rapid, zig-zag leaps, leopard frogs are a challenge to approach for a closer look. You may get a "chuckle" from them, which they issue only when annoyed.

Once our most abundant frog, the northern leopard frog has declined. According to biologists, causes of this may include deforestation, pollution, and possibly the fact that they were widely collected for food (frog legs) and classroom dissection.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|------------------|
| 1 | Sa. | CANADA DAY • ☽ ^{IN SUP.} • ☽ • ♀ ^{STAT.} • P.E.I. joined Canadian Confederation, 1873 | <i>Month</i> |
| 2 | A | 5th ☽. af. ♀. • ☾ ^{RUNS} • Thurgood Marshall, Supreme Court justice (U.S.), born, 1908 | <i>number</i> |
| 3 | M. | Dog Days begin. • FULL BUCK • ☾ • Every dog hath its day. • {5.5 6.2 | <i>seven,</i> |
| 4 | Tu. | INDEPENDENCE DAY (U.S.) • ☾ ^{AT PERIG.} • ☽☾☾ • Tides {5.7 6.3 | <i>weather</i> |
| 5 | W. | Mass. Bay Colony gov. John Winthrop recorded damaging "sudden gust," poss. 1st tornado report in future U.S., 1643 | <i>from</i> |
| 6 | Th. | ☽ ^{AT APHELION} • ☽☾☾ • Roy Rogers, "King of the Cowboys," died, 1998 | <i>Heaven.</i> |
| 7 | Fr. | ☽ ^{GR. ILLUM.} • ☽ • Armadillos mate now. • Tides {5.9 — | <i>Warming</i> |
| 8 | Sa. | ☾ ^{ON EQ.} • ☽☽☽ • SSgt. Esther Blake became 1st woman enlisted in USAF, 1948 | <i>showers</i> |
| 9 | A | 6th ☽. af. ♀. • ☽ • 48 hrs., setting world record, 2008 | <i>bring</i> |
| 10 | M. | ☾ ^{AT ♀} • 134°F, Greenland Ranch; Death Valley, Calif., 1913 • Tides {5.2 5.7 | <i>bowers</i> |
| 11 | Tu. | ☽☾☾ • U.S. Marine Band established, 1798 • {4.9 5.5 | <i>of</i> |
| 12 | W. | ☽☾☾ • Cornsateow air is everywhere. • {4.7 5.4 | <i>flowers.</i> |
| 13 | Th. | 1st season of Stratford Festival began, Ont., 1953 • Tides {4.7 5.3 | <i>Hot!</i> |
| 14 | Fr. | Bastille Day • CSXT GoFast 1st U.S. amateur rocket to reach 385,800' and 3,580 mph, 2014 • {4.8 5.3 | <i>Hotter!</i> |
| 15 | Sa. | St. Swithin • ☾ ^{RIDES HIGH} • Wheel of Fortune wheel designer Ed Flesh died, 2011 | <i>Hottest!</i> |
| 16 | A | 7th S. • D. Bailey won 100m dash (9.91 secs.), Canadian af. P. • TAF Championships, Montreal, Que., 1995 | <i>And</i> |
| 17 | M. | NEW • ☾ • When sheep turn their backs to the wind, it is a sign of rain. • Tides {5.1 5.5 | <i>now</i> |
| 18 | Tu. | First of Muharram • Activist Nelson Mandela begins at sundown • born, 1918 • {5.2 5.6 | <i>hot</i> |
| 19 | W. | ☽☽☽ • 1st women's rights convention in U.S. began, Seneca Falls, N.Y., 1848 • {5.3 5.5 | <i>it</i> |
| 20 | Th. | ☾ ^{AT APO.} • ☽☽☽ • ♀ ^{STAT.} • Tides {5.3 5.4 | <i>not</i> |
| 21 | Fr. | ☽☽☾ • ☽ ^{AT ♀} • -128.6°F, Vostok Station, Antarctica, 1983 • {5.3 5.3 | <i>is.</i> |
| 22 | Sa. | St. Mary Magdalene • Humpback whale accidentally caught sea lion in mouth (sea lion OK), Calif., 2019 | <i>Clouds</i> |
| 23 | A | 8th ☽. af. ♀. • ☾ ^{ON EQ.} • Baseball player Nomar Garciaparra born, 1973 | <i>seep</i> |
| 24 | M. | Marvin the Martian debuted in Bugs Bunny's Haredevil Hare, 1948 • EF2 tornado struck Epsom, N.H., 2008 | <i>as frogs</i> |
| 25 | Tu. | St. James • ☾ ^{AT ♀} • Black-eyed Susans in bloom now. • {4.8 5.3 | <i>leap.</i> |
| 26 | W. | St. Anne • ☽☽☽ • N.Y. became 11th U.S. state, 1788 • Tides {4.6 5.2 | <i>Some</i> |
| 27 | Th. | Ice skater Peggy Fleming born, 1948 • Tides {4.5 5.3 | <i>lightning</i> |
| 28 | Fr. | 8.2 earthquake SE of Perryville, Alaska, 2021 • {4.5 5.4 | <i>about—</i> |
| 29 | Sa. | St. Martha • Spend not where you may save; spare not where you must spend. • {4.7 5.5 | <i>Swimmers,</i> |
| 30 | A | 9th ☽. af. ♀. • ☾ ^{RUNS LOW} • Industrialist Henry Ford born, 1863 • {4.9 5.8 | <i>get</i> |
| 31 | M. | St. Ignatius of Loyola • ☽☾☾ • Roar of MGM's lion Jackie heard for 1st time on screen, 1928 | <i>out!</i> |

AUGUST

SKY WATCH: Venus and Jupiter have both dropped into the solar glare, ending their lengthy reigns as evening stars. Mercury remains just above the horizon in the western evening twilight at magnitude 0. Mars, six times fainter, hovers above it. The 3rd finds Saturn just above the Moon, which moves on to form a predawn conjunction with Jupiter on the 8th. The Perseid meteor shower arrives on the 11th and 12th; it's best seen after midnight, when rural observers can expect a meteor a minute. The Moon won't interfere, making for excellent viewing conditions. Beginning around the 20th, Venus rises before dawn to become a morning star in the coming months. Saturn reaches opposition on the 27th, at its biggest and brightest of the year.

- **FULL MOON** 1st day 2:32 P.M. ● **FIRST QUARTER** 24th day 5:57 A.M.
 ● **LAST QUARTER** 8th day 6:28 A.M. ○ **FULL MOON** 30th day 9:36 P.M.
 ● **NEW MOON** 16th day 5:38 A.M.

All times are given in Eastern Daylight Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES H. M. | ☀ RISE KEY | ☀ SETS H. M. | ☀ SET KEY | LENGTH OF DAY H. M. | SUN FAST M. | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | ☾ RISES H. M. | ☾ RISE KEY | ☾ SETS H. M. | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE | |
|-------------|--------------|-------------|------------------|------------|-----------------|-----------|------------------------|----------------|-----------------|-------|----------------------------|------------------|--------------|-----------------|--------------|--------------------|-------|----|
| | | | | | | | | | ° | ' | | | | | | | | |
| 213 | 1 | Tu. | 5:47 | B | 8:31 | E | 14 44 | *9 | 17 | N. 57 | 8½ | 8½ | 9:06 | E | 5:01 | A | CAP | 15 |
| 214 | 2 | W. | 5:48 | B | 8:30 | E | 14 42 | *9 | 17 | N. 41 | 9½ | 9½ | 9:36 | D | 6:28 | A | CAP | 16 |
| 215 | 3 | Th. | 5:49 | B | 8:28 | E | 14 39 | *9 | 17 | N. 26 | 10¼ | 10¼ | 10:01 | D | 7:55 | B | AQU | 17 |
| 216 | 4 | Fr. | 5:50 | B | 8:27 | E | 14 37 | *9 | 17 | N. 10 | 11 | 11¼ | 10:22 | C | 9:19 | B | AQU | 18 |
| 217 | 5 | Sa. | 5:51 | B | 8:25 | E | 14 34 | *9 | 16 | N. 54 | 11¼ | — | 10:42 | C | 10:39 | C | PSC | 19 |
| 218 | 6 | A | 5:53 | B | 8:24 | E | 14 31 | *9 | 16 | N. 37 | 12 | 12½ | 11:02 | B | 11:56 | D | PSC | 20 |
| 219 | 7 | M. | 5:54 | B | 8:23 | D | 14 29 | *9 | 16 | N. 21 | 12¼ | 1¼ | 11:24 | B | 1:12 | D | ARI | 21 |
| 220 | 8 | Tu. | 5:55 | B | 8:21 | D | 14 26 | *8 | 16 | N. 04 | 1¼ | 2¼ | 11:49 | A | 2:27 | E | ARI | 22 |
| 221 | 9 | W. | 5:56 | B | 8:20 | D | 14 24 | *8 | 15 | N. 46 | 2¼ | 3 | — | — | 3:39 | E | TAU | 23 |
| 222 | 10 | Th. | 5:57 | B | 8:18 | D | 14 21 | *8 | 15 | N. 29 | 3¼ | 4 | 12:21 | A | 4:48 | E | TAU | 24 |
| 223 | 11 | Fr. | 5:59 | B | 8:17 | D | 14 18 | *8 | 15 | N. 11 | 5 | 5¼ | 12:59 | A | 5:49 | E | TAU | 25 |
| 224 | 12 | Sa. | 6:00 | B | 8:15 | D | 14 15 | *8 | 14 | N. 53 | 6¼ | 6¼ | 1:47 | A | 6:41 | E | AUR | 26 |
| 225 | 13 | A | 6:01 | B | 8:14 | D | 14 13 | *8 | 14 | N. 35 | 7¼ | 7¼ | 2:43 | A | 7:23 | E | GEM | 27 |
| 226 | 14 | M. | 6:02 | B | 8:12 | D | 14 10 | *7 | 14 | N. 17 | 8¼ | 8 | 3:46 | A | 7:55 | E | CAN | 28 |
| 227 | 15 | Tu. | 6:03 | B | 8:10 | D | 14 07 | *7 | 13 | N. 58 | 8¼ | 8¼ | 4:51 | A | 8:21 | E | CAN | 29 |
| 228 | 16 | W. | 6:05 | B | 8:09 | D | 14 04 | *7 | 13 | N. 39 | 9½ | 9½ | 5:58 | A | 8:43 | D | LEO | 0 |
| 229 | 17 | Th. | 6:06 | B | 8:07 | D | 14 01 | *7 | 13 | N. 20 | 10 | 10 | 7:03 | B | 9:01 | D | LEO | 1 |
| 230 | 18 | Fr. | 6:07 | B | 8:06 | D | 13 59 | *7 | 13 | N. 01 | 10½ | 10½ | 8:08 | B | 9:17 | C | LEO | 2 |
| 231 | 19 | Sa. | 6:08 | B | 8:04 | D | 13 56 | *6 | 12 | N. 41 | 11 | 11 | 9:11 | C | 9:33 | C | VIR | 3 |
| 232 | 20 | A | 6:09 | B | 8:02 | D | 13 53 | *6 | 12 | N. 21 | 11½ | 11¼ | 10:16 | C | 9:49 | B | VIR | 4 |
| 233 | 21 | M. | 6:11 | B | 8:00 | D | 13 49 | *6 | 12 | N. 01 | 12 | — | 11:22 | D | 10:07 | B | VIR | 5 |
| 234 | 22 | Tu. | 6:12 | B | 7:59 | D | 13 47 | *6 | 11 | N. 41 | 12½ | 12¾ | 12:30 | D | 10:27 | A | VIR | 6 |
| 235 | 23 | W. | 6:13 | B | 7:57 | D | 13 44 | *5 | 11 | N. 21 | 1 | 1¼ | 1:42 | E | 10:53 | A | LIB | 7 |
| 236 | 24 | Th. | 6:14 | B | 7:55 | D | 13 41 | *5 | 11 | N. 01 | 1¼ | 2 | 2:56 | E | 11:27 | A | LIB | 8 |
| 237 | 25 | Fr. | 6:16 | B | 7:53 | D | 13 37 | *5 | 10 | N. 40 | 2¼ | 3 | 4:10 | E | — | — | SCO | 9 |
| 238 | 26 | Sa. | 6:17 | B | 7:52 | D | 13 35 | *5 | 10 | N. 19 | 4 | 4 | 5:18 | E | 12:13 | A | OPH | 10 |
| 239 | 27 | A | 6:18 | B | 7:50 | D | 13 32 | *4 | 9 | N. 58 | 5¼ | 5¼ | 6:14 | E | 1:14 | A | SAG | 11 |
| 240 | 28 | M. | 6:19 | B | 7:48 | D | 13 29 | *4 | 9 | N. 37 | 6½ | 6½ | 6:59 | E | 2:29 | A | SAG | 12 |
| 241 | 29 | Tu. | 6:20 | B | 7:46 | D | 13 26 | *4 | 9 | N. 16 | 7½ | 7½ | 7:33 | E | 3:54 | A | CAP | 13 |
| 242 | 30 | W. | 6:22 | B | 7:44 | D | 13 22 | *3 | 8 | N. 54 | 8¼ | 8¼ | 8:00 | D | 5:21 | A | CAP | 14 |
| 243 | 31 | Th. | 6:23 | B | 7:43 | D | 13 20 | *3 | 8 | N. 33 | 9¼ | 8:23 | C | 6:48 | B | AQU | 15 | |



*Jams, and jellies, and juices,
Ready for all sweet uses.*
—M. E. B.

Farmer's Calendar

When cicadas sing and grass goes gold, daddy longlegs leave their haunts amid dead and living vegetation. In another month, these gangly, nonvenomous arachnids will mate. Sometimes gathering in large clusters, they appear around harvesttime, which is why farmers of yore called them “harvestmen.”

Worldwide, there are at least 6,000 species of daddy longlegs, all of which lack the fangs and silk glands of true spiders. Whereas a spider has two distinct body parts, a daddy longlegs has but one. And, unlike a spider, which usually has eight eyes, the daddy longlegs has two, both mounted on a small turret near the front of its body.

A male spider must transfer his sperm to the female on the tip of an armlike appendage called a pedipalp. Daddy longlegs, on the other hand, can copulate.

Unlike spiders, which suck body fluids from prey, a daddy longlegs chews and swallows. In addition to insects and arachnids, it consumes fruit, plants, fungi, and bird droppings.

Its two longest legs are used more for sensory perception than locomotion. According to some countryfolk, you can find a lost cow by noting in which direction the long legs wave.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|-------------|
| 1 | Tu. | Lamas FULL STURGEON • Meter length defined, 1793 | {5.6 6.3 |
| 2 | W. | ☾ AT PERIG. • <i>Talk much and err much.</i> • Tides | {5.9 6.4 |
| 3 | Th. | ♁♃☾ • Calvin Coolidge sworn in as U.S. president by father at Vermont homestead, 1923 | |
| 4 | Fr. | ♁♃☾ • French and Haudenosaunee signed Great Peace of Montreal, 1701 | {6.3 6.2 |
| 5 | Sa. | ☾ ON EQ. • Writer Toni Morrison died, 2019 | {6.3 — |
| 6 | A | Transfiguration • ☾ AT ♁ • Anne Hathaway, wife of Shakespeare, died, 1623 | |
| 7 | M. | CIVIC HOLIDAY • Bear entered grocery store, Port Can., Calif., 2021 | {5.5 5.9 |
| 8 | Tu. | St. Dominic • ♁♃☾ • Tides | {5.2 5.6 |
| 9 | W. | ☽ GR. ELONG (27° EAST) • Ragweed in bloom. | {4.8 5.3 |
| 10 | Th. | St. Lawrence • <i>A handful of common sense is worth a bushel of learning.</i> | {4.6 5.1 |
| 11 | Fr. | St. Dog Days • Tennis player Bianca Andreescu 1st Canadian to win Rogers Cup in 50 years, 2019 | |
| 12 | Sa. | ☾ RIDES HIGH • Gray squirrels have second litters now. | {4.6 5.1 |
| 13 | A | 11th S. af. ♀. • ♀ IN INF. • Tides | {4.7 5.2 |
| 14 | M. | Oregon Territory organized, 1848 • 1st recorded rain at 10,551', Greenland ice sheet, 2021 | {4.9 5.4 |
| 15 | Tu. | Assumption • ♁☾ • Nacho inventor Ignacio Anaya Garcia born, 1895 | |
| 16 | W. | NEW • ☾ AT APO. • Baseball player Babe Ruth died, 1948 | {5.3 5.6 |
| 17 | Th. | Cat Nights • 1st transatlantic balloon flight commenced, 1978 | {5.4 5.6 |
| 18 | Fr. | ♁♃☾ • ♁♃☾ • Begole, Johnson, and Lucas 1st to summit Mt. Whitney, Sierra Nevada, Calif., 1873 | |
| 19 | Sa. | ☾ ON EQ. • <i>If kites fly high, fine weather is at hand.</i> | {5.5 5.4 |
| 20 | A | 12th S. af. ♀. • Est. F4 tornado hit Austin, Minn., 1928 | {5.5 5.2 |
| 21 | M. | ☾ AT ♁ • Concert promoter Sid Bernstein died, 2013 | |
| 22 | Tu. | NASA rec'd 1st photo proving that Neptune had rings, 1989 | {5.1 5.5 |
| 23 | W. | ☽ STAT. • Antonia Novello, 1st woman and Hispanic to serve as U.S. Surgeon General, born, 1944 | |
| 24 | Th. | St. Bartholomew • Humorist Jerry Clower died, 1998 | {4.7 5.3 |
| 25 | Fr. | Hummingbirds • Chef Rachael Ray born, 1968 | {4.6 5.2 |
| 26 | Sa. | ☾ RUNS LOW • 24-lb. 5-oz. longnose gar caught, Sardis Reservoir, Miss., 1984 | {4.5 5.3 |
| 27 | A | 13th S. af. ♀. • ♁ AT ♁ • Tides | {4.7 5.5 |
| 28 | M. | St. Augustine of Hippo • ☾☾ • ☽ STAT. • Deadly tornado, W. Stockbridge, Mass., 1973 | |
| 29 | Tu. | St. John the Baptist • Goodyear Tire & Rubber Co. incorporated, 1898 | |
| 30 | W. | BLUE • ☾ AT PERIG. • ♁♃☾ • Artist Jacques-Louis David born, 1748 | |
| 31 | Th. | Hurricane Carol made landfall, Long Island, N.Y., and SE Conn., 1954 | {6.2 6.4 |

Sultry days for country ways— Round up strays in the haze. Better mow the lawn at dawn— Storms and showers coming on! Sun spot. Now comes weather most unsettled, sometimes dry, sometimes wettled.

SEPTEMBER

SKY WATCH: Venus shoots rapidly higher each morning before dawn, reaching its greatest brilliancy of 2023 at midmonth with a shadow-casting magnitude of -4.8. Above the same eastern horizon, look for Mercury to reach its highest position on the 6th. On the 11th, the crescent Moon joins Venus in Cancer. Neptune comes to opposition on the 19th, but a telescope is needed to see its tiny, blue, 8th-magnitude disk. On the 21st, Mercury, in Leo, dangles below Venus. Mercury is now at its best as a morning star, ranging from a brilliant magnitude -0.3 to an even brighter -1.0 at month's end. Fall begins with the autumnal equinox on the morning of the 23rd at 2:50 A.M. EDT.

☾ **LAST QUARTER** 6th day 6:21 P.M. ☽ **FIRST QUARTER** 22nd day 3:32 P.M.
 ● **NEW MOON** 14th day 9:40 P.M. ○ **FULL MOON** 29th day 5:58 A.M.

All times are given in Eastern Daylight Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES | | ☀ SETS | | LENGTH OF DAY | SUN FAST | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | | ☾ RISES | ☾ RISE KEY | ☾ SETS | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|---------|----------|-------------|---------|---------------|----------|-----------------|-----------|-------------------------|--------------|---------|--------------|----------|-----------|-----------------|-------|
| | | | H. M. | RISE KEY | H. M. | SET KEY | | | H. M. | M. | ° | ' | H. M. | | RISE KEY | | H. M. | |
| 244 | 1 | Fr. | 6:24 | B | 7:41 | D | 13 17 | *3 | 8 N. 11 | 9% | 10 | 8:43 | C | 8:11 | C | AQU | 16 | |
| 245 | 2 | Sa. | 6:25 | B | 7:39 | D | 13 14 | *2 | 7 N. 49 | 10½% | 10% | 9:04 | B | 9:32 | C | CET | 17 | |
| 246 | 3 | A | 6:26 | B | 7:37 | D | 13 11 | *2 | 7 N. 27 | 11¼% | 11% | 9:25 | B | 10:52 | D | PSC | 18 | |
| 247 | 4 | M. | 6:28 | B | 7:35 | D | 13 07 | *2 | 7 N. 05 | 12 | — | 9:50 | A | 12:10 | D | ARI | 19 | |
| 248 | 5 | Tu. | 6:29 | B | 7:33 | D | 13 04 | *1 | 6 N. 43 | 12½% | 12% | 10:20 | A | 1:26 | E | ARI | 20 | |
| 249 | 6 | W. | 6:30 | B | 7:31 | D | 13 01 | *1 | 6 N. 21 | 1¼% | 1½% | 10:56 | A | 2:38 | E | TAU | 21 | |
| 250 | 7 | Th. | 6:31 | B | 7:30 | D | 12 59 | *1 | 5 N. 58 | 2¼% | 2½% | 11:42 | A | 3:43 | E | TAU | 22 | |
| 251 | 8 | Fr. | 6:32 | C | 7:28 | D | 12 56 | 0 | 5 N. 36 | 3¼% | 3½% | — | — | 4:39 | E | AUR | 23 | |
| 252 | 9 | Sa. | 6:34 | C | 7:26 | D | 12 52 | 0 | 5 N. 13 | 4% | 4% | 12:36 | A | 5:24 | E | GEM | 24 | |
| 253 | 10 | A | 6:35 | C | 7:24 | C | 12 49 | 0 | 4 N. 50 | 6 | 6 | 1:37 | A | 5:59 | E | GEM | 25 | |
| 254 | 11 | M. | 6:36 | C | 7:22 | C | 12 46 | 1 | 4 N. 28 | 7 | 6% | 2:42 | A | 6:27 | E | CAN | 26 | |
| 255 | 12 | Tu. | 6:37 | C | 7:20 | C | 12 43 | 1 | 4 N. 05 | 7% | 7½% | 3:48 | A | 6:49 | D | LEO | 27 | |
| 256 | 13 | W. | 6:39 | C | 7:18 | C | 12 39 | 1 | 3 N. 42 | 8% | 8½% | 4:54 | B | 7:08 | D | LEO | 28 | |
| 257 | 14 | Th. | 6:40 | C | 7:16 | C | 12 36 | 2 | 3 N. 19 | 8% | 8% | 5:59 | B | 7:24 | C | LEO | 0 | |
| 258 | 15 | Fr. | 6:41 | C | 7:14 | C | 12 33 | 2 | 2 N. 56 | 9% | 9½% | 7:04 | C | 7:40 | C | VIR | 1 | |
| 259 | 16 | Sa. | 6:42 | C | 7:12 | C | 12 30 | 2 | 2 N. 33 | 9% | 10 | 8:08 | C | 7:56 | C | VIR | 2 | |
| 260 | 17 | A | 6:43 | C | 7:10 | C | 12 27 | 3 | 2 N. 09 | 10% | 10½% | 9:14 | D | 8:13 | B | VIR | 3 | |
| 261 | 18 | M. | 6:45 | C | 7:08 | C | 12 23 | 3 | 1 N. 46 | 10% | 11¼% | 10:22 | D | 8:32 | B | VIR | 4 | |
| 262 | 19 | Tu. | 6:46 | C | 7:07 | C | 12 21 | 3 | 1 N. 23 | 11½% | — | 11:33 | E | 8:56 | A | LIB | 5 | |
| 263 | 20 | W. | 6:47 | C | 7:05 | C | 12 18 | 4 | 1 N. 00 | 12 | 12 | 12:45 | E | 9:26 | A | LIB | 6 | |
| 264 | 21 | Th. | 6:48 | C | 7:03 | C | 12 15 | 4 | 0 N. 36 | 12% | 12½% | 1:58 | E | 10:07 | A | SCO | 7 | |
| 265 | 22 | Fr. | 6:50 | C | 7:01 | C | 12 11 | 4 | 0 N. 13 | 1½% | 1½% | 3:07 | E | 11:00 | A | OPH | 8 | |
| 266 | 23 | Sa. | 6:51 | C | 6:59 | C | 12 08 | 5 | 0 s. 09 | 2¼% | 2½% | 4:06 | E | — | — | SAG | 9 | |
| 267 | 24 | A | 6:52 | C | 6:57 | C | 12 05 | 5 | 0 s. 33 | 3% | 3% | 4:53 | E | 12:07 | A | SAG | 10 | |
| 268 | 25 | M. | 6:53 | C | 6:55 | C | 12 02 | 6 | 0 s. 56 | 5% | 5 | 5:30 | E | 1:26 | A | CAP | 11 | |
| 269 | 26 | Tu. | 6:54 | C | 6:53 | C | 11 59 | 6 | 1 s. 19 | 6% | 6% | 5:59 | D | 2:50 | A | CAP | 12 | |
| 270 | 27 | W. | 6:56 | C | 6:51 | C | 11 55 | 6 | 1 s. 43 | 7¼% | 7¼% | 6:23 | D | 4:16 | B | AQU | 13 | |
| 271 | 28 | Th. | 6:57 | C | 6:49 | C | 11 52 | 7 | 2 s. 06 | 8 | 8 | 6:44 | C | 5:39 | B | AQU | 14 | |
| 272 | 29 | Fr. | 6:58 | C | 6:47 | C | 11 49 | 7 | 2 s. 29 | 8% | 9 | 7:04 | C | 7:02 | C | PSC | 15 | |
| 273 | 30 | Sa. | 6:59 | C | 6:45 | C | 11 46 | 7 | 2 s. 53 | 9% | 9% | 7:25 | B | 8:23 | D | PSC | 16 | |



*A little stir among the clouds, / Before they rent asunder,—
A little rocking of the trees, / And then came on the thunder.*
—Oliver Wendell Holmes

Farmer's Calendar

Some creatures don't have the luxury of waiting until fall to migrate. Broad-winged hawks spiral up on thermals in "kettles" of a hundred or more and then glide for miles. Night-hawks—flying insect eaters related to whippoorwills—may depart before the end of August. Monarch butterflies, stately fliers that conserve energy with strong wingbeats and long glides, are on their way to Mexico and California. With the first hard rains, brook trout, belonging to the salmon family, move upstream to spawn, hurdling over waterfalls and swimming through pools shaded by jewelweed.

Over sunny fields throughout North America, green darners mass for migration. Like all dragonflies, they have four independently powered wings that enable them to hover, fly backward, and attain speeds of more than 30 mph. The first two generations migrate and die. The third doesn't migrate but winters in Florida and the Caribbean. The green darner has a wingspan of from 3 to 4½ inches, but a few dragonflies are larger. One ancestral dragonfly-like insect had a nearly 2½-foot wingspan; it's engraved in a 280-million-year-old fossil.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|-------------|
| 1 | Fr. | ☾ ^{ON} EQ. • ♀Ψ☾ • Industry is the parent of success. • Tides {6.5 6.4 | School |
| 2 | Sa. | ♀ ^{STAT.} • Teacher Christa McAuliffe born, 1948 • Writer J.R.R. Tolkien died, 1973 | is cool. |
| 3 | A | 14th S. af. ♪. ♪ • ☾ AT ☽ • Cartoonist Mort Walker born, 1923 • {6.4 5.9 | Offer |
| 4 | M. | LABOUR DAY • ♀Ψ☾ • ♀ ^{STAT.} • Google incorporated, 1998 | labor |
| 5 | Tu. | ♂♂☾ • L'Anse aux Meadows National Historic Site declared World Heritage Site, N.L., 1978 | to your |
| 6 | W. | ♀ ^{IN} ♂ • Louisa Swain of Laramie, Wyo., 1st woman since 1807 (N.J. only) to legally cast vote, 1870 | neighbor. |
| 7 | Th. | In midst of craze, Georgia Gibbs sang "The Hula-Hoop Song" on <i>The Ed Sullivan Show</i> , 1958 | All |
| 8 | Fr. | ☾ RIDES • Cranberry bog harvest begins, Cape Cod, Mass. • Tides {4.6 4.9 | showers |
| 9 | Sa. | NFL football game lasted 7 hrs. 8 mins. due to lightning delays, Miami Gardens, Fla., 2018 • {4.5 4.9 | fall |
| 10 | A | 15th S. af. ♪. ♪. • It is never too late to mend. • {4.6 5.0 | on apple |
| 11 | M. | PATRIOT DAY (U.S.) • ♀☾ • 21-lb. 15-oz. hogfish caught, Georgetown Hole, Charleston, S.C., 2011 | |
| 12 | Tu. | ☾ AT APO. • Jacqueline Bouvier wed JFK, 1953 • Tides {5.1 5.4 | ladders |
| 13 | W. | ♂♀☾ • Ice from Boston, Mass., 1st arrived in Calcutta, India, 1833 • {5.3 5.5 | tall. |
| 14 | Th. | Holy Cross • NEW • ♀ ^{STAT.} • Tides {5.5 5.6 | A chill |
| 15 | Fr. | Rosh Hashanah begins at sundown • ☾ ON EQ. • Tides {5.6 5.6 | everywhere, |
| 16 | Sa. | occn. ♂☾ • Saturn moon Hyperion discovered, 1848 • {5.7 5.6 | a kite |
| 17 | A | 16th S. af. ♪. ♪. • ☾ AT ☽ • National Pet Bird Day (U.S.) • {5.7 5.5 | in the air, |
| 18 | M. | Jazz pianist Oscar Peterson performed at Carnegie Hall, N.Y.C., 1949 • {5.7 5.4 | skies |
| 19 | Tu. | Ψ AT ♂ • GR. ILLUM. • Formation of Canadian Air Force approved, 1918 | turning |
| 20 | W. | Ember Day • Billie Jean King won "Battle of the Sexes" tennis match vs. Bobby Riggs, Houston, Tex., 1973 | fair. |
| 21 | Th. | St. Matthew • St. Matthew • Brings on the cold dew. • Tides {5.1 5.5 | Now |
| 22 | Fr. | Ember Day • ☾ RUNS LOW • ♀ ^{GR. ELONG.} (18' WEST) • {4.9 5.4 | for |
| 23 | Sa. | Ember Day • Harvest Home • AUTUMNAL EQUINOX • {4.7 5.3 | the |
| 24 | A | 17th S. af. ♪. ♪. • Yom Kippur begins at sundown • ♂☾ • {4.7 5.3 | frost |
| 25 | M. | Woodchucks hibernate now. • Journalist George Plimpton died, 2003 | as |
| 26 | Tu. | ♂☾ • Composer George Gershwin born, 1898 • {5.3 5.8 | summer |
| 27 | W. | St. Vincent de Paul • ☾ AT PERIG. • 2,528-lb. pumpkin set N.Am. record, Deerfield Fair, N.H., 2018 | gets |
| 28 | Th. | ♂Ψ☾ • 6.0-magnitude earthquake, Parkfield, Calif., 2004 • {6.2 6.3 | lost. |
| 29 | Fr. | St. Michael • Sukkoth begins at sundown • FULL HARVEST • ☾ ON EQ. • Showers | |
| 30 | Sa. | St. Gregory the Illuminator • ☾ AT ☽ • 1st Nat'l Farm Workers Assoc. convention, 1962 | stall. |

OCTOBER

SKY WATCH: Venus, now a dazzling morning star, closely meets Leo's blue star, Regulus, on the 8th and 9th and is best seen in the east around 5:00 A.M. On the 14th, an annular solar eclipse sweeps across the western U.S.—always use eye protection for this ring-of-fire eclipse. Venus, in Leo all month, reaches its greatest angular distance from the Sun on the 23rd, with its 46 degrees of separation making the morning star truly eye-catching. The 28th finds the full Moon barely sliding into Earth's shadow, creating a 1 percent eclipse visible mainly from Asia. From the northeastern U.S., its penumbral portion may be visible, but a penumbra rarely alters the Moon's appearance. As a consolation, on this same evening of the 28th, the full Moon closely meets Jupiter in a conjunction.

- LAST QUARTER** 6th day 9:48 A.M.

FIRST QUARTER 21st day 11:29 P.M.

NEW MOON 14th day 1:55 P.M.

FULL MOON 28th day 4:24 P.M.

All times are given in Eastern Daylight Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀️ RISES H. M. | ☀️ RISE KEY | ☀️ SETS | | LENGTH OF DAY H. M. | SUN FAST M. | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | ☾ RISES H. M. | ☾ RISE KEY | ☾ SETS | | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|-------------------|-------------|-------------|---------|------------------------|----------------|-----------------|-----|----------------------------|------------------|------------|--------------|-------|-----------|-----------------|-------|
| | | | | | H. M. | SET KEY | | | ° | ' | | | | H. M. | H. M. | | | |
| 274 | 1 | A | 7:01 | C | 6:43 | C | 11 42 | 8 | 3 s. 16 | 10 | 10½ | 7:49 | B | 9:44 | D | ARI | 17 | |
| 275 | 2 | M. | 7:02 | C | 6:42 | C | 11 40 | 8 | 3 s. 39 | 10½ | 11¼ | 8:17 | A | 11:03 | E | ARI | 18 | |
| 276 | 3 | Tu. | 7:03 | C | 6:40 | C | 11 37 | 8 | 4 s. 02 | 11½ | — | 8:51 | A | 12:20 | E | TAU | 19 | |
| 277 | 4 | W. | 7:04 | C | 6:38 | C | 11 34 | 8 | 4 s. 26 | 12 | 12¼ | 9:34 | A | 1:31 | E | TAU | 20 | |
| 278 | 5 | Th. | 7:06 | C | 6:36 | C | 11 30 | 9 | 4 s. 49 | 1 | 1 | 10:26 | A | 2:32 | E | TAU | 21 | |
| 279 | 6 | Fr. | 7:07 | C | 6:34 | C | 11 27 | 9 | 5 s. 12 | 1¼ | 2 | 11:26 | A | 3:22 | E | GEM | 22 | |
| 280 | 7 | Sa. | 7:08 | C | 6:32 | C | 11 24 | 9 | 5 s. 35 | 2¼ | 3 | — | — | 4:00 | E | GEM | 23 | |
| 281 | 8 | A | 7:10 | C | 6:30 | C | 11 20 | 10 | 5 s. 58 | 4¼ | 4¼ | 12:30 | A | 4:31 | E | CAN | 24 | |
| 282 | 9 | M. | 7:11 | C | 6:29 | C | 11 18 | 10 | 6 s. 20 | 5½ | 5½ | 1:37 | A | 4:54 | E | CAN | 25 | |
| 283 | 10 | Tu. | 7:12 | D | 6:27 | C | 11 15 | 10 | 6 s. 43 | 6½ | 6½ | 2:43 | A | 5:14 | D | LEO | 26 | |
| 284 | 11 | W. | 7:13 | D | 6:25 | B | 11 12 | 10 | 7 s. 06 | 7 | 7 | 3:49 | B | 5:31 | D | LEO | 27 | |
| 285 | 12 | Th. | 7:15 | D | 6:23 | B | 11 08 | 11 | 7 s. 28 | 7¾ | 7¾ | 4:53 | B | 5:47 | C | LEO | 28 | |
| 286 | 13 | Fr. | 7:16 | D | 6:21 | B | 11 05 | 11 | 7 s. 51 | 8¼ | 8¼ | 5:58 | C | 6:03 | C | VIR | 29 | |
| 287 | 14 | Sa. | 7:17 | D | 6:20 | B | 11 03 | 11 | 8 s. 13 | 8¾ | 9 | 7:04 | C | 6:19 | B | VIR | 0 | |
| 288 | 15 | A | 7:19 | D | 6:18 | B | 10 59 | 11 | 8 s. 35 | 9¼ | 9½ | 8:12 | D | 6:38 | B | VIR | 1 | |
| 289 | 16 | M. | 7:20 | D | 6:16 | B | 10 56 | 12 | 8 s. 58 | 9¾ | 10¼ | 9:23 | D | 7:00 | A | LIB | 2 | |
| 290 | 17 | Tu. | 7:21 | D | 6:14 | B | 10 53 | 12 | 9 s. 20 | 10¼ | 10¾ | 10:36 | E | 7:29 | A | LIB | 3 | |
| 291 | 18 | W. | 7:23 | D | 6:13 | B | 10 50 | 12 | 9 s. 41 | 11 | 11½ | 11:50 | E | 8:06 | A | SCO | 4 | |
| 292 | 19 | Th. | 7:24 | D | 6:11 | B | 10 47 | 12 | 10 s. 03 | 11½ | — | 1:00 | E | 8:54 | A | OPH | 5 | |
| 293 | 20 | Fr. | 7:25 | D | 6:09 | B | 10 44 | 12 | 10 s. 25 | 12¼ | 12¼ | 2:01 | E | 9:57 | A | SAG | 6 | |
| 294 | 21 | Sa. | 7:27 | D | 6:07 | B | 10 40 | 13 | 10 s. 46 | 1¼ | 1¼ | 2:51 | E | 11:10 | A | SAG | 7 | |
| 295 | 22 | A | 7:28 | D | 6:06 | B | 10 38 | 13 | 11 s. 07 | 2¼ | 2¼ | 3:30 | E | — | — | CAP | 8 | |
| 296 | 23 | M. | 7:29 | D | 6:04 | B | 10 35 | 13 | 11 s. 28 | 3½ | 3½ | 4:01 | E | 12:30 | A | CAP | 9 | |
| 297 | 24 | Tu. | 7:31 | D | 6:03 | B | 10 32 | 13 | 11 s. 49 | 4¼ | 5 | 4:25 | D | 1:52 | A | AQU | 10 | |
| 298 | 25 | W. | 7:32 | D | 6:01 | B | 10 29 | 13 | 12 s. 10 | 6 | 6 | 4:47 | C | 3:14 | B | AQU | 11 | |
| 299 | 26 | Th. | 7:33 | D | 5:59 | B | 10 26 | 13 | 12 s. 31 | 6¾ | 7 | 5:06 | C | 4:34 | C | AQU | 12 | |
| 300 | 27 | Fr. | 7:35 | D | 5:58 | B | 10 23 | 13 | 12 s. 51 | 7½ | 7¾ | 5:26 | B | 5:54 | C | PSC | 13 | |
| 301 | 28 | Sa. | 7:36 | D | 5:56 | B | 10 20 | 13 | 13 s. 11 | 8¼ | 8½ | 5:48 | B | 7:15 | D | PSC | 14 | |
| 302 | 29 | A | 7:38 | D | 5:55 | B | 10 17 | 13 | 13 s. 31 | 8¾ | 9¼ | 6:14 | A | 8:35 | D | ARI | 15 | |
| 303 | 30 | M. | 7:39 | D | 5:53 | B | 10 14 | 14 | 13 s. 51 | 9½ | 10¼ | 6:45 | A | 9:55 | E | ARI | 16 | |
| 304 | 31 | Tu. | 7:40 | D | 5:52 | B | 10 12 | 14 | 14 s. 10 | 10¼ | 11 | 7:25 | A | 11:10 | E | TAU | 17 | |



*How just's the motions of these whirling spheres,
Which ne'er can err while time is met by years!*

—Allan Ramsay, of eclipses

Farmer's Calendar

There's a pause after the fall equinox when the nights are warm and limbs along meadow edges bend low with fruit. Among the first to ripen are Concord grapes, one of the most widely planted and oldest variety grapes in North America.

These grapes feed a host of wildlife, including bears, foxes, ruffed grouse, quail, wild turkeys, and many species of songbirds. The unmistakable fragrance of Concord grapes carries so far that the best way to find them is with your nose. There are plenty, so don't hesitate to pick some.

