PLANTS OF THE SOUTHWEST



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www.plantsofthesouthwest.com

We are in a big DROUGHT

Shade our valuable soil with shrubs and wildflowers that can tolerate the heat and low water once established.

Rob was asked why folks are planting in this discouraging time.
He said, *"Because everyone wants to be surrounded by life."*

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Cold Hardiness Zones

The number next to the plant refers to the coldest zone where it grows as a perennial. At lower zones it might act as an annual. The temperatures are winter lows. If you have winter temperatures to -15 degrees you are zone 5.

Zone 1	below -50 ^{o}
Zone 2	-50 ^{o} to -40 ^{o}
Zone 3	-40 ^{o} to -30 ^{o}
Zone 4	-30 ^{o} to -20 ^{o}
Zone 5	-20 ^{o} to -10 ^{o}
Zone 6	-10 ^{o} to 0 ^{o}
Zone 7	0 ^{o} to 10 ^{o}

Stratify and Scarify

Stratification is a simulation of winter cold (to break seed dormancy). Place seed in a plastic bag with a slightly moistened sterile medium (e.g. potting soil). Store in the refrigerator 1 month prior to spring planting or as indicated. Scarification opens the outer seed coat by sandpapering, nicking or puncturing so that water can enter.

Full Sun · Part Shade · Medium Water · Low Water · Very Low Water · f Fragrant

Making Seed Balls, *Jim Bones' magic formula*

Mix 1 part seed (native to your area) with 3 parts compost, then mix in 5 parts powdered clay (red clay offers iron). Add 2 parts water gradually. Mix well until texture of bread dough. Roll in your hands into 1" to 2" balls - flatten if you want them not to roll downhill. Dry on a screen. Finished seed balls store indefinitely in a cool dry place.

Share them. Scatter them. They germinate with good rains.

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Science, the practice of prolonged and thoughtful observation to gain understanding, is ancient. Indigenous scientists have known things for millennia that modern scientists are only now seeing—things about nutrition, forest health, astronomy, and the relatedness of all living things. They thought from the big picture—out of necessity as well as out of the joy of it—and they accumulated experiments and observations over long periods of time. They also knew some important things about what makes a good society, as Ben Franklin observed in a private letter to a friend written in 1753:

> *When an Indian Child has been brought up among us, taught our language and habituated to our Customs, yet if he goes to see his relations and make one Indian Ramble with them there is no persuading him ever to return, and that this is not natural merely as Indians, but as men, is plain from this, that when white persons of either sex have been taken prisoner young by the Indians, and lived awhile among them, tho' ransomed by their Friends, and treated with all imaginable tenderness to prevail with them to stay among the English, yet in a Short time they become disgusted with our manner of life, and the care and pains that are necessary to support it, and take the first opportunity of escaping again into the Woods, from whence there is no reclaiming them.* *(Graeber & Wengrows' book p19)*

These scientists can help in these subjects:

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GRASSES

Grasses build the foundation for life. They bind the earth, preventing water and wind erosion. They are the base of the land food chain, feeding all wildlife including ourselves. Major foods – rice, corn, wheat, bananas and sugar – are grasses. They hold every texture and color. Ultimately, grasses are the most valuable resource and responsibility of humankind. Forty percent of U.S. land was once dazzling prairie. Even on our small plots of fenced-off land grasses offer us joy and the opportunity of no work. Natural grassland and cropland are not similar. Grassland is vastly richer and more supportive of life than conventional agriculture. In Wes Jackson's words, "The plow is deadlier than the sword."



A meadow with Bluestems, Grama grasses...

C - Cool Season Grasses are the first to start growing early in the spring and stay green longer into the fall. They go dormant in mid-summer unless given lots of water to keep them actively growing. Plant them early spring, summer (with extra water) or early fall.

W - Warm Season Grasses are green during the hotter months, go dormant and turn beige when it gets cooler (also during hot, dry spells without extra water). Seed ripens in early autumn. Sow in autumn, or in late spring. Protect carefully by covering with soil or mulch. Warm season grass seed requires warm soil temperatures to germinate. Warm season grasses are usually more drought tolerant and therefore good choices.

M-51 Binder A natural glue made from plant material, binder holds seed and mulch in place. Especially helpful in windy or sloped areas. Broadcast seed and mulch, then spread Binder on top. Water to make the Binder gluey. 2 lbs. per 1,000 sq. ft. for flat areas, more on steep slopes or exposure to wind.

Grass Mixes

B1020
Dryland Blend C&W ☼ ⁂ 3

Multi-purpose blend of native grasses for home landscapes, meadows, dryland pasture, forage, reclamation. Adapted to varied soils and terrain in areas receiving 10-25" of moisture per year. Contains Blue Grama, Sideoats Grama, Indian Ricegrass, Slender Wheatgrass, Galleta, Alkali Sacaton, Sheep Fescue and Little Bluestem. Height: 3 ft. For a truly colorful and ornamental effect, add a Wildflower Meadow Mix. Seeding rate for a meadow: 2 lbs. per 1,000 sq. ft. Reclamation seeding: 30 lbs. per acre.

B1025
Sandy Soil Stabilizer W ☼ ⁂ 3

Sandy soils really blow – the West Mesa in Albuquerque (whew!), Tucson, etc. These grasses can help. Be sure to establish them carefully. Then they will show their strength. Indian Ricegrass, Sand Dropseed, Sand Lovegrass and Alkali Sacaton. Wild look, 3 ft. tall. Seeding rate: ½ lb. per 1,000 sq. ft. Reclamation seeding: 10 lbs. per acre.

B1010
Summer Green Lawn Blend W ☼ ⁂ 3

Tough native blend of Blue Grama and Buffalograss for lawns or meadows that need little water once established. These warm season grasses complement each other: Blue Grama is both a bunch and sod-forming grass and Buffalograss is a sod-former that can also spread by above-ground runners. Blue Grama germinates first, while Buffalograss fills in over time. Both are low growing, but mow a couple of times a year for a tidy appearance. Unmowed, the soft texture is inviting or add wildflowers for a diverse meadow. Seeding rate 2-3 lbs. per 1,000 sq. ft.



Wendy with Summer Green Lawn Blend (Blue Grama, Buffalograss and fringed sage)

Buffalograss



Mariah, Casey, Maria & Serenity playing volleyball on Buffalograss

G1270
Buchloe dactyloides
Buffalograss ☼ 💧 3

One of the finest grasses available for lawns and meadows in arid regions. Low growing, 4-6". A strong durable sod former that binds the soil, rooting deeply, up to six feet in good soil. Can also spread by above-ground runners. Mow a couple of times a season if runners pile up. Sage green in summer, beige in winter. Once established tolerates drought, cold, poor soil, pests and diseases. Goes dormant (and beige) if summer is extremely hot and dry. Bounces back when rain comes, or if watered. Clear weeds before sowing and water carefully. Slow to establish because seed is released little by little from its burr. Saltpeter, the blue-green color, hastens the burr's release. Sow in spring, summer or fall. Seeding rate for lawns: 2-3 lbs. per 1,000 sq. ft. Reclamation: 40 lbs. per acre. Packet (500 seeds)

Blue Grama Grass



Blue Grama

G1250
Bouteloua gracilis
Blue Grama
W 3

This warm season grass, native to the High Plains, is a wonderful alternative lawn. It is a low-growing bunchgrass (1-1½ ft. with the seedheads) that is part sod forming and can be grown as a tight turf. The blades are thin, so the texture of this grass is very fine. The most drought tolerant lawn grass we offer. Easy to establish, fills out well in one season, cold hardy, pest and disease free, tolerant of poor soil. The seed is borne in "flags" that curl back gracefully when dry. You can leave it unmowed or mow 2 or 3 times a season. Blue Grama is the primary grass in the Southwest. The heat, drought, and fires of the last few years have been severe. There is not enough Blue Grama seed available and the price reflects that. Blue Grama is a pleasure to offer because it can germinate in just a few days. Cover carefully, the seed is light and easily blows. Once established, Blue Grama will stand up against the drought which affects all the plants and animals.