Their tartness makes them perfect for jelly: Place 5 pounds of crushed grapes in a large saucepan. Add 2 cups of water, bring to a boil, then simmer for 10 minutes, stirring occasionally. Strain through cheesecloth, measuring out 5½ cups of juice. Place ¾ cups of sugar in a large saucepan and stir in one box (1.75 oz.) of low-sugar pectin and the measured juice. Bring to a full boil, stirring constantly. Immediately stir in ¼ cup more sugar. Bring to a full boil for 1 minute, stirring constantly. Remove from heat. Skim foam. Ladle into 8-ounce sterilized jars and cover. Process in a boiling-water bath for 5 minutes.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER | |
|--------------|-------------|--|--|
| 1 | A | 18th S. af. Þ. • ☽☾☾ | Pilot pursued UFO over Fargo, N.Dak., 1948 <i>Brilliant</i> |
| 2 | M. | ☽☾☾ | 27-lb. rainbow trout caught, Lake Natoma, Calif., 2005 • Tides {6.4 5.9} <i>and cold</i> |
| 3 | Tu. | | Two zebra escapees returned to pumpkin patch zoo after 2-hour chase, Pingree Grove, Ill., 2021 • {6.1 5.9} <i>never</i> |
| 4 | W. | | St. Francis • "Make Way for Ducklings" sculpture, in honor of Robert McCloskey, installed, Boston, Mass., 1987 |
| 5 | Th. | ☾ | RIDES • Watch for banded woolly bear caterpillars now. • Tides {5.2 5.4} <i>gets old.</i> |
| 6 | Fr. | | Basketball player Rebecca Lobo born, 1973 • {4.9 5.1} <i>Family</i> |
| 7 | Sa. | | Everyone knows best where the shoe pinches him. • {4.7 4.9} <i>beckons—</i> |
| 8 | A | 19th S. af. Þ. • ☽☾☾ | Philanthropist and "Canada's hockey dad" Walter Gretzky born, 1938 <i>Thanks</i> |
| 9 | M. | | THANKSGIVING. COLUMBUS DAY. INDIGENOUS PEOPLES' DAY (U.S.) |
| 10 | Tu. | ☽☾☾ • ☽ STAT. | Mysterious boom heard in New England, 2021 • {5.1 5.2} <i>for seconds!</i> |
| 11 | W. | | Little brown bats hibernate now. • Tides {5.3 5.4} <i>Fine skies</i> |
| 12 | Th. | | NATIONAL FARMER'S DAY (U.S.) • "Big Blow" struck Calif./Oreg./Wash./B.C., 1962 • {5.5 5.6} <i>for</i> |
| 13 | Fr. | ☾ | Boston Americans (now Red Sox) won the 1st World Series, 1903 • {5.7 5.6} <i>foliage</i> |
| 14 | Sa. | NEW • ECLIPSE • ☽ AT ☽ | ☽☾☾ • {5.8 5.7} <i>stroll-i-age.</i> |
| 15 | A | 20th S. af. Þ. • ☽☾☾ | Henry Perky rec'd patent for shredded wheat, 1895 <i>Pumpkins</i> |
| 16 | M. | | That which will not be better must be made into cheese. • Walt Disney Company founded, 1923 <i>plump</i> |
| 17 | Tu. | | St. Ignatius of Antioch • 1st live broadcast of parliamentary proceedings in House of Commons, Canada, 1977 <i>feel</i> |
| 18 | W. | | St. Luke • St. Luke's little summer. • Tides {6.0 5.4} <i>showers</i> |
| 19 | Th. | | If spiders undo their webs, tempests follow. • {5.9 5.9} <i>dump.</i> |
| 20 | Fr. | ☾ | RUNS • ☽ IN SUP. • Sydney Opera House opened, Australia, 1973 • {5.3 5.7} <i>Cider and</i> |
| 21 | Sa. | ☽☾☾ | Astronomer Jesse Greenstein died, 2002 • {5.1 5.5} <i>doughnuts</i> |
| 22 | A | | 21st S. af. Þ. • Indian lunar space probe Chandrayaan-1 launched, 2008 <i>in the sun</i> |
| 23 | M. | | St. James of Jerusalem • ♀ GR. ELONG. • {5.0 5.3} <i>as squirrels</i> |
| 24 | Tu. | ☽☾☾ | SS Princess Sophia struck reef off Alaska and sank next day, 1918 • {5.3 5.5} <i>go nuts on</i> |
| 25 | W. | ☾ AT | • ☽☾☾ • Carlsbad Cave Nat'l Monument established, N.Mex., 1923 <i>the run.</i> |
| 26 | Th. | ☾ ON EQ. | Jacques Villeneuve won Formula One World Drivers Championship, 1997 <i>Limbs</i> |
| 27 | Fr. | ☾ AT ☽ | Timber rattlesnakes move to winter dens. • Tides {6.4 6.1} <i>baring—</i> |
| 28 | Sa. | | Sts. Simon & Jude • FULL HUNTER'S • ECLIPSE • ☽ • {6.6 6.2} <i>Beware</i> |
| 29 | A | 22nd S. af. Þ. • ☽☽☽ • ☽☾☾ • ☽☾☾ • ☽☾☾ | • {6.7 6.1} <i>a</i> |
| 30 | M. | | Martha Jefferson, wife of Thomas Jefferson, born, 1748 • Tides {6.6 6.0} <i>big</i> |
| 31 | Tu. | | All Hallows' Eve • Reformation Day • Ethnologist James O. Dorsey born, 1848 <i>scaring!</i> |

NOVEMBER

SKY WATCH: Jupiter, in Aries, comes to opposition on the 3rd, rising at sunset; at its biggest and brightest of the year, the Giant World is visible all night. Saturn, in Aquarius, is also seen the entire night; any telescope using at least 30× magnification will capture its glorious rings. Uranus, in Aries, reaches opposition on the 13th, to the left of Jupiter, which is also in Aries. Binocular owners can easily find Uranus by looking for a green “star” halfway between Jupiter and the famous Pleiades star cluster. Since no star is green, identification should be easy. Not many meteors are expected when the Leonid shower peaks at night on the 18th and 19th. Look for the Moon to the right of Jupiter on the 24th.

☾ **LAST QUARTER** 5th day 3:37 A.M. ☽ **FIRST QUARTER** 20th day 5:50 A.M.
 ● **NEW MOON** 13th day 4:27 A.M. ○ **FULL MOON** 27th day 4:16 A.M.

After 2:00 A.M. on November 5, Eastern Standard Time is given.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES | | ☀ SETS | | LENGTH OF DAY | SUN FAST | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | | ☾ RISES | | ☾ SETS | | ☾ SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|---------|----------|-------------|---------|---------------|----------|-----------------|-----|-------------------------|--------------|---------|--------------|--------|---------|-----------|-----------------|-------|
| | | | H. M. | RISE KEY | H. M. | SET KEY | | | H. M. | M. | ° | ' | H. M. | RISE KEY | H. M. | SET KEY | | | |
| 305 | 1 | W. | 7:42 | D | 5:50 | B | 10 08 | 14 | 14 s. 29 | 11 | 11% | 8:14 | A | 12:18 | E | TAU | 18 | | |
| 306 | 2 | Th. | 7:43 | D | 5:49 | B | 10 06 | 14 | 14 s. 48 | 11½ | — | 9:12 | A | 1:14 | E | AUR | 19 | | |
| 307 | 3 | Fr. | 7:45 | D | 5:48 | B | 10 03 | 14 | 15 s. 07 | 12½ | 12½ | 10:16 | A | 1:58 | E | GEM | 20 | | |
| 308 | 4 | Sa. | 7:46 | D | 5:46 | B | 10 00 | 14 | 15 s. 26 | 1½ | 1½ | 11:23 | A | 2:31 | E | CAN | 21 | | |
| 309 | 5 | A | 6:47 | D | 4:45 | B | 9 58 | 14 | 15 s. 44 | 1¼ | 1¼ | 11:30 | A | 1:58 | E | CAN | 22 | | |
| 310 | 6 | M. | 6:49 | D | 4:43 | B | 9 54 | 14 | 16 s. 02 | 2½ | 2½ | — | — | 2:19 | D | LEO | 23 | | |
| 311 | 7 | Tu. | 6:50 | D | 4:42 | B | 9 52 | 14 | 16 s. 20 | 3¾ | 3¾ | 12:35 | B | 2:37 | D | LEO | 24 | | |
| 312 | 8 | W. | 6:52 | D | 4:41 | B | 9 49 | 13 | 16 s. 37 | 4½ | 4½ | 1:40 | B | 2:53 | C | LEO | 25 | | |
| 313 | 9 | Th. | 6:53 | D | 4:40 | B | 9 47 | 13 | 16 s. 55 | 5½ | 5½ | 2:45 | C | 3:09 | C | VIR | 26 | | |
| 314 | 10 | Fr. | 6:54 | D | 4:38 | B | 9 44 | 13 | 17 s. 12 | 6 | 6¼ | 3:50 | C | 3:25 | B | VIR | 27 | | |
| 315 | 11 | Sa. | 6:56 | D | 4:37 | B | 9 41 | 13 | 17 s. 28 | 6½ | 6¾ | 4:57 | D | 3:43 | B | VIR | 28 | | |
| 316 | 12 | A | 6:57 | D | 4:36 | B | 9 39 | 13 | 17 s. 45 | 7 | 7½ | 6:08 | D | 4:04 | A | VIR | 29 | | |
| 317 | 13 | M. | 6:59 | E | 4:35 | B | 9 36 | 13 | 18 s. 01 | 7½ | 8¼ | 7:21 | E | 4:30 | A | LIB | 0 | | |
| 318 | 14 | Tu. | 7:00 | E | 4:34 | B | 9 34 | 13 | 18 s. 16 | 8¼ | 8¾ | 8:36 | E | 5:04 | A | SCO | 1 | | |
| 319 | 15 | W. | 7:01 | E | 4:33 | B | 9 32 | 13 | 18 s. 32 | 8¾ | 9½ | 9:50 | E | 5:50 | A | OPH | 2 | | |
| 320 | 16 | Th. | 7:03 | E | 4:32 | B | 9 29 | 12 | 18 s. 47 | 9½ | 10¼ | 10:55 | E | 6:49 | A | SAG | 3 | | |
| 321 | 17 | Fr. | 7:04 | E | 4:31 | B | 9 27 | 12 | 19 s. 02 | 10¼ | 11¼ | 11:50 | E | 8:00 | A | SAG | 4 | | |
| 322 | 18 | Sa. | 7:05 | E | 4:30 | A | 9 25 | 12 | 19 s. 16 | 11¼ | — | 12:32 | E | 9:19 | A | SAG | 5 | | |
| 323 | 19 | A | 7:07 | E | 4:29 | A | 9 22 | 12 | 19 s. 30 | 12 | 12 | 1:04 | E | 10:40 | A | CAP | 6 | | |
| 324 | 20 | M. | 7:08 | E | 4:28 | A | 9 20 | 12 | 19 s. 44 | 1 | 1 | 1:30 | D | 12:00 | B | CAP | 7 | | |
| 325 | 21 | Tu. | 7:09 | E | 4:27 | A | 9 18 | 11 | 19 s. 57 | 2¼ | 2¼ | 1:51 | D | — | — | AQU | 8 | | |
| 326 | 22 | W. | 7:11 | E | 4:27 | A | 9 16 | 11 | 20 s. 10 | 3½ | 3½ | 2:11 | C | 1:18 | B | AQU | 9 | | |
| 327 | 23 | Th. | 7:12 | E | 4:26 | A | 9 14 | 11 | 20 s. 23 | 4¼ | 4¼ | 2:30 | C | 2:35 | C | CET | 10 | | |
| 328 | 24 | Fr. | 7:13 | E | 4:25 | A | 9 12 | 11 | 20 s. 35 | 5¼ | 5¾ | 2:50 | B | 3:53 | D | PSC | 11 | | |
| 329 | 25 | Sa. | 7:15 | E | 4:25 | A | 9 10 | 10 | 20 s. 47 | 6 | 6½ | 3:13 | A | 5:11 | D | ARI | 12 | | |
| 330 | 26 | A | 7:16 | E | 4:24 | A | 9 08 | 10 | 20 s. 58 | 6¾ | 7¼ | 3:42 | A | 6:30 | E | ARI | 13 | | |
| 331 | 27 | M. | 7:17 | E | 4:23 | A | 9 06 | 10 | 21 s. 09 | 7½ | 8 | 4:17 | A | 7:47 | E | TAU | 14 | | |
| 332 | 28 | Tu. | 7:18 | E | 4:23 | A | 9 05 | 9 | 21 s. 20 | 8¼ | 8¾ | 5:02 | A | 8:59 | E | TAU | 15 | | |
| 333 | 29 | W. | 7:20 | E | 4:22 | A | 9 02 | 9 | 21 s. 30 | 9 | 9½ | 5:57 | A | 10:01 | E | TAU | 16 | | |
| 334 | 30 | Th. | 7:21 | E | 4:22 | A | 9 01 | 9 | 21 s. 40 | 9¾ | 10½ | 7:00 | A | 10:51 | E | GEM | 17 | | |



*The Frost Spirit comes! and the quiet lake shall feel
The torpid touch of his glazing breath.*
—John Greenleaf Whittier

Farmer's Calendar

When nor'easters send Atlantic predator fish streaming south, winter flounder—aka mud dabs, blackbacks, lemon sole—begin their own migration, easing in from deep water to bays and estuaries from the Gulf of St. Lawrence to North Carolina. Protected from frigid water by “antifreeze” proteins in their blood, they’ll spawn in winter, their eggs sinking unlike the buoyant offspring of most marine fish.

Winter flounder rest on the bottom, venturing higher in the water column less frequently than most members of the order. Early in their lives, their left eye migrates to the right side of their heads. Lying on their white blind sides, they’re camouflaged against (or in) mud or sand. The first, and only, thing you’re likely to see is their bulging eyes.

These fish lack the sharp teeth of their cousins, halibut and fluke, and their thick lips are permanently puckered, as if waiting for a kiss.

Few fish make better table fare, and now is the time to pursue them. Use small, long-shank hooks. Sea worms work best, but garden worms are nearly as effective and easier to come by. Flounders like bright colors, so paint your sinkers red.

CALENDAR

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER |
|--------------|-------------|---|
| 1 | W. | All Saints • Boston Female Medical Col., 1st U.S. medical school for women, opened, Boston, Mass., 1848 |
| 2 | Th. | All Souls' • RIDES HIGH • 1st titanium mill opened, Toronto, Ohio, 1957 • {5.7 |
| 3 | Fr. | ♃ AT ♂ • Bob Kane, co-creator of Batman comic, died, 1998 • Tides {5.3 |
| 4 | Sa. | Sadie Hawkins Day • ♃ STAT. • Royal Montreal Golf Club founded, 1873 • {5.4 |
| 5 | A | 23rd S. af. ♀. • DAYLIGHT SAVING TIME ENDS, 2:00 A.M. • {5.0 |
| 6 | M. | ♃ AT APO. • 1st recorded sighting of supernova in Cassiopeia, 1572 • {4.9 |
| 7 | Tu. | ELECTION DAY (U.S.) • Singer-songwriter Leonard Cohen died, 2016 • {5.0 |
| 8 | W. | Rodrigo Koxa surfed 80' wave, setting world record, Nazare, Portugal, 2017 • Tides {5.2 |
| 9 | Th. | ♃ ON EQ. • Alice Coachman, 1st Black woman to win Olympic gold medal, born, 1923 |
| 10 | Fr. | If red the Sun begin his race, Be sure the rain will fall apace. • Tides {5.3 |
| 11 | Sa. | St. Martin of Tours • REMEMBRANCE DAY • ♃ AT ♀ • {5.8 |
| 12 | A | 24th S. af. ♀. • Indian Summer • Tides {5.6 |
| 13 | M. | NEW • ♃♂♃ • ♃ AT ♂ • Tides {6.1 |
| 14 | Tu. | ♂♂♃ • UK's Prince Charles born, 1948 • {6.2 |
| 15 | W. | America Recycles Day • Astronomer Sir William Herschel born, 1738 • {6.3 |
| 16 | Th. | ♃ RUNS LOW • Skytab 4 launched, 1973 • {6.2 |
| 17 | Fr. | St. Hugh of Lincoln • Deadly tornado outbreak spawned 55 in Ill. and Ind., 2013 |
| 18 | Sa. | St. Hilda of Whithy • ♂♂♂ • Astronaut Alan Shepard born, 1923 |
| 19 | A | 25th S. af. ♀. • U.S. pres. Abraham Lincoln delivered Gettysburg Address, 1863 |
| 20 | M. | ♂♂♃ • Gratitude is the heart's memory. • {6.4 |
| 21 | Tu. | ♃ AT PERIG. • Nov. 19–21: The “Long Storm” dropped 18" snow on N.Y.C., 1798 • {5.4 |
| 22 | W. | ♃ ON EQ. • ♂♂♂ • Wiley Post, 1st pilot to fly solo around world, born, 1898 |
| 23 | Th. | St. Clement • THANKSGIVING DAY (U.S.) • Tides {5.9 |
| 24 | Fr. | ♃ AT ♀ • Baseball player Steve Yeager born, 1948 • Pilot reported UFO, north Baffin Island, Nunavut, 2018 |
| 25 | Sa. | ♂♂♃ • Naturalist Kenneth Brugger, finder of Mex. winter home of monarch butterflies, died, 1998 |
| 26 | A | 26th S. af. ♀. • ♂♂♃ • Thelma Chalifoux 1st Métis woman to become Canadian senator, Alta., 1997 |
| 27 | M. | FULL BEAVER • A soft answer turneth away wrath. • Tides {6.4 |
| 28 | Tu. | 1st U.S. automobile race held, Chicago, Ill., 1895 • {6.3 |
| 29 | W. | ♃ RIDES HIGH • Writer C. S. Lewis born, 1898 • {6.2 |
| 30 | Th. | St. Andrew • 1st solar eclipse known to be recorded (Ireland), 3340 b.c. • {6.0 |

DECEMBER

SKY WATCH: All this month, Jupiter is visible at night. Saturn, now solely an evening star, stands on the meridian due south at nightfall, in Aquarius. A bright star far to Saturn's lower left is the 1st magnitude star, Fomalhaut. During December's first few mornings, Venus—a morning star—guides observers to Virgo's blue main star, Spica, to its right. The 13th brings the year's best meteor shower, the Geminids, under perfect, moonless, dark conditions. Rural observers can see a meteor a minute at any time of night. On the 17th, the Moon dangles below Saturn before moving on to meet Jupiter on the 21st and 22nd. Winter in the Northern Hemisphere begins with the solstice on the night of the 21st at 10:27 P.M. EST.

☾ **LAST QUARTER** 5th day 12:49 A.M. ☽ **FIRST QUARTER** 19th day 1:39 P.M.
 ● **NEW MOON** 12th day 6:32 P.M. ○ **FULL MOON** 26th day 7:33 P.M.

All times are given in Eastern Standard Time.

GET THESE PAGES WITH TIMES SET TO YOUR POSTAL CODE VIA ALMANAC.CA/2023.

| DAY OF YEAR | DAY OF MONTH | DAY OF WEEK | ☀ RISES H. M. | RISE KEY | ☀ SETS | | LENGTH OF DAY H. M. | SUN FAST M. | SUN DECLINATION | | HIGH TIDE TIMES HALIFAX | ☾ RISES | | RISE KEY | ☾ SETS | | SET KEY | ☾ ASTRON. PLACE | ☾ AGE |
|-------------|--------------|-------------|------------------|----------|-------------|---------|------------------------|----------------|-----------------|-----|----------------------------|--------------|----------|--------------|--------|---------|---------|-----------------|-------|
| | | | | | H. M. | SET KEY | | | ° | ' | | H. M. | RISE KEY | | H. M. | SET KEY | | | |
| 335 | 1 | Fr. | 7:22 | E | 4:21 | A | 8 59 | 8 | 21 s. 49 | 10½ | 11¼ | 8:07 | A | 11:29 | E | GEM | 18 | | |
| 336 | 2 | Sa. | 7:23 | E | 4:21 | A | 8 58 | 8 | 21 s. 59 | 11¼ | — | 9:14 | A | 11:59 | E | CAN | 19 | | |
| 337 | 3 | A | 7:24 | E | 4:21 | A | 8 57 | 7 | 22 s. 07 | 12 | 12 | 10:21 | B | 12:22 | D | LEO | 20 | | |
| 338 | 4 | M. | 7:25 | E | 4:20 | A | 8 55 | 7 | 22 s. 15 | 12½ | 12½ | 11:26 | B | 12:41 | D | LEO | 21 | | |
| 339 | 5 | Tu. | 7:26 | E | 4:20 | A | 8 54 | 7 | 22 s. 23 | 1½ | 1½ | — | — | 12:58 | D | LEO | 22 | | |
| 340 | 6 | W. | 7:27 | E | 4:20 | A | 8 53 | 6 | 22 s. 30 | 2½ | 2¾ | 12:30 | C | 1:14 | C | VIR | 23 | | |
| 341 | 7 | Th. | 7:28 | E | 4:20 | A | 8 52 | 6 | 22 s. 37 | 3½ | 3¾ | 1:34 | C | 1:29 | C | VIR | 24 | | |
| 342 | 8 | Fr. | 7:29 | E | 4:20 | A | 8 51 | 5 | 22 s. 44 | 4¼ | 4¾ | 2:40 | D | 1:46 | B | VIR | 25 | | |
| 343 | 9 | Sa. | 7:30 | E | 4:20 | A | 8 50 | 5 | 22 s. 50 | 5 | 5½ | 3:48 | D | 2:05 | B | VIR | 26 | | |
| 344 | 10 | A | 7:31 | E | 4:20 | A | 8 49 | 4 | 22 s. 55 | 5¾ | 6¼ | 5:00 | E | 2:29 | A | LIB | 27 | | |
| 345 | 11 | M. | 7:32 | E | 4:20 | A | 8 48 | 4 | 23 s. 00 | 6½ | 7 | 6:15 | E | 3:00 | A | LIB | 28 | | |
| 346 | 12 | Tu. | 7:33 | E | 4:20 | A | 8 47 | 3 | 23 s. 05 | 7 | 7¾ | 7:31 | E | 3:42 | A | SCO | 0 | | |
| 347 | 13 | W. | 7:34 | E | 4:20 | A | 8 46 | 3 | 23 s. 09 | 7¾ | 8½ | 8:42 | E | 4:37 | A | OPH | 1 | | |
| 348 | 14 | Th. | 7:35 | E | 4:20 | A | 8 45 | 3 | 23 s. 13 | 8½ | 9¼ | 9:42 | E | 5:46 | A | SAG | 2 | | |
| 349 | 15 | Fr. | 7:35 | E | 4:20 | A | 8 45 | 2 | 23 s. 16 | 9¼ | 10¼ | 10:30 | E | 7:05 | A | SAG | 3 | | |
| 350 | 16 | Sa. | 7:36 | E | 4:20 | A | 8 44 | 2 | 23 s. 19 | 10¼ | 11 | 11:06 | E | 8:27 | A | CAP | 4 | | |
| 351 | 17 | A | 7:37 | E | 4:21 | A | 8 44 | 1 | 23 s. 21 | 11 | 11¼ | 11:34 | D | 9:49 | B | CAP | 5 | | |
| 352 | 18 | M. | 7:38 | E | 4:21 | A | 8 43 | 1 | 23 s. 23 | 12 | — | 11:57 | D | 11:08 | B | AQU | 6 | | |
| 353 | 19 | Tu. | 7:38 | E | 4:21 | A | 8 43 | 0 | 23 s. 24 | 12¾ | 1 | 12:17 | C | — | — | AQU | 7 | | |
| 354 | 20 | W. | 7:39 | E | 4:22 | A | 8 43 | 0 | 23 s. 25 | 1¼ | 2 | 12:35 | C | 12:25 | C | PSC | 8 | | |
| 355 | 21 | Th. | 7:39 | E | 4:22 | A | 8 43 | *1 | 23 s. 26 | 2¼ | 3¼ | 12:55 | B | 1:41 | C | PSC | 9 | | |
| 356 | 22 | Fr. | 7:40 | E | 4:23 | A | 8 43 | *1 | 23 s. 26 | 3¼ | 4½ | 1:16 | B | 2:57 | D | ARI | 10 | | |
| 357 | 23 | Sa. | 7:40 | E | 4:23 | A | 8 43 | *2 | 23 s. 25 | 4¾ | 5½ | 1:42 | A | 4:13 | E | ARI | 11 | | |
| 358 | 24 | A | 7:41 | E | 4:24 | A | 8 43 | *2 | 23 s. 24 | 5½ | 6¼ | 2:14 | A | 5:30 | E | TAU | 12 | | |
| 359 | 25 | M. | 7:41 | E | 4:25 | A | 8 44 | *3 | 23 s. 23 | 6¼ | 7¼ | 2:54 | A | 6:42 | E | TAU | 13 | | |
| 360 | 26 | Tu. | 7:41 | E | 4:25 | A | 8 44 | *3 | 23 s. 21 | 7¼ | 8 | 3:45 | A | 7:48 | E | TAU | 14 | | |
| 361 | 27 | W. | 7:42 | E | 4:26 | A | 8 44 | *4 | 23 s. 19 | 8 | 8¾ | 4:45 | A | 8:42 | E | AUR | 15 | | |
| 362 | 28 | Th. | 7:42 | E | 4:27 | A | 8 45 | *4 | 23 s. 16 | 8¾ | 9½ | 5:51 | A | 9:25 | E | GEM | 16 | | |
| 363 | 29 | Fr. | 7:42 | E | 4:27 | A | 8 45 | *5 | 23 s. 12 | 9¼ | 10 | 6:59 | A | 9:58 | E | CAN | 17 | | |
| 364 | 30 | Sa. | 7:42 | E | 4:28 | A | 8 46 | *5 | 23 s. 09 | 10 | 10¾ | 8:07 | A | 10:24 | E | CAN | 18 | | |
| 365 | 31 | A | 7:42 | E | 4:29 | A | 8 47 | *6 | 23 s. 04 | 10¾ | 11½ | 9:12 | B | 10:44 | D | LEO | 19 | | |



*Hark! on the frozen ear of night, / The sleighs with silver bells—
On yonder hill top's snowy height, / The merry music swells.*
—Richard George Holland

Farmer's Calendar

House mice, ship stowaways from Eurasia, infest human dwellings. Our cleaner, woodland-dwelling natives—white-footed mice—merely visit. If you live anywhere from Nova Scotia to Virginia and west to the Rockies, they are likely to enter your camp or house like poltergeists when the first frosts stiffen the grass.

Trying to block them is futile. By starlight, they always find openings unseen and unknown. You may see one of these creatures in the light of the dying fire, flowing over floor and hearth, pausing to preen its fur and tail, twitching its impossibly long whiskers, and fixing you with huge, obsidian eyes.

Your “poltergeist” may even play music for you, especially if leaves have blown in through a door or window. For reasons not understood, they’ll drum on them with their paws, creating a melodious buzz.

White-footed mice provide a service to forests by excreting spores of fungi that they eat. These fungi enhance the ability of trees to take up necessary nutrients.

Because these animals don’t hibernate, they need a warm place. Beware: They’ll poop, may chew soap, and can carry illnesses such as Lyme disease.

| DAY OF MONTH | DAY OF WEEK | DATES, FEASTS, FASTS, ASPECTS, TIDE HEIGHTS, AND WEATHER |
|--------------|-------------|--|
| 1 | Fr. | <i>Always put the saddle on the right horse.</i> • Tides $\begin{matrix} 5.8 \\ 5.4 \end{matrix}$ <i>C-c-c-cold</i> |
| 2 | Sa. | St. Viviana • Skier Bode Miller won his 33rd World Cup race, 2011 • $\begin{matrix} 5.6 \\ 5.3 \end{matrix}$ <i>and spitting,</i> |
| 3 | A | 1st S. of Advent • Pioneer 10 spacecraft's closest approach to Jupiter (EST), 1973 <i>snow</i> |
| 4 | M. | $\begin{matrix} \text{AT} \\ \text{APO.} \end{matrix}$ • $\begin{matrix} \text{GR. ELONG.} \\ \text{Day (U.S.)} \end{matrix}$ • National Cookie Day (U.S.) • Tides $\begin{matrix} 5.2 \\ 5.1 \end{matrix}$ <i>showers</i> |
| 5 | Tu. | Six U.S. Navy planes (Flight 19 and Training 49) disappeared over Bermuda Triangle, 1945 • $\begin{matrix} 5.1 \\ 4.9 \end{matrix}$ <i>hitting,</i> |
| 6 | W. | St. Nicholas • $\begin{matrix} \text{ON} \\ \text{EQ.} \end{matrix}$ • Ψ STAT. • 1st U.S. presidential address via radio, 1923 <i>then</i> |
| 7 | Th. | St. Ambrose at sundown • Chanukah begins • NATIONAL PEARL HARBOR REMEMBRANCE DAY (U.S.) <i>the</i> |
| 8 | Fr. | $\begin{matrix} \text{AT} \\ \text{O} \end{matrix}$ • Bank of Canada announced human rights activist Viola Desmond to appear on \$10 note, 2016 <i>real</i> |
| 9 | Sa. | $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • “Weary Willie” clown Emmett Kelly born, 1898 • $\begin{matrix} 5.6 \\ 5.1 \end{matrix}$ <i>heavy stuff.</i> |
| 10 | A | 2nd S. of Advent • Treaty of Paris officially ended Spanish-American war, 1898 <i>Chill</i> |
| 11 | M. | Astronomer Annie Jump Cannon born, 1863 • Tides $\begin{matrix} 6.0 \\ 5.5 \end{matrix}$ <i>abating, more</i> |
| 12 | Tu. | OUR LADY OF GUADALUPE • NEW • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ STAT. <i>snow waiting.</i> |
| 13 | W. | St. Lucia • $\begin{matrix} \text{RUNS} \\ \text{LOW} \end{matrix}$ • Apollo 17's lunar rover reached 11.18 mph, setting record, 1972 <i>Enough!</i> |
| 14 | Th. | Halcyon • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • Canadian Capt. Paul Triquet's WWII valor Days begin. • earned him later Victoria Cross, 1943 |
| 15 | Fr. | $\begin{matrix} \text{E} \\ \text{C} \end{matrix}$ • Leaning Tower of Pisa reopened after 11 years of repair, Italy, 2001 • $\begin{matrix} 6.4 \\ 5.8 \end{matrix}$ <i>Flakes with</i> |
| 16 | Sa. | $\begin{matrix} \text{AT} \\ \text{PERIG.} \end{matrix}$ • Boston Tea Party, 1773 • Tides $\begin{matrix} 6.3 \\ 5.8 \end{matrix}$ <i>mildness;</i> |
| 17 | A | 3rd S. of Advent • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • Tides $\begin{matrix} 6.1 \\ 5.8 \end{matrix}$ <i>snowstorm</i> |
| 18 | M. | <i>A fire hard to kindle indicates bad weather.</i> • Tides $\begin{matrix} 5.8 \\ - \end{matrix}$ <i>with wildness—</i> |
| 19 | Tu. | $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • Beware the Pogonip. • Writer Emily Brontë died, 1848 • $\begin{matrix} 5.8 \\ 5.5 \end{matrix}$ <i>Oh, well!</i> |
| 20 | W. | Ember Day • $\begin{matrix} \text{ON} \\ \text{EQ.} \end{matrix}$ • At 81+, Queen Elizabeth II became oldest monarch in UK history, 2007 <i>Clear</i> |
| 21 | Th. | St. Thomas • WINTER SOLSTICE • $\begin{matrix} \text{AT} \\ \text{O} \end{matrix}$ • Tides $\begin{matrix} 5.8 \\ 5.1 \end{matrix}$ <i>sky</i> |
| 22 | Fr. | Ember Day • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • $\begin{matrix} \text{IN} \\ \text{INF.} \end{matrix}$ • Tides $\begin{matrix} 5.9 \\ 5.2 \end{matrix}$ <i>for</i> |
| 23 | Sa. | Ember Day • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • <i>A Visit From St. Nicholas</i> 1st published, 1823 • $\begin{matrix} 6.0 \\ 5.3 \end{matrix}$ <i>Rudolph's</i> |
| 24 | A | 4th S. of Advent • Entrepreneur John Hopkins died, 1873 • $\begin{matrix} 6.0 \\ 5.4 \end{matrix}$ <i>flight for</i> |
| 25 | M. | Christmas • 2.6" snow, Tucson, Ariz., 1987 • Tides $\begin{matrix} 6.1 \\ 5.5 \end{matrix}$ <i>Noël!</i> |
| 26 | Tu. | St. Stephen • BOXING DAY • FIRST DAY OF FULL COLD • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • $\begin{matrix} \text{RIDES} \\ \text{HIGH} \end{matrix}$ |
| 27 | W. | St. John • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ • Aeronautics pioneer Sir George Cayley born, 1773 <i>Freezing and</i> |
| 28 | Th. | Holy Innocents • Endangered Species Act (U.S.) became law, 1973 <i>snow showers</i> |
| 29 | Fr. | Isaac Roberts's photo of Great Nebula in Andromeda (M31) 1st to show its spiral structure, 1888 <i>galore—</i> |
| 30 | Sa. | <i>One touch of nature makes the whole world kin.</i> —Shakespeare • $\begin{matrix} 5.9 \\ 5.5 \end{matrix}$ <i>Now we leap</i> |
| 31 | A | 1st S. af. Ch. • $\begin{matrix} \text{O} \\ \text{O} \end{matrix}$ STAT. • Singer Donna Summer born, 1948 <i>to 2024!</i> |

HOLIDAYS AND OBSERVANCES

2023 HOLIDAYS

JAN. 1: New Year's Day*

JAN. 7: Orthodox Christmas (Julian)

FEB. 2: Groundhog Day

FEB. 14: Valentine's Day

FEB. 15: National Flag of Canada Day

FEB. 20: Family Day (*Alta., B.C., N.B., Ont., Sask.*)
Louis Riel Day (*Man.*)
Nova Scotia Heritage Day (*N.S.*)
Islander Day (*P.E.I.*)

FEB. 24: Heritage Day (*Y.T.*)

MAR. 8: International Women's Day

MAR. 13: Commonwealth Day

MAR. 17: St. Patrick's Day

APR. 7: Good Friday

APR. 10: Easter Monday

APR. 22: Earth Day

APR. 24: St. George's Day, observed (*N.L.*)

MAY 14: Mother's Day

MAY 22: Victoria Day

JUNE 1: First day of Pride Month

JUNE 5: World Environment Day

JUNE 18: Father's Day

JUNE 21: National Indigenous Peoples Day

JUNE 24: Fête Nationale (*Qué.*)

JUNE 26: June Holiday (*N.L.*)

JULY 1: Canada Day*

JULY 9: Nunavut Day

JULY 10: Orangemen's Day, observed (*N.L.*)

AUG. 7: Civic Holiday (*Alta., B.C., Man., N.B., N.W.T., N.S., Nunavut, Ont., P.E.I., Sask.*)

AUG. 21: Discovery Day (*Y.T.*)

SEPT. 4: Labour Day

SEPT. 30: National Day for Truth and Reconciliation*

OCT. 9: Thanksgiving Day

OCT. 31: Halloween

NOV. 11: Remembrance Day*

NOV. 20: National Child Day

DEC. 25: Christmas Day*

DEC. 26: Boxing Day
First day of Kwanzaa

*When this day falls on a Saturday or Sunday, the following Monday is observed as a holiday.



GROUNDHOG DAY

Traditionally, on February 2, farmers looked for signs of what the weather would be for the next 6 weeks. They believed that if an animal came out of hibernation on this day and saw its shadow, winter would continue.

For centuries, farmers in France and England looked to a bear; in Germany, they kept their eye on the badger. In the 1800s, German immigrants to Pennsylvania brought the tradition with them. Finding no badgers there, they adopted the groundhog to fit the lore. Pennsylvania's Punxsutawney Phil has predicted spring's arrival since 1887.

Since 1956, albino groundhogs named Wiarton Willie have made annual weather prognostications in Wiarton, Ontario. Several other groundhogs are employed across the nation, including Nova Scotia's Shubenacadie Sam, who, because of location and special training, has the honor of making the first groundhog end-of-winter prediction for North America.

U.S. FEDERAL HOLIDAYS**JAN. 1:** New Year's Day**JAN. 16:** Martin Luther King Jr.'s
Birthday, observed**FEB. 20:** Presidents' Day**MAY 29:** Memorial Day, observed**JUNE 19:** Juneteenth National
Independence Day**JULY 4:** Independence Day**SEPT. 4:** Labor Day**OCT. 9:** Columbus Day, observed**NOV. 11:** Veterans Day**NOV. 23:** Thanksgiving Day**DEC. 25:** Christmas Day**Movable Religious Observances****FEB. 5:** Septuagesima Sunday**FEB. 21:** Shrove Tuesday**FEB. 22:** Ash Wednesday**MAR. 22:** Ramadan begins at sundown**APR. 2:** Palm Sunday**APR. 5:** Passover begins at sundown**APR. 7:** Good Friday**APR. 9:** Easter**APR. 16:** Orthodox Easter**MAY 14:** Rogation Sunday**MAY 18:** Ascension Day**MAY 28:** Whitsunday–Pentecost**JUNE 4:** Trinity Sunday**JUNE 11:** Corpus Christi**SEPT. 15:** Rosh Hashanah begins at
sundown**SEPT. 24:** Yom Kippur begins at
sundown**DEC. 3:** First Sunday of Advent**DEC. 7:** Chanukah begins at sundown**CHRONOLOGICAL CYCLES**Dominical Letter **A**Epaet **8**Golden Number (Lunar Cycle) **10**Roman Indiction **1**Solar Cycle (Julian Calendar) **16**Year of Julian Period **6736****ERAS**

| ERA | YEAR | BEGINS |
|--------------------------------------|------|------------------------------|
| Byzantine | 7532 | September 14 |
| Jewish (A.M.)* | 5784 | September 15 |
| Chinese (Lunar) [Year of the Rabbit] | 4721 | January 22 |
| Roman (A.U.C.) | 2776 | January 14 |
| Nabonassar | 2772 | April 18 |
| Japanese | 2683 | January 1 |
| Grecian (Seleucidæ) | 2335 | September 14 (or October 14) |
| Indian (Saka) | 1945 | March 22 |
| Diocletian | 1740 | September 12 |
| Islamic (Hegira)* | 1445 | July 18 |
| Bahá'í* | 180 | March 20 |

*Year begins at sundown.

GLOSSARY OF ALMANAC ODDITIES

Many readers have expressed puzzlement over the rather obscure entries that appear on our **Right-Hand Calendar Pages, 121–147**. These “oddities” have long been fixtures in the Almanac, and we are pleased to provide some definitions. Once explained, they may not seem so odd after all!

EMBER DAYS: These are the Wednesdays, Fridays, and Saturdays that occur in succession following (1) the First Sunday in Lent; (2) Whitsunday–Pentecost; (3) the Feast of the Holy Cross, September 14; and (4) the Feast of St. Lucia, December 13. The word *ember* is perhaps a corruption of the Latin *quatuor tempora*, “four times.” The four periods are observed by some Christian denominations for prayer, fasting, and the ordination of clergy.

Folklore has it that the weather on each of the 3 days foretells the weather for the next 3 months; that is, in September, the first Ember Day, Wednesday, forecasts the weather for October; Friday predicts November; and Saturday foretells December.

DISTAFF DAY (JANUARY 7): This was the day after Epiphany, when women were expected to return to their spinning following the Christmas holiday. A distaff is the staff that women used for holding the flax or wool in spinning. Hence, the term “distaff” refers to women’s work or the maternal side of the family.

PLOUGH MONDAY (JANUARY): Traditionally, the first Monday after Epiphany was called Plough Monday because it was the day when men returned to their plough, or daily work, following the Christmas holiday. (Every few years, Plough Monday and Distaff Day fall on the same day.) It was customary at this time for farm laborers to draw a plough through the village, soliciting money for a “plough light,”



which was kept burning in the parish church all year. This traditional verse captures the spirit of it:

*Yule is come and Yule is gone,
and we have feasted well;
so Jack must to his flail again
and Jenny to her wheel.*

THREE CHILLY SAINTS (MAY): Mamertus, Pancras, and Gervais were three early Christian saints whose feast days, on May 11, 12, and 13, respectively, are traditionally cold; thus they have come to be known as the Three Chilly Saints. An old French saying translates to “St. Mamertus, St. Pancras, and St. Gervais do not pass without a frost.”

MIDSUMMER DAY (JUNE 24): To the farmer, this day is the midpoint of the growing season, halfway between planting and harvest. The Anglican Church considered it a “Quarter Day,” one of the four major divisions of the liturgical year. It also marks the feast day of St. John the Baptist. (Midsummer Eve is an occasion for festivity and celebrates fertility.)

CORNSCATEOUS AIR (JULY): First used by early almanac makers, this term signifies warm, damp air. Although it signals ideal climatic conditions for growing corn, warm, damp air poses

a danger to those affected by asthma and other respiratory problems.

DOG DAYS (JULY 3-AUGUST 11): These 40 days are traditionally the year's hottest and unhealthiest. They once coincided with the year's heliacal (at sunrise) rising of the Dog Star, Sirius. Ancient folks thought that the "combined heat" of Sirius and the Sun caused summer's swelter.

LAMMAS DAY (AUGUST 1): Derived from the Old English *hlaf maesse*, meaning "loaf mass," Lammass Day marked the beginning of the harvest. Traditionally, loaves of bread were baked from the first-ripened grain and brought to the churches to be consecrated. In Scotland, Lammastide fairs became famous as the time when trial marriages could be made. These marriages could end after a year with no strings attached.

CAT NIGHTS COMMENCE (AUGUST 17): This term harks back to the days when people believed in witches. An Irish legend says that a witch could turn into a cat and regain herself eight times, but on the ninth time (August 17), she couldn't change back and thus began her final life permanently as a cat. Hence the saying "A cat has nine lives."

HARVEST HOME (SEPTEMBER): In Britain and other parts of Europe, this marked the conclusion of the harvest and a period of festivals for feasting and thanksgiving. It was also a time to hold elections, pay workers, and collect rents. These festivals usually took place around the autumnal equinox. Certain groups in the United States, e.g., the Pennsylvania Dutch, have kept the tradition alive.

ST. LUKE'S LITTLE SUMMER (OCTOBER): This is a period of warm weather that

occurs on or near St. Luke's feast day (usually October 18) and is sometimes called Indian summer.

INDIAN SUMMER (NOVEMBER): A period of warm weather following a cold spell or a hard frost, Indian summer can occur between St. Martin's Day (November 11) and November 20. Although there are differing dates for its occurrence, for more than 225 years the Almanac has adhered to the saying "If All Saints' [November 1] brings out winter, St. Martin's brings out Indian summer." The term may have come from early Native Americans, some of whom believed that the condition was caused by a warm wind sent from the court of their southwestern god, Cautantowwit.

HALCYON DAYS (DECEMBER): This period of about 2 weeks of calm weather often follows the blustery winds at autumn's end. Ancient Greeks and Romans experienced this weather at about the time of the winter solstice (around December 21), when the halcyon, or kingfisher—having charmed the wind and waves so that waters were especially calm at this time—was thought to brood in a nest floating on the sea.

BEWARE THE POGONIP (DECEMBER): The word *pogonip* refers to frozen fog and was coined by Native Americans to describe the frozen fogs of fine ice needles that occur in the mountain valleys of the western United States and Canada. According to tradition, breathing the fog is injurious to the lungs. ■



Nature's Germ Killer

Stop a virus before it starts



Scientists have discovered a natural way to kill germs fast.

Now thousands of people are using it against viruses and bacteria that cause illness.

Colds and many other illnesses start when viruses get in your nose and multiply. If you don't stop them early, they spread and cause misery.

Hundreds of studies confirm copper kills viruses and bacteria almost instantly just by touch.

That's why ancient Greeks and Egyptians used copper to purify water and heal wounds. They didn't know about viruses and bacteria, but now we do.

"The antimicrobial activity of copper is well established." National Institutes of Health.

Scientists say copper's high conductance disrupts the electrical balance in a microbe cell and destroys it in seconds.

The EPA recommended hospitals use copper for touch surfaces like faucets and doorknobs. This cut the spread of MRSA and other illnesses by over half, and saved lives.

The strong scientific evidence gave inventor Doug Cornell an idea. He made a smooth copper

probe with a tip to fit in the bottom of the nostril, where viruses collect.

When he felt a tickle in his nose like a cold about to start, he rubbed the copper gently in his nose for 60 seconds.



New research: Copper kills viruses and bacteria.

"It worked!" he exclaimed. "The cold never happened. I used to get 2-3 bad colds every year. Now I use my device whenever I feel a sign I am about to get sick."

He hasn't had a cold in 10 years.

After his first success with it, he asked relatives and friends to try it. They all said it worked, so he patented CopperZap® and put it on the market.

Soon hundreds of people had tried it. 99% said copper worked if they used it right away at the first sign of bad germs, like a tickle in the nose or a scratchy throat.

As thousands more tried it, some found other things they could use it against.

**Customers report using
copper against:**

Colds
Flu
Covid
Sinus trouble
Cold sores
Strep
Night stuffiness
Morning congestion
MRSA
Skin infections
Thrush
Warts
Styes
Ringworm
Threats to compromised immunity

Users say:

“It works! I love it!”
“I can’t believe how good my nose feels.”
“Is it supposed to work that fast?”
“One of the best presents ever.”
“Sixteen airline flights, not a sniffle!”
“Cold sores gone!”
“It saved me last holidays. The kids all got sick, but not me.”
“I am shocked! My sinus cleared, no more headache, no more congestion.”
“Best sleep I’ve had in years!”



**Dr. Bill Keevil: Copper
quickly kills cold viruses.**

The handle is curved and textured to increase contact. Copper can kill germs picked up on fingers and hands after you touch things other people have touched.

Scientists placed millions of viruses on copper. “They started to die literally as soon as they touched it,” said Dr. Bill Keevil.

Tarnish does not reduce how well copper works, EPA tests showed.

CopperZap is made in the USA with pure copper. It comes with a 90-day full money back guarantee. Price \$79.95. Get \$10 off each CopperZap with code **OFMA3**.

Go to www.CopperZap.com or call toll-free 1-888-411-6114.

Buy once, use forever.

Statements not evaluated by the FDA. Not claimed to diagnose, treat, cure, or prevent any disease.



IT'S

ABOUT

A LEGENDARY EARLY-
20TH-CENTURY TIMEKEEPER
WOULD HAVE LOVED
THE CLOCK OF THE LONG NOW.
OR WOULD SHE?

TIME!



*John Arnold
No. 485*

We all have our time machines. Some take us back—they're called memories. Some take us forward—they're called dreams.

—Jeremy Irons, *English actor (b. 1948)*

JUST LIKE CLOCKWORK

As recently as 100 years ago, the world struggled to know what time it was. In London, those who could afford it bought the time of day every week.

Once a week for years, Ruth Belville (1854–1943) would stand at the entryway of a London watchmaker. When the door opened, the storekeeper would greet her with, “Good morning, Miss Belville. How is Arnold today?” Ruth would reply: “Good morning! Arnold is 4 seconds fast.” She then would reach into her handbag, grab a pocket watch named Arnold, and pass it to him.

The horologist would use the watch to check the store’s main clock before returning the timepiece. Her

transaction complete, Ruth would then proceed to other clients: posh shops and fine jewelers, factories and commercial buildings, railroad stations, banks, newspapers, taverns—even two millionaires.

Ruth was in the business of selling time. Knowing the exact hour and minute of the day required astronomical observations and calculations of the type made only by observatories such as the Royal Observatory in Greenwich, England. Without Ruth, people would have needed to travel to Greenwich to find out the proper time.

Every Monday, she would make the 3-hour journey from her cottage in Maidenhead to the Observatory. Reaching its gate by

9 o’clock, she would ring and be greeted by the gate porter. Having handed over her watch to an attendant, she would then have a spot of tea with the gate porter while her timepiece was being compared to the Observatory’s master clock. The attendant would then return Arnold to her, along with a certificate stating the difference between its time and that of the Observatory’s main clock. With these in hand, Ruth would proceed to her customers in London.

Her father, John Henry Belville (1795–1856), a meteorologist and senior astronomer at the Observatory, had started this peculiar business. The leadership

AMUSEMENT

there had grown increasingly frustrated by the numerous interruptions caused by local astronomers desperate to know the precise time for their observational work. John had proposed a solution: Bring time to those who desired it.

Arnold, a highly accurate chronometer in a gold case, was formally known as John Arnold No. 485, after its maker, who had built it in 1786. Behind Arnold's white enamel face and gold hands sat a range of materials working in sync—brass gears, ruby pivots, and a steel spring.

Legend has it that Arnold had originally been designed as a gift for the Duke of Sussex, a son of George III. The duke thought that the watch was too big; he likened it to a “warming pan” and refused it. However, he was connected to the Observatory, which put Arnold on a path toward John's hands when the time distribution service was created.

John had the watch rebuilt and set into a silver case so that it would be less attractive to thieves. Eventually, providing accuracy to a tenth of a second, he purveyed time to nearly 200 customers who paid annually for his weekly service.

On July 13, 1856, John died, leaving only the watch (no pension) to his third wife, Maria Elizabeth. To support herself and her 2-year-old daughter, Ruth, Maria Elizabeth continued the business for the 100 or so subscribers at the time. (Although the telegraph and other means were by then able to provide the time, many Belville clients found their human connection to be more accurate and reliable.)

Maria Elizabeth retired in 1892, at which time Arnold was passed down to 38-year-old Ruth. Described as hale and hearty, Ruth was emotionally tough and resolute and projected a common touch as she moved through a world dominated by

men. Together, Arnold and Ruth—just as had the watch and her parents before her—became trusted fixtures in London life.

As the result of ever increasing competition from other time services using technologies such as the telegraph, wireless communication, and broadcast radio, Ruth was serving only about 50 customers when she retired in 1940. The events of World War II had made it unsafe for her to continue walking the streets—not to mention the fact that she was 86 years old. In total, the Belville family had been in the business of purveying time for nearly 104 years.

By the time of her death 3 years later, Ruth had arranged for Arnold to be donated to the Clockmakers' Company, the horologists' guild. Today, it resides in the Clockmakers' Museum at the Science Museum in London.

—adapted from The Alchemy of Us by Ainissa Ramirez; © 2020 Ainissa Ramirez; published by The MIT Press

(continued)



TOGETHER, ARNOLD
AND RUTH BECAME
TRUSTED FIXTURES IN
LONDON LIFE.

MARKING TIME

Hundreds of feet inside a limestone mountain near Van Horn, Texas, a group of forward thinkers is marking time. They are building a roughly 200-foot-high clock designed to tick for 10,000 years inside a 500-foot vertical shaft carved out of the rock. Construction of The Clock of the Long Now (aka The 10,000-Year Clock) has been ongoing since 2018.

The project was conceived in the 1980s by computer engineer and inventor/designer Danny Hillis as a means to foster long-term thinking. It began to take shape in the '90s with the creation of the Long Now Foundation ("I want to build a clock that ticks once a year," Hillis wrote in 1995) and the eventual construction of an 8-foot-high prototype that began ticking on January 1, 2000.

Why 10,000 years? In an essay written on the Foundation's Web site,

board member Kevin Kelly explains: "Ten thousand years is about the age of civilization, so a 10,000-year clock would measure out a future of civilization equal to its past."

With this in mind, the materials—corrosion-resistant, marine-grade, 316 stainless steel; stone; and high-tech ceramics—were chosen to ensure the timepiece's longevity in the dry, dark, stable-temperature environment. "Building something to last 10,000 years requires both a large dose of optimism and a lot of knowledge," observes Kelly.

The Clock of the Long Now will be powered by the Sun and, occasionally, the people who visit it. Its parts—many of which are being machined and assembled in California and Washington state—include a 10,000-pound drive weight (a bronze egg about the size of a small car, filled with concrete); a 6-foot-long titanium pendulum

assembly; giant gears, some of which are more than 8 feet in diameter and weigh 1,000 pounds; and, finally, the Geneva wheels that will calculate the more than 3.5 million different chime sequences—one for each day that it is visited over the 10 millennia.

Its 8-foot-diameter face will display actual/current time, and six dials will display the year, century, horizons (revealing the Sun and Moon's rise and set), Sun's position, lunar phase, and stars of the night sky, respectively. At the face's center, a black dome will reveal the day or night sky.

Current time will always be kept on the clock, but it will be displayed only when the clock is manually "wound." Getting there to do this, however, will not be easy. The entrance is about 1,500 feet above the valley floor, a full day's hike by the Foun-

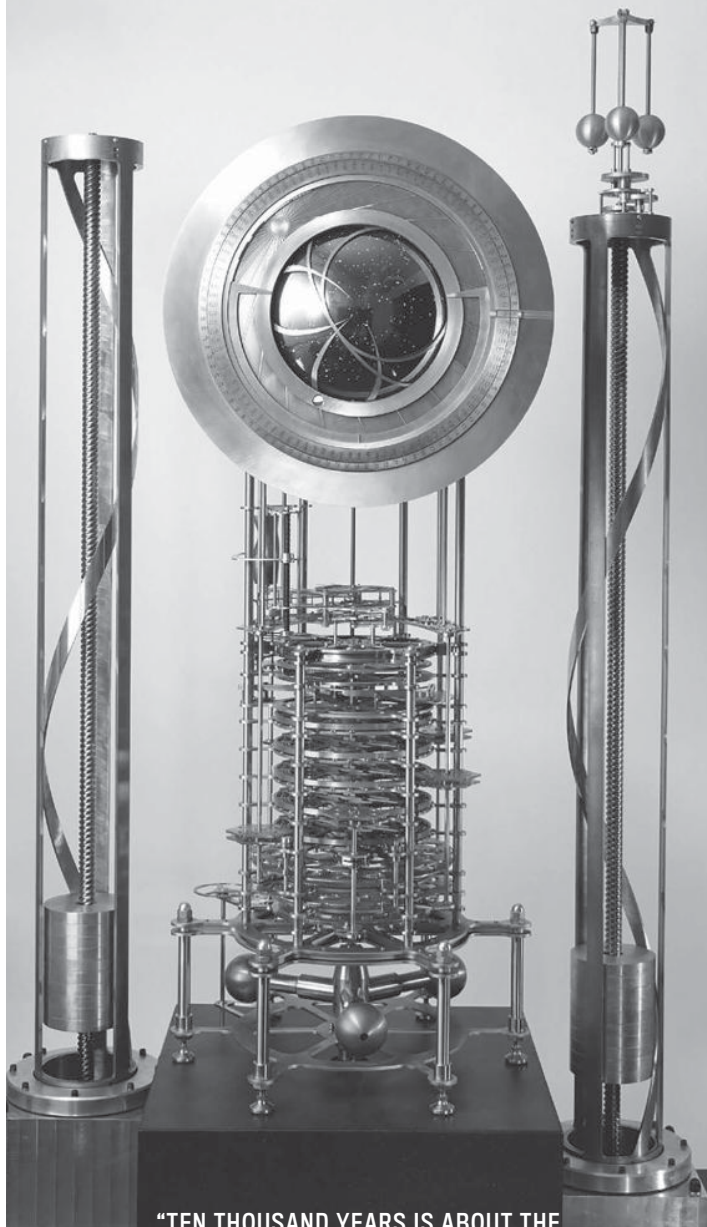
dation's estimate. Once inside, hikers will travel through a series of tunnels and up steps carved into the mountain (by a special rock-slicing robot), eventually coming to the winding station, where two or three people will be needed to push the capstan that lifts the 5-ton weight.

As of June 2022, the time of the clock's anticipated completion had not yet been announced, although plans for a second one in eastern Nevada had been discussed. Observers may be justified in wondering whether this second endeavor will be a concrete proposal or is simply the result of a group of forward thinkers passing the time. Indeed, only time will tell. ■

—Tim Goodwin

Tim Goodwin, associate editor of *The Old Farmer's Almanac*, is usually on time—or so he claims.

Photo: The Long Now Foundation



"TEN THOUSAND YEARS IS ABOUT THE AGE OF CIVILIZATION, SO A 10,000-YEAR CLOCK WOULD MEASURE OUT A FUTURE OF CIVILIZATION EQUAL TO ITS PAST."

PROFITIOUS PLANTING DAYS

BY HEIDI STONEHILL

To every thing there is a season, yes, but often there is also a best time or day or tried-and-true planting method passed down through generations of gardeners. (Local weather conditions may be a secondary consideration.) Many of today's gardeners swear by these traditions.

PLANTING BY THE CALENDAR

FEBRUARY 14:

VALENTINE'S DAY

Planting peas on this day is believed to bring good luck. Lettuce is traditionally planted on this day.



MARCH 1-3:

BLIND DAYS

Considered unlucky days to plant seeds.

GOOD FRIDAY (FRIDAY BEFORE EASTER)

Folklore tells us that Good Friday is the best day to plant any crop that you want to flourish, including peas, beans, flax, and potatoes. Also, parsley is



said to germinate faster if planted on this day, as the devil holds no power over it at this time.

MARCH 17:

ST. PATRICK'S DAY

Plant peas on this day, and St. Patrick will bless your garden. Sweet peas planted on this day are said to be especially healthy and



fragrant. This is also a traditional day to plant potatoes, and it is said that if you plant cabbage today, especially before dawn while wearing nightclothes, it will prosper.

MARCH 21:

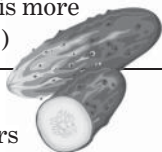
ST. BENEDICT'S FEAST DAY

Plant onion sets now for an excellent yield. (St. Benedict is also honored on July 11, but because onions are light sensitive, March 21 is more favorable.)



MAY 1:

Cucumbers and watermelons planted before sunrise on this day yield prolifically. Folklore says that if you wear your nightclothes while sowing, the plants will be insect-free.



MAY 11, 12, 13:

THREE CHILLY SAINTS

The Three Chilly (or Ice or Frost) Saints are traditionally the days on which falls the last cold, or frost, spell before planting season begins and the three coldest days of May. Tradition recommends planting after these days to be sure that plants will be safe from cold and frost damage. In Germany, these days are called *Eismanner* (Iceman

Days). Farmers did not plant vulnerable seedlings before the Icemen had come and gone.



JUNE 29:

ST. PAUL'S FEAST DAY

This is a good day to plant lavender:
For lavender, bushy, sweet and tall,

Tend upon the feast of Paul.



JULY 25:

Plant turnips on this day for success, no matter the weather.
Sow your turnips the 25th of July, You'll make a crop, wet or dry.

AUGUST 10:

ST. LAWRENCE'S FEAST DAY

For sweet turnips, plant them on this day.

PLANTING BY THE QUIRKY LORE

- Swear at basil when planting it. Ancient Greeks and Romans believed that shouting curses at basil while sowing the seeds helped it to thrive. The French phrase *semer le basilic* (literally, “sowing basil”) means to rant and rave.
- When broadcasting turnip or corn seed, recite a ditty, a reminder that not all of the seeds will develop into plants that survive to harvest.



the fly, one for the devil, and one for I.

FOR CORN: *One for the mouse, one for the crow, one to rot, and one to grow.* Or a variant: *One for the blackbird, one for the crow, one for the cutworm, and two [or three] to grow.*

- Avoid laughing while sowing corn, or the kernels will be irregularly spaced on the cob.
- When planting a peach tree, bury old leather shoes or boots near the



roots to give the plant a nutrient boost.

- You must be angry when planting peppers, or they won't grow.
- Plant sweet peas in rows running north to south for best blooms.
- Do not plant onions with potatoes; as a Southern tradition says, “The potatoes will cry their eyes out.” ■



Heidi Stonehill, a senior editor at *The Old Farmer's Almanac*, laughs at her corncobs with unevenly spaced kernels: “It's part of the joy of gardening!”



SNEEZE,
WHEEZE,
ITCH,
DRIP:

IT MUST BE HAY FEVER.

BY CASTLE FREEMAN JR.



WHEN FLOWERS BLOOM,
I HOPE YOU'LL NOT SNEEZE,
 AND MAY YOU ALWAYS HAVE
SOMEONE TO SQUEEZE!

—IRISH BLESSING

Among the multitude of tiresome but nonlethal ailments that famously trouble mankind, hay fever is something of a paradox. It's not a fever, and it has nothing much to do with hay.

It was originally believed by many to be caused by an effluvium—a smell or release of unhealthy air—in and around agricultural mowings. In reality, it's caused not by any infection but by the body's defensive allergic response, usually to various kinds of plant pollen and mold spores. Mistaking these for conventional pathogens like viruses and germs, the body reacts by producing histamines, irritating chemical compounds associated with the immune system, which in turn bring on the sneezing, wheezing, dripping, itching, and other woefully familiar symptoms of the complaint.

The role of pollen in causing hay fever explains why the condition is a summer affliction. Summer—when many trees, flowers, grasses, and other plants are producing pollen—

is when "*aestival catarrh*" flourishes. (That's an old-fashioned Latinate name for hay fever; modern medical science calls it "allergic rhinitis.")

But specifically which plants' pollens are the allergens that give rise to hay fever's reaction has been a matter for debate among sufferers and scientists alike and brings up a curious fact about the condition: Hay fever is deceitful. Not only does it afflict us; it decoys us into throwing the blame for our affliction on an innocent party.

In the case of hay fever, the harmless but conspicuous decoy that takes the rap for the allergic reaction behind the malady is goldenrod (*Solidago*), whose familiar large, bright yellow flower clusters on their heavy, nodding heads deck the roadsides and pastures from about midsummer to autumn. People see goldenrod's abundance, note its flowers' appearance at around the beginning of hay fever season, and easily connect the two. *(continued)*

THE ROLE OF POLLEN IN CAUSING HAY FEVER EXPLAINS
 WHY THE CONDITION IS A SUMMER AFFLICTION.

Unfortunately, they connect wrong. In fact, goldenrod has little role in causing hay fever. Its pollen is sticky, heavy, and relatively sparse. It is spread by hitching rides on passing animals, birds, and insects and isn't easily inhaled.

The principal hay fever allergen is the pollen of a different plant altogether, one that is little noticed: ragweed (*Ambrosia*), a plain Jane of a species, gray and bushy, whose pollen appears at around the same time as goldenrod's. Unlike that of goldenrod, however, ragweed's pollen, which it produces in enormous quantities, is a light dust and spreads for miles on the wind.

Ragweed and other air- and windborne pollen producers, including birch and ash trees, and molds are the main sources of hay fever's symptoms. This is the reason that the complaint is most common in dry, warm, windy locations. Many sufferers have noticed how, in a dry, sneezable summer, a day or two

of steady rain—which effectively hoses down the air and temporarily washes the pollen away—can bring them welcome, although temporary, relief.

Epidemiologically, hay fever is more than a passing nuisance. The American Academy of Allergy, Asthma, & Immunology now estimates that about 7.4 percent of the U.S. population is more or less affected. That's 24 million runny noses; 48 million itchy, weeping eyes; and some astronomical number of sniffles, snorts, and sneezes. Nor are U.S. residents uniquely subject to the condition. One in five Canadians gets it, as well (although ragweed is not as dominant a cause of hay fever in the provinces as it is to the south).

THE AFFLICTION'S ARISTOCRATIC ORIGINS

In the Old World, the British would seem to suffer even more from hay fever than we do, with one in four in the United Kingdom experiencing



ONE IN FIVE CANADIANS SUFFERS FROM A RUNNY NOSE AND
ITCHY EYES DUE TO HAY FEVER EVERY YEAR.

BY THE MIDDLE OF THE 19TH CENTURY, HAY FEVER WAS WELL KNOWN AND HAD EVEN ACHIEVED A MEASURE OF CELEBRITY.

symptoms, according to a recent report by the BBC. Perhaps it's by a kind of medico-historical karma that hay fever should be prevalent in Great Britain, for it was there that the malady was first investigated and understood scientifically. In 1819, John Bostock (1773–1846), a London physician and researcher—and lifelong hay fever sufferer—published the first authoritative, systematic account of the complaint.

Bostock described the symptoms of hay fever for the first time, which in Britain came to sometimes be called “Bostock catarrh.” His scientific paper, titled “Case of a Periodical Affection of the Eyes and Chest,” presented a case history that, unbeknownst to its readers, was in fact Bostock's own. The paper established hay fever as a disease entity. Bostock did not, however, suspect the relationship between hay fever and plant pollen, a discovery made 30 years later by another medical Briton, Charles H. Blackley, a physician in Manchester.

In Britain, by the middle of the 19th century, hay fever was well known and had even achieved a measure of celebrity, having taken on the character and reputation of a fashionable disease, like gout. An 1830s monarch, King William IV, was known to have been

a sufferer. Blackley wrote in 1873 that most of his patients tended to be either doctors or members of the clergy. Hay fever was “an aristocratic disease,” he said, that was “almost wholly confined to the upper classes of society.” (Did Blackley reflect that disease in general has a curious affinity for patients who can afford to pay the physician? We can't be sure.)

On our side of the water, the idea of hay fever as a marker of class superiority was soon put in service of a characteristically American purpose: making a buck. Catering to hay fever victims' hypothetical gentility and comparative wealth became a thriving corner of the real estate business. John Bostock had noticed that his own hay fever symptoms were greatly relieved by sea air. In the 19th and early 20th centuries, specialized resorts, hotels, inns, sanitariums, campgrounds, and the like were built all over the United States, especially in mountain and seaside settings, and advertised as havens of summer refuge in low-pollen surroundings. The U.S. Hay Fever Association was organized in 1874 to support victims, often known as “hayfeverites,” and promote such facilities to them. Indeed, hay fever became almost a way of life. *(continued)*





"HAPPY HAYFEVERITES"

WASHINGTON EVENING STAR, SEPTEMBER, 1908

Today, the hayfeverites and their specialized amenities are part of history. Hay fever itself continues, of course, and may even be expanding its reach due to climate change. The medical economics of hay fever have also altered. A bottle of nonprescription antihistamine tablets does a pretty good job of alleviating the worst effects of pollen allergens—and

at a rather lower cost than summering in the White Mountains of New Hampshire or on the coast of Maine.

Gone, too, sadly, is the prestige of hay fever, its putative social cachet. Nowadays, evidently, anybody can have it. ■

Vermont novelist, writer, and keen observer **Castle Freeman Jr.** was for decades the author of our annual "Farmer's Calendar" columns.

**HAY FEVER HAD BECOME ALMOST A WAY OF LIFE.
TODAY, THE HAYFEVERITES ARE PART OF HISTORY.**

A-CHOO FACTS FOR YOU

NATURAL REMEDIES

- Naturalist Pliny the Elder (A.D. 23–79) believed that kissing the nostrils of a mule cured hay fever.
- Sip stinging nettle tea to relieve symptoms.
- Eat pineapple, whose enzyme bromelain has anti-inflammatory effects.
- Consume yogurt containing live cultures or foods rich in omega-3 fatty acids (salmon, halibut, tuna, cod, sardines, shrimp, and clams).
- Take one granule of local bee pollen before hay fever season. If no reaction occurs, increase the amount of bee pollen slowly, working your way up to 1 teaspoon per day. (Combine pollen with juice, if desired.)

PRECAUTIONS

- Stay indoors when the pollen count is high (19th-century physician George M. Beard recommended a “cool, closed, dark room”).

- When driving, keep car windows closed.
- When outdoors, wear a hat and wraparound sunglasses.
- When you come in from outdoors, wash your hands and face and run a damp cloth over your hair; take a shower; and/or change clothing.
- Change your pillowcase often.

CURIOSITIES

- Interglacial deposits in Quebec have been found to contain ragweed pollen (*Ambrosia* spp.) dating from more than 60,000 years ago.
- In North America, the pollen season starts, on average, 3 days sooner than it did in the 1990s. The season is lengthening more at higher latitudes (roughly north of 44°N).
- Symptoms can be felt after exposure to as few as 5 to 20 ragweed pollen grains per million; pollen levels are highest near dawn.



EGG HATCHING

101

WHEN TO HATCH EGGS

If there are thunderstorms while eggs are “setting,” the eggs will not hatch.

—FOLKLORE

Some chicken keepers follow the seasons, purchasing and setting eggs during March and April. However, for centuries, traditional farmers have set eggs year-round and specifically on days when the Moon is growing from new to full in one of three zodiac signs. This practice, which derives partially from folklore and partially from hard-earned experience, follows the belief that the Moon influences the outcome of certain tasks. In this case, the thinking is that chicks hatched from eggs that are set when the waxing (increasing) Moon is in the astrological (not astronomical) signs of Cancer, Scorpio, or Pisces will be healthier and mature more quickly.

The propitious, or favorable, signs and dates for setting eggs this year can be found on page 225. The following steps blend folk adages and practical advice. *(continued)*

One of the most enjoyable parts of keeping backyard chickens is hatching chicks and watching them grow. Hatching chicks requires time, equipment, energy, and—some believe—a brightening Moon.

BY CHRIS LESLEY



HUSBANDRY

NOT JUST ANY EGGS

Eggs carried in a woman's bonnet invariably make pullets.

—OZARK FOLKLORE

To hatch chicks, you need eggs that have been fertilized by a rooster. Eggs from a grocery store are not fertilized. If you have a rooster in your flock, the eggs laid by your hens will be fertilized and ready for incubation. If you don't have a rooster but want to hatch fertilized eggs, you can:

- Contact chicken keepers in your area and ask them if you can buy a few fertilized eggs. Purchasing eggs locally will help to ensure that they travel safely.
- Buy fertilized eggs from a breeder and have them shipped through the mail or a courier service. This is ideal if you want to raise a rare breed. However, eggs don't travel well. They may be poorly handled and get jostled in the shipping process, resulting in eggs that don't hatch.

CHOOSING AN INCUBATOR

To break a hen from setting, put an alarm clock in the nest and let it go off.

—FOLKLORE

Incubators help to maintain the proper temperature and level of humidity needed for eggs to hatch properly. They can range in price from under \$100 to several times that; a less expensive model requires more work by the chicken keeper (e.g., manually turning the eggs, monitoring temperature and humidity). A basic, still-air incubator creates warm air but does not circulate it. This can result in cold spots within the incubator, and these may result in the failure of eggs to hatch.

A more expensive forced-air incubator circulates warm air inside the incubator. The result of this is more consistent temperature and humidity levels, which may result in better hatches. *(continued)*



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HUSBANDRY

ESSENTIAL TOOLS

Cover newly hatched chicks with a sieve and place them in the sunshine a little while, and they will live.

—FOLKLORE

You will also need a thermometer, a hygrometer (to measure humidity), and a candling device. Some incubators are equipped with a thermometer and hygrometer. However, it's a good idea to double-check the temperature and humidity with separate meters.

A candling device is used to shine light through an egg to ensure that the embryos are growing properly. A flashlight can work perfectly, but some chicken keepers prefer using a specialized piece of equipment to do this.

PREPARATION

Setting a hen on a cloudy day will cause all of the chicks to be black.

—PERSIAN FOLKLORE

Set up the incubator several days in advance of setting the eggs to ensure that it is working properly. The temperature inside the incubator should

be between 99° and 102°F. In the first 17 days, the relative humidity in the incubator should be between 50 and 55 percent; on day 18, it should be raised to 70 percent.

DAY 1: SETTING EGGS

It's bad luck to set an even number of eggs.

—FOLKLORE

At a minimum, six eggs should be placed in an incubator at one time. Before placing the eggs in the incubator, use a pencil to draw a mark on one side of each egg. The marks will be helpful when it comes time to turn the eggs. Place each egg in the incubator with its large end up and smaller end down.

DAYS 1 TO 18: TURNING EGGS

Never set a hen or an incubator when the wind is blowing from the south, or mighty few of the eggs will hatch.

—OZARK FOLKLORE

During the first 18 days, each egg should be turned three to five times a day, marking each turn (the marks help to keep track). Turning an egg ensures



HATCHING YOUR OWN CHICKS IS A DEMANDING
BUT ULTIMATELY REWARDING PROCESS.



that the developing chick will not stick to the side of the shell and is resting on top of the yolk.

DAYS 7 TO 10: CANDLING EGGS

*Candle an egg; if the space
is on the side, it will hatch a hen;
on the top, a rooster.*

—FOLKLORE

In the middle of the incubation period, embryos should be monitored by using a candling device. Several eggs should be checked at once, but none should be out of the incubator for more than 10 minutes.

Blood vessels inside the egg indicate the presence of a healthy embryo. Eggs that are clear on the inside or display a red ring in the egg should be removed from the incubator, as the embryos inside these have died.

DAYS 18 TO 21: HATCHING EGGS

*Do not set eggs so that they will hatch
during Dog Days [July 3–August 11].*

—FOLKLORE

Between days 18 and 21, the chicks in

the incubator are preparing to hatch. The turning process should be stopped on day 18, and the eggs should be left resting on their pointed/narrow end. On day 21, the chicks will probably begin to hatch, but don't be alarmed if they take a bit longer.

Remember: Do not touch chicks when they are hatching or to help them hatch. Pulling off bits of shell that may be attached to a chick can cause fatal bleeding. Leave chicks alone to hatch.

Hatching usually lasts 5 to 7 hours but can take an entire day.

Hatching your own chicks is a demanding but ultimately rewarding process. With the proper materials and by taking into consideration the Moon's phase and position in the zodiacal sky, backyard chicken keepers will likely find themselves with a flock of happy and healthy chicks. ■


Chris Lesley, a fourth-generation chicken keeper, teaches people worldwide how to raise happy, healthy chickens. Her Web site is Chickensandmore.com.



MILLET
RISING

THIS "FUTURE-SMART"
FOOD IS NOT
JUST FOR THE BIRDS.

BY MARGARET BOYLES

A black and white photograph showing four shallow, round bowls filled with different varieties of millets. The bowls are arranged in a cluster on a rustic wooden surface. The millets vary in size and shape, from small and round to larger and more elongated. The lighting creates soft shadows, highlighting the texture of the grains and the wood.

Stop fretting over
quinoa and
switch to millets.

-SANGEETHA DEVI DUNDOO,
ON THE HEALTH AND COST BENEFITS
OF MILLETS, IN THEHINDU.COM



Endorsing a proposal from India, the United Nations Food and Agriculture Organization (FAO) has designated 2023 as the International Year of Millets.

That's right, millets. "Millet" is an umbrella term embracing as many as 20 species and thousands of local varieties of the small, round, cereal grains that originated independently in China, South Asia, and Africa.

Agricultural, public health, and food security experts use terms such as "undervalued," "underresearched," and "underutilized" to describe millets, yet these terms fail to adequately describe how versatile and primed for the future this staple crop really is.

Although only seven species of millet are grown commercially, farmers and subsistence growers around the world grow locally

adapted varieties of these ancient cereal grains not only as staple foods but also for grazing, hay, livestock feeds, rotation crops, and cover crops.

All millets are true grains, members of the Poaceae plant family that also includes rice, wheat, corn, oats, rye, and barley. Although millets are considered minor crops globally, people in many regions of Africa, South and Southeast Asia, and the

Far East rely on them today as primary staple foods, just as they have for millennia.

Millets thrive in hot, arid environments and lower-fertility soils increasingly unable to support wheat, rice, or corn. They resist insect pests and diseases, and because they mature much more quickly than the dominant grains, millets allow growers in many areas to harvest two or three grain crops in a single growing

season or use millet to make up for a failed crop.

This is why, although in many parts of the world millets are considered food for the poor, today they qualify as what the FAO calls a “future-smart” food, well suited to becoming a staple human food crop in an era of climate change.

MILLET IN CANADA

According to the Ontario Ministry of Agriculture, Food, and Rural Affairs Web site, proso millet was first introduced to Canada in the 17th century, to eventually be used in a limited way as a forage crop in the early 1900s. It apparently did not produce sufficiently high yields of either forage or grain to compete with the established forages and cereals of that time, so it gradually disappeared.

Today, as some Ontario farmers continue to grow millet for birdseed, one Manitoba grower has bigger ideas.

A BANNER AND A BUCKET

Reynald Gauthier’s 41-year love affair with millet began when he

was a teenager working on his dad’s St. Claude, Manitoba, farm: “It was so dry in the early ’80s. We had 400 head of cattle, and we were

Is Millet the Oldest Grain Crop?

- From a site in northeastern China, archaeologists have identified proso millet, the primary species grown in the United States, as the first cereal crop that humans domesticated more than 10,000 years ago.
- In northwestern China, a different team unearthed what they believe to be the world’s oldest noodles, made from two species of millet.
- Archaeologists have also found evidence of millet beer-brewing in China more than 5,000 years ago.

short on feed. We’d heard that crown [aka proso] millet grew well during droughts, so we seeded 100 acres with it.

“It was hot for weeks on end, and we had only a few tenths of an inch of rain. But the millet came up, it thrived, and the cows loved it!”

In 1999, Gauthier left the family farm and began growing millet on land he’d purchased for himself.

Just as they remain today, the main markets for millet at the time were as cattle feed and birdseed, so he started growing ‘Cerise’ red proso, which fetched higher prices.

But in 2003, the market crashed. That December, Gauthier



Reynald Gauthier hauls a 50-pound bag of millet seed.

FARMING

saw the movie *Happy Gilmore*, which “turned my life around.” In the film, a failed hockey player redeploys his legendary slapshot to win a string of golf tournaments.

Gauthier began pursuing alternative sales strategies. He started attending winter trade shows, bringing along “only a banner and a bucket of millet.” Attracted by his sales pitch and the quality of his seed, more farmers started buying—until eventually he was delivering millet seed to as many as 2,200 farms across western Canada, racking up more than a million miles on his 1997

GMC Sierra truck.

Meanwhile, Gauthier reports, “Women kept coming up to me at the trade shows and saying, ‘Oh, did you know that millet is gluten-free? Why don’t you sell food products?’”

This suggestion gave rise to Gauthier’s incorporation of Millet King Foods in 2010, “so that I could enter the food fights,” he recalls. Gauthier developed ideas for millet-based products and hired professionals to develop and test them. He won prizes twice in The Great Manitoba Food Fight: \$10,000 in 2010 for his Good Old-Fashioned Red Millet

Beer and \$5,000 in 2011 for his Millet King Crunchies cereal.

After these wins, he told the *Canadian Business Journal* that within 5 years, his goal was to have 500,000 acres of millet and 1,000 stores selling food products across Canada.

“TOMORROW MIGHT BE BETTER”

A decade later, these dreams haven’t materialized, but Gauthier still hasn’t lost hope.

His plans have included owning a piece of land with a deep artesian well, from which he intended to draw water to make his prizewinning beer as well as bottled water and party ice. “The brewery, the bottling plant, and the ice-making equipment under one roof,” he noted.

Next to come would be a chain of specialty shops that would sell the ice, the bottled well water, and his millet beer. “And donuts!” he exclaimed, adding that the shops would also sell millet-based cereals, pancake mixes, and an array of baked goods. (*continued*)

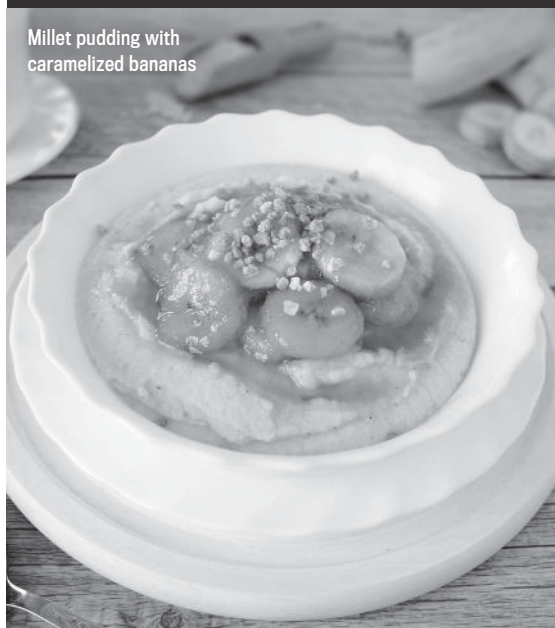


Gauthier enjoying his prizewinning Millet King Crunchies cereal

Millet mango avocado
cucumber salad



Millet pudding with
caramelized bananas



“The Workhorse of the Kitchen”

According to registered dietician Dr. Melissa Wdowik, who teaches nutrition at East Carolina State University and maintains a private consulting practice, “Millet is very nutritious: high in fiber, protein, many minerals, B vitamins, and many antioxidants.

“It’s also gluten-free, easily digested, and good for your gut—acting as a prebiotic that feeds friendly bacteria there.

“I love the consistency of cooked millet—neither firm nor mushy—and the fact that it doesn’t have much flavor of its own but takes on the flavors of other foods that you cook with it.”

Furthermore, Wdowik adds, “It’s inexpensive, readily available, and easy to prepare. Use it in place of rice or other grains in stir-fries, soups, and crockpot recipes; serve it for breakfast instead of oatmeal; substitute it for bread crumbs as a topping; work it into desserts; serve it cold in salads. It’s so versatile that some cooks have begun calling it ‘the workhorse of the kitchen.’”



Millet-based beers from Holiday Brewing Co.

Still, he's but a one-man operation farming a few hundred acres of millet with hired seasonal help. He notes ruefully that although he's growing older without any heirs, he continues to use the story of *Happy Gilmore* as inspiration and remains ever hopeful: "Tomorrow might be better."

FOCUS ON FERMENTING

It seems that everywhere farmers and small landholders grow millet, people ferment it into gluten-free beers and wines. Among the best known and most successful of these in the United States is Holiday Brewing

Company in Golden, Colorado. Holiday was founded in 2016 by Karen Hertz, a craft beer enthusiast who, after surviving both melanoma and thyroid cancer in her early 30s, followed her doctors' recommendations to adopt a gluten-free diet. After taste-testing many gluten-free beers and finding them lacking, she began learning the processes of brewing them herself, eventually partnering with Twila Soles, founder of Grouse Malt House, who'd begun making gluten-free malts using only millet and buckwheat.

"Millet-based beers are much harder to

brew than traditional ones," observes Holiday's brewmeister, Alan Windhausen, who abandoned plans for medical school in favor of earning a master brewer's certificate at the University of California-Davis. He has worked with Colorado State to develop brewery equipment suitable for millet. "One of the cool things about using millet as a malt is that we can create flavors not available to classic malts," he reports.

GRAIN ON THE GROW

Global food-supply experts hope that the adjectives "resilient," "sustainable," and "nu-

trititious” will soon come to define millet. Folks whom we interviewed in early to mid-2021 described networks of players beginning to form, creating a still-nascent global infrastructure to elevate these ancient grains. They predicted that food consumers would eventually see an uptick in millet flours and flour blends; millet puffs, flakes, chips, crisps, and crackers; millet energy bars, veggie burgers, and high-end restaurant entrées; millet wines and whiskeys; and millet extracts in hair and skin-care products and perhaps medicines. Some cited ongoing research suggesting that some species of millet may even provide feedstocks for second-generation biofuels made from crop residues that don’t compete with food for land.

“The opportunities for food-grade millet expansion are great,” says Clay Smith, owner of Eastern Colorado Seeds in Burlington, Colorado, and developer of markets for proso millet in the United States, Middle East,

Europe, Indonesia, and Japan. “Millet requires as little as a quarter of the input costs of raising a bushel of corn.”

Third-generation Towner, Colorado, millet farmer Chris Stum, although disappointed by the failed passage of a 2018 statewide millet marketing order (a legal agree-

ment that would tax all millet farmers in the region, enabling them to use the assessments for research and marketing initiatives), nonetheless echoes Smith’s enthusiasm. “I think that we’ll see global marketing opportunities expanding for millet as a staple crop for feeding families and livestock,” he says. “I’d also like to include it as part of the global environmental conversation, for the important role that it can play in restoring the land and increasing its value.” ■

Margaret Boyles, a resident of New Hampshire for more than five decades, is an avid gardener who has recently developed a fondness for millet recipes.

Going With the Grain

- In China, the elderly are advised to eat a bowl of millet before going to bed in order to get a good night’s sleep.
- In Summer 2021, India’s first “grain ATM” was set up in Gurugram; it can dispense up to 154 pounds of wheat, rice, and millet.