Seeding rate for a lawn: 2 lbs. per 1,000 sq. ft. Reclamation: 30 lbs. per acre.
Packet (300 seeds)



Blue Grama with flower heads, late summer. The pronghorn is an elegant speedster who can run 40 mph for hours on end. Elk, bison, grizzlies and wolves are prairie animals too, pushed to mountain forests by our unrelenting takeover of grasslands.

Bugs

- 2/3 wildlife has vanished since 1970 due to humans (World Wildlife Fund)
- 3 billion fewer birds in North America since 1970 (Science Magazine, 9/19/19)
- 40% of insect species are declining, 30% are endangered. Insects could vanish within a century due to habitat loss (The Guardian, 2/10/19)

No more poisons: Most poisons do little or nothing to solve a problem. Mosquito sprays get 10% of adult mosquitos. Mosquito larvae give us the best opportunity to stop adult biting mosquitos. The larvae grow in water so don't leave pools or containers of water around your house. But a pail of water with stems or straw fermenting in it can be a trap when you put in the small BT rings (available at most hardware stores). The water with this soil-borne bacteria is safe for dogs and birds to drink but some water animals are sensitive so after use pour it on the ground, not in a stream.

No more bright white outside lights: Half of each day is darkness. Insects exhaust themselves flying at white lights and then can't breed or pollinate plants. Substitute yellow lights, which do not draw insects. LED bulbs save energy. Yellow LED lights are the best outside lights. Insects pollinate plants, they are essential to the food web. The food web is food makers, food eaters, and decomposers.

Healthy wildlife habitats: Bugs and plants in the same region evolved together. Bugs can make a hole in the stem of a co-evolved plant or eat its leaves because they have evolved the needed mouthparts and can tolerate the chemicals in that plant. The specific bugs get food and housing and the specific plant gets help with pollination or seed dispersal. Certainly plants need self-protection. The world is green because of bitter, tough, and toxic leaves, but tough and toxic leaves are no problem to specific bugs who evolved symbiotically.

The food web of sun to leaves to animals is strong and depends on very old, specific relations. Plants that are far from their regions, that is, non-native plants, are chemically and physically unable to be part of the healthiest food webs.

Flying insects—butterflies, bees, moths, beetles, flies—do most of the pollinating of flowering plants. A little note about bees: specialist bees can carry and place pollen in the correct spot to successfully pollinate their plants. Most specialist bees are solitary, don't sting because they are not protecting hives, and live in the ground. Bees get energy from nectar and protein from pollen. Honeybees, from Europe, are fine as generalists but much less efficient than native bees in pollination.

Birds help too in pollinating flowering plants and in return are fed by those plants. And birds are fed, big time, by bugs. We mostly put out seed for birds. Nature provides seed to land-birds in the fall and winter. In the spring, come baby birds. Baby birds need caterpillars because caterpillars are full of fat and protein in a soft casing, perfect for stuffing down little throats. Only doves and finches can make babies on seed alone, other land-birds need caterpillars. Lots of caterpillars. Baby chickadees, averaging 6-8 in a clutch, need up to 9000 caterpillars while in the nest. After the babies hop out, their parents feed them for another three weeks. Whoa, tired chickadee parents.

The bugs that make these caterpillars are specialists, often using only native plants, and their caterpillar (larvae) are specialists. The right plants are needed. Plant diversity gives protection to soil and animals because everything is always changing. In that diversity are all these special relationships. Native plants offer what's needed. And among the native plants there are keystone—the most essential—plants that support 90% of the butterflies and moths.

To get started thinking about keystone plants you can go to the National Wildlife Federation: nwf.org, keystone plants by ecoregion. Again, choose from the groupings only those plants that are native to your local region. The eco-regions are given, which include coasts to deserts. For example:

Southern semi-arid Highlands
Trees and shrubs: oaks, pines, cottonwood, willow…
Smaller plants: rabbitbrush/chamisa, sunflowers, goldenrod, yuccas, lupines

To make healthy wildlife habitats, 75% of your garden should be native plants with the emphasis on keystone plants. 25% only can be your nostalgic or eye-candy favorites. Gardens of every size contribute.

Home Grown National Parks: Tiny gardens can bring in great numbers of moths and butterflies and their caterpillars. These gardens add up. Ecologist Doug Tallamy, in his books and videos, has shown me all that is here. He enthusiastically acknowledges his fellow scientists and visionaries, with whom he founded HomeGrownNationalPark.org. Ready as our gardens are to be transformed, so are roadsides, railroad edges, power lines and parks. The monster of barren acreage is *The Lawn*, defined as a monoculture that is excessively watered, fertilized, herbicided, pesticided and mowed. Lawns in the U.S. make up 40 million acres, almost as much land as all our national parks together—Acadia, Denali, Grand Canyon, Great Smoky Mountains, Haleakala, Yellowstone, plus the 57 others. Remember how to change this. Remove some lawn from around a tree. Roots can prosper and bugs can complete their life cycles—many bugs need to drop from trees and burrow into soil, later to yield more bugs and birds and all kinds of joy.

Habitat: Tallamy's practical outreach for bringing nature back to sterile land—small and large parcels—is wonderful. It is however essential to remember in planning that the larger the area the better. Human-caused fragmentation destroys biodiversity. That was shown by Tom Lovejoy in his lifelong research in Brazil and elsewhere. He worked steadily with indigenous people to preserve their cultures and the entire Amazon rainforest. He also worked tirelessly for wildlands internationally. Lovejoy died December 25, 2021.

E. O. Wilson died December 26, 2021. Another great conservationist and naturalist, E. O. Wilson passionately believed that we need to set aside half the earth and half the sea as a reserve, making this case in his book, *Half-Earth, Our Planet's Fight for Life*. This reserve is not without people, encouraging indigenous people to continue their way of life, but it is fully protected so that most of the earth's species can continue to live.

Because of human influence on the environment and climate our era has been called Anthropocene, the human era, E.O. Wilson preferred to call it the Eremocene, the Age of Loneliness.

Grasslands were almost half of the USA and the land of the world. They provided food for kingdom upon kingdom of creatures. We used to eat from many more grasses and plants than we do now. A mainstay for the Pueblo peoples was Indian Ricegrass. Collect it, grind it, try it as cereal or roasted cakes – some of the patience of the people of the land might enter with the good nutrition.