Pearl millet growing in India

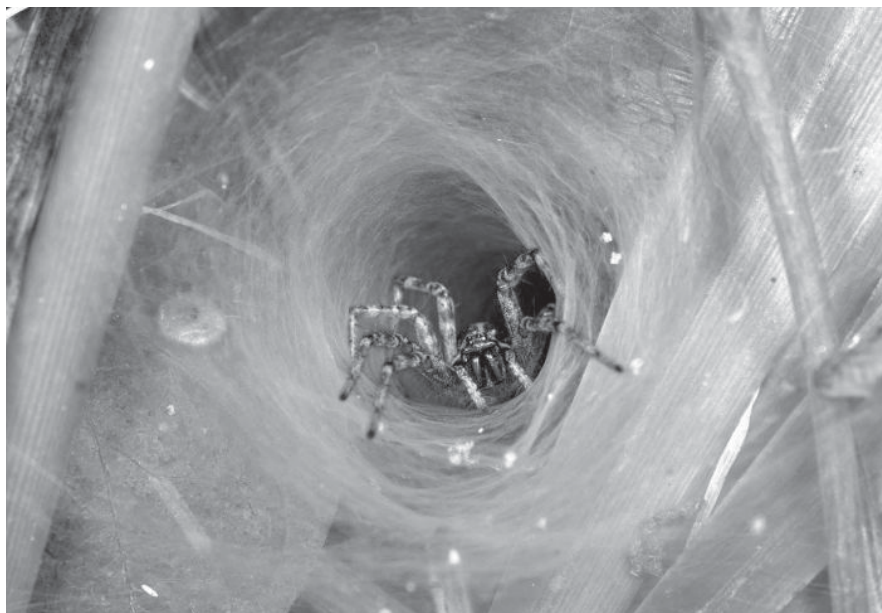




HANGING BY A SILKEN THREAD

FACTS AND FOLKLORE
ABOUT NATURE'S WEB GURUS

BY PAULA E. CUSHING, PH.D.



SPIDERS IN THE FUNNEL WEB FAMILY (AGELENIDAE) LIVE IN A SILKEN FUNNEL WITH A "PLATFORM" OF SILK AT THE ENTRANCE.

Spiders manufacture and use silk in weird and wonderful ways. If Hollywood aimed for accuracy in the *Spiderman* movies, Peter Parker would not release silk from his wrists. Silk would come from an entirely different region of Peter's body. A real spider's silk glands are in the abdomen, and the silk is released from structures at the very rear end of a spider called "spinnerets." Let us all be thankful that, in this case, Hollywood took some liberties with the truth.

NOZZLED SPINNERETS

Spiders have been on Earth for over 350 million years, and they have been producing silk for all of this time. Inside the abdomen, male and female spiders have up to six different kinds of silk glands, each secreting and storing a slightly different composition of proteinaceous silk. The spider squeezes the liquid protein out of each silk gland into tubes leading to the spinnerets. On the surface of the spinnerets are tiny spigots, each shaped somewhat like the nozzle of a garden hose. The silk protein is still in liquid form as it emerges from the spider

Photo: Satoshi Kuribayashi/Minden Pictures

but changes to a solid when a droplet is put under tension. A spider attaching the droplet to a surface and moving away or pulling the silk from its body using its rear legs provides enough tension to change the liquid droplet to a solid strand of silk.

ARACHNONAUTS

Although much of their behavior is instinctive, spiders (of the class Arachnida) are amazingly adaptable and can even build fully functional webs in the zero gravity of space. In 1973, two orb-weaving spiders were sent up to the Skylab space station, where they both built functional orb (round) webs despite the lack of gravity cues or wind currents. Then, in both 2008 and 2011, a company called BioServe Space Technologies sent four more orb-weaving spiders to the International Space Station, where they were able to quickly adapt to conditions there.

MATERIAL WITNESSES

Spider silk is considered the “Holy Grail” of material sciences. It is stronger by unit weight than steel and extremely elastic. For decades, scientists from labs all over the world have been studying spider silk to unlock the keys to its extraordinary properties with the thought that if a material with the same strength and elasticity as spider silk can be mass-manufactured, it could be used for lightweight bulletproof vests; strong, resilient parachutes; or strong natural fibers for medical surgery procedures. The uses of such a material are limited only by the imagination. However, spiders can not be raised en masse to harvest their silk. They are predators that readily cannibalize each other, so trying to rear them together to spool their silk results in one very fat and happy spider.

With the development of molecular research, scientists have determined what genes code for spider silk protein and have even inserted them into various organisms in hope of finding a way to mass-manufacture a material with the same properties as spider silk. A biotechnology company called Nexia has managed to insert the genetic coding for spider silk protein into cells of goats and reared a lineage of

LITTLE MISS MUFFET'S DISTRESS

Legend has it that the subject of the eponymous nursery rhyme was actually a child named Patience, the stepdaughter of Thomas Muffet, a 16th-century physician who, some believe, used spiders and spiderwebs in his remedies. At that time, a traditional cure for ague, or fever, was to swallow clean cobwebs; patients with a more serious condition might be advised to consume a live spider (wrapped discreetly in a crust of bread for those with weak constitutions). Is it any wonder, then, that the petite miss was frightened by the spider sitting beside her? Every time she got the sniffles, her stepdad probably made her swallow a spider.



WOUNDED? THERE'S A WEB FOR THAT.

Spiders and their webs have been used for a variety of purposes throughout human history, including to bind wounds. This treatment is likely efficacious because the acidic nature of spider silk means that it is not prone to attack by bacteria or fungi. The next time that you get a cut, clean the wound and then bind it with a layer of spider silk. As long as the silk is fresh and not cluttered with insect carcasses, it can serve as an effective bandage.



WEB WEATHER

Spiders spinning unusually large webs is a sign of a cold winter to come.

Spiderwebs floating at autumn sunset / Bring a night frost, on this you may bet.

Spiders move down from their webs before rain.

goats whose milk included spider silk proteins in liquid form. No lab or company has yet managed to do what spiders do naturally: transform the liquid protein into strands of silk.

NOT-SO-TANGLED WEBS

To date, over 49,000 species of spiders have been described, and more are discovered every year. Not all weave webs, but they all produce silk. Those that do weave webs do not all make the same type of structure. Web-building spider families are often distinguished by the type of web that they weave, but all web forms have the same goal—to capture insect prey. Here are some examples:

- Spiders in the funnel web family (Agelenidae) live in a silken funnel with a “platform” of silk at the entrance. When an insect blunders onto the platform, the funnel web spider rushes over to bite and inject venom into the insect before then dragging it inside the funnel to be devoured.
- The ogre-faced spider, of the genus *Deinopis* (family Deinopidae), has huge front eyes and good eyesight. This spider hangs upside down in vegetation and uses the first two pairs of its eight legs to grip its square, postage stamp-size web. When it spots an insect walking on the forest floor, it pushes the square web onto the insect and twists the hapless prey into the silk.
- Most orb-weaving spiders in the family Araneidae build a vertically oriented, round web with the hub more or less in the middle, radii projecting outward, and rings of sticky spirals surrounding the hub. However, one kind of orb weaver in New Guinea builds an enormously long web with the hub far above most of the sticky spirals. Because of this web’s unusual shape, it is called a “ladder web” and is very effective in capturing moths. Typically, moths can escape a sticky spiderweb because their scale-covered wings don’t adhere well to the spirals. But when a moth flies into a ladder web, it topples down the surface of the elongated web, losing scales along the way, until its wings, devoid of their protective covering, get firmly stuck. The web owner can then take its time in coming close to bite its prey and wrap it in silk.



• Other species of orb-weaving spiders in New Guinea and other parts of Australasia produce webs that are as big as 3 feet in diameter. Native people turn these to their advantage. They bend a flexible branch or bamboo stick into a loop and collect one or more of the giant orb webs, using this silken net to capture fish.

Spiders are real-life action heroes in the animal kingdom. Without them, we would be overwhelmed by insects. Arachnologists Martin Nyffeler of the University of Basel (Switzerland) and Klaus Birkhofer of the Brandenburg (Germany) University of Technology estimate that spiders worldwide catch 400 million to 800 million tons of insects every year! So, the next time that you see a spider in your home or outside, don't swat it or stomp on it. Thank it—it's doing you a service. ■

Paula Cushing is a museum curator and arachnologist living in Colorado. A past president of both the International Society of Arachnology and the American Arachnological Society, she has been researching spiders and other arachnids for decades.

THE OGRE-FACED SPIDER (LEFT) PUSHES ITS POSTAGE STAMP-SIZE SQUARE WEB ONTO AN INSECT AND TWISTS THE HAPLESS PREY INTO THE SILK.

MOST ORB-WEAVING SPIDERS (RIGHT) IN THE FAMILY ARANEIDAE BUILD A VERTICALLY ORIENTED, ROUND WEB WITH THE HUB MORE OR LESS IN THE MIDDLE.



How Happy *Is* a Clam? (and So Forth)

BY TIM CLARK

Reprinted from *The 1980 Old Farmer's Almanac*.

HOW HAPPY IS A CLAM?

We will probably never know exactly what makes a clam happy, but people usually list a long life and true love among their hopes. Thus, by human standards, a clam has good reason to be happy because, according to Dr. Ida Thompson of Princeton University, the clam is the foxy grandpa of the invertebrate kingdom. Dr. Thompson has determined that a clam's

bands correspond to the rings found in a tree trunk and can be used to determine its age. By this method, she has discovered that clams live as long as 150 years (assuming that they are not made into chowder), show no signs of aging (other than adding bands), and remain sexually active throughout their lives. In fact, Dr. Thompson is uncertain whether these clams ever die of old age.

HOW MAD IS A WET HEN?

We called up the folks at Hubbard Farms in Walpole, New Hampshire, one of the U.S.'s leading egg producers, and were asked to explain our business. We said we wanted to know how mad a wet hen becomes. After some confusion, we were referred to the Advertising Director. We repeated the question. There was a long pause.

"Can I get back to

you?" he asked.

We assured him that he could.

Thirty minutes later, he called triumphantly with the information that indeed, hens do not like to get wet.

"They sort of flick their feathers," he explained.

HOW SCARCE ARE HEN'S TEETH?

Very scarce. In fact, hens do not have teeth. Some say that they were ground down during a severe rainstorm.

HOW MUCH IS A HILL OF BEANS WORTH?

It depends on the size of the hill. If the hill were 50 feet high, with a diameter at its base of 200 feet, its volume would be 523,599 cubic feet, or 420,627 bushels. At \$6.70 per bushel (the closing price of soybeans on the New York commodity exchange as of November 14, 1978), the hill would be worth \$2,818,201. That most certainly ain't hay.

A bale of hay the same size would be worth only \$390,953. Which just goes to prove that hay ain't worth beans.

HOW OLD IS AN OLD SAW?

Ancient. Copper saws were first introduced by the Egyptians around 4000 B.C. They were used in the construction of the pyramids.

HOW FAST IS GREASED LIGHTNING?

According to the *Encyclopedia Britannica*, lightning travels from its point of origin in the sky to Earth's surface at an average speed of 1.5×10^5 meters per second, or about 335,000 miles per hour. Greased lightning is, of course, considerably swifter.

CAN A SILK PURSE BE MADE OUT OF A SOW'S EAR?

No. But in 1921, Dr. Arthur D. Little of Cambridge, Massachusetts, boiled 1,000 sow's ears into a gelatinous substance, spun it into a fine thread, and produced two purses that had the look and feel of the finest silk. The project, undertaken by Dr. Little to prove that nothing is impossible, led to the development of such popular synthetic fabrics as nylon and rayon.

Dr. Little went on to found the internationally famous industrial consulting firm of Arthur D. Little Co. In 1977, a few engineers at that company decided to go the founder one better and had a contest to produce a flightworthy lead balloon. Three were eventually produced, using lead foil so delicate that "it would break if you breathed on it," according to one witness. One of the balloons was torn during inflation. The other two were successfully flown at the end of tethers. But in the process of reeling them in, one balloon broke away and disappeared over the Atlantic Ocean.

So far, nobody at A. D. Little has attempted to lead a horse to water and then make him drink. "This is not an industrial problem," sniffed a company spokesperson. ■

After publication of this, his first article, **Tim Clark** would go on to become a contributor to and an editor for *Yankee* magazine and *The Old Farmer's Almanac* for another 40 years.

THE LITTLE- KNOWN JOURNEY OF WILLIE O'REE TO BREAK THE NHL'S COLOR BARRIER

BY THOMAS J. WHALEN

BA almost everybody knows about Jackie Robinson and the historic role that he played in integrating Major League Baseball. But mention Willie O'Ree, and you'll likely receive a blank look.

This may start to change. On January 19, 2022, the U.S. House of Representatives passed a bill awarding O'Ree the Congressional Gold Medal. A day earlier, the Boston Bruins had retired O'Ree's #22 sweater on the 64th anniversary of the night when the forward from New Brunswick, Canada, had become the first Black person to play in a National Hockey League game.

O'Ree had always felt that he possessed the talent to play in the NHL. A speedy skater with an intuitive feel for the game, O'Ree had played organized hockey since age 5 and scored 22 goals with 12 assists in his first professional season with the Quebec Aces.

His big break came when the Boston Bruins invited him to attend training camp before the start of the 1957–58 season. Although he failed to make the final cut, team officials were impressed enough by his overall performance that they told him that he needed only “a little more seasoning” to reach the big time. *(continued)*

IN 2022, O'REE WAS AWARDED THE CONGRESSIONAL GOLD MEDAL.



“I’M JUST HAPPY TO GET A CHANCE UP HERE—THAT’S ABOUT ALL I CAN SAY.”

“They knew what I could do,” O’Ree later recalled in his memoir, *The Autobiography of Willie O’Ree: Hockey’s Black Pioneer* (Somerville House Books, 2000).

Sure enough, that January, when the Boston Bruins became short a roster player, they called him up from their minor league club for a road contest against the Montreal Canadiens. O’Ree could barely control his excitement. “I could see fans pointing, ‘There’s that Black kid. He’s up with the Bruins,’” O’Ree wrote.

Despite his nervousness, he did nothing to embarrass himself during a rare 3–0 Boston shutout over their hated archrivals. “O’Ree is not only fast, but he’s a strong skater,” Montreal general manager Frank Selke said after the game. “He looks as if he could go all night.”

O’Ree suited up for only one more game as a Bruin that season before

being returned to the minors. He was hardly crestfallen. “I’m just happy to get a chance up here—that’s about all I can say,” he told *The Boston Globe*.

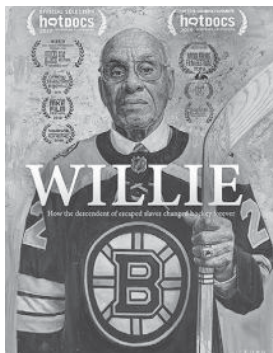
Wearing #22 for the Bruins in 1960–61, O’Ree tallied four goals and 10 assists in 43 games. His first NHL score, a game-winner against Montreal at the Boston Garden on New Year’s Day, 1961, proved memorable. On a breakaway, a teammate fed him a perfect pass, which he then deposited under the glove hand of Montreal goaltender Charlie Hodge. For his standout effort, O’Ree received a rousing standing ovation from the home crowd that lasted several minutes.

O’Ree wasn’t so well received at other NHL venues. At New York City’s venerable Madison Square Garden, for instance, fans showered him with

BREAKAWAYS FOR #22

- In 2008, Willie O’Ree, the descendant of people who were enslaved, was awarded the Order of Canada, the highest honor given to a Canadian civilian.
- In 2018, the NHL introduced the Willie O’Ree Community Hero Award, presented annually to “an individual, who—through the game of hockey—has positively impacted his or her community, culture, or society.”

- O’Ree was inducted into the Hockey Hall of Fame class of



2018 as part of the “Builder” category, which honors those who have made significant contributions to the sport.

- In 2020, a 90-minute feature film on O’Ree’s life, titled *Willie*, was released. It is available on Amazon.

- On January 18, 2022, the Boston Bruins retired O’Ree’s #22 jersey, making him only the 12th player in team history to have his sweater hung in Boston/TD Garden.

racial insults before he even stepped onto the ice. In Chicago, he was targeted for abuse by bruising Blackhawks forward Eric “Elbows” Nesterenko. After calling O’Ree a common epithet, Nesterenko took the butt end of his stick and rammed it into O’Ree’s unsuspecting face. A broken nose and two missing front teeth later, O’Ree had had enough. He took his stick and smashed Nesterenko over the head with it. O’Ree’s teammates came rushing to his aid as both teams’ benches emptied. What followed was a classic hockey donnybrook that ended with O’Ree being sent to the Bruins locker room for medical treatment.

B every time I went on the ice, I was faced with racial slurs because of my color,” O’Ree admitted to an Anti-Defamation League Youth Congress gathering held in Boston in 2016. “I had black cats thrown on the ice, and people told me to go back to the cotton fields and pick cotton.”

O’Ree claimed that he didn’t mind. “I didn’t let it hurt me,” he recalled. “I let it go in one ear and out the other.”

O’Ree’s dream of hockey glory had almost been cut tragically short. While playing in a junior league game in Guelph, Ontario, as a 20-year-old, he lost most of the sight in his right eye after a deflected puck struck his face. Ignoring the doctor’s advice to hang up his skates, O’Ree continued to play despite being at an obvious competitive disadvantage.

“I was a left-hand shot, and I was playing left wing, but I had no right eye,” O’Ree explained. He didn’t want others to know of his handicap, lest it scare teams away from employing him. “It was my secret,” he confided.

When the Bruins traded O’Ree to the Canadiens before the start of the 1961–62 season, he was personally devastated. Having won five of the preceding six Stanley Cup championships, Montreal was an elite team that had no room for O’Ree on its roster. As a result, O’Ree spent the remainder of his career playing on a series of minor league clubs, including the Los Angeles Blades of the Western Hockey League. He was a major standout for Los Angeles, scoring a career-high 38 goals in 1964–65, but the NHL never gave him a second look.

O’Ree did, however, serve as an inspiration for future NHL players of color like Jarome Iginla and Mike Grier.

“I’m in awe knowing what he went through,” Iginla told *USA Today* in 2008. “There is a lot of trash-talking going on [in the game], and I can’t imagine what he must have gone through.”

O’Ree himself has voiced few regrets. He did, after all, defy the odds, and he’ll forever be known as “the Jackie Robinson of hockey.” ■

Thomas J. Whalen is an associate professor of social sciences at Boston University. This article was originally published on **THE CONVERSATION** (theconversation.com).

O’REE SERVED AS AN INSPIRATION FOR FUTURE NHL PLAYERS OF COLOR.

FAMILY TREASURES

HOW TO DOWNSIZE, ORGANIZE,
AND SAFEGUARD YOUR
KEEPSAKES AND COLLECTIONS

BY DENISE MAY LEVENICK

Facing a mountain of memorabilia is always a daunting experience. Still, reducing and protecting your family treasures to create a meaningful archive can be done—and here's how to do it.

KEEP ONLY WHAT'S IMPORTANT

Divide your materials into three categories . . .

- **VITAL** (e.g., photos, letters): These items give key genealogical information about a person, place, or event or confirm or refute family lore.
- **ADDS "COLOR"** (e.g., a brochure about a favorite vacation spot): These artifacts add context and weight to your family history.
- **NOT ARCHIVAL** (e.g., receipts, bill stubs): If something doesn't add personal information, it's probably not worth saving. If it interests only you or perhaps your insurance company, keep it outside the archive.

TIP: *Put items into a box and see if other family members want anything. If they don't, you may feel easier about tossing things.*

PRESERVE AND PROTECT PAPER

PRESERVE: Sort these items by associated family member, surname, size, or type (e.g., vital records, military papers, school memorabilia).

- Carefully remove staples, paper clips, or other metal; twine; rubber bands; and other types of fasteners.
- Unfold letters for flat storage. Leave brittle ones folded. Keep notes and mail with their envelopes; keep correspondence collections together.
- Scan or photocopy onto acid-free paper any newspaper clippings enclosed with letters and keep with letters. Keep originals separately, if still needed.

PROTECT: Store in archival-quality file folders or paper sleeves, which can then be stored flat in archival storage



GENEALOGY

boxes or upright in hanging folders (don't allow papers to slump). Label each folder with the date and the name of the family or individuals associated with its document. Consider first scanning each document to enable easier sharing.

TIP: *To make items easier to find, number the folders and keep a list of the contents in each one.*

PHOTOS

PRESERVE: Organize by family, date, subject, event, place, photographer (e.g., photos Mom took), or size or type of image. Store in close-fitting individual photo storage envelopes or sleeves inside an archival box.

PROTECT: Keep prints in snug-fitting sleeves or envelopes (to prevent slid-



ing and scratching) made of archival-grade paper or clear plastic and stacked carefully in boxes. Store rare prints vertically in boxed sleeves. Faded color prints can be scanned and digitally restored before being kept in a cool, dry place.

TIP: *The cooler your photos are kept, the longer they will last, but don't refrigerate them or put them in the basement, as humidity is harmful. An interior closet shelf is best; check the collection regularly for pests.*

CATALOG YOUR KEEPSAKES

Keep an inventory of your family artifacts, including details such as . . .

- how it came into your possession
- who owned it originally
- when it was made
- any family stories associated with it

Make at least two copies of your inventory and any pictures of heirlooms, one each for your genealogical files and to keep with your important papers.

TIP: *You may also want to catalog missing heirlooms and/or ones that aren't in your possession. To download a free Heirloom Inventory and History form, go to Familytreemagazine.com/heirloom_history.* -Sharon DeBartolo Carmack

MAKE HOMES FOR HEIRLOOMS

Be sure to take precautions against pests and extreme temperatures and humidity. Always wash your hands before touching items and remove rings and bracelets to avoid nicking or snagging them. Here's how to store various artifacts . . .

- **ART:** Rotate displays of valuable pieces (6 months out, 6 months stored) to prevent overexposure to light, dust, and other environmental elements.
- **CHINA AND COLLECTIBLES:** Wrap in acid-free, lignin-free tissue, not newsprint. Keep breakables in sturdy, crush-resistant archival boxes.
- **FURNITURE:** Use a clean, slightly damp cloth instead of furniture polish and keep pieces out of direct sunlight.

- **MUSICAL INSTRUMENTS:** Use a soft cloth to remove dust and, if possible, regularly play an instrument to best monitor its function and repair needs.
- **QUILTS AND SAMPLERS:** Cushion and protect the surface(s) of large fabric items with archival tissue and roll them around an archival tube to avoid creases. Then roll a slightly wider piece of clean, washed muslin one and a half times around the artifact to form a protective outer layer and tuck the ends of the muslin into the ends of the tube. Gently tie cotton twill tape or muslin strips around the roll to secure.
- **CLOTHING:** Store laundered or dry-cleaned items such as wedding dresses and military uniforms on wooden hangers wrapped in polyester quilt batting covered with a muslin sleeve. Stuff archival tissue into sleeves and legs for support and place the garment in a muslin (not plastic or vinyl) garment bag.
- **MILITARY INSIGNIA, SCOUTING MEMORABILIA:** Protect with unbleached muslin or acid-free tissue and store in archival boxes.

TIP: *Display out of direct sun and against a backing of cotton, not wool, which contains medal-damaging sulfur.*



Photo: PattieS/Getty Images

VALUE JUDGMENTS

How much are your items worth? Here are some different types of value:

- **Monetary value:** This is the price that an item would bring on the open market, or its fair market value.
- **Artistic value:** In general, the artist, school of art, or subject matter must already be famous for an artwork to have artistic value.
- **Historical and cultural value:** This is determined by events, people, and places associated with an item, which may or may not lend it monetary value. Purchase of an item by a museum could establish a monetary value.
- **Intrinsic value:** This is often different from monetary value. To your family, Grandma's candy dish might be worth \$200, but an appraiser might value it at only \$50 (its fair market or insurance value, as well as the tax deduction amount that might be taken if it were donated to a qualified charity).
- **Sentimental value:** This can be "priceless." In this case, the memories associated with an item exceed its monetary value.

Family archives are a wonderful legacy to pass on to future generations. Spending time now to organize and preserve your keepsakes and collections will yield unforgettable returns both now and in the future. ■

Excerpted from the Almanac's sister publication, *Family Tree* magazine. For more about all things genealogical, go to Familytreemagazine.com.

FOOD

(continued from page 70)



KUTIA (WHEAT BERRY PUDDING)

The wheat in this dish represents the staff of life; the honey represents the spirit of Christ.

2 cups wheat berries, rinsed
1 cup melted honey, or less, to taste
1 cup ground poppy seeds
½ cup chopped walnuts, almonds, or pecans

In a bowl, cover the wheat berries with cool water and soak overnight.

Drain wheat berries and put into a saucepan with enough fresh water to cover. Bring to a boil and simmer for 3 to 4 hours, adding water if needed, until wheat is soft. Cool.

In a bowl, combine honey, ground poppy seeds, and walnuts. Add wheat berries and stir well to combine. Do not let the *kutia* stand too long before serving, or it will get watery.

Makes 15 servings.

KOLACHI (BRAIDED BREAD RINGS)

Note that this recipe makes three breads.

1 tablespoon yeast
1 cup plus 1 teaspoon sugar, divided
5 cups lukewarm (105° to 115°F) water, divided
¾ cup (1½ sticks) butter, melted
1 teaspoon salt
6 eggs, beaten, divided
12 to 14 cups all-purpose flour

Grease three 9-inch round pans or pie plates.

In a small bowl, dissolve yeast and 1 teaspoon of sugar in 1 cup of lukewarm water. Let stand for 10 minutes.

In a separate bowl, dissolve 1 cup of sugar in remaining 4 cups of lukewarm water. Stir in butter, salt, five eggs, and yeast mixture. Add flour gradually



and knead until smooth and elastic. The dough should be just a little stiffer than bread dough. Cover and let rise in a warm place until doubled in bulk. Punch down and let rise again.

Divide dough into three equal pieces. Take one of these pieces and divide it into six equal pieces. Roll two pieces to a length of about 30 inches. Put the two lengths side by side. Entwine the two pieces of dough, forming a ropelike twist. Place entwined dough in a circle along the edge of one of the prepared pans, with ends of the dough meeting.

Repeat the process and make two more twists about 24 inches long from the remaining four pieces of dough. Take these two twists and entwine them in the opposite direction, making a double twist. Form the double twist into a circle. Cut ends at an angle and join neatly by pinching the ends together. Place inside the circle of dough already in the pan. There will be a small, empty round space in the middle of the pan; if necessary, put a greased canning jar in the middle to "hold the spot."

Repeat the process to make two more round *kolachi* with remaining two pieces of dough, placing each in one of the prepared pans. Let rise to almost double in bulk. (Be careful not to let the loaves rise too long, or the braiding will lose its definition.)

Preheat oven to 350°F.

Brush *kolachi* with remaining egg and bake for 45 minutes to 1 hour, or until *kolachi* sound hollow when tapped on the bottom. Cool on wire racks.

Makes 3 rings.



BORSCH (BEET SOUP)

Serve with sour rye bread and kolachi.

6 medium beets, peeled and cut into thin strips

1 carrot, peeled and sliced

2 tablespoons fresh lemon juice

½ cup dried white beans

3 tablespoons butter

1 large onion, sliced

1½ cups shredded cabbage

1½ cups tomato soup

2 tablespoons chopped fresh dill
sour cream, for topping (optional)

In a pot, combine beets, carrots, and 2 quarts of water; simmer for 20 minutes. Add lemon juice (this helps to keep the beets red) and stir. Add beans and simmer until tender.

In a separate pan, melt butter over medium heat. Add onions and cook until soft. Add cabbage and ½ cup of water to onions and simmer until cabbage is tender. Stir into beets. Add tomato soup and dill. Bring to a boil. Serve hot, topped with sour cream (if using).

Makes about 10 cups.

(continued)



VARENYKY (FILLED DUMPLINGS)

When filled with prune, plum, or poppy seed, these can be served as part of the dessert course.

3 tablespoons vegetable oil

1 egg

4½ cups all-purpose flour

1 teaspoon salt

½ cup (1 stick) butter, melted

In a bowl, combine oil, egg, and 1½ cups of water. Add flour and salt and mix to make a dough.

On a lightly floured surface, knead dough until smooth and soft. Put into a lightly oiled bowl and cover. Let dough rest for 20 minutes.

Again on a lightly floured surface, roll out dough until it is slightly thinner than a piecrust. Use a cookie cutter or glass to cut out 3-inch rounds.

Put about 1 teaspoon of filling (*recipes at right*) onto each round. Fold over to form a half-circle, then pinch edges together with your fingers to seal.

Bring a pot of water to a boil. Drop *varenyky* into the pot a few at a time. Stir with a wooden spoon to prevent them from sticking to the pot. (They'll float to the top when cooked, which

can take from a few minutes up to 10 minutes.) Remove with a slotted spoon to a colander and drain thoroughly.

Place in a deep dish, sprinkle generously with melted butter, and toss gently to coat to prevent them from sticking together.

Makes about 80 dumplings.

POTATO AND CHEESE FILLING

Cook 1 chopped onion in ¼ cup (½ stick) of butter. In a bowl, combine onions, ½ teaspoon salt, ¼ teaspoon freshly ground black pepper, 1 cup grated cheddar cheese, and 3 cups mashed potatoes and stir well to incorporate. Cool thoroughly before using.

SAUERKRAUT FILLING

Cook 1 quart of sauerkraut for about 20 minutes, or until done. Drain, press out all water, and chop fine. Cook 1 chopped onion in ¼ cup of oil until golden. Add sauerkraut, ½ teaspoon salt, and ¼ teaspoon freshly ground black pepper and fry for 10 minutes. Cool thoroughly before using.

PRUNE OR PLUM FILLING

Simmer 1 cup of fruit in ½ cup of water in a covered pot for 20 minutes. Drain and cool. Remove stones and chop fine. Add 2 tablespoons sugar, or to taste, and mix well before using.

POPPY-SEED FILLING

In a pot over medium heat, combine 1 cup poppy seeds in enough milk to cover. Scald for 2 to 3 minutes. Drain off most of the milk. In a blender or food processor, purée poppy seeds and remaining milk. Add 1 egg yolk and 2 tablespoons sugar and blend well. Cool thoroughly before using. ■

PRODUCE WEIGHTS AND MEASURES

VEGETABLES

ASPARAGUS: 1 pound = 3 cups chopped

BEANS (STRING): 1 pound = 4 cups chopped

BEETS: 1 pound (5 medium) = 2½ cups chopped

BROCCOLI: 1 pound = 6 cups chopped

CABBAGE: 1 pound = 4½ cups shredded

CARROTS: 1 pound = 3½ cups sliced or grated

CELERY: 1 pound = 4 cups chopped

CUCUMBERS: 1 pound (2 medium) = 4 cups sliced

EGGPLANT: 1 pound = 4 cups chopped = 2 cups cooked

GARLIC: 1 clove = 1 teaspoon chopped

LEEKS: 1 pound = 4 cups chopped = 2 cups cooked

MUSHROOMS: 1 pound = 5 to 6 cups sliced = 2 cups cooked

ONIONS: 1 pound = 4 cups sliced = 2 cups cooked

PARSNIPS: 1 pound = 1½ cups cooked, puréed

PEAS: 1 pound whole = 1 to 1½ cups shelled

POTATOES: 1 pound (3 medium) sliced = 2 cups mashed

PUMPKIN: 1 pound = 4 cups chopped = 2 cups cooked and drained

SPINACH: 1 pound = ¾ to 1 cup cooked

SQUASHES (SUMMER): 1 pound = 4 cups grated = 2 cups sliced and cooked

SQUASHES (WINTER): 2 pounds = 2½ cups cooked, puréed

SWEET POTATOES: 1 pound = 4 cups grated = 1 cup cooked, puréed

SWISS CHARD: 1 pound = 5 to 6 cups packed leaves = 1 to 1½ cups cooked

TOMATOES: 1 pound (3 or 4 medium) = 1½ cups seeded pulp

TURNIPS: 1 pound = 4 cups chopped = 2 cups cooked, mashed

FRUIT

APPLES: 1 pound (3 or 4 medium) = 3 cups sliced

BANANAS: 1 pound (3 or 4 medium) = 1¾ cups mashed

BERRIES: 1 quart = 3½ cups

DATES: 1 pound = 2½ cups pitted

LEMON: 1 whole = 1 to 3 tablespoons juice; 1 to 1½ teaspoons grated zest

LIME: 1 whole = 1½ to 2 tablespoons juice

ORANGE: 1 medium = 6 to 8 tablespoons juice; 2 to 3 tablespoons grated zest

PEACHES: 1 pound (4 medium) = 3 cups sliced


PEARS: 1 pound (4 medium) = 2 cups sliced

RHUBARB: 1 pound = 2 cups cooked

STRAWBERRIES: 1 quart = 4 cups sliced

SAVE THOSE SEEDS!

BY BROOK ELLIOTT



TO OWN A BIT OF GROUND, TO SCRATCH IT WITH A HOE,
TO PLANT SEEDS, AND WATCH THEIR RENEWAL OF LIFE—
THIS IS THE COMMONEST DELIGHT OF THE RACE,
THE MOST SATISFACTORY THING A MAN CAN DO.

—CHARLES DUDLEY WARNER,
AMERICAN WRITER (1829–1900)

Gardeners tend to be a practical lot, and saving seeds from one year to another makes good sense for three reasons:

First, saving seeds assures that you'll always have seeds of a favorite variety. Just because you've ordered a special seed variety from a vendor in the past doesn't mean that it will always be available.

Second, saving seeds is cost-effective. Why spend money to buy seeds that you can harvest from your own plants? Just be realistic. Continue buying seeds for biennials, such as cabbages, but save seeds from annual vegetables such as tomatoes, peppers, and beans.

Finally, saving seeds enables you to trade seeds with neighbors as well as other gardeners on social media. Many vegetable varieties being grown today have no commercial sources. If you'd like to try them, you have to trade seeds that you have for seeds that you want.



NOT EVERY SEED IS A KEEPER

Before you invest a year or so of your time in growing plants for seeds, make sure that your plants' seeds are worthy of being saved. Save seeds only from open-pollinated or heirloom varieties—never from hybrids. An open-pollinated plant is one whose offspring will replicate their parents—that is, its seeds will breed true to type. This is not so with modern hybrids, which are produced by crossing two or more inbred varieties to obtain specific characteristics. If you save seeds from a hybrid, the next generation reverts to a mix of characteristics from the various parents. You won't have the same variety that you originally grew.

For successful seed-saving, you must assure seed purity. This means that plants that readily crossbreed among their own varieties (such as cucumbers, peppers, melons, and squashes) need to be isolated from other varieties of that particular vegetable by distance, caging, bagging, or other means. If you're a beginner, you can make life simpler by growing just one variety of these at a time.

NOT EVERY VEGETABLE IS WORTH SAVING

Most home gardeners do not have the space required to save seeds from biennials, such as beets, cabbages, carrots, cauliflower, onions, and turnips. To do so, you have to harvest the vegetable with the root when it's ripe, store it over the winter in a root cellar, and replant the whole vegetable in the following spring.

WHEN IS A SEED RIPE?

The seed is not necessarily “ripe” when the plant is most edible; seeds are ripe when they are viable.

- *Cucumber* seeds are ripe when the cuke turns fully yellow—which is overripe for eating. Harvest it and put it in a safe place for another 20 days.
- *Pepper* seeds are ripe when peppers are at their full color—depending on variety, this could be red, orange, yellow, purple, brown, or black—and

start to shrivel.

- *Tomato* seeds are ripe when tomatoes are firm but tender. If you press them, they have some give—unlike the hard feel of green ones. Like peppers, they will also have reached their full color.
- *Squashes*: Summer squash seeds are ripe when the squash is past the edible point, with a hard rind. Winter squash seeds are ripe when the skin turns hard. Treat

them both the same.

- *Peas* and *beans* are ready when the pods turn brown on the vine and shrink against the seeds.
- *Melons*: Watermelon seeds are ripe when the tendril on the stem closest to the fruit turns from green to brown and becomes dry. Cantaloupe and muskmelon seeds are ripe when the stem turns brown and dries and the melon readily separates from it.

(continued)





SAVING TECHNIQUES

CUCUMBERS AND TOMATOES

Cucumbers and tomatoes have seeds that are coated with a gel containing anti-germination compounds. This gel must be removed through fermentation to successfully save these seeds. Fermentation also kills many seed-borne pathogens, ensuring that you'll have disease-free seeds, but the process produces a bad smell, so don't do it in an enclosed room in the house.

Follow these steps: Squeeze or spoon the seed mass into a waterproof container

such as a clear glass or plastic jar or tub (e.g., a deli container). Add enough water to equal the volume of the seed mass, then put the container in a warm spot out of direct sunlight. Stir the contents at least once a day.

In a couple of days, the fermentation process will have started. Viable seeds will sink to the bottom; bad seeds, debris from the seed mass, and a white mold will float on the surface of the liquid. When all of the good seeds have dropped (allow about 5 days), rinse away

the gunk on top. Wash the seeds in several changes of water and lay them out in a single layer on a plate or screen. Put the plate in a warm place until the seeds are fully dry; this can take several weeks.

PEPPERS

Cut peppers open to find the seeds in a mass on the central stem. Brush them off the stem onto a plate or screen and put them aside to dry.

SQUASHES

When squashes are ready, break them open and remove the

seeds. Hold the seeds under running water, rubbing them between your fingers to remove any stringy material and membrane. Then lay them out on a plate or screen to dry.

PEAS AND BEANS

Pick the brown pods from the vines and remove the seeds; these will usually require additional air-drying. One way to do this is to put them in loosely woven baskets and stir them once a day. Typically, it takes about 6 weeks of air-

drying for the seeds to be fully dry. If frost or other inclement weather threatens legumes that are ripe but not dry, pull up the vines by the roots and hang the plants upside down in a warm area—a basement, garage, outbuilding, or barn. The pods will draw energy from the plants for another few days, which will increase the seeds' viability.

OTHER PODS

Radishes, lettuce, and Chinese greens also

produce seeds in pods after the plant has flowered. With these vegetables, it is best to let the pods dry on the plant. Note, however, that these plants tend to dry from the bottom up, a few pods at a time. The dry ones are prone to shattering and spreading their seeds all over the ground, so either bag the seed heads (literally cover the plant with a paper bag tied at the base to capture the seeds) or pick the dry pods on a daily basis. Instead of a paper



bag, consider covering the plant with row-cover material, which will allow you to watch the seed heads.

MELONS

To save watermelon seeds, rinse the seeds under running water to remove any traces

of flesh or membrane. Cantaloupe and muskmelon seeds are more likely to have fibers, membrane, and flesh attached to them. Wash this off, rubbing the seeds between your fingers to remove as much of the debris as you can. Then

put the seeds into a container of water. The good seeds will sink to the bottom; the hollow seeds and remaining debris will float. Remove the floaters, give the good seeds another rinse, and then dry them on a plate or screen.



WHEN IS A SEED DRY?

Proper drying is key to the viability of saved seeds. To test whether seeds are fully dry, squeeze one with pliers or hit it with a hammer. If it's dry, it will shatter. If it can be crushed or feels soft or spongy, continue to air-dry the seeds before storing them. (Test samples from each vegetable or fruit type; drying times vary.)

STORING SEEDS

When each seed variety is completely dry, store its seeds in air-tight containers in a cool, dry area. For large seeds, such as those of beans, consider jars. For small seeds, such as for peppers and tomatoes, try using pill bottles. Stored properly, seeds will remain viable for up to 15 years, depending on type. You can extend their viability by freezing them.

When planning your garden, remember to include some heirloom varieties so that you'll have some seeds to save. ■

HOW WE PREDICT THE WEATHER

We derive our weather forecasts from a secret formula that was devised by the founder of this Almanac, Robert B. Thomas, in 1792. Thomas believed that weather on Earth was influenced by sunspots, which are magnetic storms on the surface of the Sun.

Over the years, we have refined and enhanced this formula with state-of-the-art technology and modern scientific calculations. We employ three scientific disciplines to make our long-range predictions: solar science, the study of sunspots and other solar activity; climatology, the study of prevailing weather patterns; and meteorology, the study of the atmosphere. We predict weather trends and events by comparing solar patterns and historical weather conditions with current solar activity.

Our forecasts emphasize temperature and precipitation deviations from averages, or normals. These are based on 30-year statistical av-

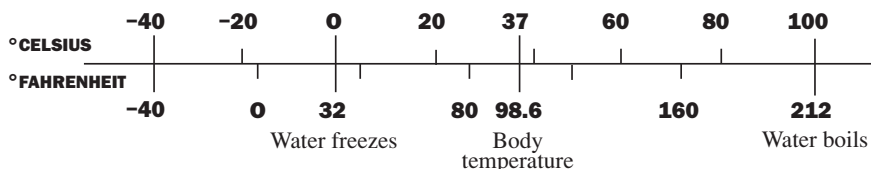
erages prepared by government meteorological agencies and updated every 10 years. Our forecasts are based on the tabulations that span the period 1981 through 2010.

The borders of the provincial weather regions (**page 210**) are based primarily on climatology and the movement of weather systems. For example, while both Ottawa and Toronto are in Ontario, we place Ottawa in Region 2 rather than Region 3 (Toronto) because its weather trends more closely resemble those of other locales in Region 2.

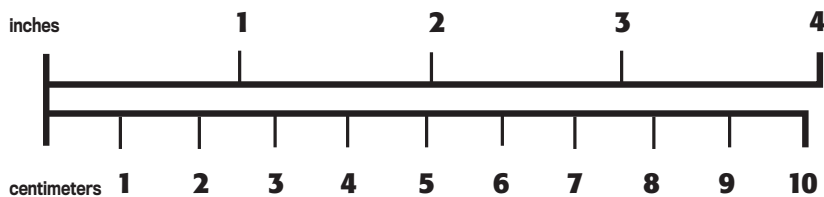
We believe that nothing in the universe happens haphazardly, that there is a cause-and-effect pattern to all phenomena.

However, although neither we nor any other forecasters have as yet gained sufficient insight into the mysteries of the universe to predict the weather with total accuracy, our results are almost always very close to our traditional claim of 80%.