Indian Ricegrass

G2370 *Achnatherum hymenoides*
Indian Ricegrass C 4
The 1-2 ft. flowering stems are beautifully airy and graceful as an accent in rock gardens or borders, and a great sandy soil meadow reclamation grass. Attractive in dried arrangements. Seed-eating birds love it. Grazed by pronghorn, deer and elk. A staple of Southwestern and Great Basin Peoples as mentioned above. Bread from its flour is gluten-free. Sow seed ¼-1" deep in fall or winter for spring germination or cold stratify 1-2 months and sow in spring.
Seeding rate: 1 lb. per 1,000 sq. ft. Reclamation: 40 lbs. per acre.
Packet (500 seeds)



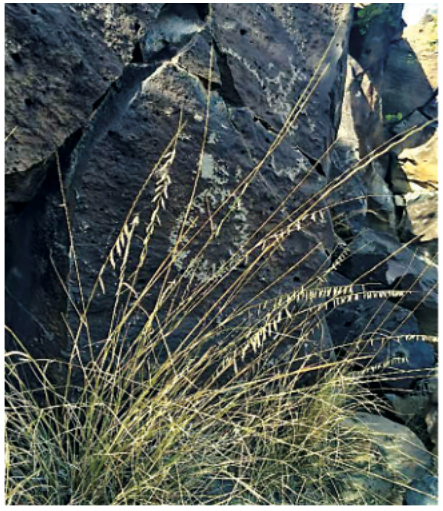
Big Bluestem

G1100 *Andropogon gerardii*
Big Bluestem W 3
Columnar bunchgrass to 6 ft. tall, 2 ft. or more wide. Blue-green leaves, stunning orange to maroon fall color. Wind and drought tolerant, but prefers extra water. In arid areas, plant in low spots where moisture collects. This and Little Bluestem are the grasses that fattened up the cattle of the old West. Seeding rate: 1 lb. per 1,000 sq. ft. Reclamation: 18 lbs. per acre.
Packet (100 seeds)

G1130 *Bothriochloa laguroides*
Silver Beardgrass W 4
Ornamental bunchgrass 2-3 ft. tall, 2 ft. wide. Bright green leaves turn orange in the fall. Shimmering drifts appear in late summer when the fluffy white seedheads emerge. Beautiful in meadows or along the driveway or garden.
Packet (100 seeds)



Silver Beardgrass





G1200 *Bouteloua curtipendula*
Sideoats Grama W 4

One of our most popular grasses for meadows and reclamation. Use also along walks and with flowers. Seeds are borne in two parallel rows on one side of the flowering stalk, hence its name Sideoats. Easy to establish, drought tolerant; remarkably tenacious on rocky slopes. To 2 ft. tall. Seeding rate: 2-3 lbs. per 1,000 sq. ft. Reclamation: 30 lbs. per acre.
Packet (500 seeds)

G1650 *Eragrostis trichodes*
Sand Lovegrass W 5

A beautiful bunchgrass 2-4 ft. tall with airy seedheads summer and autumn. Dense, deep roots. A sandy soil specialist growing in New Mexico, Texas, Colorado and further east. ¼ lb per 1,000 sq. ft., 6 lbs. per acre.
Packet (500 seeds)

G1750 *Festuca ovina*
Sheep Fescue C 2

Cool season grass (to 1 ft.) green almost year-round with some watering. Being a bunchgrass, it will not make a smooth turf. Though clumpy, it makes a fine, dark green lawn alternative. Tolerant of a wide variety of soil types and can take partial shade. Easy to establish spring, summer or fall. Seeding rate for small areas: 3-5 lbs. per 1,000 sq. ft. Reclamation: 20 lbs. per acre.
Packet (500 seeds)



Sheep Fescue, Crayson home

G2880 *Hesperostipa comata*
Needle-and-Thread Grass C 5

Drought tolerant 3 ft. clump grass used in reclamation. Named for the sharp needle, the seed, and the 6" long thread. It is fascinating to take the seed head from the plant, stick the needle into the ground and watch the thread drill in the seed (it is a hygroscopic drill). The long threads catch the light making silvery waves, and disperse the seeds in the wind. Note: Seeds can lodge in your pet.
Packet (100 seeds)

G2885 *Hesperostipa neomexicana*
New Mexico Feathergrass
C 4

Drought tolerant 3 ft. clump grass similar to Stipa comata. Both grow from plains to woodlands, 3,000-7,000 ft., Feathergrass with a slightly more southerly range. Both are good forage. Sweeps of Stipa in nature appear set apart by their lighter color and long, silvery heads. You may not wish to plant where your pets play, but don't miss Stipas' dramatic beauty.
Packet (50 seeds)

Listen to:
Trae Crowder, Liberal Redneck
January 6th Anniversary Talk *(2.5 min talk)*
named the Southern-fried
intellectual comedian



New Mexico Feathergrass



G1950 *Koeleria macranthra*
Junegrass C 4

Pretty, narrow bladed 2 ft. tall bunchgrass with a shimmery, tight seed spike. Grows on prairies, rocky slopes, woodlands and open forests 4,000 - 9,000 ft. elevation up to 11,000 in the Rocky Mountains. Very broad geographical range. Good summer forage.
Packet (100 seeds)

To the left is Robert DeWitt Ivy's drawing of Junegrass from his *Flowering Plants of New Mexico.* Hikers often carry this heavy little book because it is so helpful. Grasses are hard to identify and they look very different spring to autumn. Cool season grasses (C) seed in summer, warm season grasses (W) seed in autumn.
NM range is in tiny box.



Wolftail

G2080 *Lycurus setosus*
Wolftail W 5

2 ft. tall bunchgrass with a thin wolftail seed spike. Foliage like Blue Grama grass with which it grows. Rocky slopes 4,000-8,000 ft. elevation. Packet (100 seeds)



Threadgrass

G2895 *Nassella tenuissima*
Threadgrass
C ☼ 4

Decorative small bunchgrass to 2½ ft. with silvery seedheads all season above fine chartreuse leaves. Full but graceful. Fast growing and spread from seed.
Packet (100 seeds)

G2380 *Panicum obtusum*
Vine Mesquite W ☼ 3

Handsome grass to 2 ft., its large seeds attract birds and fed Native Americans (cooked as a grain or ground and mixed with cornmeal) who brewed its leaves for tea and a head-rub for hair reclamation. Missouri to Colorado, into Texas, Arizona and central Mexico, up to 7,000 ft.
Likes damp spots. Packet (100 seeds)

G1060 *Pascopyrum smithii*
Western Wheatgrass C ☼ 2

This handsome 2 ft. sod-forming grass, easily recognized by its distinctive blue color, is used for reclamation, erosion control meadows, and alternative lawns, if mowed. Very drought tolerant, spreads with little moisture, but enjoys extra water. Sow in cool weather, water to establish. Seeding rate: 2 lbs. per 1,000 sq. ft.
Reclamation: 15 lbs. per acre.
Packet (500 seeds)

G1140 *Schizachyrium scoparium*
Little Bluestem W ☼ 3

Handsome perennial bunchgrass 2 -3 ft. tall. Very deeply rooted and drought tolerant, but appreciative of extra water. Excellent for reclamation, meadows, and accent plantings (dried arrangements too). Turns every color of the flame in late summer with silvery seedheads.
Seeding rate: 1 lb. per 1,000 sq. ft.
Reclamation: 20 lbs. per acre.
Packet (500 seeds)

G1860 *Pleuraphis jamesii*
Galleta Grass W ☼ 4

A powerful 2 ft. warm season reclamation grass. Galleta's vigorous, spreading roots rhizomes re sprout even when repeatedly trampled. Use for difficult areas of erosion or heavy traffic, in meadows and lawns. Allow to establish 1-2 years before heavy use. Water increases height. Seed is light, so cover carefully; binder helps.
Seeding rate: 4 lbs. per 1,000 sq. ft.
Reclamation: 20 lbs. per acre.
Packet (500 seeds)



Little Bluestem

Sow seeds generously,
"one for the rook, one for the crow, one to die and one to grow"



Indiangrass

G2850 *Sorghastrum nutans*
Indiangrass W ☼ 3

Strong and upright to 7 ft. tall, gracefully bending only at the golden seedheads, way above the burnished leaves. Indiangrass the tall grass prairies. Very nutritious for livestock, fine erosion control, beautiful in dried arrangements and in landscapes.
Reclamation: 20 lbs. per acre.
Packet (100 seeds)

G2865 *Sporobolus cryptandrus*
Sand Dropseed W ☼ 3

A sand specialist, this warm season, 2-3 ft. bunchgrass is used for reclamation and erosion control. It's called weedy because it quickly colonizes vacant land, but that's what makes it so useful. All the heads of a field of Sand Dropseed curve the same way. If you live in a sand blown area, consider using this grass or Sandy Soil Stabilizer (see p.4).
Seeding rate: ¼ lb. per 1,000 sq. ft.
Reclamation: 6 lbs. per acre.
Packet (500 seeds)

G2860 *Sporobolus airoides*
Alkali Sacaton W ☼ 4

Attractive reclamation grass or ornamental, Alkali Sacaton has light, airy seedheads borne well above the bluish foliage. A bunchgrass 2-5 ft. tall. Stabilizes blowing sand.
Easy to establish.
Seeding rate: ¼ lb. per 1,000 sq. ft.
Reclamation: 6 lbs. per acre.
Packet (500 seeds)

G2870 *Sporobolus wrightii*
Giant Sacaton W ☼ 4

An impressive no-care ornamental grass for your meadow or border. Grows 2,000-7,000 ft. elevation in dry, sandy open ground or rocky slopes. Branched, golden feathery seedheads to 7 ft. with leaves about half that height; 3-4 ft. wide.
Packet (300 seeds)



Giant Sacaton

PLANTING A MEADOW



Coneflower

Nature scatters thousands of seeds for each that grows. Animals eat them (harvester ants!), they dry up or rot becoming soil.

If you want your native seeds to grow this season at your place, cover them, then water and weed. If you intend to leave them to come up with favorable weather in a couple or four years, cover carefully, or away they'll go with the wind...



Blue Flax



California Poppy

When Nature plants all year round. We mostly plant annuals in the spring, or in warm winter areas, in autumn. Try anything, drop seeds on the snow, plant when seeds around you are falling. Cover carefully if the seed must wait for moisture and temperature to call it up. Take advantage of our Summer Rains. Rain is magic growing water. Cool season grasses, like cool soil so plant in spring. Plant warm season grasses when the soil is warm – May, June – or wait until the Summer Rains.

Soil is housing and food. It needs air so roots can breathe. Rototill or chop up only if the ground is compacted, like a roadway. Otherwise don't, it's work, and it brings up buried weed seeds. Don't use synthetic fertilizers. They are too strong for soil life. There are a million creatures in each pinch of soil. And with plants, synthetic fertilizers jolt them to green up and puff up. Puffed up plants require more water, more mowing, then fertilizer again – you can see the vicious cycle. Microorganisms have worked with plants millions of years. Help them with compost and compost tea. Soils are different in different places as is the sunshine and the people. Wherever we are our purpose on earth is to improve soil.

Sowing For slopes, make contours to catch water and slow erosion. Hand broadcast. For good coverage go over the area twice, north to south, east to west. Rake to cover seeds to ½" deep. If your soil doesn't cover the seed or has little organic matter, use compost. Our western soils are mostly alkaline. Adding compost time and again pushes soil toward neutral, pH 7, where the most mineral uptake and best growth can happen.



Skyrocket

Watering a new seed bed Don't let the soil surface dry out if you want plants this season. You can cover the area with an old sheet or row-cover for a couple of weeks or shallowly water often. When native seedlings are up an inch they have three inches of roots down under. Change your water schedule. Less frequent, deeper. Change again in month, etc. First winter, if dry, water once a month if the ground isn't frozen. When established your meadow only needs occasional watering during dry spells.



Chocolate Flower



Gayfeather

Compost is piling stuff up to rot – green (veggie waste) then brown (small cuttings, straw, rock dust, coffee grounds), then green (plant clippings), etc., adding water if dry, keeping air spaces with straw or cuttings. If the pile is stinky, it lacks oxygen, time to fluff it up. Winter is a quiet time but a lot can happen to compost. It can finish which means it's ready to help give soil Tilth (see below). Winter is also an opportunity to smother weeds. Cover them with cardboard and soil and straw. The whole mess can compost the weeds and become soil if the winter has snow or other divine moisture. If there's no winter moisture your property looks, well, as though you cardboarded it.



Purple Aster

Not everyone can make compost due to raccoons...or lack of space. Make Compost Tea.

To help your trees, berries, and grapes get a cup of forest soil. To more easily and evenly use it, put in a bucket of water, mix to make a tea, and water with it. There are a billion organisms in a cup of that soil. There can be a mile of fungal threads in a thimble of forest soil. Forest = Fungi.

To help your veggies, grasses and flowers, get a cup of soil from a prospering veggie garden or meadow. Here there are more bacteria than fungi. Mix the good garden soil with water to extend the billion creatures and water your soil. Good soil brings meadows full of pollinators and healthy veggie gardens. Our depleted agricultural soils yield veggies with many times less vitamins, and less taste than our grandparents got.

Keep teas aerated by stirring daily or use a fish tank pump. Teas too help give soil tilth. Tilth means soil is aerated, infiltrated, aggregated, mineralated and full of creatures.

Nitrogen Fixers (see p54-55)



Firewheel

Mulch is needful and nice looking. Cover the soil that covers the seed. Mulch prevents evaporation that is huge in our dry sun-filled country. Use your compost or straw... stones, good for some places can be too hot, bark chips are fine next to mature plants, but not over seeds since they steal nitrogen as they decompose. Binder, made from plant material, can help hold everything down. It's spread on the very top and once wet it gets sticky and sticks around for a season (see p4).

Grow your mulch (cover crops p83).
Grow your fertilizer (centerfold p54-55).



Plains Coreopsis

Mowing Herbivores mowed grasses and wildflowers forever. Mowing can stimulate growth, but not too close to the roots or plants croak. Too close (like 4") also means more water is needed because plants can't shade themselves. Wait to mow wildflowers until after the flowers have bloomed and set seed.

Community Sharing and Avoiding Work If you see a beautiful meadow, go ask this neighbor if you can mow or cut the mature plants in seed in the autumn. Spread them on your place. You have seeds, mulch, compost, and creatures – all the bounty. When your meadow is grown, you can offer the same.

WILDFLOWERS

Wildflowers did not team up with the wind as grasses did to make seed.
They bound their fate to insects and animals, attracting these messengers with color and fragrance, nectar and texture.
For our delight too, half the flowers here bloom at night, shining in the moonlight and fertilized by irreplaceable night messengers. Edward Lear on the subject (almost):
"The moon was shining slobaciously from the star-bespringled sky, while her light irrigated the smooth and shiny sides and wings and backs of the Blue-Bottle-Flies with a peculiar and trivial splendour, while all nature cheerfully responded to the cerulean and conspicuous circumstances."

Wildflower Mixes

Reclamation seeding, 3 lbs. per acre,
more if close to your house.
1 oz. covers about 400 sq. ft.