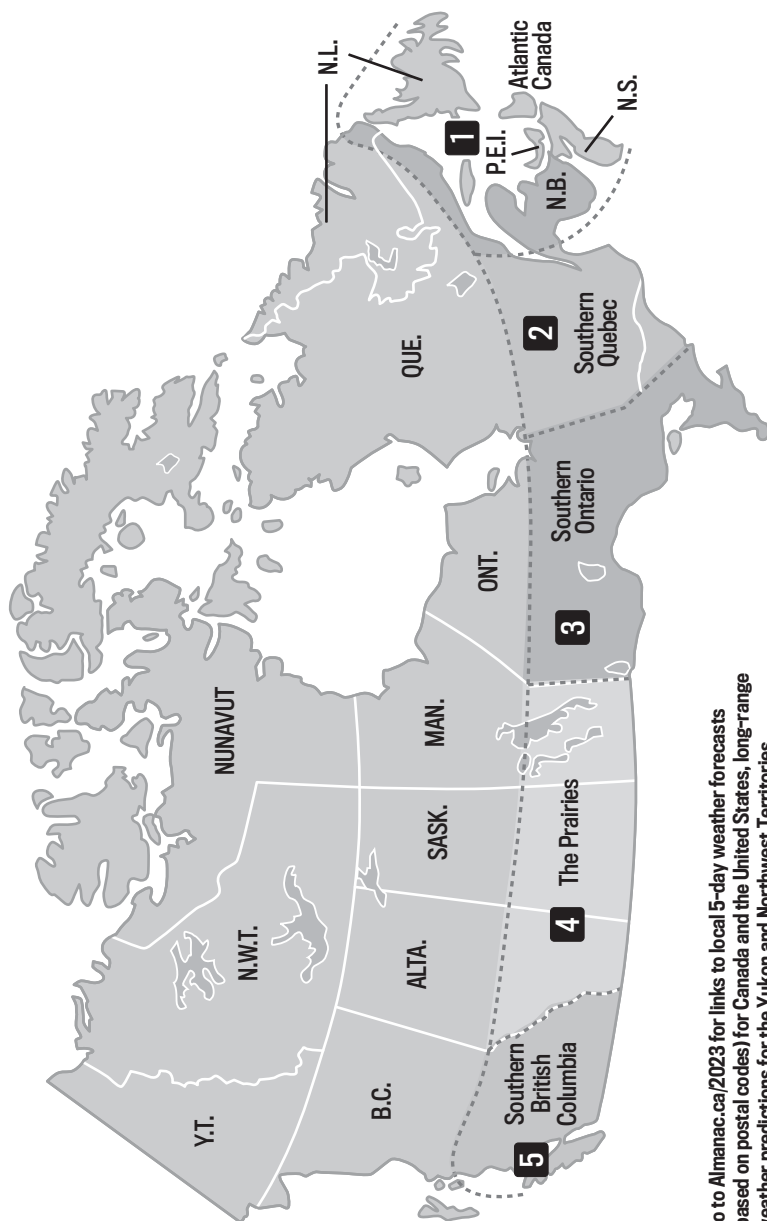
CONVERT FAHRENHEIT TO CELSIUS



CONVERT INCHES TO CENTIMETERS



WEATHER REGIONS



Go to Almanac.ca/2023 for links to local 5-day weather forecasts (based on postal codes) for Canada and the United States, long-range weather predictions for the Yukon and Northwest Territories and the United States, and weather history.

ATLANTIC CANADA

SUMMARY: Winter temperatures will be above normal, with the coldest periods in early December and early January. Precipitation and snowfall will be above normal, with the snowiest periods in late November, mid-January, and early and late February. **April** and **May** temperatures will be near normal, while precipitation will be above normal in the north and below south. **Summer** will be warmer and drier than normal, with the hottest periods in early and mid-June in the north and early August everywhere. Watch for a hurricane threat in late August. **September** and **October** will be cooler and slightly drier than normal.



NOV. 2022: Temp. 5°C (2°C above avg.); precip. 125mm (15mm below avg.). 1-9 A few showers, turning mild. 10-13 Rainy periods, mild. 14-22 Sunny, then rain and snow showers; chilly. 23-30 Sunny, then a snowstorm; turning cold.

DEC. 2022: Temp. -3°C (avg.); precip. 205mm (75mm above avg.). 1-8 Periods of rain and snow, some heavy; turning frigid. 9-14 Rain and snow north, flurries south; mild. 15-26 Rainy periods, then snow; mild. 27-31 Rain and snow north, flurries south; turning cold.

JAN. 2023: Temp. -5°C (1°C above avg.); precip. 210mm (30mm above avg. north, 150mm above south). 1-5 Sunny, then rain; cold, then mild. 6-9 Flurries north, snowstorm south; cold. 10-11 Sunny, mild. 12-15 Snowstorm. 16-22 Sunny, then rain and snow, some heavy. 23-31 Snowy, then sunny; turning cold.

FEB. 2023: Temp. -4.5°C (1°C above avg.); precip. 95mm (20mm above avg. north, 30mm below south). 1-6 Snowstorm, then sunny; mild north, cold south. 7-13 A few snow showers, mild. 14-19 Snow showers north, sunny south; mild. 20-24 Snow showers, mild. 25-28 Snowstorm.

MAR. 2023: Temp. -2°C (avg.); precip. 135mm (15mm below avg.). 1-4 Sunny, cold. 5-8 Snowstorm north, flurries south; cold. 9-14 Rain to snow; mild, then cold. 15-23 Rain and snow showers, turning mild. 24-31 Periods of rain and snow, chilly.

APR. 2023: Temp. 3°C (1°C below avg.); precip. 120mm (50mm above avg. north, 30mm below south). 1-5 Rain and snow showers north, sunny south; cool. 6-9 Snowstorm north, snow showers south; cold. 10-16

Sunny, then rainy; cool. 17-30 Periods of rain and snow east, sunny west; chilly.

MAY 2023: Temp. 10.5°C (1°C above avg.); precip. 85mm (25mm below avg.). 1-6 Sunny, then rainy; turning warm. 7-15 Sunny, then a few showers; turning cool. 16-24 A few showers, cool north; sunny, mild south. 25-31 Rainy periods, cool.

JUNE 2023: Temp. 15.5°C (1°C above avg.); precip. 85mm (15mm below avg.). 1-4 Rainy periods, some heavy; cool. 5-9 A few showers; very warm north, cool south. 10-15 Sunny, turning warm. 16-26 Scattered showers; very warm north, cool south. 27-30 Showers, cool north; sunny, warm south.

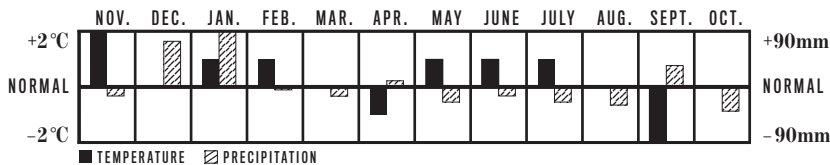
JULY 2023: Temp. 19°C (1°C above avg.); precip. 70mm (25mm below avg.). 1-10 Isolated showers; warm north, cool south. 11-16 Showers, warm. 17-22 A few showers, then sunny; cool. 23-31 Scattered showers, turning warm.

AUG. 2023: Temp. 18°C (avg.); precip. 60mm (30mm below avg.). 1-13 A few showers, warm. 14-21 Scattered showers north, sunny south; turning cool. 22-28 Isolated showers, turning warm. 29-31 Hurricane threat.

SEPT. 2023: Temp. 12°C (2°C below avg.); precip. 140mm (35mm above avg.). 1-6 Rain, some heavy; chilly. 7-16 Showers, cool. 17-23 Scattered showers, turning mild. 24-30 Rainy periods, cool.

OCT. 2023: Temp. 8.5°C (avg.); precip. 80mm (40mm below avg.). 1-6 Showers north, sunny south; cool. 7-10 Rainy periods, turning cool. 11-16 Showers north, sunny south; cool. 17-23 A few showers, turning mild. 24-31 Sunny; cool, then mild.

WEATHER



SOUTHERN QUEBEC



SUMMARY: Winter temperatures will be slightly above normal in the east and below normal in the west, with the coldest periods in early and late December and early and late January. Precipitation and snowfall will be above normal. The snowiest periods will be in late November, early to mid-December, early to mid-January, and mid-March. **April** and **May** will be warmer and drier than normal.

Summer will be warmer and drier than normal, on average, with the hottest periods in mid-July and early August. **September** and **October** temperatures will be near normal, on average, with below-normal rainfall.

NOV. 2022: Temp. 2°C (1°C above avg.); precip. 105mm (20mm above avg.). 1-5 A few showers, mild. 6-12 Periods of rain and snow, turning mild. 13-19 Rain and snow showers, chilly. 20-26 Snowstorm, then rain and snow showers; cold, then mild. 27-30 Sunny east, snowy west; cold.

DEC. 2022: Temp. -8°C (2°C below avg.); precip. 80mm (avg.). 1-9 Snowstorm, then snow showers; frigid. 10-13 Sunny, mild. 14-20 Snowstorm, then rain and snow showers; mild. 21-31 Flurries, cold.

JAN. 2023: Temp. -12.5°C (2°C below avg.); precip. 105mm (30mm above avg.). 1-7 Rain and snow, then sunny; turning cold. 8-11 Flurries, cold. 12-16 Sunny east, snowy periods west; cold. 17-21 Rain and snow, mild. 22-31 Flurries, cold.

FEB. 2023: Temp. -7°C (6°C above avg. east, 2°C below west); precip. 45mm (10mm above avg. east, 40mm below west). 1-7 Snowy periods east, flurries west; cold. 8-13 Sunny, mild east; rain and snow showers west. 14-28 Snow showers, mild east; flurries, cold west.

MAR. 2023: Temp. -5.5°C (2°C below avg.); precip. 85mm (10mm below avg. east, 40mm above west). 1-4 Sunny, cold. 5-8 Snowy, cold east; rainy periods, mild west. 9-19 Sunny, then snowy periods; cold. 20-31 Snowstorm, then rain and snow showers; cold.

APR. 2023: Temp. 4°C (1°C below avg.); precip. 50mm (30mm below avg.). 1-12 Periods of rain and snow, then sunny; chilly. 13-22 Rain and snow, then sunny; turning mild.

23-30 Rain and snow showers east, sunny west; chilly.

MAY 2023: Temp. 16°C (3°C above avg.); precip. 100mm (10mm above avg.). 1-15 Showers, mild. 16-19 Sunny, warm. 20-24 Isolated showers; cool east, warm west. 25-31 Rainy periods, cool.

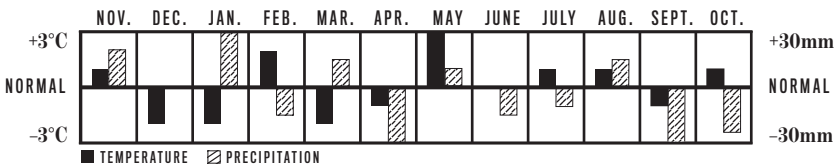
JUNE 2023: Temp. 19°C (avg.); precip. 75mm (15mm below avg.). 1-8 Scattered showers, cool. 9-15 Sunny, then rainy periods; warm. 16-21 Sunny, then showers; mild. 22-30 Sunny, cool.

JULY 2023: Temp. 21°C (1°C above avg.); precip. 85mm (10mm below avg.). 1-6 A few t-storms, then sunny; turning cool. 7-10 Showers, warm. 11-17 Sunny east, a few t-storms west; very warm. 18-31 Sunny, then scattered t-storms; cool.

AUG. 2023: Temp. 20°C (1°C above avg.); precip. 110mm (15mm above avg.). 1-9 Scattered t-storms, warm. 10-16 T-storms, then sunny; turning cool. 17-23 Showers, cool. 24-31 Sunny, then isolated t-storms; cool.

SEPT. 2023: Temp. 13°C (1°C below avg.); precip. 60mm (30mm below avg.). 1-6 Sunny, then showers; chilly. 7-14 A few showers, then sunny; chilly. 15-20 Showers, then sunny; turning cool. 21-30 Showers, turning mild.

OCT. 2023: Temp. 9°C (1°C above avg.); precip. 60mm (25mm below avg.). 1-6 Isolated showers; cool, then mild. 7-15 Rain and snow showers, then sunny; cold. 16-22 A few showers, turning mild. 23-31 Sunny, then a few showers; mild.



QUÉBEC DU SUD

RÉSUMÉ: L'hiver sera légèrement plus chaud que la normale à l'est et plus froid que la normale à l'ouest. Les périodes les plus froides seront le début et la fin décembre et le début et la fin janvier. Les précipitations et les chutes de neige seront plus fréquentes que la normale. Les périodes les plus neigeuses seront la fin novembre, le début à la mi-décembre, le début à la mi-janvier, et la mi-mars. **Avril** et **mai** seront plus chauds et secs que la normale. **L'été** sera plus chaud et sec que la normale, en moyenne, et les périodes les plus chaudes auront lieu mi-juillet et début août. Les températures de **septembre** et **octobre** seront proches de la normale, en moyenne, et les précipitations au-dessous de la normale.

NOV. 2022: Temp. 2°C (1°C au-dessus de la moy.); précip. 105mm (20mm au-dessus de la moy.). 1-5 Quelques averses; doux. 6-12 Périodes pluvieuses et neigeuses; devenant doux. 13-19 Pluie et chutes de neige; très frais. 20-26 Tempêtes de neige, puis pluie et chutes de neige; froid, puis doux. 27-30 Ensoleillé à l'est, chutes de neige à l'ouest; froid.

DÉC. 2022: Temp. -8°C (2°C au-dessous de la moy.); précip. 80mm (moy.). 1-9 Tempêtes de neige, puis chutes de neige; glacial. 10-13 Ensoleillé; doux. 14-20 Tempêtes de neige, puis pluie et chutes de neige; doux. 21-31 Rafales; froid.

JAN. 2023: Temp. -12,5°C (2°C au-dessous de la moy.); précip. 105mm (30mm au-dessus de la moy.). 1-7 Pluie et neige, puis ensoleillé; devenant froid. 8-11 Rafales; froid. 12-16 Ensoleillé à l'est, périodes de neige à l'ouest; froid. 17-21 Pluie et neige; doux. 22-31 Rafales; froid.

FÉVR. 2023: Temp. -7°C (6°C au-dessus de la moy. à l'est, 2°C au-dessous à l'ouest); précip. 45mm (10mm au-dessus de la moy. à l'est, 40mm au-dessous à l'ouest). 1-7 Périodes de neige à l'est, rafales à l'ouest; froid. 8-13 Ensoleillé et doux à l'est; pluie et chutes de neige à l'ouest. 14-28 Chutes de neige et doux à l'est; rafales et froid à l'ouest.

MARS 2023: Temp. -5,5°C (2°C au-dessous de la moy.); précip. 85mm (10mm au-dessous de la moy. à l'est, 40mm au-dessus à l'ouest). 1-4 Ensoleillé; froid. 5-8 Neige et froid à l'est; périodes pluvieuses et doux à l'ouest. 9-19 Ensoleillé, puis périodes de neige; froid. 20-31 Tempêtes de neige, puis pluie et chutes de neige; froid.

AVR. 2023: Temp. 4°C (1°C au-dessous de la moy.); précip. 50mm (30mm au-dessous de la moy.). 1-12 Périodes pluvieuses et neigeuses, puis ensoleillé; très frais. 13-22 Pluie et neige, puis ensoleillé; devenant doux.

23-30 Pluie et chutes de neige à l'est, ensoleillé à l'ouest; très frais.

MAI 2023: Temp. 16°C (3°C au-dessus de la moy.); précip. 100mm (10mm au-dessus de la moy.). 1-15 Averses; doux. 16-19 Ensoleillé; chaud. 20-24 Averses isolées; frais à l'est, chaud à l'ouest. 25-31 Périodes pluvieuses; frais.

JUIN 2023: Temp. 19°C (moy.); précip. 75mm (15mm au-dessous de la moy.). 1-8 Averses éparées; frais. 9-15 Ensoleillé, puis périodes pluvieuses; chaud. 16-21 Ensoleillé, puis averses; doux. 22-30 Ensoleillé; frais.

JUIL. 2023: Temp. 21°C (1°C au-dessus de la moy.); précip. 85mm (10mm au-dessus de la moy.). 1-6 Quelques orages, puis ensoleillé; devenant frais. 7-10 Averses; chaud. 11-17 Ensoleillé à l'est, quelques orages à l'ouest; très chaud. 18-31 Ensoleillé, puis orages éparés; frais.

AOÛT 2023: Temp. 20°C (1°C au-dessus de la moy.); précip. 110mm (15mm au-dessus de la moy.). 1-9 Orages éparés; chaud. 10-16 Orages, puis ensoleillé; devenant frais. 17-23 Averses; frais. 24-31 Ensoleillé, puis orages isolés; frais.

SEPT. 2023: Temp. 13°C (1°C au-dessous de la moy.); précip. 60mm (30mm au-dessous de la moy.). 1-6 Ensoleillé, puis averses; très frais. 7-14 Quelques averses, puis ensoleillé; très frais. 15-20 Averses, puis ensoleillé; devenant frais. 21-30 Averses; devenant doux.

OCT. 2023: Temp. 9°C (1°C au-dessus de la moy.); précip. 60mm (25mm au-dessous de la moy.). 1-6 Averses isolées; frais, puis doux. 7-15 Averses et chutes de neige, puis ensoleillé; froid. 16-22 Quelques averses; devenant doux. 23-31 Ensoleillé, puis quelques averses; doux.

SOUTHERN ONTARIO



SUMMARY: Winter will be colder than normal, with above-normal precipitation and snowfall. The coldest periods will be in mid- and late November, early and late December, early and late January, and late February. The snowiest periods will be in late November, early December, and mid-January. On average, **April** and **May** temperatures will be near normal, with slightly above-normal precipitation. **Summer** temperatures

will be slightly above normal. Rainfall will be above normal. The hottest periods will be in mid-July and early August. On average, **September** and **October** will be slightly warmer than normal, with rainfall above normal in the east and below normal in the west.

WEATHER

NOV. 2022: Temp. 2°C (avg.); precip. 100mm (25mm above avg.). 1-4 Rainy periods, mixed with snow north; mild. 5-8 Flurries, cold. 9-14 Periods of rain and snow, mild. 15-22 Snowy periods, cold. 23-25 Rain and snow, mild. 26-30 Snowy, cold.

DEC. 2022: Temp. -6°C (2°C below avg.); precip. 110mm (50mm above avg.). 1-6 Snowy periods, some heavy; bitter cold. 7-15 Periods of rain and snow, mild. 16-25 Snow showers, turning cold. 26-31 Snowy periods, cold.

JAN. 2023: Temp. -10°C (3°C below avg.); precip. 90mm (10mm above avg. north, 50mm above south). 1-8 Snowy periods, cold. 9-17 Sunny north, snowy periods south; cold. 18-21 Snow, mixed with rain; mild. 22-31 Sunny, then snowy periods; very cold.

FEB. 2023: Temp. -7°C (avg. north, 4°C below south); precip. 35mm (25mm below avg.). 1-8 Flurries, mild north; sunny, cold south. 9-16 Periods of snow and rain, cold. 17-24 Flurries, cold. 25-28 Sunny north, rain and snow showers south; cold.

MAR. 2023: Temp. -10°C (1°C below avg.); precip. 65mm (10mm above avg.). 1-6 Rain and snow showers, turning mild. 7-10 Snowstorm north, rain and snow south; cold. 11-16 Snowy north, rainy south; turning mild. 17-24 Sunny north, rain and snow showers south; cold. 25-31 Rain and snow showers, turning mild.

APR. 2023: Temp. 5°C (2°C below avg.); precip. 40mm (25mm below avg.). 1-6 Showers, mixed with snow north; cool. 7-12 Sunny, chilly. 13-18 Rain and snow showers east,

sunny west; chilly. 19-26 Sunny; mild, then cool. 27-30 Sunny north, showers south; cool.

MAY 2023: Temp. 14.5°C (2°C above avg.); precip. 105mm (30mm above avg.). 1-8 Rainy periods, cool. 9-13 Sunny north, showers south; turning warm. 14-25 Scattered t-storms, turning warm. 26-31 A few showers, cool.

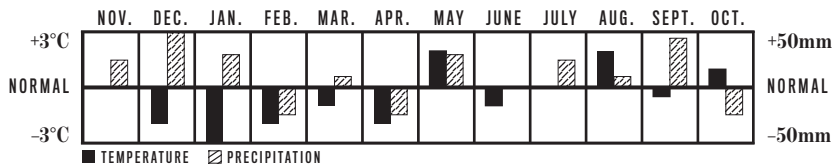
JUNE 2023: Temp. 16.5°C (1°C below avg.); precip. 80mm (avg.). 1-5 A few showers; cool, then warm. 6-14 A few showers, turning mild. 15-21 T-storms, turning warm. 22-30 Sunny, then a few t-storms; warm north, cool south.

JULY 2023: Temp. 21°C (avg.); precip. 105mm (25mm above avg.). 1-6 T-storms, then sunny; turning cool. 7-12 Isolated t-storms, cool. 13-18 T-storms, warm. 19-28 Scattered t-storms, turning cool. 29-31 Sunny, cool.

AUG. 2023: Temp. 22°C (2°C above avg.); precip. 90mm (40mm above avg. north, 20mm below south). 1-6 Isolated t-storms, warm. 7-13 Scattered t-storms, warm. 14-22 Sunny, then t-storms; turning cool. 23-31 Sunny, then a few showers; cool.

SEPT. 2023: Temp. 14.5°C (0.5°C below avg.); precip. 135mm (80mm above avg. east, 10mm above west). 1-15 Rainy periods east, a few showers west; cool. 16-24 Sunny, then rainy periods; cool. 25-30 Showers, turning mild.

OCT. 2023: Temp. 11°C (1°C above avg.); precip. 50mm (25mm below avg.). 1-13 Sunny, then a few showers; cool. 14-26 Scattered showers, then sunny; mild. 27-31 A few showers, mild.



THE PRAIRIES

SUMMARY: Winter will be colder than normal, with above-normal precipitation and near- to below-normal snowfall. The coldest periods will be in mid-November through early December, early and late January, and late February. The snowiest periods will be in late November, mid- and late December, and late January.



April and **May** will be warmer and wetter than normal, on average. **Summer** will be warmer than normal, on average, with the hottest periods in early and late August. Rainfall will be below normal in the east and above normal in the west. **September** and **October** will be warmer than normal, on average, with precipitation slightly below normal in the east and above normal in the west.

NOV. 2022: Temp. -5°C (2°C below avg.); precip. 25mm (10mm above avg.). 1-10 Sunny, turning warm. 11-19 A few snow showers, turning very cold. 20-25 Rain and snow showers; cold, then mild. 26-30 Snowy periods, frigid.

DEC. 2022: Temp. -13°C (4°C below avg.); precip. 50mm (60mm above avg. east, 10mm above west). 1-4 Snow showers, bitter cold. 5-9 Flurries, mild. 10-13 Snowstorm east, flurries west; mild. 14-24 Snow showers, cold. 25-31 Snowy periods, cold.

JAN. 2023: Temp. -20°C (7°C below avg.); precip. 45mm (25mm above avg.). 1-14 Flurries, cold. 15-18 Isolated snow showers, mild. 19-22 Flurries east, snowstorm west; very cold. 23-31 Snow showers, frigid.

FEB. 2023: Temp. -15°C (4°C below avg.); precip. 35mm (20mm above avg.). 1-11 Snow showers, cold. 12-16 Sunny, mild. 17-20 A few snow showers, turning cold. 21-28 Flurries, then sunny; bitter cold.

MAR. 2023: Temp. -1°C (3°C above avg.); precip. 30mm (10mm above avg.). 1-5 Sunny east, rain and snow showers west; mild. 6-17 A few snow showers, then sunny; turning mild. 18-23 Sunny east, rain and snow showers west; mild. 24-31 Snowy periods, cold.

APR. 2023: Temp. 7°C (2°C above avg.); precip. 40mm (20mm below avg. east, 40mm above west). 1-4 Sunny, mild. 5-17 Periods of rain and snow, chilly. 18-20 Sunny, turning mild. 21-30 Rainy periods, mild.

MAY 2023: Temp. 13°C (2°C above avg.); precip. 90mm (40mm above avg.). 1-6 Showers, cool. 7-16 Rainy periods, then sunny; turning warm. 17-25 Periods of rain, cool. 26-31 Sunny, then showers; warm.

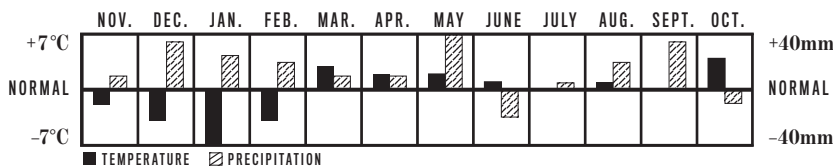
JUNE 2023: Temp. 16.5°C (1°C above avg.); precip. 60mm (20mm below avg.). 1-6 A few showers, cool. 7-13 Showers; mild east, cool west. 14-20 A few t-storms; warm east, cool west. 21-30 Scattered t-storms; warm, then cool.

JULY 2023: Temp. 18.5°C (avg.); precip. 80mm (25mm below avg. east, 35mm above west). 1-5 Rainy periods, cool. 6-18 Sunny, then scattered t-storms; turning mild. 19-21 Isolated t-storms, warm. 22-31 Sunny east, a few t-storms west; cool.

AUG. 2023: Temp. 18°C (1°C above avg.); precip. 80mm (20mm above avg.). 1-5 Sunny, warm. 6-11 Rainy periods, some heavy; cool. 12-19 Some t-storms, cool. 20-25 Sunny, cool. 26-31 Isolated t-storms, very warm.

SEPT. 2023: Temp. 11°C (avg.); precip. 80mm (avg. east, 70mm above west). 1-13 Rainy periods, cool. 14-25 Sunny, then a few showers; turning warm. 26-30 Isolated showers, then sunny; cool.

OCT. 2023: Temp. 10°C (4°C above avg.); precip. 15mm (10mm below avg.). 1-9 Isolated showers, mild. 10-14 Sunny, then a few showers; warm. 15-19 Scattered showers; cool, then mild. 20-28 Sunny, turning mild. 29-31 A few showers, mild.



SOUTHERN BRITISH COLUMBIA



SUMMARY: Winter will be colder than normal in the north and warmer in the south, with the coldest periods in mid- and late November and throughout most of December. Precipitation will be above normal, on average, with snowfall below normal in the north and above normal in the south. The snowiest periods will be in late November, early and late December, and late January. **April** and **May** will feature near-normal temperatures, with precipitation above normal in the

northeast and below normal in the southwest. **Summer** will be warmer and rainier than normal, on average, with the warmest periods in mid-July and early August. **September** and **October** will be warmer and wetter than normal, on average.

WEATHER

NOV. 2022: Temp. 4°C (1°C below avg.); precip. 190mm (40mm above avg.). 1-10 Rain and snow showers north, rainy periods south; mild. 11-16 Sunny, quite cold. 17-25 Rainy periods coast, rain and snow showers inland; very cold, then mild. 26-30 Periods of rain and snow, turning cold.

DEC. 2022: Temp. -2°C (7°C below avg. north, 1°C below south); precip. 155mm (25mm above avg. east, 15mm below west). 1-13 Sunny, then periods of rain and snow; very cold, then mild. 14-21 Sunny coast, flurries inland; cold. 22-27 Snow showers, frigid. 28-31 Snowy, cold.

JAN. 2023: Temp. 1°C (avg.); precip. 195mm (5mm below avg.). 1-8 Rainy periods coast, snow showers inland; cold. 9-15 Sunny north, showers south; mild. 16-22 Showers coast, snowy periods inland; mild. 23-31 Sunny, then periods of rain and snow; cold, then mild.

FEB. 2023: Temp. 1°C (1°C above avg.); precip. 115mm (25mm below avg.). 1-10 Flurries north; rainy periods, then sunny south; turning cold. 11-17 Showers, mild. 18-28 A few showers coast, sunny inland; cold.

MAR. 2023: Temp. 6°C (2°C above avg.); precip. 135mm (15mm above avg.). 1-11 Rain and snow showers north, showers south; chilly. 12-16 A few showers north, sunny south. 17-31 Rainy periods, mixed with snow inland; mild.

APR. 2023: Temp. 8°C (avg.); precip. 115mm (35mm above avg. east, 5mm below west). 1-5 Sunny, then a few showers; mild. 6-14 Sunny north, rainy periods south; turning

mild. 15-22 Showers; cool, then warm. 23-30 Rainy periods, cool.

MAY 2023: Temp. 12°C (avg.); precip. 120mm (60mm above avg. north, avg. south). 1-9 Rainy periods, cool. 10-15 A few showers north, sunny south; mild. 16-23 A few showers, chilly. 24-31 Sunny, turning warm.

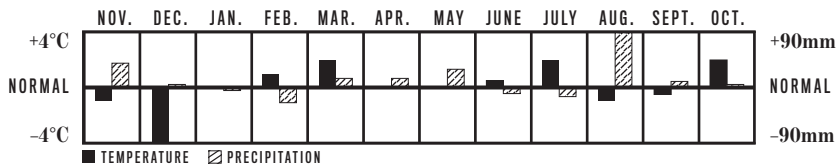
JUNE 2023: Temp. 15.5°C (0.5°C above avg.); precip. 70mm (10mm below avg.). 1-9 Sunny, then showers; turning cool. 10-15 A few showers north, sunny south; cool. 16-23 Scattered showers, turning mild. 24-30 A few showers, warm east; sunny, cool west.

JULY 2023: Temp. 19°C (2°C above avg.); precip. 35mm (15mm below avg.). 1-7 Rainy periods north, isolated showers south; cool. 8-19 Sunny coast, isolated showers north; turning warm. 20-31 Isolated showers, mild.

AUG. 2023: Temp. 16°C (1°C below avg.); precip. 140mm (90mm above avg.). 1-3 Sunny, warm. 4-13 Rainy periods, cool. 14-22 Showers, cool. 23-31 Rainy periods, mild, then cool.

SEPT. 2023: Temp. 13.5°C (0.5°C below avg.); precip. 70mm (10mm above avg.). 1-10 Rainy periods, cool. 11-17 Sunny, then showers; cool. 18-24 Sunny, then a few showers; cool north, mild south. 25-30 Isolated showers; mild north, cool south.

OCT. 2023: Temp. 11°C (2°C above avg.); precip. 105mm (5mm above avg.). 1-5 A few showers, mild. 6-10 Isolated showers, mild north; sunny, cool south. 11-23 Rain at times, turning cool. 24-31 Sunny, then rainy; mild north, cool south.



WEATHER

WEATHER PHOBIAS

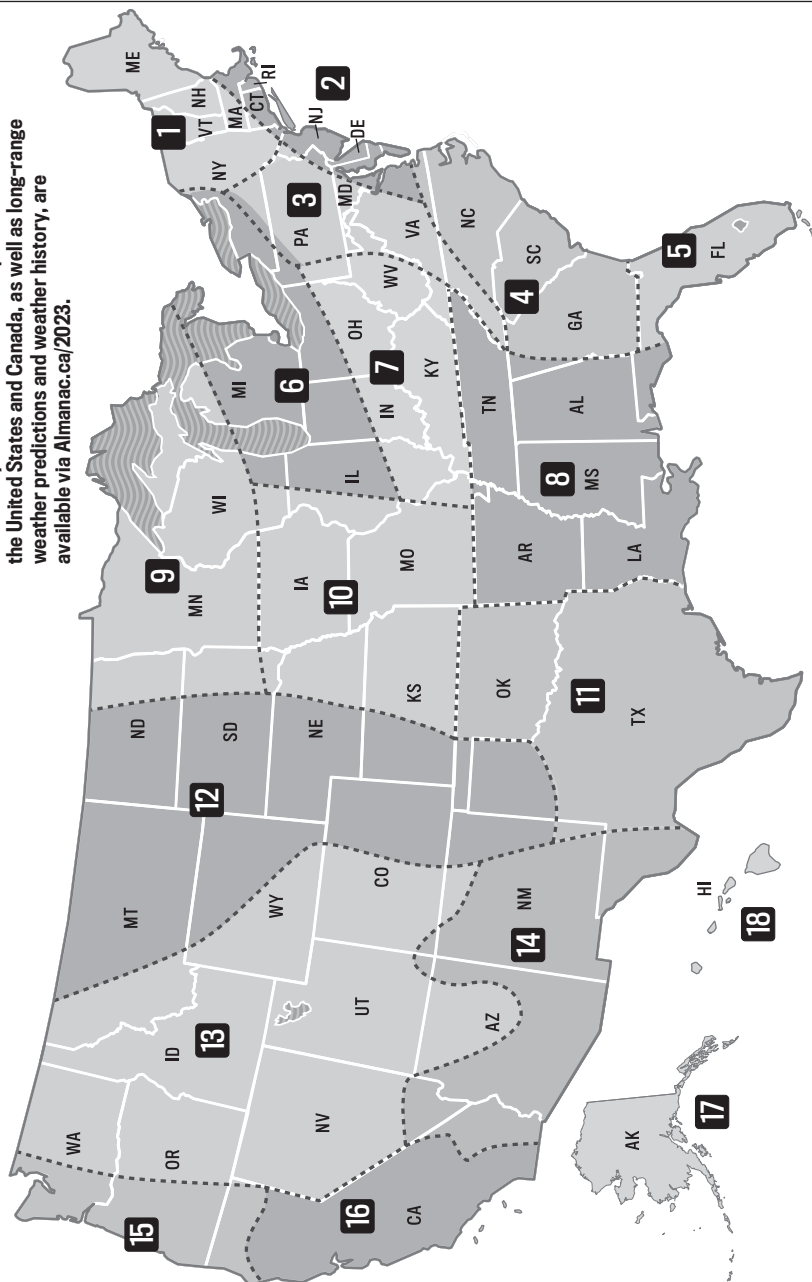


| FEAR OF | PHOBIA |
|----------------------------------|--|
| Clouds | Nephophobia |
| Cold | Cheimatophobia Frigophobia Psychrophobia |
| Dampness, moisture | Hygrophobia |
| Daylight, sunshine | Heliophobia Phengophobia |
| Extreme cold, frost, ice | Cryophobia Pagophobia |
| Floods | Antlophobia |
| Fog | Homichlophobia Nebulaphobia |
| Heat | Thermophobia |
| Hurricanes, tornadoes | Lilapsophobia |
| Lightning, thunder | Astraphobia Brontophobia Keraunophobia |
| Northern lights, southern lights | Auroraphobia |
| Rain | Ombrophobia Pluviophobia |
| Snow | Chionophobia |
| Thunder | Ceraunophobia Tonitrophobia |
| Wind | Ancraophobia Anemophobia |

U.S. WEATHER REGIONS

WEATHER

Local 5-day weather forecasts for postal codes in the United States and Canada, as well as long-range weather predictions and weather history, are available via Almanac.ca/2023.



U.S. REGIONAL WEATHER FORECASTS, 2022–23

1. NORTHEAST

SUMMARY: **Winter** temperatures will be above normal in the north and below normal in the south. The coldest periods will be in early and late January and late February. Precipitation will be above normal. Snowfall will be below normal in the north and above normal in the south, with the snowiest periods in early to mid-December and the first half of January. **April** will be cooler and drier than normal, while **May** will be warmer and drier. **Summer** temperatures will be above normal, with rainfall slightly above normal. The hottest periods will be in early to mid-July and early August. **September** will be cooler and drier than normal, while **October** will be warmer and drier.

2. ATLANTIC CORRIDOR

SUMMARY: **Winter** temperatures will be below normal, while precipitation and snowfall will be above normal. The coldest periods will be in early December, early and late January, and most of February. The snowiest periods will be in early to mid-January, late January, and late February. **April** will be cooler and drier than normal, while **May** will be warmer and rainier. **Summer** will be warmer than normal, with above-normal precipitation. The hottest periods will be in mid-July and early

to mid-August. **September** and **October** will be cooler, on average, and drier than normal.

3. APPALACHIANS

SUMMARY: **Winter** will be colder than normal, with near-normal precipitation and above-normal snowfall. The coldest periods will be in early December, late January, and mid- to late February. The snowiest periods will be in early and late January and in February in the south. **April** will be colder than normal, while **May** will be warmer. Both April and May will have above-normal precipitation. **Summer** temperatures will be above normal, on average, while precipitation will be below normal. The hottest period will be in mid-July. **September** and **October** will be slightly cooler, on average, and drier than normal.

4. SOUTHEAST

SUMMARY: **Winter** temperatures will be below normal, with the coldest periods in early December, early and late January, and mid-February. Precipitation will be below normal. Snowfall will be above normal in the east and below normal in the west, with the best chances for snow in early and late January and mid-February. **April** and **May** temperatures will be near normal, on average, with above-normal precipitation. **Summer** temperatures will

U.S. REGIONAL WEATHER FORECASTS, 2022–23

be slightly above normal, with the hottest periods in mid- to late June and early July. Rainfall will be below normal. **September** and **October** will be warmer, on average, and drier than normal.

5. FLORIDA

SUMMARY: **Winter** will be colder and rainier than normal, with the coldest temperatures in early and late January and mid-February. **April** and **May** will be slightly warmer than normal, with rainfall above normal in the north and normal in the south. **Summer** will bring slightly above-normal temperatures, with below-normal rainfall. The hottest periods will be in early and mid-June and mid-August. **September** and **October** temperatures will be near normal, on average, with rainfall below normal.

6. LOWER LAKES

SUMMARY: **Winter** will be colder than normal, with the coldest temperatures in early December and late January to mid-February. Both precipitation and snowfall will be above normal. The snowiest periods will be in late November to early December and early to mid-January. **April** will be cooler than normal, while **May** will be warmer. Precipitation will be normal. **Summer** will be warmer than normal. Rainfall will be below normal in the

east and near normal in the west. The hottest periods will be in mid-July and early and late August. **September** and **October** will be warmer and rainier than normal, on average.

7. OHIO VALLEY

SUMMARY: **Winter** will be colder than normal, with below-normal precipitation but above-normal snowfall. The coldest periods will occur in early and mid-December, early and late January, and much of February, with the snowiest periods throughout January and in late February and early March. **April** will be cooler and drier than normal, while **May** will be warmer than normal with near-normal precipitation. **Summer** will be warmer and wetter than normal. The hottest periods will be in late June and mid- to late July. **September** and **October** will be warmer than normal, with near-normal precipitation.

8. DEEP SOUTH

SUMMARY: **Winter** will be colder than normal, with the coldest periods in early December and early and late January. Precipitation will be below normal, with above-normal snowfall in the north. The best chances for snow in the north will be in early to mid-January and mid-February. On average, **April** and **May** will be slightly warmer than normal, with

U.S. REGIONAL WEATHER FORECASTS, 2022–23

above-normal rainfall. **Summer** will be warmer and wetter than normal, with the hottest periods in mid- to late June and mid- to late July. Watch for a tropical storm in mid-August. **September** and **October** will be slightly warmer and drier than normal, on average.

9. UPPER MIDWEST

SUMMARY: **Winter** temperatures will be below normal, with the coldest periods in late November, early December, early and late January, and mid-February. Precipitation and snowfall will be below normal in the east and above normal in the west. The snowiest periods will be in late November, early and late December, and early and late March. On average, **April** and **May** temperatures will be near normal, with rainfall slightly above normal. **Summer** will be warmer and rainier than normal, with the hottest periods in late June and early and late August. **September** and **October** will have above-normal temperatures and near-normal precipitation, on average.

10. HEARTLAND

SUMMARY: **Winter** will be colder than normal, on average, with the coldest periods in late November, early December, early to mid-January, and mid- to late February. Precipi-

tation and snowfall will be above average in the east and below average in the west. The snowiest periods will be in late November, early to mid-January, and February. On average, **April** and **May** will feature near-normal temperatures and precipitation. **Summer** will be hotter and drier than normal, with the hottest periods in mid- to late June, mid-July, and early and late August. **September** and **October** will be warm, with near-normal rainfall, on average.

11. TEXAS-OKLAHOMA

SUMMARY: **Winter** will be colder than normal, with the coldest periods in early to mid-January and early to mid-February. Precipitation will be below average, but snowfall will be above average in the north, with the best chances for snow in mid- to late January and early February. **April** and **May** will be warmer than average, with rainfall above normal in the north and normal in the south, on average. **Summer** will be hotter and drier than normal, with the hottest periods in late June, early to mid-July, and early August. Watch for tropical storms in late July and mid-August. **September** and **October** will be warmer than normal, with below-normal rainfall in the north and near-normal rainfall in the south, on average. *(continued)*

U.S. REGIONAL WEATHER FORECASTS, 2022–23

12. HIGH PLAINS

SUMMARY: **Winter** will be colder than normal, with the coldest periods in late November, early December, early and late January, and early and late February. Precipitation and snowfall will be above normal in the north and below normal in the south. The snowiest periods will be in mid- to late November, mid- to late January, and early February. **April** and **May** will be warmer than normal, on average, with above-normal precipitation. **Summer** will be hotter and drier than normal, with the hottest periods in mid-June, early July, and early and late August. On average, **September** and **October** will be warmer and slightly wetter than normal.

13. INTERMOUNTAIN

SUMMARY: **Winter** will be warmer than normal, with the coldest periods in mid-November and early February. Precipitation will be above normal, with above-average snowfall in the far north and far south. The snowiest periods will be in mid-November, late December, early to mid-January, and early February. **April** and **May** will be cooler than normal, with above-normal precipitation, on average. **Summer** will be slightly cooler than normal, with rainfall above average

in the north and below normal in the south. The hottest periods will be in mid- to late July and early August. **September** and **October** will be cooler and drier than normal, on average.