P4012 High Plains Mix

The High Plains flowers are caught like jewels in swales, on ridge lines, next to a tree or rocks. Or they burst up in multitudes after rains come. This mix belongs in Flagstaff, Denver, Santa Fe and great stretches of land from 4,000-8,000 ft., with 15" (± 6") annual precipitation. Lanceleaf Coreopsis, Plains Coreopsis, California Poppy, Chocolate Flower, Firewheel, Blanket-flower, Desert Four O'Clock, Skyrocket, Blue Flax, Pink Wild Snapdragon, Rocky Mountain Penstemon, Mexican Hat, Yellow Prairie Coneflower, Rocky Mountain Beeplant, Western Blue Flag, Heath Aster, Spotted Gayfeather. 1-3 ft. Wonderful color all season.



High Plains Mix with Dryland Blend

P4021 Mountain Meadow and Shady Mix

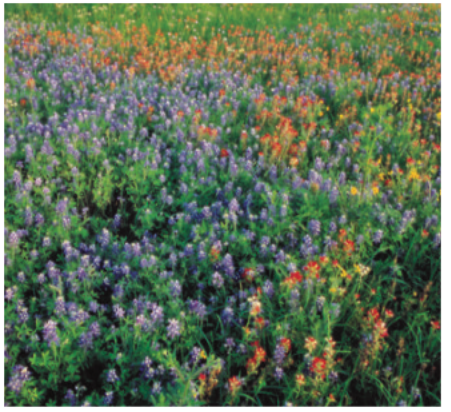
Meadow flowers from the cool, moist coniferous forests of the West. Grows in the Rocky Mountains at high elevations or in lower elevations in shaded sites where the soil is rich and moist. Heights to 3 ft. Rocky Mountain Columbine, Blue Flax, Lanceleaf Coreopsis, Skyrocket, Rocky Mtn Penstemon, Black Eyed Susan, Golden Banner, Mexican Hat, Yellow Prairie Coneflower, Pink Nodding Onion, Western Blue Flag, Purple Coneflower, Orange Butterfly-weed, Beebalm, Whipple's Penstemon.

P4000 Low Desert Mix

Spectacular annuals and perennials of warm Southwest areas. In mild winter areas sow in fall; in colder winter areas sow in spring. Rain is a key factor in bloom time. California Poppy, Lindley's Blazing Star, California Bluebells, Pink Wild Snapdragon, Desert Marigold, Mexican Evening Primrose, Succulent Lupine, Owl's Clover, Pale Evening Primrose. Sea level to 4,000 ft. and anywhere as annuals.

P4032 Texas Prairie Mix

Festivals throughout Texas celebrate the color and beauty of their roadside wildflowers. Here are some of Texas' loveliest: Blanketflower, Texas Bluebonnet, Lemon Mint, Mexican Hat, Yellow Prairie Coneflower, Spiked Gayfeather, Plains Coreopsis, Lanceleaf Coreopsis, California Poppy, Black Eyed Susan, Skyrocket. Sea level to 4,000 ft.



Texas Prairie Mix

P4005 High Desert Mix

Make the desert bloom spring through fall. The High Desert (3,000-6,000 ft.) has hot, dry summers and cold winters, with strong, dry winds, 5-18" of rainfall per year (China Lake, Prescott, Albuquerque, Las Vegas). Plains Coreopsis, California Bluebells, Desert Marigold, Sand Penstemon, Blue Flax, Mexican Evening Primrose, Mexican Hat, Yellow Prairie Coneflower, Firewheel, Spotted Gayfeather, Rocky Mountain Beeplant, Pink Wild Snapdragon, Mexican Gold Poppy, Blanketflower, Desert Four O'Clock. Height 2-3 ft.





Join the international Monarch Butterfly rescue effort.
Above is Showy Milkweed and below is the seed. (p20)

P1005 *Abronia fragrans*
Sweet Sand Verbena 4 f

Large, snowball-like clusters of white, fragrant flowers on trailing stems. Perennial, thrives in sandy soils. Blooms spring-summer. Very cold hardy. Sow in fall, or for spring seeding scarify seed with sandpaper or soak in water 6-8 hours. Packet (100 seeds)

P1001 *Abronia villosa*
Sand Verbena 8 f

A fragrant annual with large, vibrant purple to rose-pink flowers in dense verbena-like clusters. Blankets the desert with color after winter moisture. Beautiful seed pods. Sandy soil. Difficult to germinate - try scarification. Packet (100 seeds)

P1022 *Achillea millefolium*
Yarrow 1 f

Aromatic perennial with clusters of small white or pink flowers, ferny foliage to 1 ft. or more. Invasive in wet places. Tolerates light traffic and mowing. Leaves pressed together were used to staunch wounds. Named for Achilles whose wound, sadly, could not mend. Blooms all season. Barely cover seed, light helps germination. Sow anytime. Packet (300 seeds)



Wild Hyssop



Sweet Sand Verbena



Sand Verbena

P1033 *Agastache cana*
Wild Hyssop 3

Hummingbirds love this bushy perennial 3 ft. with 1" rose-purple, tubular flowers. Foliage is sweetly scented. Stunning late summer bloom. Sow anytime in well drained soil. Packet (50 seeds)

P1035 *Agastache pallidiflora*
Purple Hyssop 2 f

Summer blooming, 2 ft. purple flower spikes. Mint family but without the mint odor. This perennial grows in mountain forests and meadows, but is tolerant of clay soils. Agastaches are very popular for long flowering, as cut flowers and as dried flowers. Sow anytime. Packet (50 seeds)



Pink Nodding Onion



Pussytoes

P1100 *Antennaria parviflora*
Pussytoes 3

Early spring blooming, charming little woodland ground cover to 6". Pink buds and white flowers. Shade or sun. Packet (100 seeds)

Purple Hyssop

P1050 *Allium cernuum*
Pink Nodding Onion 1

Delicate pink flowers nod 1 ft. above flat leaves in summer. Edible, toss the blossoms in your salad. Cold stratify for 1-2 months and sow in spring. Packet (100 seeds)

Rocky Mountain Columbine

P1120 *Aquilegia caerulea*
Rocky Mountain Columbine 1

Colorado's state flower. 2-3" flowers with 2" spurs. Summer blooming perennial. Attracts hummingbirds. Sow in fall or cold stratify. Packet (100 seeds)

Anemone, Pasque Flower see p51



White Prickly Poppy

P1150 *Argemone polyanthemos*
White Prickly Poppy 3

Every part of this plant is prickly except the extraordinary giant 4" white crinkled blooms. Perennial 2-3 ft. Flowers all summer. Sow in fall or cold stratify. Packet (200 seeds)



Butterflyweed

P1165 *Asclepias latifoliav*
Broadleaf Milkweed

Long lived. 2-3 ft. tall dry lander. Big rounded leaves with green and white tucked in flowers, June-July. Insect favorite. Fun sun to light shade. Sow in fall or cold stratify 1-2 months and sow in spring. Packet (100 seeds)



Broadleaf Milkweed

P1170 *Asclepias tuberosa*
Butterflyweed 2

A strong perennial to 3 ft. with vivid orange flowers. Butterflies love it! Difficult to transplant with its long, root. Fall sow or cold stratify 2 months and spring sow in spring. Packet (100 seeds)

P1180 *Asclepias speciosa*
Showy Milkweed 4

Hardy 3-5 ft. perennial. The largest wild milkweed, with 3" round clusters of showy, pink flowers in summer. Attracts monarchs and other butterflies. Can be invasive in damp areas. Sow in fall or cold stratify 1-2 months and sow in spring.
Packet (100 seeds)



Desert Marigold



Chocolate Flower

P1240 *Baileya multiradiata*
Desert Marigold 6

Showy, bright yellow, 2" daisies borne on long stalks well above white, woolly leaves. A 1½ ft. biennial. Blooms profusely all summer. Sow anytime. Packet (300 seeds)

P1244 *Berlandiera lyrata*
Chocolate Flower 4

A must for chocolate lovers! Opens in the morning, filling the air with the fragrance of chocolate. Nods in the afternoon heat. Cheerful perennial grows 2 ft. tall and wide with coarse leaves and pale yellow flowers with maroon centers. Blooms in summer. Sow anytime. Packet (50 seeds)



Wine Cup, Poppy Mallow

P1260 *Callirhoe involucrata*
Wine Cup or Poppy Mallow 3

Lots of solitary, wine-colored, cup-shaped flowers bloom all summer on this 2-3 ft. wide perennial. Native to the sandy, gravelly soils of the Texas prairies, woodlands and roadsides but thrives every- where we've tried it. Cold hardy. Sow in fall or soak seed 6-8 hours in water and sow in spring. Packet (50 seeds)

P1268 *Calochortus gunnisonii*
Gunnison Mariposa Lily 3

Intricate summer blooming flowers to 1 ft. Loved by bees and all flower lovers. Seed to bulb 1 year, bulb to flower 2 years. Indigenous people cooked with the flowers and seed, and the nutritious bulbs were roasted, boiled or mashed. Packet (20 seeds)



Gunnison Mariposa Lily

P1320 *Castilleja integra*
Indian Paintbrush 3
Brilliant perennial to 1½ ft. with spikes of vermilion flowers spring to fall. Attracts hummingbirds. A partial root parasite that needs to be planted with seeds of another plant; our packets contain blue gramma grass. Slow growing and difficult to transplant. Sow in fall or cold stratify 1-2 months. Plant in spring. Don't get discouraged, it may be a while before you see flowers.
Packet (200 seeds)

In northeastern Brazil there are about 200 million conical dirt mounds, 8 ft tall by 30 ft wide, regularly spaced, covering more than 88,000 square miles (an area larger than Minnesota). The oldest mound is around 3,800 years old. This feat was accomplished by half-inch long termites, *Syntermes dirus*, grain by grain.
Stephen J. Martin,
The University of Salford, England



Indian Paintbrush

P1350 *Cerastium tomentosum*
Snow in Summer 2
Low, mat-forming perennial ground cover with woolly, silver foliage, A carpet of white flowers blooms in the spring. Can reach 3 ft. in diameter. Border hanging over wall or in a meadow.
Sow seed anytime.
Packet (100 seeds)

P1333 *Centaurea rothrockii*
Basketflower 3
Tall, sturdy, biennial to 5 ft., with many long lasting, long stemmed flowers, summer through fall. The thistle-like flowers have pale centers and petals that become pink-blue at the tips. They open to 5" across, seedheads resemble woven baskets. Sow in fall or cold stratify 1-2 months and sow in spring. Germinates slowly and in flushes.
Packet (50 seeds)



Basketflower

P1630 *Chamerion angustifolium*
Fireweed 1
This rhizomatous perennial bears spikes of large, orchid pink, four-petaled flowers. A vigorous 4 ft. plant that blooms all summer. Found along mountain streams, clearings and disturbed areas at high elevations. In your garden, it will need extra water. Sow in fall or cold stratify 2 months and sow in spring.
Packet (200 seeds)



Sugar Bowl

P1415 *Cleome serrulata*
Rocky Mountain Beeplant 3
A 3-5 ft. annual with pale pinkish to purple flowers at the tops of the stems. Flowers have long, protruding stamens, giving them a spidery appearance. The black dye, made from this plant, is used for the designs on SW pottery. The boiled down Beeplant is used as a binder to hold the paint on pots. Attracts bees and hummingbirds. Blooms in summer. Sow in fall or soak seed 6-8 hrs in hot water and sow in spring. Seed needs light to germinate. Cover very lightly or not at all. Packet (100 seeds)



Fireweed

P1405 *Clematis hirsutissima*
Sugar Bowls 3
Perennial with stalks 2-3 ft. tall and wide, leathery flowers, followed by seeds with golden threads to help them fly. Packet (20 seeds)



Rocky Mountain Beeplant

P1420 *Coreopsis lanceolata*
Lanceleaf Coreopsis 3
A long-lived perennial to 2 ft. with gold, 2½ inch daisies on long stalks above the foliage. Lovely cut flower. Does well in any garden soil. Sow anytime.
Packet (200 seeds)

P1422 *Coreopsis tinctoria*
Plains Coreopsis 2
A delicate, yellow daisy with red-maroon banding to 3 ft. in height, this annual blooms all summer. Sow in fall in the south and in spring in the north. Cover seed lightly.
Packet (200 seeds)



Plains Coreopsis with Sensitive Briar



Purple Prairie Clover

P2460 *Dalea purpurea*
Purple Prairie Clover 3
Slender airy perennial to 2 ft. with bright purple flowers. Wonderful dried, keeps its color. Nitrogen fixer. Deep rooted. Very drought tolerant. Wildlife food and habitat; attracts beneficial insects. Blooms in mid-summer. Soak seed 6-8 hours in hot water and sow in spring.
Packet (200 seeds)

"War is a racket. It always has been. It is possibly the oldest, easily the most profitable, surely the most vicious . . . It is the only one in which the profits are reckoned in dollars and the losses in lives. It is conducted for the benefit of the very few, at the expense of the very many."

Major General Smedley Butler

"The United States was founded as a nation of farmers but less than 1 percent of all jobs are in agriculture now. On the plains, the farm population has shrunk by more than 80 percent. The government props up the heartland, ensuring that the most politically connected farms remain profitable. But huge sections of mid-America no longer function as working, living communities. The subsidy system that was started in the New Deal to help people such as the Lucas family stay on the land has become something entirely different: a payoff to corporate farms growing crops that are already in oversupply, pushing small operations out of business."

The Worst Hard Time p310 Timothy Egan

P1500 *Datura wrightii*
Sacred Datura, Jimsonweed 5 f
This large, shrub-like, herbaceous perennial grows 3-4 ft. high and just as broad. Enormous, white, 8" trumpet flowers bloom in the evening, often lasting until the next morning. A truly stunning plant! Blooms in summer. Tolerant of poor soil. Native to the Four Corners region, Texas and California. Note: Datura can be poisonous if taken internally, and don't rub your eyes if you've handled Datura. Sow in spring or summer.
Packet (100 seeds)





Sacred Datura, Jimsonweed

P1524 *Delphinium wootonii*
Ghost Delphinium 5
Enchanting perennial with clustered lavender blooms and long darker nectar guides. This graceful tall plant usually ranges in height from 1-2 feet, but can reach 3 feet. Although scarce, it can be found on rocky slopes in grassland areas and canyons, flowers May through June. Spring to summer. Sow any time.
Packet (100 seeds)



Bundleflower

P1526 *Desmanthus illinoensis*
Bundleflower 3

This legume is a valuable addition to any meadow or cut flower garden. Perennial, drought tolerant, nitrogen fixer to 3 ft. Delicate, lacy foliage. Flowers are white puffs followed by red-brown pods twisted together into bundles. Use seedheads in dried flower arrangements. Soak seed in water 6-8 hours before planting in spring. Packet (100 seeds)