14. DESERT SOUTHWEST

SUMMARY: **Winter** will be warmer than normal, with above-normal precipitation. The coldest periods will be in late November, mid- and late December, and mid-January. Snowfall will be below normal in most areas that normally receive snow, with the snowiest periods in early to mid-January and early February. On average, **April** and **May** will feature near-normal temperatures and slightly above-normal precipitation. **Summer** will be hotter than normal, with slightly above-normal rainfall. The hottest periods will occur in early and mid-June and early and late July. On average, **September** and **October** will be warmer than normal, with slightly above-normal rainfall.

15. PACIFIC NORTHWEST

SUMMARY: **Winter** temperatures will be milder than normal, with slightly below-normal precipitation and snowfall. The coldest periods will be in mid-November and early and late December. The snowiest period will be in mid-November.

U.S. REGIONAL WEATHER FORECASTS, 2022–23

April and **May** will be warmer and slightly wetter than normal, on average. **Summer** will be warmer and wetter than normal. The hottest periods will be in mid- to late July and early August. **September** and **October** will be slightly cooler and drier than normal, on average.

16. PACIFIC SOUTHWEST

SUMMARY: **Winter** will be warmer and wetter than normal, with above-normal mountain snows. The coldest temperatures will occur in mid-November, mid-January, and early February. The stormiest periods will be in mid- to late December, early and late January, early and late February, and late March. **April** and **May** will be slightly warmer than normal, with rainfall near normal in the north and below normal in the south. **Summer** temperatures will be slightly below normal along the coast and hotter than normal inland. Rainfall will be near normal in the north and above normal in the south. The hottest periods will be in mid-June and early and late July. **September** and **October** will be warmer and drier than normal.

17. ALASKA

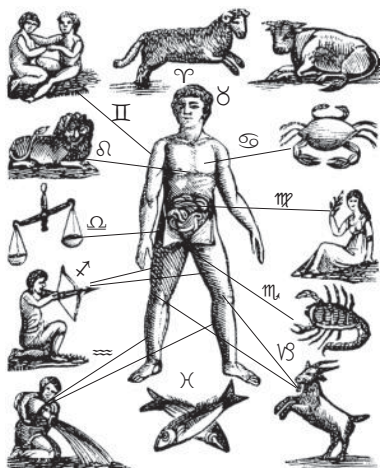
SUMMARY: **Winter** temperatures will be much milder than normal, with the coldest periods in mid- to

late November, early December, and late January. Precipitation and snowfall will be below normal, on average, with the snowiest periods in early November, mid-December, late January, and early February. **April** and **May** will be warmer than normal, with near-normal precipitation. **Summer**, on average, will be warmer than normal, with above-normal precipitation. The hottest periods will be in early and late July. On average, **September** and **October** will be milder than normal, with precipitation above normal north and below normal south.

18. HAWAII

SUMMARY: **Winter** temperatures will be warmer than normal, with the coolest periods in mid-November and mid- to late February. Rainfall will be below normal, with the stormiest periods in early and late November and early March. **April** will be warmer and drier than normal, while **May** will be warmer and rainier than normal. **Summer** will be slightly warmer than normal, with the hottest periods in late July and early and late August. Rainfall will be above normal. **September** and **October** temperatures will be near normal, on average, with the hottest periods in early and late September. Rainfall will be below normal in September and well above normal in October. ■

SECRETS OF THE ZODIAC



The Man of the Signs

Ancient astrologers believed that each astrological sign influenced a specific part of the body. The first sign of the zodiac—Aries—was attributed to the head, with the rest of the signs moving down the body, ending with Pisces at the feet.

| | |
|-----------------------|----------------------|
| ♈ Aries, head | ARI Mar. 21–Apr. 20 |
| ♉ Taurus, neck | TAU Apr. 21–May 20 |
| ♊ Gemini, arms | GEM May 21–June 20 |
| ♋ Cancer, breast | CAN June 21–July 22 |
| ♌ Leo, heart | LEO July 23–Aug. 22 |
| ♍ Virgo, belly | VIR Aug. 23–Sept. 22 |
| ♎ Libra, reins | LIB Sept. 23–Oct. 22 |
| ♏ Scorpio, secrets | SCO Oct. 23–Nov. 22 |
| ♐ Sagittarius, thighs | SAG Nov. 23–Dec. 21 |
| ♑ Capricorn, knees | CAP Dec. 22–Jan. 19 |
| ♒ Aquarius, legs | AQU Jan. 20–Feb. 19 |
| ♓ Pisces, feet | PSC Feb. 20–Mar. 20 |

ASTROLOGY VS. ASTRONOMY

Astrology is a tool we use to plan events according to the placements of the Sun, the Moon, and the planets in the 12 signs of the zodiac. In astrology, the planetary movements do not cause events; rather, they explain the path, or “flow,” that events tend to follow. *The Moon’s astrological place is given on the next page. Astronomy* is the study of the actual placement of the known planets and constellations. The Moon’s astronomical place is given in the **Left-Hand Calendar Pages, 120–146.** *(The placement of the planets in the signs of the zodiac is not the same astrologically and astronomically.)*

The dates in the **Best Days** table, **pages 226–227**, are based on the astrological passage of the Moon.

WHEN MERCURY IS RETROGRADE

Sometimes the other planets appear to be traveling backward through the zodiac; this is an illusion. We call this illusion *retrograde motion*.

Mercury’s retrograde periods can cause our plans to go awry. However, intuition is high during these periods and coincidences can be extraordinary.

When Mercury is retrograde, stay flexible, allow more time for travel, and don’t sign contracts. Review projects and plans but wait until Mercury is direct again to make final decisions.

In 2023, Mercury will be retrograde during January 1–18, April 21–May 14, August 23–September 14, and December 13–(January 1, 2024).

—Celeste Longacre

GARDENING BY THE MOON’S SIGN

USE CHART ON NEXT PAGE TO FIND THE BEST DATES FOR THE FOLLOWING GARDEN TASKS . . .

PLANT, TRANSPLANT, AND GRAFT: Cancer, Scorpio, Pisces, or Taurus
HARVEST: Aries, Leo, Sagittarius, Gemini, or Aquarius
BUILD/FIX FENCES OR GARDEN BEDS: Capricorn

CONTROL INSECT PESTS, PLOW, AND WEED: Aries, Gemini, Leo, Sagittarius, or Aquarius
PRUNE: Aries, Leo, or Sagittarius. During a waxing Moon, pruning encourages growth; during a waning Moon, it discourages it.

SETTING EGGS BY THE MOON'S SIGN

Chicks take about 21 days to hatch. Those born under a waxing Moon in Cancer, Scorpio, or Pisces are healthier and mature faster. To ensure that chicks are born during these times, "set eggs" (place eggs in an incubator or under a hen) 21 days before the desired hatching dates.

EXAMPLE:

The Moon is new on March 21 and full on April 6 (EDT). Between these dates, the Moon is in the sign of Cancer on March 28 through 30. To have chicks born on March 28, count back 21 days; set eggs on March 7.

Below are the best days to set eggs in 2023, using only the fruitful dates between the new and full Moons and counting back 21 days:

| | | | |
|----------------------------|--------------------------|-----------------------|------------------------|
| JAN.: 3, 4, 12, 13, 30, 31 | APR.: 4, 5, 13, 14 | JULY: 4-6 | OCT.: 3, 4, 23, 30, 31 |
| FEB.: 8, 9 | MAY: 1, 2, 11, 12, 28-30 | AUG.: 1, 2, 9, 28, 29 | NOV.: 1, 27, 28 |
| MAR.: 7-9 | JUNE: 7, 8, 26 | SEPT.: 6, 7, 24-26 | DEC.: 5, 24, 25 |

The Moon's Astrological Place, 2022-23

| | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|----|------|------|------|------|------|------|-----|------|------|------|-------|------|------|------|
| 1 | AQU | PSC | TAU | GEM | CAN | LEO | VIR | SCO | SAG | AQU | ARI | TAU | GEM | LEO |
| 2 | AQU | ARI | TAU | CAN | CAN | VIR | LIB | SCO | SAG | AQU | ARI | TAU | CAN | LEO |
| 3 | PSC | ARI | GEM | CAN | LEO | VIR | LIB | SAG | CAP | PSC | TAU | GEM | CAN | LEO |
| 4 | PSC | TAU | GEM | LEO | LEO | VIR | SCO | SAG | CAP | PSC | TAU | GEM | LEO | VIR |
| 5 | ARI | TAU | CAN | LEO | LEO | LIB | SCO | CAP | AQU | ARI | TAU | CAN | LEO | VIR |
| 6 | ARI | TAU | CAN | LEO | VIR | LIB | SCO | CAP | AQU | ARI | GEM | CAN | LEO | LIB |
| 7 | TAU | GEM | CAN | VIR | VIR | SCO | SAG | AQU | PSC | TAU | GEM | CAN | VIR | LIB |
| 8 | TAU | GEM | LEO | VIR | LIB | SCO | SAG | AQU | PSC | TAU | CAN | LEO | VIR | LIB |
| 9 | GEM | CAN | LEO | LIB | LIB | SAG | CAP | PSC | ARI | GEM | CAN | LEO | LIB | SCO |
| 10 | GEM | CAN | VIR | LIB | LIB | SAG | CAP | PSC | ARI | GEM | LEO | VIR | LIB | SCO |
| 11 | GEM | CAN | VIR | LIB | SCO | SAG | AQU | ARI | TAU | GEM | LEO | VIR | LIB | SAG |
| 12 | CAN | LEO | VIR | SCO | SCO | CAP | AQU | ARI | TAU | CAN | LEO | VIR | SCO | SAG |
| 13 | CAN | LEO | LIB | SCO | SAG | CAP | PSC | ARI | GEM | CAN | VIR | LIB | SCO | CAP |
| 14 | LEO | VIR | LIB | SAG | SAG | AQU | PSC | TAU | GEM | LEO | VIR | LIB | SAG | CAP |
| 15 | LEO | VIR | SCO | SAG | CAP | AQU | ARI | TAU | CAN | LEO | LIB | SCO | SAG | CAP |
| 16 | LEO | VIR | SCO | CAP | CAP | PSC | ARI | GEM | CAN | LEO | LIB | SCO | CAP | AQU |
| 17 | VIR | LIB | SCO | CAP | AQU | PSC | TAU | GEM | CAN | VIR | LIB | SCO | CAP | AQU |
| 18 | VIR | LIB | SAG | AQU | AQU | ARI | TAU | CAN | LEO | VIR | SCO | SAG | AQU | PSC |
| 19 | LIB | SCO | SAG | AQU | PSC | ARI | TAU | CAN | LEO | LIB | SCO | SAG | AQU | PSC |
| 20 | LIB | SCO | CAP | PSC | PSC | TAU | GEM | CAN | VIR | LIB | SAG | CAP | PSC | ARI |
| 21 | LIB | SAG | CAP | PSC | ARI | TAU | GEM | LEO | VIR | LIB | SAG | CAP | PSC | ARI |
| 22 | SCO | SAG | AQU | ARI | ARI | GEM | CAN | LEO | VIR | SCO | SAG | AQU | PSC | TAU |
| 23 | SCO | CAP | AQU | ARI | ARI | GEM | CAN | VIR | LIB | SCO | CAP | AQU | ARI | TAU |
| 24 | SAG | CAP | PSC | TAU | TAU | GEM | LEO | VIR | LIB | SAG | CAP | PSC | ARI | GEM |
| 25 | SAG | AQU | PSC | TAU | TAU | CAN | LEO | VIR | SCO | SAG | AQU | PSC | TAU | GEM |
| 26 | CAP | AQU | ARI | GEM | GEM | CAN | LEO | LIB | SCO | CAP | AQU | ARI | TAU | CAN |
| 27 | CAP | PSC | ARI | GEM | GEM | LEO | VIR | LIB | SCO | CAP | PSC | ARI | GEM | CAN |
| 28 | AQU | PSC | TAU | GEM | CAN | LEO | VIR | SCO | SAG | AQU | PSC | TAU | GEM | CAN |
| 29 | AQU | ARI | TAU | — | CAN | LEO | LIB | SCO | SAG | AQU | ARI | TAU | CAN | LEO |
| 30 | PSC | ARI | GEM | — | CAN | VIR | LIB | SAG | CAP | PSC | ARI | GEM | CAN | LEO |
| 31 | — | TAU | GEM | — | LEO | — | LIB | — | CAP | PSC | — | GEM | — | VIR |

BEST DAYS FOR 2023

This chart is based on the Moon's sign and shows the best days each month for certain activities. —*Celeste Longacre*

| | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|---------------------------------|--------------|--------|----------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| Quit smoking | 7, 17 | 8, 13 | 8, 12 | 9, 17 | 6, 15 | 11, 15 | 8, 13 | 4, 9 | 1, 5 | 2, 12 | 9, 12 | 6, 11 |
| Bake | 5-7 | 2, 3 | 1, 2, 28-30 | 25, 26 | 22, 23 | 18-20 | 15-17 | 12, 13 | 8, 9 | 5-7 | 2, 3, 29, 30 | 26-28 |
| Brew | 15-17 | 12, 13 | 11, 12 | 7, 8 | 4-6 | 1, 2, 28, 29 | 25-27 | 22, 23 | 18, 19 | 15-17 | 12, 13 | 9, 10 |
| Dry fruit, vegetables, or meat | 8, 9, 18, 19 | 14, 15 | 13, 14 | 9-11 | 15, 16 | 11-13 | 9, 10 | 5, 6 | 10-12 | 8, 9 | 4-6 | 1-3 |
| Make jams or jellies | 24, 25 | 20, 21 | 19, 20 | 16, 17 | 13, 14 | 9, 10 | 7, 8 | 3, 4, 30, 31 | 27, 28 | 24, 25 | 20-22 | 18, 19 |
| Can, pickle, or make sauerkraut | 15-17 | 12, 13 | 11, 12, 19, 20 | 16, 17 | 13, 14 | 9, 10 | 7, 8 | 12, 13 | 8, 9 | 5-7 | 2, 3 | 9, 10 |
| Begin diet to lose weight | 7, 17 | 8, 13 | 8, 12 | 9, 17 | 6, 15 | 11, 15 | 8, 13 | 4, 9 | 1, 5 | 2, 12 | 9, 12 | 6, 11 |
| Begin diet to gain weight | 2, 25 | 22, 26 | 25, 30 | 4, 21 | 2, 29 | 3, 25 | 22, 27 | 18, 23 | 20, 28 | 17, 25 | 22, 26 | 19, 24 |
| Cut hair to encourage growth | 1, 2, 28, 29 | 24, 25 | 24, 25 | 5, 21 | 2, 3, 29-31 | 26, 27 | 23, 24 | 19-21 | 15-17 | 24, 25 | 25, 26 | 22, 23 |
| Cut hair to discourage growth | 13, 14 | 9-11 | 8-10 | 16, 17 | 17, 18 | 14, 15 | 11, 12 | 7, 8 | 3-5 | 1, 2 | 9-11 | 6-8 |
| Perm hair | 22, 23 | 18, 19 | 17, 18 | 14, 15 | 11, 12 | 7, 8 | 5, 6 | 1, 2, 28, 29 | 25, 26 | 22, 23 | 18, 19 | 16, 17 |
| Color hair | 1, 2, 28, 29 | 24, 25 | 24, 25 | 20, 21 | 17-19 | 14, 15 | 11, 12 | 7, 8 | 3-5 | 1, 2, 28, 29 | 25, 26 | 22, 23 |
| Straighten hair | 18, 19 | 14, 15 | 13, 14 | 9-11 | 7, 8 | 3, 4, 30 | 1, 2, 28, 29 | 24, 25 | 20-22 | 18, 19 | 14, 15 | 11, 12 |
| Have dental care | 10-12 | 7, 8 | 6, 7 | 2-4, 30 | 1, 27, 28 | 23-25 | 20-22 | 17, 18 | 13, 14 | 10-12 | 7, 8 | 4, 5, 31 |
| Start projects | 22 | 21 | 22 | 21 | 20 | 19 | 18 | 17 | 15 | 15 | 14 | 13 |
| End projects | 5 | 4 | 6 | 5 | 4 | 2 | 2, 31 | 29 | 28 | 27 | 26 | 25 |
| Demolish | 15-17 | 12, 13 | 11, 12 | 7, 8 | 4-6 | 1, 2, 28, 29 | 25-27 | 22, 23 | 18, 19 | 15-17 | 12, 13 | 9, 10 |
| Lay shingles | 8, 9 | 4-6 | 3-5 | 1, 27-29 | 24-26 | 21, 22 | 18, 19 | 14-16 | 10-12 | 8, 9 | 4-6 | 1-3, 29, 30 |
| Paint | 1, 2, 28, 29 | 9-11 | 8-10 | 5, 6, 20, 21 | 2, 3, 29-31 | 26, 27 | 23, 24 | 19-21 | 15-17 | 13, 14 | 9-11 | 6-8 |
| Wash windows | 26, 27 | 22, 23 | 21-23 | 18, 19 | 15, 16 | 11-13 | 9, 10 | 5, 6 | 1, 2, 29, 30 | 26, 27 | 23, 24 | 20, 21 |
| Wash floors | 24, 25 | 20, 21 | 19, 20 | 16, 17 | 13, 14 | 9, 10 | 7, 8 | 3, 4, 30, 31 | 27, 28 | 24, 25 | 20-22 | 18, 19 |
| Go camping | 18, 19 | 14, 15 | 13, 14 | 9-11 | 7, 8 | 3, 4, 30 | 1, 2, 28, 29 | 24, 25 | 20-22 | 18, 19 | 14, 15 | 11, 12 |

| | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|---|--------------|-----------|-------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| Entertain | 8, 9 | 4-6 | 3-5 | 1, 27-29 | 24-26 | 21, 22 | 18, 19 | 14-16 | 10-12 | 8, 9 | 4-6 | 1-3, 29, 30 |
| Travel for pleasure | 8, 9 | 4-6 | 3-5 | 1, 27-29 | 24-26 | 21, 22 | 18, 19 | 14-16 | 10-12 | 8, 9 | 4-6 | 1-3, 29, 30 |
| Get married | 13, 14 | 9-11 | 8-10 | 5, 6 | 2, 3, 29-31 | 26, 27 | 23, 24 | 19-21 | 15-17 | 13, 14 | 9-11 | 6-8 |
| Ask for a loan | 15-17 | 12, 13 | 11, 12 | 7, 8 | 17, 18 | 14, 15 | 11, 12 | 7, 8 | 3-5 | 1, 2 | 12, 13 | 9, 10 |
| Buy a home | 1, 2, 28, 29 | 24, 25 | 24, 25 | 21, 25, 26 | 4, 24-26 | 28, 29 | 25-27 | 22, 23 | 18, 19 | 15-17 | 25, 26 | 22, 23 |
| Move (house/household) | 3, 4, 30, 31 | 1, 26-28 | 26, 27 | 22-24 | 20, 21 | 16, 17 | 13, 14 | 9-11 | 6, 7 | 3, 4, 30, 31 | 1, 27, 28 | 24, 25 |
| Advertise to sell | 1, 2, 28, 29 | 24, 25 | 24, 25 | 1, 27-29 | 4, 24-26 | 1, 2, 28, 29 | 25-27 | 22, 23 | 18, 19 | 15-17 | 25, 26 | 22, 23 |
| Mow to promote growth | 24, 25 | 2, 3, 21 | 1, 2, 28-30 | 25, 26 | 4, 22, 23 | 1, 2, 28, 29 | 25-27 | 22, 23 | 18, 19 | 15-17 | 20-22 | 18, 19 |
| Mow to slow growth | 15-17 | 12, 13 | 11, 12 | 7, 8 | 6, 17, 18 | 14, 15 | 11, 12 | 7, 8 | 8, 9 | 1, 2 | 4-6 | 1-3 |
| Plant aboveground crops | 5, 24, 25 | 2, 3, 21 | 1, 2, 28-30 | 25, 26 | 4, 22, 23 | 1, 2, 28, 29 | 25-27 | 22, 23 | 18, 19 | 15-17 | 20-22 | 18, 19 |
| Plant belowground crops | 15-17 | 12, 13 | 11, 12 | 7, 8, 16, 17 | 13, 14 | 9, 10 | 7, 8 | 12, 13 | 3-5 | 5-7 | 2, 3 | 9, 10 |
| Destroy pests and weeds | 26, 27 | 22, 23 | 21-23 | 18, 19 | 15, 16 | 11-13 | 9, 10 | 5, 6 | 1, 2, 29, 30 | 26, 27 | 23, 24 | 20, 21 |
| Graft or pollinate | 5-7 | 2, 3 | 1, 2, 28-30 | 25, 26 | 22, 23 | 18-20 | 15-17 | 12, 13 | 8, 9 | 5-7 | 2, 3, 29, 30 | 26-28 |
| Prune to encourage growth | 26, 27 | 4, 22, 23 | 3-5, 31 | 1, 27-29 | 24-26 | 3, 21, 22 | 1, 2, 28, 29 | 24, 25 | 20-22 | 26, 27 | 23, 24 | 20, 21 |
| Prune to discourage growth | 8, 9, 18, 19 | 14, 15 | 13, 14 | 9-11 | 15, 16 | 11-13 | 9, 10 | 5, 6 | 10-12 | 8, 9 | 4-6 | 1-3 |
| Pick fruit | 10-12 | 7, 8 | 6, 7 | 2-4, 30 | 1, 27, 28 | 23-25 | 20-22 | 17, 18 | 13, 14 | 10-12 | 7, 8 | 4, 5, 31 |
| Harvest aboveground crops | 1, 2, 28, 29 | 24, 25 | 6, 24, 25 | 2-4, 30 | 27, 28 | 23-25 | 20-22 | 26, 27 | 23, 24 | 20, 21 | 25, 26 | 22, 23 |
| Harvest belowground crops | 10-12 | 7, 8 | 15, 16 | 12, 13 | 17, 18 | 14, 15 | 11, 12 | 7, 8 | 3-5 | 10-12 | 7, 8 | 4, 5 |
| Cut hay | 26, 27 | 22, 23 | 21-23 | 18, 19 | 15, 16 | 11-13 | 9, 10 | 5, 6 | 1, 2, 29, 30 | 26, 27 | 23, 24 | 20, 21 |
| Begin logging, set posts, pour concrete | 20, 21 | 16, 17 | 15, 16 | 12, 13 | 9, 10 | 5, 6 | 3, 4, 30, 31 | 26, 27 | 23, 24 | 20, 21 | 16, 17 | 13-15 |
| Purchase animals | 5-7 | 2, 3 | 1, 2, 28-30 | 25, 26 | 22, 23 | 18-20 | 15-17 | 12, 13 | 8, 9 | 5-7 | 2, 3, 29, 30 | 26-28 |
| Breed animals | 15-17 | 12, 13 | 11, 12 | 7, 8 | 4-6 | 1, 2, 28, 29 | 25-27 | 22, 23 | 18, 19 | 15-17 | 12, 13 | 9, 10 |
| Wean | 7, 17 | 8, 13 | 8, 12 | 9, 17 | 6, 15 | 11, 15 | 8, 13 | 4, 9 | 1, 5 | 2, 12 | 9, 12 | 6, 11 |
| Castrate animals | 22, 23 | 18, 19 | 17, 18 | 14, 15 | 11, 12 | 7, 8 | 5, 6 | 1, 2, 28, 29 | 25, 26 | 22, 23 | 18, 19 | 16, 17 |
| Slaughter livestock | 15-17 | 12, 13 | 11, 12 | 7, 8 | 4-6 | 1, 2, 28, 29 | 25-27 | 22, 23 | 18, 19 | 15-17 | 12, 13 | 9, 10 |

BEST FISHING DAYS AND TIMES

The best times to fish are when the fish are naturally most active. The Sun, Moon, tides, and weather all influence fish activity. For example, fish tend to feed more at sunrise and sunset, and also during a full Moon (when tides are higher than average). However, most of us go fishing simply when we can get the time off. But there are best times, according to fishing lore:

■ One hour before and one hour after high tides, and one hour before and one hour after low tides. The times of high tides for Halifax are given on **pages 120–146**; also see **pages 238–239**. (Inland, the times for high tides correspond with the times when the Moon is due south. Low tides are halfway between high tides.)

GET TIDE TIMES AND HEIGHTS NEAREST TO YOUR LOCATION VIA ALMANAC.CA/2023.

■ During the “morning rise” (after sunup for a spell) and the “evening rise” (just before sundown and the hour or so after).

■ During the rise and set of the Moon.

■ When the barometer is steady or on the rise. (But even during stormy periods, the fish aren’t going to give up feeding. The clever angler will find just the right bait.)

■ When there is a hatch of flies—caddis flies or mayflies, commonly.

■ When the breeze is from a westerly quarter, rather than from the north or east.

■ When the water is still or slightly rippled, rather than during a wind.

THE BEST FISHING DAYS FOR 2023, WHEN THE MOON IS BETWEEN NEW AND FULL

January 1–6

January 21–February 5

February 20–March 7

March 21–April 6

April 20–May 5

May 19–June 3

June 18–July 3

July 17–August 1

August 16–30

September 14–29

October 14–28

November 13–27

December 12–26

Dates based on Eastern Time.

HOW TO ESTIMATE THE WEIGHT OF A FISH

Measure the fish from the tip of its nose to the tip of its tail. Then measure its girth at the thickest portion of its midsection.

The weight of a fat-bodied fish (bass, salmon) =
 $(\text{length} \times \text{girth} \times \text{girth})/800$

The weight of a slender fish (trout, northern pike) =
 $(\text{length} \times \text{girth} \times \text{girth})/900$

EXAMPLE: If a trout is 20 inches long and has a 12-inch girth, its estimated weight is
 $(20 \times 12 \times 12)/900 = 2,880/900 = 3.2$ pounds



SALMON



TROUT



CATFISH

GESTATION AND MATING TABLES

| | | PROPER AGE OR WEIGHT FOR FIRST MATING | PERIOD OF FERTILITY (YRS.) | NUMBER OF FEMALES FOR ONE MALE | PERIOD OF GESTATION (DAYS) AVERAGE RANGE | |
|-------------|----------|--|-------------------------------|--|---|--|
| CATTLE: Cow | | 15-18 mos. ¹ | 10-14 | | 283 | 279-290 ² 262-300 ³ |
| | Bull | 1 yr., well matured | 10-12 | 50 ⁴ / thousands ⁵ | | |
| GOAT: Doe | | 10 mos. or 85-90 lbs. | 6 | | 150 | 145-155 |
| | Buck | well matured | 5 | 30 | | |
| HORSE: Mare | | 3 yrs. | 10-12 | | 336 | 310-370 |
| | Stallion | 3 yrs. | 12-15 | 40-45 ⁴ / record 252 ⁵ | | |
| PIG: Sow | | 5-6 mos. or 250 lbs. | 6 | | 115 | 110-120 |
| | Boar | 250-300 lbs. | 6 | 50 ⁶ / 35-40 ⁷ | | |
| RABBIT: Doe | | 6 mos. | 5-6 | | 31 | 30-32 |
| | Buck | 6 mos. | 5-6 | 30 | | |
| SHEEP: Ewe | | 1 yr. or 90 lbs. | 6 | | 147 / 151 ⁸ | 142-154 |
| | Ram | 12-14 mos., well matured | 7 | 50-75 ⁶ / 35-40 ⁷ | | |
| CAT: Queen | | 12 mos. | 6 | | 63 | 60-68 |
| | Tom | 12 mos. | 6 | 6-8 | | |
| DOG: Bitch | | 16-18 mos. | 8 | | 63 | 58-67 |
| | Male | 12-16 mos. | 8 | 8-10 | | |

¹Holstein and beef: 750 lbs.; Jersey: 500 lbs. ²Beef; 8-10 days shorter for Angus. ³Dairy. ⁴Natural. ⁵Artificial. ⁶Hand-mated. ⁷Pasture. ⁸For fine wool breeds.

INCUBATION PERIOD OF POULTRY (DAYS)

| | |
|---------|-------|
| Chicken | 21 |
| Duck | 26-32 |
| Goose | 30-34 |
| Guinea | 26-28 |
| Turkey | 28 |

AVERAGE LIFE SPAN OF ANIMALS IN CAPTIVITY (YEARS)

| | | | |
|--------------------|----|-------------------|----|
| Cat (domestic) | 14 | Goose (domestic) | 20 |
| Chicken (domestic) | 8 | Horse | 22 |
| Dog (domestic) | 13 | Pig | 12 |
| Duck (domestic) | 10 | Rabbit | 6 |
| Goat (domestic) | 14 | Turkey (domestic) | 10 |

| | ESTRAL/ESTROUS CYCLE (INCLUDING HEAT PERIOD) | | LENGTH OF ESTRUS (HEAT) | | USUAL TIME OF OVULATION | WHEN CYCLE RECURS IF NOT BRED |
|-----------|---|------------|-------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| | AVERAGE | RANGE | AVERAGE | RANGE | | |
| Cow | 21 days | 18-24 days | 18 hours | 10-24 hours | 10-12 hours after end of estrus | 21 days |
| Doe goat | 21 days | 18-24 days | 2-3 days | 1-4 days | Near end of estrus | 21 days |
| Mare | 21 days | 10-37 days | 5-6 days | 2-11 days | 24-48 hours before end of estrus | 21 days |
| Sow | 21 days | 18-24 days | 2-3 days | 1-5 days | 30-36 hours after start of estrus | 21 days |
| Ewe | 16½ days | 14-19 days | 30 hours | 24-32 hours | 12-24 hours before end of estrus | 16½ days |
| Queen cat | | 15-21 days | 3-4 days, if mated | 9-10 days, in absence of male | 24-56 hours after coitus | Pseudo- pregnancy |
| Bitch | 24 days | 16-30 days | 7 days | 5-9 days | 1-3 days after first acceptance | Pseudo- pregnancy |

PLANTING BY THE MOON'S PHASE

ACCORDING TO THIS AGE-OLD PRACTICE, CYCLES OF THE MOON AFFECT PLANT GROWTH.

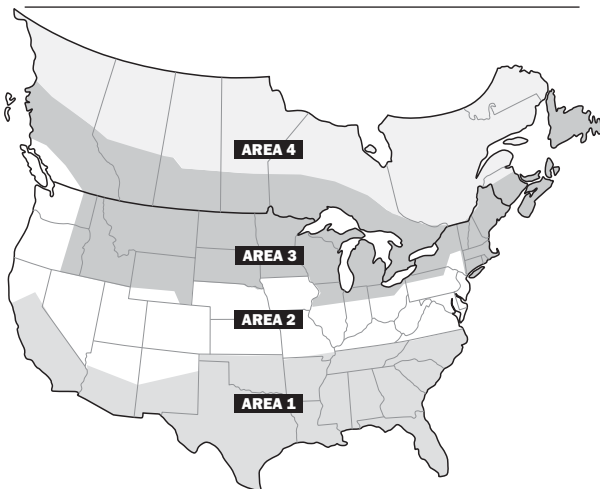
Plant annual flowers and vegetables that bear crops above ground during the light, or waxing, of the Moon: from the day the Moon is new to the day it is full.

Plant flowering bulbs, biennial and perennial flowers, and vegetables that bear crops below ground during the dark, or waning, of the Moon: from the day after it is full to the day before it is new again.

The Planting Dates columns give the safe periods for planting in areas that receive frost. (See **page 232** for frost dates in your area.) The Moon Favorable columns give the best planting days within the Planting Dates based on the Moon's phases for 2023. (See **pages 120–146** for the exact days of the new and full Moons.)

The dates listed in this table are meant as general guidelines only. For seed-sowing dates based on frost dates in your local area, go to Almanac.ca/2023.

Aboveground crops are marked *.
(E) means early; (L) means late.



| | |
|----------------------|-----|
| * Barley | |
| * Beans | (E) |
| | (L) |
| Beets | (E) |
| | (L) |
| * Broccoli plants | (E) |
| | (L) |
| * Brussels sprouts | |
| * Cabbage plants | |
| Carrots | (E) |
| | (L) |
| * Cauliflower plants | (E) |
| | (L) |
| * Celery plants | (E) |
| | (L) |
| * Collards | (E) |
| | (L) |
| * Corn, sweet | (E) |
| | (L) |
| * Cucumbers | |
| * Eggplant plants | |
| * Endive | (E) |
| | (L) |
| * Kale | (E) |
| | (L) |
| Leek plants | |
| * Lettuce | |
| * Muskmelons | |
| * Okra | |
| Onion sets | |
| * Parsley | |
| Parsnips | |
| * Peas | (E) |
| | (L) |
| * Pepper plants | |
| Potatoes | |
| * Pumpkins | |
| Radishes | (E) |
| | (L) |
| * Spinach | (E) |
| | (L) |
| * Squashes | |
| Sweet potatoes | |
| * Swiss chard | |
| * Tomato plants | |
| Turnips | (E) |
| | (L) |
| * Watermelons | |
| * Wheat, spring | |
| * Wheat, winter | |

| AREA 1 | | AREA 2 | | AREA 3 | | AREA 4 | |
|----------------|-------------------------|----------------|-----------------------|----------------|-------------------|----------------|-------------------|
| PLANTING DATES | MOON FAVORABLE | PLANTING DATES | MOON FAVORABLE | PLANTING DATES | MOON FAVORABLE | PLANTING DATES | MOON FAVORABLE |
| 2/15-3/7 | 2/20-3/7 | 3/15-4/7 | 3/21-4/6 | 5/15-6/21 | 5/19-6/3, 6/18-21 | 6/1-30 | 6/1-3, 6/18-30 |
| 3/15-4/7 | 3/21-4/6 | 4/15-30 | 4/20-30 | 5/7-6/21 | 5/19-6/3, 6/18-21 | 5/30-6/15 | 5/30-6/3 |
| 8/7-31 | 8/16-30 | 7/1-21 | 7/1-3, 7/17-21 | 6/15-7/15 | 6/18-7/3 | — | — |
| 2/7-28 | 2/7-19 | 3/15-4/3 | 3/15-20 | 4/25-5/15 | 5/6-15 | 5/25-6/10 | 6/4-10 |
| 9/1-30 | 9/1-13, 9/30 | 8/15-31 | 8/15, 8/31 | 7/15-8/15 | 7/15-16, 8/2-15 | 6/15-7/8 | 6/15-17, 7/4-8 |
| 2/15-3/15 | 2/20-3/7 | 3/7-31 | 3/7, 3/21-31 | 5/15-31 | 5/19-31 | 6/1-25 | 6/1-3, 6/18-25 |
| 9/7-30 | 9/14-29 | 8/1-20 | 8/1, 8/16-20 | 6/15-7/7 | 6/18-7/3 | — | — |
| 2/11-3/20 | 2/20-3/7 | 3/7-4/15 | 3/7, 3/21-4/6 | 5/15-31 | 5/19-31 | 6/1-25 | 6/1-3, 6/18-25 |
| 2/11-3/20 | 2/20-3/7 | 3/7-4/15 | 3/7, 3/21-4/6 | 5/15-31 | 5/19-31 | 6/1-25 | 6/1-3, 6/18-25 |
| 2/15-3/7 | 2/15-19 | 3/7-31 | 3/8-20 | 5/15-31 | 5/15-18 | 5/25-6/10 | 6/4-10 |
| 8/1-9/7 | 8/2-15, 8/31-9/7 | 7/7-31 | 7/7-16 | 6/15-7/21 | 6/15-17, 7/4-16 | 6/15-7/8 | 6/15-17, 7/4-8 |
| 2/15-3/7 | 2/20-3/7 | 3/15-4/7 | 3/21-4/6 | 5/15-31 | 5/19-31 | 6/1-25 | 6/1-3, 6/18-25 |
| 8/7-31 | 8/16-30 | 7/1-8/7 | 7/1-3, 7/17-8/1 | 6/15-7/21 | 6/18-7/3, 7/17-21 | — | — |
| 2/15-28 | 2/20-28 | 3/7-31 | 3/7, 3/21-31 | 5/15-6/30 | 5/19-6/3, 6/18-30 | 6/1-30 | 6/1-3, 6/18-30 |
| 9/15-30 | 9/15-29 | 8/15-9/7 | 8/16-30 | 7/15-8/15 | 7/17-8/1 | — | — |
| 2/11-3/20 | 2/20-3/7 | 3/7-4/7 | 3/7, 3/21-4/6 | 5/15-31 | 5/19-31 | 6/1-25 | 6/1-3, 6/18-25 |
| 9/7-30 | 9/14-29 | 8/15-31 | 8/16-30 | 7/1-8/7 | 7/1-3, 7/17-8/1 | — | — |
| 3/15-31 | 3/21-31 | 4/1-17 | 4/1-6 | 5/10-6/15 | 5/19-6/3 | 5/30-6/20 | 5/30-6/3, 6/18-20 |
| 8/7-31 | 8/16-30 | 7/7-21 | 7/17-21 | 6/15-30 | 6/18-30 | — | — |
| 3/7-4/15 | 3/7, 3/21-4/6 | 4/7-5/15 | 4/20-5/5 | 5/7-6/20 | 5/19-6/3, 6/18-20 | 5/30-6/15 | 5/30-6/3 |
| 3/7-4/15 | 3/7, 3/21-4/6 | 4/7-5/15 | 4/20-5/5 | 6/1-30 | 6/1-3, 6/18-30 | 6/15-30 | 6/18-30 |
| 2/15-3/20 | 2/20-3/7 | 4/7-5/15 | 4/20-5/5 | 5/15-31 | 5/19-31 | 6/1-25 | 6/1-3, 6/18-25 |
| 8/15-9/7 | 8/16-30 | 7/15-8/15 | 7/17-8/1 | 6/7-30 | 6/18-30 | — | — |
| 2/11-3/20 | 2/20-3/7 | 3/7-4/7 | 3/7, 3/21-4/6 | 5/15-31 | 5/19-31 | 6/1-15 | 6/1-3 |
| 9/7-30 | 9/14-29 | 8/15-31 | 8/16-30 | 7/1-8/7 | 7/1-3, 7/17-8/1 | 6/25-7/15 | 6/25-7/3 |
| 2/15-4/15 | 2/15-19, 3/8-20, 4/7-15 | 3/7-4/7 | 3/8-20, 4/7 | 5/15-31 | 5/15-18 | 6/1-25 | 6/4-17 |
| 2/15-3/7 | 2/20-3/7 | 3/1-31 | 3/1-7, 3/21-31 | 5/15-6/30 | 5/19-6/3, 6/18-30 | 6/1-30 | 6/1-3, 6/18-30 |
| 3/15-4/7 | 3/21-4/6 | 4/15-5/7 | 4/20-5/5 | 5/15-6/30 | 5/19-6/3, 6/18-30 | 6/1-30 | 6/1-3, 6/18-30 |
| 4/15-6/1 | 4/20-5/5, 5/19-6/1 | 5/25-6/15 | 5/25-6/3 | 6/15-7/10 | 6/18-7/3 | 6/15-7/7 | 6/18-7/3 |
| 2/1-28 | 2/6-19 | 3/1-31 | 3/8-20 | 5/15-6/7 | 5/15-18, 6/4-7 | 6/1-25 | 6/4-17 |
| 2/20-3/15 | 2/20-3/7 | 3/1-31 | 3/1-7, 3/21-31 | 5/15-31 | 5/19-31 | 6/1-15 | 6/1-3 |
| 1/15-2/4 | 1/15-20 | 3/7-31 | 3/8-20 | 4/1-30 | 4/7-19 | 5/10-31 | 5/10-18 |
| 1/15-2/7 | 1/21-2/5 | 3/7-31 | 3/7, 3/21-31 | 4/15-5/7 | 4/20-5/5 | 5/15-31 | 5/19-31 |
| 9/15-30 | 9/15-29 | 8/7-31 | 8/16-30 | 7/15-31 | 7/17-31 | 7/10-25 | 7/17-25 |
| 3/1-20 | 3/1-7 | 4/1-30 | 4/1-6, 4/20-30 | 5/15-6/30 | 5/19-6/3, 6/18-30 | 6/1-30 | 6/1-3, 6/18-30 |
| 2/10-28 | 2/10-19 | 4/1-30 | 4/7-19 | 5/1-31 | 5/6-18 | 6/1-25 | 6/4-17 |
| 3/7-20 | 3/7 | 4/23-5/15 | 4/23-5/5 | 5/15-31 | 5/19-31 | 6/1-30 | 6/1-3, 6/18-30 |
| 1/21-3/1 | 2/6-19 | 3/7-31 | 3/8-20 | 4/15-30 | 4/15-19 | 5/15-6/5 | 5/15-18, 6/4-5 |
| 10/1-21 | 10/1-13 | 9/7-30 | 9/7-13, 9/30 | 8/15-31 | 8/15, 8/31 | 7/10-31 | 7/10-16 |
| 2/7-3/15 | 2/20-3/7 | 3/15-4/20 | 3/21-4/6, 4/20 | 5/15-31 | 5/19-31 | 6/1-25 | 6/1-3, 6/18-25 |
| 10/1-21 | 10/14-21 | 8/1-9/15 | 8/1, 8/16-30, 9/14-15 | 7/17-9/7 | 7/17-8/1, 8/16-30 | 7/20-8/5 | 7/20-8/1 |
| 3/15-4/15 | 3/21-4/6 | 4/15-30 | 4/20-30 | 5/15-6/15 | 5/19-6/3 | 6/1-30 | 6/1-3, 6/18-30 |
| 3/23-4/7 | 4/7 | 4/21-5/9 | 5/6-9 | 5/15-6/15 | 5/15-18, 6/4-15 | 6/1-30 | 6/4-17 |
| 2/7-3/15 | 2/20-3/7 | 3/15-4/15 | 3/21-4/6 | 5/1-31 | 5/1-5, 5/19-31 | 5/15-31 | 5/19-31 |
| 3/7-21 | 3/7, 3/21 | 4/7-30 | 4/20-30 | 5/15-31 | 5/19-31 | 6/1-15 | 6/1-3 |
| 1/20-2/15 | 1/20, 2/6-15 | 3/15-31 | 3/15-20 | 4/7-30 | 4/7-19 | 5/10-31 | 5/10-18 |
| 9/1-10/15 | 9/1-13, 9/30-10/13 | 8/1-20 | 8/2-15 | 7/1-8/15 | 7/4-16, 8/2-15 | — | — |
| 3/15-4/7 | 3/21-4/6 | 4/15-5/7 | 4/20-5/5 | 5/15-6/30 | 5/19-6/3, 6/18-30 | 6/1-30 | 6/1-3, 6/18-30 |
| 2/15-28 | 2/20-28 | 3/1-20 | 3/1-7 | 4/7-30 | 4/20-30 | 5/15-6/10 | 5/19-6/3 |
| 10/15-12/7 | 10/15-28, 11/13-27 | 9/15-10/20 | 9/15-29, 10/14-20 | 8/11-9/15 | 8/16-30, 9/14-15 | 8/5-30 | 8/16-30 |