Spectacle Pod

P1575 *Dimorphocarpa wislizeni*
Spectacle Pod 5

Upright annual 1-3 ft. tall. Heads of white flowers with changing center colors to tell pollinators what's new. The pods are spectacles indeed, spiraling around the stem with such precision you feel you're reading the mathematical language of the world, and if you look down the stem from above, there is the primal vortex. Seeds prefer cool sandy soil. Sow in fall or cold stratify and sow in spring.
Packet (100 seeds)

P1595 *Dodecatheon pulchellum*
Shooting Star 2

The name shooting star saves me from further extravagances about the pink whipped-back petals where the filaments come firing out. Mountain perennial. Loves moisture. 6-12" tall with long leaves. Sow in fall or cold stratify and sow in spring. Packet (50 seeds)



Shooting Star

The astronomy of the ancient Chaco culture is astonishing, revealed in the orientation of the pueblos, the buildings and carvings. Across vast areas of land are broad ceremonial roads. See www.solsticeproject.org



Purple Coneflower

P1610 *Echinacea purpurea*
Purple Coneflower 3

An upright perennial, 2-3 ft. tall with lavender-purple daisies and downward curving petals. Blooms in summer. Great cut flower. Prefers good garden soil. Sow anytime.
Packet (300 seeds)

P1620 *Engelmannia peristenia*
Engelmann Daisy 5

Cheerful Texas roadside wildflower. Opens in the evening, closes in the heat of the day. Upright or spreading 3 ft. perennial bears 3-5 flowers at the top of each stem; blooms all season. Sow anytime. Packet (100 seeds)



Engelmann Daisy



Mountain Aster

P1650 *Erigeron speciosus*
Showy Daisy or Mountain Aster 2

A summer-blooming 2 ft. tall perennial. Scores of delicate purple petals surrounding the yellow disk of this sweet daisy. Found at middle elevations in the Rockies. Good for borders and meadows. Sow anytime. Packet (100 seeds)

In 1938, Dr. Edith Patch predicted that by the year 2000...the President of the United States would issue a proclamation claiming that land areas at regular intervals throughout the US would be maintained as "insect gardens" under the direction of government entomologists. These would be planted with milkweed, Hawthorn, and other plants that could sustain populations of butterflies and bees. *"Entomologists will be as much or more concerned with the conservation and preservation of beneficial insect life as they are now with the destruction of injurious insects."*



Wright Buckwheat

P1655 *Eriogonum annuum*
Annual Buckwheat 5

Gray, woolly plant 1-5 ft. with sprays of minute white flowers at the top. Interesting yet gawky as a single plant. In groups, it is lace over the landscape and as the plants turn pink in the autumn the appearance is beguiling. This drought tolerant annual freely sows itself in sandy soils, but can be difficult to get started. Cold stratifying for 1-2 months may improve germination. Packet (100 seeds)



Buckwheatbush

P1660 *Eriogonum umbellatum*
Sulfur Buckwheat 3

Mat-forming perennial to 2 ft. tall. Clusters of bright yellow summer flowers that hold their color when dried. Foliage, smooth and green above, woolly underneath, dark red-green in winter. Good for meadows and borders. A good bee plant for strong honey. Sow in fall or soak in hydrogen peroxide 6 hours and cold stratify.
Packet (100 seeds)

P1665 *Eriogonum wrightii*
Wright Buckwheat 5

One ft. tall, can be 2-3 ft. wide. Wooly stems and hosts of small white to pink flowers. Loved by bees. Blooms late into the fall.
Packet (100 seeds)



Annual Buckwheat

P1656 *Eriogonum corymbosum*
Buckwheatbrush 6

Summer blooming off-white lace over 2 ft. woody branches that turn maroon-red in autumn. A very drought tolerant attractive shrubby perennial. Sow anytime. Cold stratifying for 1-2 months may improve germination. Packet (100 seeds)



Sulfur Buckwheat

P1667 *Erysimum asperum*
Western Wallflower 3

Orange to yellow flowers blooming from April to September at higher elevations. A slender, branching plant to 2½ ft. tall, with masses of blooms. Each blossom is actually a cluster of tiny, 4 petaled flowers. Sow this biennial anytime for bloom the following year.
Packet (100 seeds)



California Poppy



Western Wallflower

P1670 *Eschscholzia californica*
California Poppy 6

Intense, bright orange flowers borne above finely divided, blue-green leaves. Exceptionally cheerful. Blooms spring to fall. This short-lived perennial is usually treated as an annual. Excellent in borders, rock gardens and meadows. Sow anytime. Packet (300 seeds)

P1672 *Eschscholzia californica ssp. mexicana*
Mexican Gold Poppy 7

Like the California Poppy, but a true annual. It is smaller (to 8") and more graceful in all respects. Color ranges from orange to yellow to white. Blooms spring through fall; remove faded flowers for extra bloom. Sow in fall in southern NM, spring in the north.
Packet (200 seeds)



Mexican Gold Poppy



Elkweed

P1688 *Frasera speciosa*
Elkweed 3

Perennial to 6 ft. Whorls of star flowers cluster at the nodes. Grows several years, flowers once and dies. Mountains forests, woodlands and meadows browsed by elk and cattle. A wow.
Packet (50 seeds)

P1680 *Eustoma russellianum*
Tulip Gentian 5

Beautiful purple flowers 2" across, shaped like tapered tulips. Annual or biennial to 3 ft. with blue-green, waxy foliage. Blooms mid to late summer. Cut flower. Cover lightly.
Sow in spring. Packet (300 seeds)



Tulip Gentian



Firewheel



Blanketflower

P1810 *Gaillardia aristata*
Firewheel 3

Hardy 2 ft. perennial bears masses of large, red daisies with yellow tips. Hot, dry places. Blooms all summer. A fine cut flower, keep cutting for more blossoms. Sow anytime. Easy. Packet (100 seeds)

P1816 *Gaillardia pulchella*
Blanketflower 4

Delicate red and yellow annual daisy. Blooms all summer, 2 ft. Sun loving, any soil type. A good cut flower. Sow in fall in the south, spring in cold winter areas.
Packet (100 seeds)



Purple Geranium

P1835 *Geranium caespitosum*
Purple Geranium 3

Sprawling plant 2-4 ft. wide and 1-2 ft. tall magenta flowers in summer. Long-lived perennial. Sow seed in fall or cold stratify 1 month and spring sow. Germinates sporadically. Packet (50 seeds)

P1890 *Helianthus annuus*
Annual Sunflower 3

A robust annual to 10 ft. with heart-shaped leaves and many 4" yellow sunflowers. Ancestor of cultivated varieties. Its seeds are loved by birds. Blooms summer into fall. Sow spring or fall. Packet (200 seeds)



Annual Sunflower



New Mexico Sunflower

P1892 *Helianthus maximiliani*
New Mexico Sunflower or Maximilian's Daisy 2

Broad perennial 5-8 ft. tall with 3" flowers along the stalk, like a hollyhock. Bursts into bloom in late fall, and it's seeds bring in lesser goldfinches. Cut to the ground each winter.
Sow anytime. Packet (200 seeds)

P1385 *Heterotheca villosa*
Hairy Golden Aster 5

4-8" fuzzy-leaved perennial that blooms with little, yellow, daisy-flowers all summer. Unassumingly persists and spreads in poor soils even when walked on or driven over.
Sow anytime. Packet (200 seeds)