FROSTS AND GROWING SEASONS

Dates given are normal averages for a light freeze; local weather and topography may cause considerable variations. The possibility of frost occurring after the spring dates and before the fall dates is 33 percent. The classification of freeze temperatures is usually based on their effect on plants. **Light freeze:** -2° to 0°C (29° to 32°F)—tender plants killed. **Moderate freeze:** -4° to -2°C (25° to 28°F)—widely destructive to most plants. **Severe freeze:** -4°C (24°F and colder)—heavy damage to most plants. —dates courtesy Environment Canada

| PROV. | CITY | GROWING SEASON (DAYS) | LAST SPRING FROST | FIRST FALL FROST | PROV. | CITY | GROWING SEASON (DAYS) | LAST SPRING FROST | FIRST FALL FROST |
|-------|----------------|-----------------------|-------------------|------------------|-------|------------------|-----------------------|-------------------|------------------|
| AB | Athabasca | 103 | May 28 | Sept. 9 | NT | Fort Simpson | 81 | May 31 | Aug. 21 |
| AB | Calgary | 99 | May 29 | Sept. 6 | NT | Norman Wells | 91 | May 29 | Aug. 29 |
| AB | Edmonton | 123 | May 15 | Sept. 16 | NT | Yellowknife | 102 | May 31 | Sept. 11 |
| AB | Grande Prairie | 106 | May 22 | Sept. 6 | ON | Barrie | 147 | May 12 | Oct. 7 |
| AB | Lethbridge | 108 | May 25 | Sept. 11 | ON | Brantford | 151 | May 5 | Oct. 4 |
| AB | Medicine Hat | 118 | May 18 | Sept. 14 | ON | Hamilton | 160 | May 3 | Oct. 11 |
| AB | Peace River | 96 | May 28 | Sept. 2 | ON | Kapuskasing | 75 | June 18 | Sept. 2 |
| AB | Red Deer | 108 | May 24 | Sept. 10 | ON | Kingston | 161 | Apr. 28 | Oct. 7 |
| BC | Abbotsford | 168 | Apr. 30 | Oct. 16 | ON | London | 141 | May 15 | Oct. 4 |
| BC | Castlegar | 141 | May 8 | Sept. 27 | ON | Ottawa | 135 | May 13 | Sept. 26 |
| BC | Chilliwack | 191 | Apr. 19 | Oct. 28 | ON | Owen Sound | 147 | May 14 | Oct. 9 |
| BC | Coombs | 139 | May 13 | Sept. 30 | ON | Peterborough | 137 | May 12 | Sept. 27 |
| BC | Dawson Creek | 76 | June 8 | Aug. 24 | ON | Sudbury | 124 | May 21 | Sept. 23 |
| BC | Kamloops | 152 | May 3 | Oct. 3 | ON | Timmins | 86 | June 13 | Sept. 8 |
| BC | Kelowna | 150 | May 8 | Oct. 6 | ON | Toronto | 161 | May 4 | Oct. 13 |
| BC | Nanaimo | 163 | May 4 | Oct. 15 | ON | Wawa | 97 | June 6 | Sept. 12 |
| BC | Prince George | 120 | May 20 | Sept. 18 | ON | Windsor | 172 | Apr. 28 | Oct. 18 |
| BC | Prince Rupert | 145 | May 14 | Oct. 7 | PE | Alberton | 122 | May 31 | Oct. 1 |
| BC | Vancouver | 180 | Apr. 21 | Oct. 19 | PE | Charlottetown | 142 | May 20 | Oct. 10 |
| BC | Victoria | 208 | Apr. 14 | Nov. 9 | PE | Summerside | 154 | May 13 | Oct. 15 |
| MB | Brandon | 92 | June 6 | Sept. 7 | QC | Baie-Comeau | 103 | June 2 | Sept. 14 |
| MB | Lynn Lake | 87 | June 10 | Sept. 6 | QC | La Tuque | 101 | June 5 | Sept. 15 |
| MB | The Pas | 106 | May 31 | Sept. 15 | QC | Magog | 129 | May 19 | Sept. 26 |
| MB | Thompson | 58 | June 18 | Aug. 16 | QC | Montréal | 168 | Apr. 25 | Oct. 11 |
| MB | Winnipeg | 116 | May 21 | Sept. 15 | QC | Québec | 129 | May 17 | Sept. 24 |
| NB | Bathurst | 101 | June 4 | Sept. 14 | QC | Rimouski | 140 | May 18 | Oct. 6 |
| NB | Fredericton | 125 | May 22 | Sept. 25 | QC | Roberval | 117 | May 25 | Sept. 20 |
| NB | Miramichi | 115 | May 27 | Sept. 20 | QC | Thetford Mines | 128 | May 20 | Sept. 26 |
| NB | Moncton | 103 | June 3 | Sept. 15 | QC | Trois-Rivières | 128 | May 19 | Sept. 25 |
| NB | Saint John | 165 | Apr. 30 | Oct. 13 | SK | Moose Jaw | 110 | May 24 | Sept. 12 |
| NL | Corner Brook | 129 | May 27 | Oct. 4 | SK | North Battleford | 108 | May 26 | Sept. 12 |
| NL | Gander | 115 | June 6 | Sept. 30 | SK | Prince Albert | 88 | June 7 | Sept. 4 |
| NL | Grand Falls | 105 | June 8 | Sept. 22 | SK | Regina | 91 | June 1 | Sept. 1 |
| NL | St. John's | 117 | June 11 | Oct. 7 | SK | Saskatoon | 126 | May 15 | Sept. 19 |
| NS | Halifax | 164 | May 8 | Oct. 20 | SK | Weyburn | 107 | May 26 | Sept. 11 |
| NS | Kentville | 122 | May 26 | Sept. 26 | SK | Yorkton | 106 | May 26 | Sept. 10 |
| NS | Sydney | 135 | May 27 | Oct. 10 | YT | Dawson | 62 | June 9 | Aug. 11 |
| NS | Truro | 103 | June 7 | Sept. 19 | YT | Watson Lake | 83 | June 6 | Aug. 29 |
| NS | Yarmouth | 162 | May 4 | Oct. 14 | YT | Whitehorse | 72 | June 12 | Aug. 24 |

PHENOLOGY: NATURE'S CALENDAR

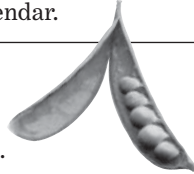
Study nature, love nature, stay close to nature. It will never fail you.

—FRANK LLOYD WRIGHT, AMERICAN ARCHITECT (1867–1959)

For centuries, farmers and gardeners have looked to events in nature to tell them when to plant vegetables and flowers and when to expect insects. Making such observations is called “phenology,” the study of phenomena. Specifically, this refers to the life cycles of plants and animals as they correlate to weather and temperature, or nature’s calendar.

VEGETABLES

- Plant peas when forsythias bloom.
- Plant potatoes when the first dandelion blooms.
- Plant beets, carrots, cole crops (broccoli, brussels sprouts, collards), lettuce, and spinach when lilacs are in first leaf or dandelions are in full bloom.
- Plant corn when oak leaves are the size of a squirrel’s ear (about ½ inch in diameter). Or, plant corn when apple blossoms fade and fall.
- Plant bean, cucumber, and squash seeds when lilacs are in full bloom.
- Plant tomatoes when lilies-of-the-valley are in full bloom.
- Transplant eggplants and peppers when bearded irises bloom.
- Plant onions when red maples bloom.



FLOWERS

- Plant morning glories when maple trees have full-size leaves.
- Plant zinnias and marigolds when black locusts are in full bloom.
- Plant pansies, snapdragons, and other hardy annuals when aspens and chokecherries have leafed out.



INSECTS

- When purple lilacs bloom, grasshopper eggs hatch.
- When chicory blooms, beware of squash vine borers.
- When Canada thistles bloom, protect susceptible fruit; apple maggot flies are at peak.
- When foxglove flowers open, expect Mexican beetle larvae.
- When crabapple trees are in bud, eastern tent caterpillars are hatching.
- When morning glory vines begin to climb, Japanese beetles appear.
- When wild rocket blooms, cabbage root maggots appear.



If the signal plants are not growing in your area, notice other coincident events; record them and watch for them in ensuing seasons.

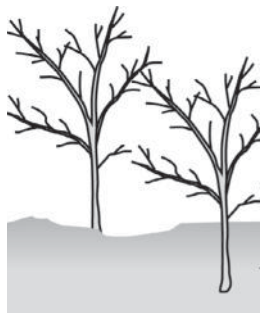
GARDENING

GROW UP!

Do you, too, have a weakness for vigorous climbing annuals? Every year, I seek out varieties known for their rampant growth—‘Kentucky Wonder’ pole beans, ‘Scarlet Runner’ beans, ‘Tall Telephone’ (‘Alderman’) peas. I’ve even grown to love lima beans, so that I can justify a row of ‘Christmas’ limas. And I can’t resist the ornamental hyacinth bean, which I once saw

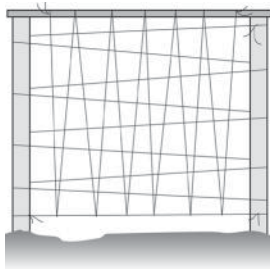
PEA STAKES

■ This is an old-time method for supporting climbing peas, beans, and flowers. Best of all, it’s free. Cut branches about 4 feet long from trees or shrubs on your property. (Estimate the height of your plants and add an extra 8 to 12 inches to compensate for the part of the branch that goes into the ground.) Leave the twigs on to give your plants lots of places to grab hold. With a hatchet, sharpen the thick ends of the branches and drive them into the ground. Or, if you can, just push them in next to your plants.



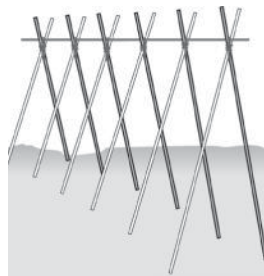
TWINE TRELLIS

■ Set two posts 8 feet apart with a crossbar running along the top. Tie a taut string between the two posts at ground level, then weave a grid of untreated biodegradable twine between the two posts and between the crossbar and the ground-level string. Let your plants ramble at will on this web. When the season is over, cut down the plants and twine and toss them into the compost pile.



INVERTED-V FRAME

■ Use 12 slender bamboo poles or branches at least 6 feet long and a 13th pole that is 12 feet long. Push the 12 poles into the ground in pairs, with about 3 feet between their bottom ends and at a slant so that the tops meet, as shown. Leave about 2 feet between the pairs. Lash the top of each inverted “V” to the 13th pole, placed horizontally. Plant two or three seeds around each pole. This makes a wonderful tunnel for small children to crawl through.



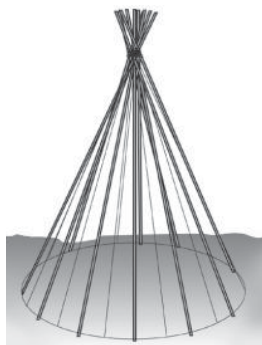
Illustrations: Margo Letourneau

on an arbor at Monticello, or blue morning glories and moonflowers.

Vertical garden plants need a good place to climb. I prefer to get the support into place and then plant my peas or flowers. For beans, however, I often wait until the first two leaves have opened and then position the stakes. Here are a few ideas for supports that you can put together yourself. —*Jessica Barlow*

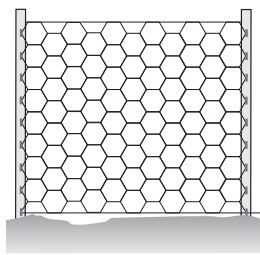
TEPEE

■ To secure plants growing in a circle, push eight to ten bamboo poles (each about 5 to 6 feet long) into the ground following the circle of plants. Slant the poles in toward the center of the circle and tie them together at the top to form a tepee. Run a circle of twine or wire around the bottom of the poles, attach strings to the twine or wire between the poles, and run the strings to the top of the tepee for additional climbing space.



CHICKEN-WIRE FENCE

■ Buy 48- or 60-inch-wide chicken wire with a 2-inch mesh, and support it by nailing or fastening it to posts driven into the ground about 6 feet apart. Try the metal fence posts sold at lumberyards and also at hardware stores. The wedge-shape plate attached to the bottom of the post makes it easy to pound into cold ground, and the posts have little “fingers” that hold the chicken wire in place. When your harvest is over, peel off the vines and roll up the wire for another year.



WALL SUPPORT

■ If you want plants to cover a shed or garage wall, attach two 1x4s (approximately 6 feet long) horizontally to the wall about 8 to 10 feet apart. Screw hooks at 10-inch intervals along the two boards and run string vertically between the hooks. Plant a seed near each string.

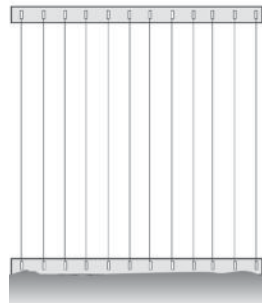


TABLE OF MEASURES

LINEAR

1 hand = 4 inches
 1 link = 7.92 inches
 1 span = 9 inches
 1 foot = 12 inches
 1 yard = 3 feet
 1 rod = 5½ yards
 1 mile = 320 rods = 1,760 yards = 5,280 feet
 1 international nautical mile = 6,076.1155 feet
 1 knot = 1 nautical mile per hour
 1 fathom = 2 yards = 6 feet
 1 furlong = ¼ mile = 660 feet = 220 yards
 1 league = 3 miles = 24 furlongs
 1 chain = 100 links = 22 yards

SQUARE

1 square foot = 144 square inches
 1 square yard = 9 square feet
 1 square rod = 30¼ square yards = 272¼ square feet = 625 square links

1 square chain = 16 square rods
 1 acre = 10 square chains = 160 square rods = 43,560 square feet
 1 square mile = 640 acres = 102,400 square rods

CUBIC

1 cubic foot = 1,728 cubic inches
 1 cubic yard = 27 cubic feet
 1 cord = 128 cubic feet
 1 U.S. liquid gallon = 4 quarts = 231 cubic inches
 1 imperial gallon = 1.20 U.S. gallons = 0.16 cubic foot
 1 board foot = 144 cubic inches

DRY

2 pints = 1 quart
 4 quarts = 1 gallon
 2 gallons = 1 peck
 4 pecks = 1 bushel

LIQUID

4 gills = 1 pint
 63 gallons = 1 hogshead
 2 hogsheads = 1 pipe or butt
 2 pipes = 1 tun

KITCHEN

3 teaspoons = 1 tablespoon
 16 tablespoons = 1 cup
 1 cup = 8 ounces
 2 cups = 1 pint
 2 pints = 1 quart
 4 quarts = 1 gallon

AVOIRDUPOIS

(for general use)
 1 ounce = 16 drams
 1 pound = 16 ounces
 1 short hundredweight = 100 pounds
 1 ton = 2,000 pounds
 1 long ton = 2,240 pounds

APOTHECARIES'

(for pharmaceutical use)
 1 scruple = 20 grains
 1 dram = 3 scruples
 1 ounce = 8 drams
 1 pound = 12 ounces

METRIC CONVERSIONS

LINEAR

1 inch = 2.54 centimeters
 1 centimeter = 0.39 inch
 1 meter = 39.37 inches
 1 yard = 0.914 meter
 1 mile = 1.61 kilometers
 1 kilometer = 0.62 mile

SQUARE

1 square inch = 6.45 square centimeters
 1 square yard = 0.84 square meter
 1 square mile = 2.59 square kilometers

1 square kilometer = 0.386 square mile
 1 acre = 0.40 hectare
 1 hectare = 2.47 acres

CUBIC

1 cubic yard = 0.76 cubic meter
 1 cubic meter = 1.31 cubic yards

HOUSEHOLD

½ teaspoon = 2.46 mL
 1 teaspoon = 4.93 mL
 1 tablespoon = 14.79 mL
 ¼ cup = 59.15 mL

⅓ cup = 78.86 mL
 ½ cup = 118.29 mL
 ¾ cup = 177.44 mL
 1 cup = 236.59 mL
 1 liter = 1.057 U.S. liquid quarts
 1 U.S. liquid quart = 0.946 liter
 1 U.S. liquid gallon = 3.78 liters
 1 gram = 0.035 ounce
 1 ounce = 28.349 grams
 1 kilogram = 2.2 pounds
 1 pound = 0.45 kilogram

TO CONVERT CELSIUS AND FAHRENHEIT: °C = (°F - 32)/1.8; °F = (°C × 1.8) + 32

TIDAL GLOSSARY

APOGEAN TIDE: A monthly tide of decreased range that occurs when the Moon is at apogee (farthest from Earth).

CURRENT: Generally, a horizontal movement of water. Currents may be classified as tidal and nontidal. Tidal currents are caused by gravitational interactions between the Sun, Moon, and Earth and are part of the same general movement of the sea that is manifested in the vertical rise and fall, called tide. Nontidal currents include the permanent currents in the general circulatory systems of the sea as well as temporary currents arising from more pronounced meteorological variability.

DIURNAL TIDE: A tide with one high water and one low water in a tidal day of approximately 24 hours.

MEAN LOWER LOW WATER: The arithmetic mean of the lesser of a daily pair of low waters, observed over a specific 19-year cycle called the National Tidal Datum Epoch.

NEAP TIDE: A tide of decreased range that occurs twice a month, when the Moon is in quadrature (during its first and last quarters, when the Sun and the Moon are at right angles to each other relative to Earth).

PERIGEAN TIDE: A monthly tide of increased range that occurs when the Moon is at perigee (closest to Earth).

RED TIDE: Toxic algal blooms caused by several genera of dinoflagellates that usually turn the sea red or brown. These pose a serious threat to marine life and may be harmful to humans.

RIP CURRENT: A potentially dangerous, narrow, intense, surf-zone current flowing outward from shore.

SEMIDIURNAL TIDE: A tide with one high water and one low water every half-day. East Coast tides, for example, are semi-diurnal, with two highs and two lows during a tidal day of approximately 24 hours.

SLACK WATER (SLACK): The state of a tidal current when its speed is near zero, especially the moment when a reversing current changes direction and its speed is zero.

SPRING TIDE: A tide of increased range that occurs at times of syzygy each month. Named not for the season of spring but from the German *springen* ("to leap up"), a spring tide also brings a lower low water.

STORM SURGE: The local change in the elevation of the ocean along a shore due to a storm, measured by subtracting the astronomic tidal elevation from the total elevation. It typically has a duration of a few hours and is potentially catastrophic, especially on low-lying coasts with gently sloping offshore topography.

SYZYGY: The nearly straight-line configuration that occurs twice a month, when the Sun and the Moon are in conjunction (on the same side of Earth, at the new Moon) and when they are in opposition (on opposite sides of Earth, at the full Moon). In both cases, the gravitational effects of the Sun and the Moon reinforce each other, and tidal range is increased.

TIDAL BORE: A tide-induced wave that propagates up a relatively shallow and sloping estuary or river with a steep wave front.

Tsunami: Commonly called a tidal wave, a tsunami is a series of long-period waves caused by an underwater earthquake or volcanic eruption. In open ocean, the waves are small and travel at high speed; as they near shore, some may build to more than 30 feet high, becoming a threat to life and property.

VANISHING TIDE: A mixed tide of considerable inequality in the two highs and two lows, so that the lower high (or higher low) may appear to vanish. ■

HIGH TIDE TIMES AND HEIGHTS

This table lists the biweekly times and heights of high tide at Churchill, Manitoba, and Vancouver, British Columbia. (A dash indicates that high tide occurs on or after midnight and is recorded on the next day.) Tide times for other days can be interpolated; low tides occur about 6 hours before and after high tides. In addition, the **Calendar Pages, 120–147**, list times and some heights of high tides at Halifax, Nova Scotia. This table is *not* meant to be used for navigation. To get accurate tide times and heights by postal code, go to Almanac.ca/2023.

Standard time shown, except for Daylight Saving Time between 2:00 A.M., Mar. 12, and 2:00 A.M., Nov. 5.

| CHURCHILL | | | | | VANCOUVER | | | | |
|----------------|--------------|--------------|--------------|--------------|----------------|---------|--------------|--------------|--------------|
| DATE | CST/COT | HEIGHT (FT.) | CST/COT | HEIGHT (FT.) | DATE | PST/PDT | HEIGHT (FT.) | PST/PDT | HEIGHT (FT.) |
| TUES., JAN. 3 | 5:05 | 12.4 | 5:20 | 12.7 | TUES., JAN. 3 | 4:43 | 14.6 | 1:46 | 14.1 |
| SAT., JAN. 7 | 8:21 | 13.4 | 8:20 | 13.4 | SAT., JAN. 7 | 7:18 | 15.8 | 4:27 | 13.6 |
| TUES., JAN. 10 | 10:01 | 13.6 | 10:02 | 13.4 | TUES., JAN. 10 | 8:44 | 15.7 | 6:36 | 12.4 |
| SAT., JAN. 14 | 12:25 | 12.9 | — | — | SAT., JAN. 14 | 10:28 | 15.2 | 11:39 | 10.7 |
| TUES., JAN. 17 | 2:32 | 11.8 | 2:57 | 12.2 | TUES., JAN. 17 | 3:14 | 12.8 | 12:05 | 14.9 |
| SAT., JAN. 21 | 7:04 | 13.6 | 7:14 | 13.9 | SAT., JAN. 21 | 6:25 | 16.2 | 3:50 | 15.3 |
| TUES., JAN. 24 | 9:39 | 15.0 | 9:50 | 15.0 | TUES., JAN. 24 | 8:18 | 16.5 | 6:58 | 13.7 |
| SAT., JAN. 28 | 12:18 | 13.8 | 12:44 | 13.9 | SAT., JAN. 28 | 10:24 | 15.5 | — | — |
| TUES., JAN. 31 | 3:06 | 11.6 | 3:26 | 11.7 | TUES., JAN. 31 | 3:39 | 13.9 | 12:12 | 13.5 |
| SAT., FEB. 4 | 7:27 | 12.5 | 7:29 | 12.5 | SAT., FEB. 4 | 6:17 | 15.3 | 3:52 | 13.3 |
| TUES., FEB. 7 | 9:07 | 13.3 | 9:09 | 13.3 | TUES., FEB. 7 | 7:32 | 15.2 | 6:07 | 13.1 |
| SAT., FEB. 11 | 11:10 | 13.4 | 11:22 | 13.0 | SAT., FEB. 11 | 8:59 | 15.0 | 9:56 | 11.7 |
| TUES., FEB. 14 | 12:45 | 12.2 | 1:05 | 12.4 | TUES., FEB. 14 | 1:11 | 12.6 | 10:25 | 14.4 |
| SAT., FEB. 18 | 5:43 | 12.3 | 6:00 | 12.7 | SAT., FEB. 18 | 5:14 | 15.6 | 2:55 | 14.4 |
| TUES., FEB. 21 | 8:34 | 14.6 | 8:45 | 14.7 | TUES., FEB. 21 | 6:59 | 16.0 | 6:09 | 14.2 |
| SAT., FEB. 25 | 11:23 | 14.4 | 11:43 | 13.7 | SAT., FEB. 25 | 8:51 | 15.1 | 10:45 | 12.7 |
| TUES., FEB. 28 | 1:12 | 12.0 | 1:27 | 11.8 | TUES., FEB. 28 | 1:53 | 13.4 | 10:17 | 12.8 |
| SAT., MAR. 4 | 6:12 | 11.4 | 6:22 | 11.4 | SAT., MAR. 4 | 5:04 | 14.7 | 3:10 | 12.4 |
| TUES., MAR. 7 | 8:09 | 12.9 | 8:14 | 12.9 | TUES., MAR. 7 | 6:15 | 14.6 | 5:32 | 13.1 |
| SAT., MAR. 11 | 10:06 | 13.7 | 10:21 | 13.5 | SAT., MAR. 11 | 7:36 | 14.5 | 8:55 | 13.1 |
| TUES., MAR. 14 | 12:32 | 12.9 | 12:45 | 13.0 | TUES., MAR. 14 | 12:20 | 13.4 | 9:51 | 13.8 |
| SAT., MAR. 18 | 5:05 | 11.5 | 5:34 | 11.7 | SAT., MAR. 18 | 4:53 | 15.1 | 2:56 | 13.0 |
| TUES., MAR. 21 | 8:26 | 14.0 | 8:42 | 14.1 | TUES., MAR. 21 | 6:38 | 15.5 | 6:23 | 13.9 |
| SAT., MAR. 25 | 11:09 | 14.6 | 11:32 | 14.2 | SAT., MAR. 25 | 8:24 | 14.6 | 10:23 | 13.9 |
| TUES., MAR. 28 | 12:49 | 12.8 | 12:57 | 12.6 | TUES., MAR. 28 | 12:42 | 13.8 | 9:36 | 12.3 |
| SAT., APR. 1 | 5:05 | 10.7 | 5:35 | 10.6 | SAT., APR. 1 | 4:35 | 14.2 | 3:11 | 11.1 |
| TUES., APR. 4 | 7:58 | 12.4 | 8:10 | 12.4 | TUES., APR. 4 | 5:52 | 14.2 | 5:51 | 12.7 |
| SAT., APR. 8 | 10:04 | 13.9 | 10:25 | 13.8 | SAT., APR. 8 | 7:12 | 14.2 | 9:07 | 14.1 |
| TUES., APR. 11 | 11:44 | 13.6 | — | — | TUES., APR. 11 | 8:29 | 13.5 | — | — |
| SAT., APR. 15 | 3:28 | 11.8 | 3:58 | 11.6 | SAT., APR. 15 | 3:20 | 14.9 | 1:48 | 11.5 |
| TUES., APR. 18 | 7:12 | 13.4 | 7:34 | 13.5 | TUES., APR. 18 | 5:15 | 15.1 | 5:39 | 13.3 |
| SAT., APR. 22 | 10:00 | 14.5 | 10:26 | 14.3 | SAT., APR. 22 | 6:59 | 14.2 | 9:23 | 14.8 |
| TUES., APR. 25 | 11:49 | 13.3 | — | — | TUES., APR. 25 | 8:13 | 12.2 | — | — |
| SAT., APR. 29 | 3:00 | 11.2 | 3:24 | 10.7 | SAT., APR. 29 | 2:44 | 14.1 | 1:35 | 10.0 |
| TUES., MAY 2 | 6:26 | 11.9 | 6:50 | 11.8 | TUES., MAY 2 | 4:20 | 13.9 | 5:06 | 11.9 |
| SAT., MAY 6 | 9:00 | 13.8 | 9:28 | 13.8 | SAT., MAY 6 | 5:47 | 14.2 | 8:22 | 14.7 |
| TUES., MAY 9 | 10:51 | 14.0 | 11:29 | 13.9 | TUES., MAY 9 | 7:21 | 13.8 | 11:00 | 15.3 |
| SAT., MAY 13 | 2:14 | 12.7 | 2:35 | 12.3 | SAT., MAY 13 | 1:44 | 15.2 | 12:23 | 10.8 |
| TUES., MAY 16 | 5:49 | 13.2 | 6:19 | 13.0 | TUES., MAY 16 | 3:46 | 14.9 | 4:55 | 12.6 |
| SAT., MAY 20 | 8:56 | 14.1 | 9:28 | 14.0 | SAT., MAY 20 | 5:37 | 14.0 | 8:32 | 15.2 |
| TUES., MAY 23 | 10:52 | 13.7 | 11:27 | 13.6 | TUES., MAY 23 | 7:06 | 12.6 | 10:44 | 15.0 |
| SAT., MAY 27 | 1:35 | 12.3 | 1:47 | 11.7 | SAT., MAY 27 | 12:47 | 14.5 | 11:03 | 9.8 |
| TUES., MAY 30 | 4:32 | 11.9 | 5:04 | 11.4 | TUES., MAY 30 | 2:35 | 14.0 | 4:07 | 11.1 |
| SAT., JUNE 3 | 7:52 | 13.4 | 8:27 | 13.5 | SAT., JUNE 3 | 4:22 | 14.4 | 7:35 | 14.8 |
| TUES., JUNE 6 | 10:00 | 14.3 | 10:40 | 14.3 | TUES., JUNE 6 | 6:21 | 14.3 | 9:57 | 15.7 |
| SAT., JUNE 10 | 1:15 | 13.9 | 1:31 | 13.4 | SAT., JUNE 10 | 12:14 | 15.6 | 10:55 | 11.0 |

| CHURCHILL | | | | | VANCOUVER | | | | |
|-----------------|---------|--------------|---------|--------------|-----------------|---------|--------------|---------|--------------|
| DATE | CST/CDT | HEIGHT (FT.) | CST/CDT | HEIGHT (FT.) | DATE | PST/PDT | HEIGHT (FT.) | PST/PDT | HEIGHT (FT.) |
| TUES., JUNE 13 | 4:18 | 13.4 | 4:52 | 12.9 | TUES., JUNE 13 | 2:12 | 15.0 | 4:02 | 12.1 |
| SAT., JUNE 17 | 7:56 | 13.6 | 8:36 | 13.6 | SAT., JUNE 17 | 4:20 | 13.8 | 7:41 | 15.2 |
| TUES., JUNE 20 | 10:01 | 13.8 | 10:38 | 13.9 | TUES., JUNE 20 | 6:10 | 13.0 | 9:39 | 15.1 |
| SAT., JUNE 24 | 12:32 | 13.4 | 12:39 | 12.8 | SAT., JUNE 24 | 9:28 | 10.6 | 11:45 | 14.7 |
| TUES., JUNE 27 | 2:44 | 12.6 | 3:07 | 11.8 | TUES., JUNE 27 | 12:45 | 14.3 | 2:24 | 10.4 |
| SAT., JULY 1 | 6:27 | 12.9 | 7:11 | 13.0 | SAT., JULY 1 | 2:55 | 14.4 | 6:41 | 14.6 |
| TUES., JULY 4 | 9:02 | 14.3 | 9:45 | 14.5 | TUES., JULY 4 | 5:23 | 14.8 | 8:52 | 15.6 |
| SAT., JULY 8 | 12:14 | 15.1 | 12:29 | 14.6 | SAT., JULY 8 | 9:42 | 11.9 | 11:26 | 15.7 |
| TUES., JULY 11 | 2:49 | 14.1 | 3:19 | 13.3 | TUES., JULY 11 | 12:34 | 15.1 | 2:47 | 11.7 |
| SAT., JULY 15 | 6:49 | 13.0 | 7:38 | 13.1 | SAT., JULY 15 | 3:08 | 13.4 | 6:47 | 14.9 |
| TUES., JULY 18 | 9:15 | 13.6 | 9:51 | 13.9 | TUES., JULY 18 | 5:25 | 13.2 | 8:35 | 14.9 |
| SAT., JULY 22 | 11:41 | 13.6 | — | — | SAT., JULY 22 | 8:31 | 11.7 | 10:18 | 14.7 |
| TUES., JULY 25 | 1:19 | 13.4 | 1:35 | 12.7 | TUES., JULY 25 | 12:07 | 10.6 | 11:30 | 14.2 |
| SAT., JULY 29 | 4:40 | 12.4 | 5:32 | 12.3 | SAT., JULY 29 | 1:23 | 14.1 | 5:40 | 14.2 |
| TUES., AUG. 1 | 7:56 | 13.8 | 8:42 | 14.3 | TUES., AUG. 1 | 4:24 | 14.7 | 7:41 | 15.3 |
| SAT., AUG. 5 | 11:24 | 15.5 | 11:56 | 15.8 | SAT., AUG. 5 | 8:41 | 12.9 | 9:57 | 15.7 |
| TUES., AUG. 8 | 1:27 | 15.0 | 1:52 | 14.1 | TUES., AUG. 8 | 1:02 | 11.9 | 11:32 | 14.4 |
| SAT., AUG. 12 | 5:18 | 12.4 | 6:18 | 12.4 | SAT., AUG. 12 | 1:55 | 12.8 | 5:46 | 14.5 |
| TUES., AUG. 15 | 8:25 | 13.2 | 9:00 | 13.7 | TUES., AUG. 15 | 4:45 | 12.9 | 7:27 | 14.6 |
| SAT., AUG. 19 | 10:45 | 14.1 | 11:08 | 14.4 | SAT., AUG. 19 | 7:47 | 12.5 | 8:57 | 14.4 |
| TUES., AUG. 22 | 12:09 | 14.1 | 12:24 | 13.5 | TUES., AUG. 22 | 10:37 | 11.7 | 9:58 | 14.0 |
| SAT., AUG. 26 | 2:50 | 12.4 | 3:40 | 12.0 | SAT., AUG. 26 | 4:22 | 13.8 | — | — |
| TUES., AUG. 29 | 6:43 | 13.0 | 7:32 | 13.7 | TUES., AUG. 29 | 3:26 | 13.9 | 6:26 | 15.1 |
| SAT., SEPT. 2 | 10:18 | 15.7 | 10:47 | 16.1 | SAT., SEPT. 2 | 7:47 | 13.7 | 8:30 | 15.5 |
| TUES., SEPT. 5 | 12:11 | 15.6 | 12:36 | 14.9 | TUES., SEPT. 5 | 11:20 | 12.9 | 9:57 | 14.1 |
| SAT., SEPT. 9 | 3:28 | 12.2 | 4:23 | 12.0 | SAT., SEPT. 9 | 12:24 | 11.9 | 4:28 | 14.2 |
| TUES., SEPT. 12 | 7:18 | 12.6 | 7:55 | 13.4 | TUES., SEPT. 12 | 4:03 | 12.2 | 6:11 | 14.3 |
| SAT., SEPT. 16 | 9:47 | 14.2 | 10:06 | 14.5 | SAT., SEPT. 16 | 7:08 | 13.0 | 7:36 | 14.1 |
| TUES., SEPT. 19 | 11:22 | 14.2 | 11:34 | 14.3 | TUES., SEPT. 19 | 9:38 | 13.0 | 8:30 | 13.8 |
| SAT., SEPT. 23 | 1:21 | 13.0 | 2:05 | 12.6 | SAT., SEPT. 23 | 2:31 | 13.9 | 11:13 | 12.6 |
| TUES., SEPT. 26 | 5:14 | 12.3 | 6:09 | 13.0 | TUES., SEPT. 26 | 2:26 | 12.7 | 5:04 | 14.9 |
| SAT., SEPT. 30 | 9:12 | 15.5 | 9:37 | 16.0 | SAT., SEPT. 30 | 7:00 | 14.1 | 7:05 | 15.3 |
| TUES., OCT. 3 | 11:25 | 15.5 | 11:38 | 15.4 | TUES., OCT. 3 | 10:05 | 14.3 | 8:25 | 13.9 |
| SAT., OCT. 7 | 1:48 | 12.8 | 2:33 | 12.5 | SAT., OCT. 7 | 2:40 | 14.2 | — | — |
| TUES., OCT. 10 | 5:38 | 11.8 | 6:23 | 12.6 | TUES., OCT. 10 | 3:10 | 11.2 | 4:43 | 14.2 |
| SAT., OCT. 14 | 8:46 | 13.9 | 9:00 | 14.4 | SAT., OCT. 14 | 6:30 | 13.2 | 6:11 | 14.0 |
| TUES., OCT. 17 | 10:23 | 14.5 | 10:30 | 14.6 | TUES., OCT. 17 | 8:51 | 14.2 | 7:03 | 13.9 |
| SAT., OCT. 21 | 12:13 | 13.7 | 12:55 | 13.4 | SAT., OCT. 21 | 12:47 | 14.7 | 9:22 | 12.2 |
| TUES., OCT. 24 | 3:33 | 12.2 | 4:31 | 12.8 | TUES., OCT. 24 | 1:13 | 11.4 | 3:32 | 15.1 |
| SAT., OCT. 28 | 8:05 | 14.9 | 8:25 | 15.4 | SAT., OCT. 28 | 6:19 | 14.2 | 5:39 | 15.2 |
| TUES., OCT. 31 | 10:17 | 15.4 | 10:26 | 15.4 | TUES., OCT. 31 | 9:07 | 15.4 | 6:58 | 14.0 |
| SAT., NOV. 4 | 12:28 | 13.5 | 1:09 | 13.4 | SAT., NOV. 4 | 12:41 | 14.9 | 9:23 | 10.7 |
| TUES., NOV. 7 | 2:29 | 11.6 | 3:15 | 12.1 | TUES., NOV. 7 | 12:42 | 10.0 | 1:57 | 14.4 |
| SAT., NOV. 11 | 6:33 | 13.1 | 6:47 | 13.7 | SAT., NOV. 11 | 4:55 | 13.1 | 3:42 | 14.1 |
| TUES., NOV. 14 | 8:23 | 14.2 | 8:28 | 14.5 | TUES., NOV. 14 | 7:09 | 15.1 | 4:44 | 14.4 |
| SAT., NOV. 18 | 10:59 | 14.1 | 11:03 | 13.8 | SAT., NOV. 18 | 10:26 | 15.8 | 7:23 | 12.5 |
| TUES., NOV. 21 | 1:05 | 12.8 | 1:57 | 13.1 | TUES., NOV. 21 | 12:55 | 15.6 | — | — |
| SAT., NOV. 25 | 5:51 | 13.9 | 6:11 | 14.5 | SAT., NOV. 25 | 4:40 | 14.0 | 3:12 | 15.2 |
| TUES., NOV. 28 | 8:15 | 14.8 | 8:21 | 14.9 | TUES., NOV. 28 | 7:15 | 16.1 | 4:42 | 14.3 |
| SAT., DEC. 2 | 11:02 | 14.0 | 11:05 | 13.4 | SAT., DEC. 2 | 10:08 | 15.7 | 7:10 | 11.5 |
| TUES., DEC. 5 | 12:39 | 12.2 | 1:20 | 12.5 | TUES., DEC. 5 | 11:59 | 15.1 | — | — |
| SAT., DEC. 9 | 4:54 | 12.0 | 5:12 | 12.7 | SAT., DEC. 9 | 4:15 | 12.7 | 2:01 | 14.4 |
| TUES., DEC. 12 | 7:18 | 13.5 | 7:22 | 13.8 | TUES., DEC. 12 | 6:26 | 15.3 | 3:29 | 14.8 |
| SAT., DEC. 16 | 10:06 | 14.4 | 10:11 | 14.3 | SAT., DEC. 16 | 9:16 | 16.4 | 6:40 | 13.4 |
| TUES., DEC. 19 | 12:39 | 13.9 | — | — | TUES., DEC. 19 | 11:20 | 16.2 | 11:01 | 10.7 |
| SAT., DEC. 23 | 4:22 | 12.9 | 4:45 | 13.4 | SAT., DEC. 23 | 3:55 | 13.7 | 1:41 | 15.1 |
| TUES., DEC. 26 | 7:17 | 13.7 | 7:23 | 13.9 | TUES., DEC. 26 | 6:24 | 16.1 | 3:36 | 14.3 |
| SAT., DEC. 30 | 10:02 | 14.1 | 10:04 | 13.8 | SAT., DEC. 30 | 8:53 | 16.0 | 6:27 | 12.5 |

TIME CORRECTIONS

Astronomical data for Ottawa (45°25' N, 75°42' W) are given on **pages 104, 106, 108–109, and 120–146**. Use the Key Letters shown on those pages with this table to find the number of minutes that you must add to or subtract from Ottawa time to get the approximate time for your locale. Time zone codes represent standard time. Newfoundland is $-1\frac{1}{2}$, Atlantic is -1 , Eastern is 0 , Central is 1 , Mountain is 2 , Pacific is 3 . For more information on the use of Key Letters, see **How to Use This Almanac, page 116**.

GET EXACT TIMES EASILY: Download astronomical times calculated for your postal code and presented as Left-Hand Calendar Pages via Almanac.ca/2023.

| PROVINCE | CITY | NORTH LATITUDE | | WEST LONGITUDE | | TIME ZONE CODE | KEY LETTERS (MINUTES) | | | | |
|----------|--------------------|----------------|-----------|----------------|----|----------------|-----------------------|-----|-----|-----|------|
| | | ° | ' | ° | ' | | A | B | C | D | E |
| | | AB | Athabasca | 54 | 43 | | 113 | 17 | 2 | -18 | +9 |
| AB | Banff | 51 | 10 | 115 | 34 | 2 | +12 | +27 | +38 | +51 | +62 |
| AB | Calgary | 51 | 5 | 114 | 5 | 2 | +6 | +21 | +32 | +45 | +56 |
| AB | Edmonton | 53 | 33 | 113 | 28 | 2 | -10 | +13 | +29 | +48 | +65 |
| AB | Fort McMurray | 56 | 45 | 111 | 27 | 2 | -41 | -3 | +21 | +49 | +75 |
| AB | Fort Vermilion | 58 | 24 | 116 | 0 | 2 | -38 | +9 | +38 | +73 | +105 |
| AB | Grande-Prairie | 55 | 10 | 118 | 48 | 2 | 0 | +30 | +50 | +74 | +95 |
| AB | Lethbridge | 49 | 42 | 112 | 50 | 2 | +8 | +19 | +27 | +37 | +45 |
| AB | Medicine Hat | 50 | 3 | 110 | 40 | 2 | -1 | +10 | +19 | +29 | +38 |
| AB | Peace River | 56 | 14 | 117 | 17 | 2 | -14 | +21 | +44 | +71 | +96 |
| AB | Red Deer | 52 | 16 | 113 | 48 | 2 | -1 | +17 | +31 | +46 | +60 |
| BC | Dawson Creek | 55 | 46 | 120 | 14 | 2 | +1 | +34 | +56 | +81 | +105 |
| BC | Fort Nelson | 58 | 49 | 122 | 39 | 3 | -75 | -26 | +5 | +41 | +75 |
| BC | Kamloops | 50 | 40 | 120 | 20 | 3 | -26 | -12 | -2 | +9 | +19 |
| BC | Nelson | 49 | 30 | 117 | 17 | 3 | -32 | -21 | -14 | -5 | +2 |
| BC | Port Alice | 50 | 23 | 127 | 27 | 3 | +3 | +16 | +26 | +37 | +46 |
| BC | Prince George | 53 | 55 | 122 | 45 | 3 | -35 | -10 | +6 | +26 | +44 |
| BC | Prince Rupert | 54 | 19 | 130 | 19 | 3 | -8 | +18 | +36 | +58 | +77 |
| BC | Telegraph Creek | 57 | 55 | 131 | 10 | 3 | -32 | +11 | +39 | +72 | +102 |
| BC | Trail | 49 | 6 | 117 | 42 | 3 | -28 | -19 | -12 | -4 | +2 |
| BC | Vancouver | 49 | 16 | 123 | 7 | 3 | -7 | +1 | +9 | +17 | +24 |
| BC | Victoria | 48 | 25 | 123 | 21 | 3 | -2 | +4 | +10 | +16 | +22 |
| MB | Brandon | 49 | 50 | 99 | 57 | 1 | +16 | +28 | +36 | +46 | +54 |
| MB | Churchill | 58 | 46 | 94 | 10 | 1 | -68 | -19 | +11 | +47 | +80 |
| MB | Flin Flon | 54 | 46 | 101 | 53 | 1 | -4 | +23 | +43 | +65 | +85 |
| MB | Gillam | 56 | 21 | 94 | 43 | 1 | -45 | -9 | +14 | +41 | +66 |
| MB | Gimli | 50 | 38 | 96 | 59 | 1 | 0 | +14 | +24 | +35 | +45 |
| MB | Gypsumville | 51 | 47 | 98 | 38 | 1 | 0 | +18 | +30 | +45 | +57 |
| MB | Norway House | 53 | 59 | 97 | 50 | 1 | -15 | +9 | +27 | +47 | +65 |
| MB | Portage-la-Prairie | 49 | 59 | 98 | 18 | 1 | +9 | +21 | +29 | +39 | +48 |
| MB | The Pas | 53 | 50 | 101 | 15 | 1 | -1 | +23 | +40 | +60 | +78 |
| MB | Winnipeg | 49 | 53 | 97 | 9 | 1 | +5 | +16 | +25 | +34 | +43 |
| NB | Bathurst | 47 | 36 | 65 | 39 | -1 | +10 | +15 | +19 | +24 | +28 |
| NB | Chatham | 47 | 2 | 65 | 28 | -1 | +11 | +16 | +19 | +22 | +25 |
| NB | Fredericton | 45 | 58 | 66 | 39 | -1 | +21 | +22 | +23 | +25 | +26 |
| NB | Moncton | 46 | 6 | 64 | 47 | -1 | +13 | +15 | +16 | +17 | +19 |
| NB | Saint John | 45 | 16 | 66 | 3 | -1 | +21 | +21 | +21 | +21 | +21 |
| NL | Corner Brook | 48 | 57 | 57 | 57 | -1½ | +3 | +12 | +18 | +26 | +32 |
| NL | Gander | 48 | 57 | 54 | 37 | -1½ | -10 | -1 | +5 | +13 | +19 |
| NL | Goose Bay | 53 | 20 | 60 | 25 | -1 | -11 | +12 | +27 | +46 | +62 |
| NL | Grand Falls | 48 | 56 | 55 | 40 | -1½ | -6 | +3 | +9 | +17 | +23 |

| PROVINCE/ STATE | CITY | NORTH LATITUDE | | WEST LONGITUDE | | TIME ZONE CODE | KEY LETTERS (MINUTES) | | | | |
|--------------------|--------------------|-------------------|----|-------------------|----|-------------------|-----------------------|-----|-----|-----|-----|
| | | ° | ' | ° | ' | | A | B | C | D | E |
| NL | St. John's | 47 | 34 | 52 | 43 | -1½ | -11 | -5 | -1 | +2 | +6 |
| NL | St. John's | 48 | 33 | 58 | 35 | -1½ | +7 | +15 | +21 | +28 | +33 |
| NS | Halifax | 44 | 39 | 63 | 36 | -1 | +14 | +12 | +11 | +10 | +9 |
| NS | Sydney | 46 | 9 | 60 | 11 | -1 | -5 | -3 | -1 | 0 | 0 |
| NS | Yarmouth | 43 | 50 | 66 | 7 | -1 | +27 | +24 | +21 | +19 | +16 |
| ON | Fort Severn | 56 | 0 | 87 | 38 | 0 | -10 | +23 | +46 | +72 | +96 |
| ON | Hamilton | 43 | 15 | 79 | 51 | 0 | +24 | +20 | +16 | +13 | +9 |
| ON | Kapuskasing | 49 | 25 | 82 | 26 | 0 | +8 | +19 | +26 | +35 | +42 |
| ON | Kingston | 44 | 15 | 76 | 30 | 0 | +7 | +5 | +3 | +1 | 0 |
| ON | London | 42 | 59 | 81 | 14 | 0 | +31 | +26 | +22 | +18 | +14 |
| ON | Pembroke | 45 | 49 | 77 | 7 | 0 | +3 | +4 | +5 | +6 | +7 |
| ON | Peterborough | 44 | 18 | 78 | 19 | 0 | +14 | +12 | +10 | +8 | +7 |
| ON | Port Arthur | 48 | 30 | 89 | 17 | 0 | +40 | +48 | +53 | +60 | +66 |
| ON | Sault Sainte Marie | 46 | 31 | 84 | 20 | 0 | +29 | +32 | +34 | +36 | +38 |
| ON | Sioux Lookout | 50 | 6 | 91 | 55 | 1 | -16 | -4 | +4 | +14 | +23 |
| ON | Sudbury | 46 | 30 | 81 | 0 | 0 | +16 | +19 | +21 | +23 | +25 |
| ON | Thunder Bay | 48 | 23 | 89 | 15 | 0 | +40 | +48 | +53 | +60 | +65 |
| ON | Timmins | 48 | 28 | 81 | 20 | 0 | +8 | +16 | +22 | +28 | +34 |
| ON | Toronto | 43 | 39 | 79 | 23 | 0 | +21 | +17 | +15 | +11 | +9 |
| ON | Waterloo | 43 | 28 | 80 | 31 | 0 | +26 | +22 | +19 | +16 | +13 |
| ON | Windsor | 42 | 18 | 83 | 1 | 0 | +40 | +34 | +29 | +24 | +19 |
| PE | Charlottetown | 46 | 14 | 63 | 8 | -1 | +6 | +8 | +9 | +11 | +13 |
| QC | Chicoutimi | 48 | 26 | 71 | 4 | 0 | -32 | -24 | -18 | -12 | -6 |
| QC | Fort George | 53 | 50 | 79 | 0 | 0 | -30 | -4 | +12 | +31 | +49 |
| QC | Gaspé | 48 | 50 | 64 | 29 | 0 | -60 | -51 | -45 | -37 | -31 |
| QC | Montréal | 45 | 31 | 73 | 34 | 0 | -9 | -8 | -8 | -8 | -7 |
| QC | Québec | 46 | 49 | 71 | 11 | 0 | -24 | -20 | -18 | -15 | -12 |
| QC | Schefferville | 54 | 48 | 66 | 50 | 0 | -85 | -56 | -36 | -14 | +5 |
| QC | Sept-Îles | 50 | 12 | 66 | 23 | 0 | -59 | -46 | -37 | -27 | -18 |
| QC | Sherbrooke | 45 | 25 | 71 | 54 | 0 | -15 | -15 | -15 | -14 | -14 |
| QC | Trois-Rivières | 46 | 21 | 72 | 33 | 0 | -16 | -14 | -12 | -10 | -8 |
| QC | Val-d'Or | 48 | 7 | 77 | 47 | 0 | -3 | +3 | +8 | +13 | +18 |
| SK | Estevan | 49 | 7 | 103 | 5 | 1 | +32 | +42 | +49 | +57 | +63 |
| SK | Moose Jaw | 50 | 37 | 105 | 32 | 1 | +34 | +48 | +58 | +70 | +79 |
| SK | North Battleford | 52 | 47 | 108 | 17 | 2 | -26 | -5 | +9 | +26 | +41 |
| SK | Prince Albert | 53 | 12 | 105 | 46 | 1 | +21 | +43 | +59 | +77 | +93 |
| SK | Regina | 50 | 25 | 104 | 39 | 1 | +32 | +45 | +55 | +66 | +75 |
| SK | Saskatoon | 52 | 7 | 106 | 38 | 1 | +31 | +49 | +62 | +77 | +91 |
| SK | Swift Current | 50 | 17 | 107 | 50 | 1 | +45 | +58 | +67 | +78 | +87 |
| SK | Uranium City | 59 | 34 | 108 | 36 | 2 | -79 | -24 | +9 | +47 | +84 |
| SK | Yorkton | 51 | 13 | 102 | 28 | 1 | +19 | +35 | +46 | +59 | +70 |

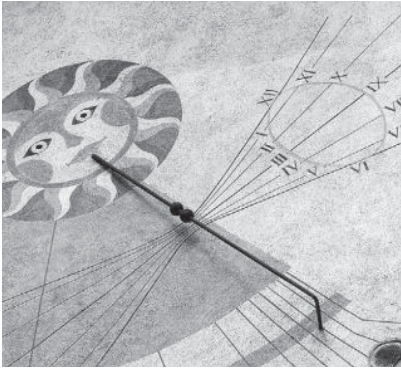
SELECTED U.S. CITIES

| | | | | | | | | | | | |
|----|------------------|----|----|-----|----|---|-----|-----|-----|-----|-----|
| AL | Decatur | 34 | 36 | 86 | 59 | 1 | +20 | +1 | -13 | -31 | -45 |
| AL | Mobile | 30 | 42 | 88 | 3 | 1 | +35 | +10 | -9 | -32 | -50 |
| AR | Little Rock | 34 | 45 | 92 | 17 | 1 | +41 | +22 | +7 | -10 | -23 |
| CA | Palm Springs | 33 | 49 | 116 | 32 | 3 | +21 | 0 | -16 | -35 | -50 |
| CA | Redding | 40 | 35 | 122 | 24 | 3 | +24 | +14 | +7 | -1 | -7 |
| CO | Grand Junction | 39 | 4 | 108 | 33 | 2 | +33 | +21 | +11 | +1 | -7 |
| CT | New Haven | 41 | 18 | 72 | 56 | 0 | +4 | -4 | -10 | -17 | -23 |
| DE | Wilmington | 39 | 45 | 75 | 33 | 0 | +19 | +8 | 0 | -9 | -17 |
| GA | Macon | 32 | 50 | 83 | 38 | 0 | +72 | +49 | +32 | +12 | -2 |
| IA | Dubuque | 42 | 30 | 90 | 41 | 1 | +10 | +4 | 0 | -4 | -9 |
| ID | Boise | 43 | 37 | 116 | 12 | 2 | +48 | +44 | +42 | +38 | +36 |
| ID | Pocatello | 42 | 52 | 112 | 27 | 2 | +36 | +31 | +27 | +22 | +19 |
| IL | Chicago-Oak Park | 41 | 52 | 87 | 38 | 1 | 0 | -6 | -11 | -18 | -23 |

(continued)

| STATE | CITY | NORTH LATITUDE | | WEST LONGITUDE | | TIME ZONE CODE | KEY LETTERS (MINUTES) | | | | |
|-------|-----------------------|----------------|----|----------------|----|----------------|-----------------------|-----|-----|-----|-----|
| | | ° | ' | ° | ' | | A | B | C | D | E |
| IL | Springfield | 39 | 48 | 89 | 39 | 1 | +15 | +4 | -3 | -13 | -21 |
| IN | Fort Wayne | 41 | 4 | 85 | 9 | 0 | +53 | +44 | +38 | +30 | +24 |
| IN | South Bend | 41 | 41 | 86 | 15 | 0 | +55 | +48 | +42 | +36 | +30 |
| IN | Terre Haute | 39 | 28 | 87 | 24 | 0 | +67 | +56 | +47 | +37 | +28 |
| KS | Oakley | 39 | 8 | 100 | 51 | 1 | +62 | +50 | +41 | +30 | +21 |
| KS | Topeka | 39 | 3 | 95 | 40 | 1 | +42 | +29 | +20 | +9 | 0 |
| LA | Lake Charles | 30 | 14 | 93 | 13 | 1 | +57 | +31 | +11 | -12 | -30 |
| LA | Shreveport | 32 | 31 | 93 | 45 | 1 | +53 | +30 | +13 | -7 | -23 |
| MA | Boston | 42 | 22 | 71 | 3 | 0 | -6 | -13 | -17 | -23 | -27 |
| MD | Hagerstown | 39 | 39 | 77 | 43 | 0 | +28 | +17 | +8 | -1 | -9 |
| MD | Salisbury | 38 | 22 | 75 | 36 | 0 | +24 | +10 | 0 | -11 | -21 |
| MI | Cheboygan | 45 | 39 | 84 | 29 | 0 | +33 | +34 | +35 | +35 | +36 |
| MI | Ironwood | 46 | 27 | 90 | 9 | 1 | -6 | -4 | -2 | 0 | +1 |
| MI | Jackson | 42 | 15 | 84 | 24 | 0 | +46 | +40 | +35 | +29 | +24 |
| MN | Bemidji | 47 | 28 | 94 | 53 | 1 | +7 | +12 | +16 | +20 | +24 |
| MO | St. Joseph | 39 | 46 | 94 | 50 | 1 | +36 | +25 | +17 | +7 | 0 |
| MO | Springfield | 37 | 13 | 93 | 18 | 1 | +38 | +22 | +11 | -2 | -13 |
| MS | Biloxi | 30 | 24 | 88 | 53 | 1 | +39 | +13 | -5 | -29 | -47 |
| MS | Tupelo | 34 | 16 | 88 | 34 | 1 | +28 | +7 | -7 | -25 | -39 |
| MT | Glasgow | 48 | 12 | 106 | 38 | 2 | -8 | -1 | +3 | +9 | +14 |
| MT | Miles City | 46 | 25 | 105 | 51 | 2 | -3 | -1 | 0 | +2 | +4 |
| NC | Raleigh | 35 | 47 | 78 | 38 | 0 | +44 | +26 | +12 | -3 | -15 |
| NC | Wilmington | 34 | 14 | 77 | 55 | 0 | +45 | +25 | +9 | -8 | -22 |
| ND | Minot | 48 | 14 | 101 | 18 | 1 | +29 | +36 | +42 | +48 | +53 |
| ND | Williston | 48 | 9 | 103 | 37 | 1 | +39 | +46 | +51 | +57 | +62 |
| NE | Lincoln | 40 | 49 | 96 | 41 | 1 | +40 | +31 | +24 | +16 | +9 |
| NE | North Platte | 41 | 8 | 100 | 46 | 1 | +55 | +47 | +40 | +33 | +27 |
| NJ | Trenton | 40 | 13 | 74 | 46 | 0 | +14 | +4 | -3 | -12 | -19 |
| NM | Las Cruces | 32 | 19 | 106 | 47 | 2 | +46 | +23 | +5 | -15 | -31 |
| NV | Elko | 40 | 50 | 115 | 46 | 3 | -3 | -12 | -19 | -27 | -33 |
| NY | Binghamton | 42 | 6 | 75 | 55 | 0 | +13 | +6 | +1 | -4 | -9 |
| NY | Ogdensburg | 44 | 42 | 75 | 30 | 0 | +1 | 0 | 0 | -1 | -2 |
| OH | Columbus | 39 | 57 | 83 | 1 | 0 | +48 | +38 | +29 | +20 | +12 |
| OH | Toledo | 41 | 39 | 83 | 33 | 0 | +45 | +37 | +31 | +25 | +19 |
| OK | Tulsa | 36 | 9 | 95 | 60 | 1 | +52 | +35 | +22 | +6 | -5 |
| OR | Pendleton | 45 | 40 | 118 | 47 | 3 | -8 | -8 | -7 | -7 | -6 |
| OR | Salem | 44 | 57 | 123 | 1 | 3 | +10 | +9 | +9 | +8 | +8 |
| PA | Reading | 40 | 20 | 75 | 56 | 0 | +19 | +9 | +1 | -7 | -14 |
| PA | Scranton-Wilkes-Barre | 41 | 25 | 75 | 40 | 0 | +14 | +6 | 0 | -6 | -12 |
| SC | Columbia | 34 | 0 | 81 | 2 | 0 | +58 | +38 | +22 | +4 | -10 |
| SC | Spartanburg | 34 | 56 | 81 | 57 | 0 | +59 | +40 | +26 | +8 | -4 |
| SD | Sioux Falls | 43 | 33 | 96 | 44 | 1 | +31 | +27 | +24 | +21 | +18 |
| TN | Knoxville | 35 | 58 | 83 | 55 | 0 | +64 | +47 | +33 | +18 | +5 |
| TX | Amarillo | 35 | 12 | 101 | 50 | 1 | +78 | +59 | +45 | +28 | +15 |
| TX | El Paso | 31 | 45 | 106 | 29 | 2 | +46 | +22 | +4 | -17 | -33 |
| TX | San Antonio | 29 | 25 | 98 | 30 | 1 | +80 | +53 | +32 | +8 | -11 |
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| VA | Roanoke | 37 | 16 | 79 | 57 | 0 | +44 | +29 | +17 | +4 | -6 |
| VA | Winchester | 39 | 11 | 78 | 10 | 0 | +31 | +19 | +10 | 0 | -8 |
| WA | Bellingham | 48 | 45 | 122 | 29 | 3 | -7 | 0 | +6 | +13 | +19 |
| WI | Oshkosh | 44 | 1 | 88 | 33 | 1 | -3 | -6 | -8 | -10 | -12 |
| WI | Wausau | 44 | 58 | 89 | 38 | 1 | -2 | -3 | -4 | -4 | -5 |
| WV | Charleston | 38 | 21 | 81 | 38 | 0 | +48 | +34 | +24 | +12 | +2 |
| WY | Sheridan | 44 | 48 | 106 | 58 | 2 | +7 | +5 | +5 | +4 | +3 |

GLOSSARY OF TIME



ATOMIC TIME (TA) SCALE: A time scale based on atomic or molecular resonance phenomena. Elapsed time is measured by counting cycles of a frequency locked to an atomic or molecular transition.

DATE: A unique instant defined in a specified time scale. **NOTE:** The date can be conventionally expressed in years, months, days, hours, minutes and seconds, and fractions thereof.

GREENWICH MEAN TIME (GMT): A 24-hour system based on mean solar time plus 12 hours at Greenwich, England. Greenwich Mean Time can be considered approximately equivalent to Coordinated Universal Time (UTC), which is broadcast from all standard time-and-frequency radio stations. However, GMT is now obsolete and has been replaced by UTC.

INTERNATIONAL ATOMIC TIME (TAI): An atomic time scale based on data from a worldwide set of atomic clocks. It is the internationally agreed-upon time reference conforming to the

definition of the second, the fundamental unit of atomic time in the International System of Units (SI).

LEAP SECOND: A second used to adjust UTC to be within 0.9 sec of UT1 (a time scale based on Earth's varying rotation rate). An inserted "positive" second or omitted "negative" second may be applied at the end of June or December of each year.

MEAN SOLAR TIME: Apparent solar time corrected for the effects of orbital eccentricity and the tilt of Earth's axis relative to the ecliptic plane; in other words, corrected by the equation of time, which is defined as the hour angle of the true Sun minus the hour angle of the mean Sun.

SECOND: The basic unit of time or time interval in the International System of Units (SI), which is equal to 9,192,631,770 periods of radiation corresponding to the transition between the two hyperfine levels of the ground state of cesium-133 as defined at the 1967 Conférence Générale des Poids et Mesures.

SIDEREAL TIME: The measure of time defined by the apparent diurnal motion of the vernal equinox; hence, a measure of the rotation of Earth with respect to the reference frame that is related to the stars rather than the Sun. A mean solar day is about 4 minutes longer than a sidereal day.

—(U.S.) National Institute of Standards and Technology (NIST)

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2022 ESSAY CONTEST WINNERS

"My Most Memorable Wildlife Experience"

We received hundreds of wonderfully wild tales! Thank you to everyone who took the time to share your experience.

First Prize: \$300

Growing up, I was a hunter. Game birds, rabbits, turkeys, deer. You name it, I shot at it. Then I joined the army, and shooting at things took on a completely new meaning. I was home on leave from the army one deer season and, as was the norm, I went hunting with my brother. We rose before dawn and headed for our separate hunting spaces. As hunters tend to do, we had been up late the night before, and I soon fell asleep in the calm of the wee morning hours, bundled up against the cold. When I woke up, there was a beautiful, brown,

young doe nibbling on the grass at my feet. My old self would have seized this opportunity and taken the shot. But I had grown an appreciation for life and the beauty of nature. I felt a peace within myself that I had never felt before. Instead of shooting, I sat and watched. This deer and I shared a moment of true serenity before she slowly sauntered away. I never told my brother about my missed shot and I haven't hunted since. Well, not with a gun. Now I shoot with a camera.

-Krystal Hennessy, Trenton, Ontario

Second Prize: \$200

One year, my husband and I went scouting for signs of moose that would indicate a good spot to return to when hunting season started. After walking for a while, we found fresh tracks that Ed then interpreted, showing me which was the bull's, cow's, or calf's tracks and where they had been eating branches beside the road. Suddenly, very close by, we heard the angry bellowing and crashing of a big animal through the bush: We had almost walked into the three moose sleeping just off the road! Ed grabbed a branch and rubbed it

up and down a tree to simulate another bull's aggression. We could see a large shape moving through the trees as the moose checked us out. "Get ready," Ed yelled. "When he comes, get a picture and then jump into the ditch!" "Do you have another plan?" I yelled back. "That ditch is 15 feet deep!" Then everything went quiet. The moose realized that we were not a rival threatening his harem and disappeared into the trees, and I was left to discuss with Ed whether our safety or a photograph was more important.

-Carolynn Ouellette, Goulais River, Ontario

Third Prize: \$100

I opened the front blinds to let in a sun-filled morning, and, looking outside, I spotted a shiny green object on the road in front of my house. A longer look confirmed that it was the heads of two sleeping ducks! It was thrilling to see nature up close. I was about to leave the window when I saw something moving farther up in the middle of the road. It was a cat in a crouched position slowly making its way toward these two sleeping waterbirds. Clearly, the cat was in attack mode. The phrase “sitting duck” came to mind. Human instinct was telling me to

help them when, at that same moment, I witnessed the most incredible act of wildlife instinct I had ever observed. Like a miracle, a large crow swooped down unexpectedly in front of the ducks. Its enormous wings flapped erratically, and the sounds of its cawing was frightening. The ducks, looking at the crow, calmly stood up, unaware that he was helping them. Promptly the cat fled from its own dilemma and the crow flew away. Both ducks, unconcerned, sat back down and resumed their nap, unaffected.

—*Carlene Peters, Barrie, Ontario*

Honorable Mention

“Don’t try to pet the sharks. We have a relationship with these animals, and you don’t. If one of you gets bit, we’re all going to have a bad day,” warned dive master Ryan as the boat *Deep Obsession* approached the dive site, a shipwreck off West Palm Beach, Florida, around which sharks were known to gather. We were told that when we got down there, we likely would be approached by a large fish, a grouper that had been named Shadow because she was friendly and liked to tag along with the divers. After descending about

50 feet to the wreck, sure enough, we were met by a fish about 6 feet long and about 3 feet high. She liked to be petted like a large, friendly dog and followed along for a little while just as we had been told she would. After leaving Shadow behind and witnessing a shark feeding close up, we happily boarded the boat for the return to shore. That evening, about eight of us went out to a restaurant, and when the waiter came around to let us know that the special was grouper, a female voice cried out, “I can’t eat Shadow!”

—*Mike McAllister, Scarborough, Ontario* ■

ANNOUNCING THE 2023 ESSAY CONTEST TOPIC:

A FUNNY THING THAT HAPPENED TO ME

SEE CONTEST RULES ON PAGE 251.

MADDENING MIND-MANGLERS

Are You as Smart as a 200- or 100-Year-Old?

The TV show may have asked *Are You Smarter Than a Fifth Grader?*,
but how will you do with these puzzles from centuries past?

No “problem,” right? *Good luck!*

From the 1823 Old Farmer’s Almanac:

1. My farm contains 312 acres and is in the form of a right-angled parallelogram. The sum of the length and breadth and a diameter line from corner to corner is 832 rods. What are the length and breadth of my farm?

2. A man has a ewe sheep that has a ewe lamb in the first year and two in each year after. If each of these breeds in a like manner, how many sheep will the farmer have in 10 years?

3.

Like man, primeval form’d at
natur’s birth,
I first originated from the earth.
Strange adverse properties in me
unite,
I’m sometimes heavy, and I’m
sometimes light.
I’m hollow, solid, oval, round, and
square.
I’m limpid and opaque, I’m foul and
fair.
I’m crooked, straight, broad,
narrow, smooth, and rough.
I’m sometimes tender, and I’m
sometimes tough.
Sometimes I’m musical, and at
others, mute.
Sometimes I sadden and sometimes
I suit.
I’m fragile, flexile, concave, and
convex.
Sometimes I please, and at others,
I perplex.
I’m colorless as snow without a
stain,

Yet of all colors found in Flora’s
train.
I’ve frighten’d thousands—
thousands I’ve decoy’d,
Millions preserv’d, and millions I’ve
destroy’d.
At the same instant, I am new and
old—
Am worthless, yet am worth my
weight in gold.
Sometimes I lie at rest on a downy
pillow;
I’m at others roaming on the raging
billow.
Sometimes I’m passing to and fro
through town,
Turning each thing I meet with
upside down:
A thousand antic capers I display,
Yet I am lifeless as a lump of clay.
I’m seen at theatre, church, ball,
and fair,
Where lads and lasses often at me
stare:
*What am I, critic? Construe and
declare.*

From the 1923 Old Farmer's Almanac:

4.

Often we are covered in wisdom and wit,
And oft with a cloth where the dinner
guests sit.

In beauty around you, and over your
head,

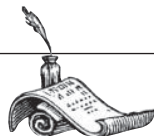
We are countless, though numbered
when bound to be read.

What are we?

Do you have a favorite puzzler for "Maddening Mind-Manglers" that you'd like to share? Send it to us at Mind-Manglers, The Old Farmer's Almanac, P.O. Box 520, Dublin, NH 03444, or via Almanac.com/Contact, Subject: Mind-Manglers.

ANSWERS

1. 312 acres multiplied by 160 is equal to 49,920 square rods. This divided by 832 is equal to 60. Then 832 divided by 2 is equal to 416, which less 60 is equal to 356, the length of the diagonal. 416 added to 60 is equal to 476, the sum of the sides. The diagonal squared is equal to 126,736. The area, 49,920, multiplied by 2 is equal to 99,840. Then 126,736 less 99,840 is equal to 26,896, the square root of which is equal to 164, the difference in the sides. Now the sum of the sides, 476, divided by 2, is equal to 238. The difference in the sides, 164, divided by 2 is equal to 82. Thus 238 plus 82 is equal to 320, the length, and 238 less 82 is equal to 156, the breadth. 2. Rule: Doubling the old stock of any year and adding it to the increase will give the increase in the following year. Example: Year 1—old stock 1, increase 1, aggregate 2; Year 2—old stock 2, increase 3, aggregate 5; Year 3—old stock 5, increase 7, aggregate 12; Year 4—old stock 12, increase 17, aggregate 29. Answer: 5,741. 3. "Glass" (submitted by one reader). Three others submitted "water," which was also given consideration because "when congealed, it is quite analogous to glass." 4. "Leaves."



**ESSAY AND
RECIPE CONTEST
RULES**

Cash prizes (first, \$300; second, \$200; third, \$100) will be awarded for the best essays in 200 or fewer words on the subject "A Funny Thing That Happened to Me" and the best recipes using ginger. Entries must be yours, original, and unpublished. Amateur cooks only, please. One recipe per person. All entries become the property of Yankee Publishing, which reserves all rights to the material. The deadline for entries is Friday, January 27, 2023. Enter at Almanac.ca/EssayContest or at Almanac.ca/RecipeContest or label "Essay Contest" or "Recipe Contest" and mail to The Old Farmer's Almanac, P.O. Box 520, Dublin, NH 03444. Include your name, mailing address, and email address. Winners will appear in *The 2024 Old Farmer's Almanac Canadian Edition* and on Almanac.ca. ■

ANECDOTES & PLEASANTRIES

A sampling from the thousands of letters, clippings, articles, and emails sent to us during the past year by our Almanac family in the United States and Canada.

ILLUSTRATIONS BY TIM ROBINSON



How to Unstick the Suez Ship

When the container ship *Ever Given* got stuck crosswise in the Suez Canal in 2021, it took 6 days to figure out how to get it loose. Maybe we should have just asked the kids. Or not.

5-YEAR-OLD: "Just push it back and it will float away. I've seen things like this in my life, like sticks in the creek."

5yo: "Get a crane and a rope and a ramp and a car. The car will run on the ramp and cut the rope and land on the boat with a crash. This will bump the boat back into the sea. If this doesn't work, just add another car. Double the force."

6yo: "Just cut it." [*Cut what?*] "Cut off the corner of the boat."

7yo: "Blow up the land that the boat is stuck on without hurting the boat. Little explosions. Get a bunch of helicopters

with winches on the bottom. Attach the helicopters to the front and back of the boat, then they fly in opposite directions—just a little—until the boat turns free."

8yo: "Push it." [*How?*] "I don't know. Get a giant hunk of metal and a bunch of pistons."

12yo: "Everyone in Egypt brings their own rope. They tie all the ropes along the side of the boat and everyone pulls as hard as they can. If we get all the people in Egypt, the weight will turn it and then they can steer it."

14yo: "Force everyone on the boat to undergo intense, rigorous training until one of them develops psychic powers from the stress. Then they would snap and levitate the boat out. I can't think of any possible way that this wouldn't work."

—J. R., Oakville, Ontario

HOW TO TURN YOUR HAND OVER WITHOUT TURNING YOUR HAND OVER

1. Keeping your elbow in, extend one forearm out in front of you with the *palm up*.
2. Bring the palm up to the same shoulder.
3. Keeping the same position, bring the hand down in front of your stomach, as though you were doing a slow karate chop.
4. Push your hand away from your stomach until it is back to position #1, as though you were pushing something off to the side with the

- back of your hand. Your hand will now be on edge, not palm up.
5. Bring the thumb side of your hand up to your shoulder.
6. Bring your hand down in front of your stomach, as though you were pushing something down.
7. Move your hand back to position #1, as though you were pushing open a door with the heel edge of your hand—which is now *palm down*.

—T. D., West Farmington, Ohio

RIDDLES

KNOW YOUR PLACE

If I'm in second place and you pass me, what place are you in?

—R. M., Tahoe City, California

ON TOP OF YOUR GAME?

What sport is played all over the world, has four letters in its name, and starts with a t?

—A. C., West Haven, Connecticut

COOKING TIP

How do you keep pieces of Canadian bacon from curling in the skillet?

—B. D., Robertsville, Missouri

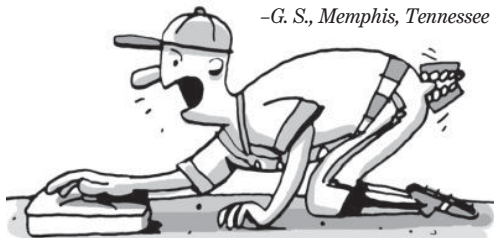
ANSWERS: Know Your Place: second place. On Top of Your Game?: golf (tee). Cooking Tip: Take away their little brooms!

The Pitcher Who Bit His Own Backside

Clarence Waldo "Climax" Blethen (1893–1973), pride of Dover-Foxcroft, Maine, was a professional baseball pitcher who patched together a nearly two-decade career remarkably unnoteworthy except for one thing: perhaps the weirdest sports injury of all time.

On June 6, 1933, while playing for the Knoxville (Tenn.) Smokies of the American Association, Blethen had occasion to slide into second base. This was all well and good, except that when he hit the dirt, the false teeth that he had taken out and put into his back pocket for safekeeping took a chunk out of one of his cheeks. The injury bothered him for the rest of the game, but the real "bottom" line is that it secured his place in baseball history.

—G. S., Memphis, Tennessee



(continued)



PRAIRIE ANGELS

*When coyotes are crying in the morning,
You'd do well to listen to what they know.
The north wind will be blowing inward,
And it could bring lots of snow.*

*When coyotes wail before dusk,
They're foretelling changing skies.
They are the Prairie Angels,
Melodic in their harmony, with a song
that never lies.*

*Coyotes sing to me in the evening,
A lullaby that rocks me to sleep.
Coyotes are heaven's messengers,
If you but pay heed to the lonesome songs
that they keep.*

*They call out in symphony with the earth,
Celebrating the coming of spring's rebirth.
And yip with joy their chaotic praise,
Predictions of warmer days.*

*They synchronize their prophetic song
With scarlet-blazed skies of dawn,
And carols content in midnight's glow,
A serenade that only the Sun and the
Moon and the Maker know.*

—Jean Bonin, Millet, Alberta

News You Can Use Lose

IN BRIEFS(S): Somebody has invented self-cleaning underwear. Made of beechwood, eucalyptus, bamboo, and copper fibers, it supposedly can last for weeks or even months without washing, although you're supposed to let it dry out for a few hours every night. *Yes. Please do.*

—E. K., Milton, Florida

WHY WITCHES WEAR POINTY HATS

HATS: In England back in the Middle Ages, women did most of the beer brewing, both at home and to pick up a little extra cash at market stalls. They wore conical hats to attract customers, stirred their brews in cauldrons, and kept cats around to control the mice attracted to the brewing grains. With the arrival of the Reformation in the early 16th century came finger-pointing at "witches" who cast curses. Seeing an opportunity to cut down on their competition, male brewers began accusing their female peers of being on the dark side, which forevermore linked witches to pointy hats, cauldrons, and black cats.

—R. S., Goffstown, New Hampshire

FRENCH BORDER GETS STONED:

Apparently with nothing better to do than create an international incident, a Belgian farmer decided to move an in-the-way rock about 7½ feet—not realizing that it was a border marker dating to 1819 and he was stealing a quarter-acre from France. *Sacre bleu!*

—H. G., Regina, Saskatchewan

WEIRD ANIMAL STUFF

GNAWING NIGHTMARE: Minnesota recently named as its state fossil the bones of *Castoroides ohioensis*, a giant, 200-lb., bear-size beaver, which, as far as we're concerned, could have done anything it dam well pleased.

—G. G., *Thief River Falls, Minnesota*

CREEPY CASTOR: An irate beaver greeted an elderly “trespasser” in its remote Massachusetts pond with head lacerations, a torn hand tendon, puncture wounds, and significant blood loss. “It was like *Jaws*,” the man reportedly said.

—A. N., *Newton, Massachusetts*

RESEARCH DOLLARS (WELL, EUROS)

AT WORK: A study based in Germany has determined that baby bats babble just like human babies, joining the only other nonhumans to do this, male songbirds. This must be important somehow.

—T. S., *Kamloops, British Columbia*



AVALANCHE OF NUTS: In a winter panic if there ever was one, a red squirrel in Fargo, North Dakota, filled every nook and cranny of a Chevy Avalanche pickup with 42 gallons of stored black walnuts.

—B. N., *Dickinson, North Dakota*

BLIND JUSTICE: Also in Massachusetts, Brad Day came to the aid of his wife, Laurie Rose, who was attacked by a rabid raccoon while trying to corral their chicken, Alice. Day whacked the raccoon four or five times with a frying pan to get it to cease and desist—which was no mean feat inasmuch as he is blind. Laurie, we might surmise, is probably lucky to have survived both of them.

—H. R., *Durham, North Carolina*

This Year's Cringers

(Feel free to leave the room.)

- What do you call a pig with laryngitis? Disgruntled.
- Why do bees stay in their hives during winter? Swarm.
- Why is “dark” spelled with a k and not c? Because you can't see in the dark.
- Why is it unwise to share your secrets with a clock? Well, time will tell.
- When I told my contractor that I didn't want carpeted steps, she gave me a blank stare.



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Takes 10 Years Off Your Face in Just 10 Minutes



Women are raving about the life-changing effects of this powerful, natural formula.

Women are raving about the life-changing effects of this powerful, natural formula.

Known as advanced liposome technology, this powerful distribution system ensures that vital nutrients are delivered exactly where your skin needs them the most, providing your skin with the appearance of "maximum plump."

New Age-Defying Cream in High Demand

Al Sears, MD, of Palm Beach, Florida, released an anti-aging cream that adapts breakthrough medical technology into the realm of skincare, and he's struggling to keep up with consumer demand.

Dr. Sears is South Florida's leading anti-aging pioneer. He has authored over 500 reports, scientific papers, and books on anti-aging. A frequent lecturer at global anti-aging conferences, Dr. Sears spoke at a Palm Beach Health & Wellness Festival featuring Dr. Oz, along with special guest, Suzanne Somers. Thousands of people were in attendance as Dr. Sears discussed his latest anti-aging breakthroughs.

This powerful cream, known as **Restore**, keeps selling out faster than it's produced — and people are raving about the effect it's having on their skin.

"Within a few minutes of applying the cream, the under-eye area looks nice and smooth as well as those annoying lines between the nose and lips that deepen as we age. I definitely feel I look younger whenever I use it," said Amy B., of Montville, New Jersey.

"The lines around my mouth and eyes have a smooth appear-

ance. I love having younger-looking skin, so I will continue using **Restore**," raves Cathy C., of Florida.

Powerful New Delivery System

"All of **Restore's** powerful ingredients are encapsulated in a liposome shell — an organic container that carries the nutrients so they are better able to beautify the appearance of your skin," explained Dr. Sears.

When you apply liposome cream to your face, the liposomes release their contents in a way that gives aging skin a more youthful appearance. Regular skin creams don't have this capability.

"Advanced liposome technology ensures that vital nutrients are delivered exactly where your skin needs them the most."

Take 10 Years off Your Face in Just 10 Minutes

Once on your skin, **Restore** releases a unique blend of botanicals, vitamins and essential oils that reduce the appearance of fine

lines and wrinkles, and gives skin the appearance of a plump, and more even tone.

Restore's first beautifying agent is Madonna lily leaf stem cell extract. It helps produce the appearance of an even-toned complexion. This powerful formula also features guarana seed extract, coenzyme Q10, and avocado oil. Japanese researchers discovered coenzyme Q10 has an attractive appearance on your skin, and French studies have shown that avocado oil enhances the appearance of skin thickness.

Where To Get Restore


Right now the only way to get this powerful age-defying delivery technology is through Dr. Sears.

To get life-changing results like Amy and Cathy, buyers should contact the Sears Health Hotline at 1-800-690-1935. "We simply don't have enough supply to get **Restore** shipped directly to stores," said Dr. Sears. "The hotline allows us to ship the product directly to the customer — the one who really wants it."

Dr. Sears feels so strongly about this product, he offers a 100% money-back guarantee on every order. "Just send back the bottle and any unused product within 90 days, and I'll send you your money back, less shipping and handling," said Dr. Sears.

RISK-FREE TRIAL OF RESTORE

Call to secure your limited supply of **Restore**. If you're not able to get through the first time due to extremely high call volume, please try again!



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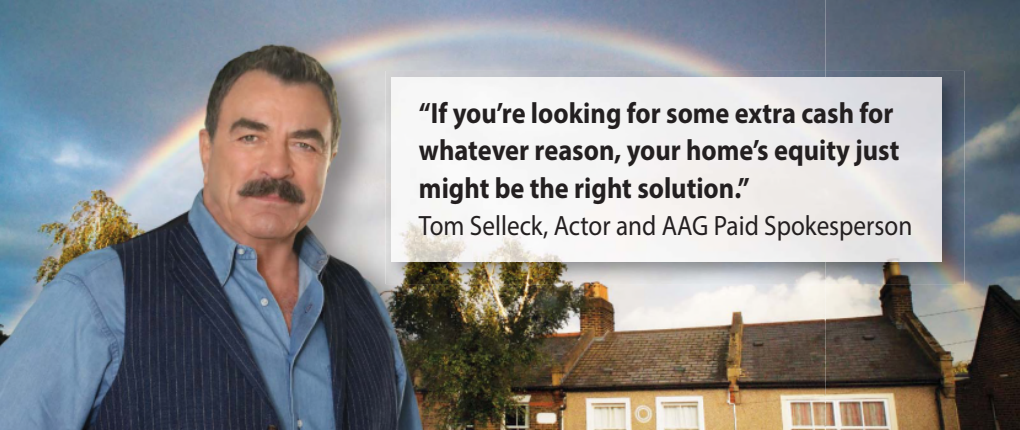


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