P1900 *Hymenoxys hoopesii*
Orange Mountain Daisy 1
Big orange perennial common in sub-alpine meadows. Grows to 3 ft., with long, smooth leaves. Popular in English flower gardens but neglected in the U.S. Blooms early to mid spring. Sow anytime.
Packet (100 seeds)



Manuel Rodriguez with the root of Bush Morning Glory



Scarlet Gilia with Tiger Swallowtail



Orange Mountain Daisy with Fritillary Butterfly



Bush Morning Glory

P1961 *Ipomoea leptophylla*
Bush Morning Glory 4
Big pink flowers. Sturdy perennial with narrow leaves on bushy, mounded plants 3 ft. high by 5 ft. wide. Flowers open in the morning and close before noon. Very cold hardy and drought tolerant. Soak seed 6-8 hours in water and sow in spring.
Packet (20 seeds)

P1850 *Ipomopsis aggregata*
Scarlet Gilia 2
Trumpet-shaped, 1" long, brilliant red (sometimes pink) flowers with delightful star-shaped blooms along branching stems. This summer blooming biennial is common in mountain meadows. Likes well drained soil. Sow anytime.
Packet (100 seeds)

"Water, taken in moderation, cannot hurt anybody."
Mark Twain

P1959 *Ipomopsis longiflora*
Long-Flowered Gilly 4
Airy annual. Tall stems and pale, blue, narrow trumpet flowers with star-shaped ends. Looks like windswept hair. Sow spring or fall.
Packet (100 seeds)



Long-Flowered Gilly



Western Blue Flag

P1962 *Ipomopsis rubra*
Skyrocket or Standing Cypress 6
This biennial is hard to believe. It's an unbranched, 6 ft. column of screaming scarlet flowers in the summer. Hummingbirds adore it. Sow in fall in the south or in late spring in the north. Does not transplant well.
Packet (200 seeds)

P1970 *Iris missouriensis*
Western Blue Flag 1
Delicate blue-purple to lilac flowers with a dark yellow-orange stripe down the middle of the petal. Rhizomatous perennial to 2 ft., blooms in spring. Sow late fall or cold stratify 3 months and sow in spring. Several years for bulbs and flowers to form.
Packet (100 seeds)

There was a young girl in the choir,
Whose voice it went higher and higher,
'Til one Sunday night
It vanished from sight
And they found it next day in the spire.

There once was a pious young priest.
Who lived almost wholly on yeast.
He said sure it's plain,
We must all rise again,
I want to get started, at least.



Mounding Peppergrass

P2030 *Lepidium montanum*
Mounding Peppergrass 3 f

Summer annual to 1 ft. tall and 2 ft. wide. Forms a solid mound of white flowers in summer and early fall. Disturbed areas, easily reseeds. Good bee plant. Sow seed in spring. Packet (200 seeds)



Spotted Gayfeather

P2051 *Liatris spicata*
Spiked Gayfeather 4

Taller but thirstier than Spotted Gayfeather. Native to the Great Plains. Cylindrical, stiff flowering stalks grow to 3 ft. Good dried or cut flower. Adds texture and beauty to your border or meadow. Sow in fall or cold stratify 1-2 months and sow in spring.
Packet (100 seeds)

Why not partner with worms? Most of us here are foreigners like the earthworms from Europe. The soil is usually too tough to put them in. So a box is easy. They recycle most everything so one feels accomplished. Vegetable waste is not wasted. The worms' castings are a very fine compost.

P2050 *Liatris punctata*
Spotted Gayfeather 3

Knee-high perennial bears dense purple spikes of small, intricate, fringed flowers. More flower stalks form over the years. Taproots to 15 ft. long help the plants cope with drought. Blooms in late summer and fall. A wonderful cut or dried flower. Difficult to trans- plant. Sow in fall or cold stratify 1-3 months and sow in spring.
Packet (100 seeds)



Spiked Gayfeather



Blue Flax

P2085 *Lobelia cardinalis*
Sitting Bull Falls Pink Cardinal Flower 4

Perennial to 3 ft. with stalks of showy, deep pink tubular flowers in summer. Attracts hummingbirds. A bog plant needs constant moisture during the growing season. Ours are not the usual blood red form. Sow seed in fall or cold stratify. Packet (50 seeds)



Silver Lupine

P2070 *Linum lewisii*
Blue Flax 2

Sky blue flowers with a satin sheen that open every morning and fade in the afternoon heat. Airy, vase-shaped perennial to 2 ft. Sow anytime. Easy from seed!
Packet (300 seeds)



Cardinal Flower

P2086 *Lobelia cardinalis*
Red Cardinal Flower 4

As below but red!
Packet (100 seeds)

P2090 *Lupinus argenteus*
Silver Lupine 5

Silvery gray perennial to 2 ft. with sweet pea-like flowers, lilac to violet in color. A nitrogen fixing legume thriving on well drained, poor, sandy soils. Blooms early to midsummer. Difficult to transplant because of its long roots. Sow in the fall or cold stratify 1-2 months.
Packet (50 seeds)

P2096 *Lupinus texensis*
Bluebonnet 7

A showy annual to 1 ft., with stalks of blue sweet pea-like flowers in spring. Excellent cut flower. A nitrogen-fixing legume that likes well drained, poor, sandy soils. Hard to transplant. Not hardy below 0° F. Scarify or soak seed in water 6-8 hours to improve germination. Sow in fall. Packet (100 seeds)



Bluebonnet



Purple Aster

P2107 *Machaeranthera bigelovii*
Purple Aster 3

Annual or biennial to 3 ft. or much lower if cut or mowed. Abundant in autumn often with Chamisa. Plant anytime. Packet (50 seeds)

P2109 *Machaeranthera tanacetifolia*
Tahoka Daisy 4

Bright purple annual, blooming midsummer to fall. Shorter, 1½ ft., bushier and more formal than Purple Aster. Water for more profuse flowering. Sow anytime. Packet (100 seeds)

P2105 *Maurandella antirrhiniflora*
Snapdragon Vine 5

A climbing or trailing vine to 3 ft. or more. The 1" flowers are red or purple, turning to white inside the tube. Heart shaped, ½" leaves. Use along a fence or arbor. Blooms all season. Beautiful and unusual. Sow anytime. Slow to germinate. Treat as an annual above 6,000 feet. Packet (50 seeds)

A poet who comes from Peru
writes limericks that end on line two.



Snapdragon Vine



P2115 *Mentzelia decapetala*
Blazing Star 4

Very fragrant 3-5 inch cream flowers with gold stamen like sunbursts adorn this hardy 2 ft. annual or biennial from summer until frost. Native to the Rocky Mountains, very cold hardy. Flowers open in the afternoon and make the moon-lit night a further wonder.
Sow in fall or stratify.
Packet (100 seeds)



Night time photos of Blazing Star and its pollinator, the hawkmoth, David Schiferl, photographer, grower, physicist.

"Science is from the heart." – Dr. Suzanne Simard

Suzanne Simard was born in British Columbia, where she teaches at the University of British Columbia. Her 2021 book, *Finding the Mother Tree, Discovering the Wisdom of the Forest,* is a voyage - personal and scientific braided together; though we suppose science can be separate and objective, it isn't.

Forests act as a single organism. The roots of trees are connected by the underground mycelia of fungi. Mushrooms we can see, but the mycelia are delicate threads underground. There can be hundreds of miles of mycelia under a single human footprint. The trees give the fungi sugar (carbon), the fungi give nutrients and water to the trees. Trees that are associates, like birch and Douglas fir, trade back and forth according to the seasons - birch to fir when the fir is shaded and not getting enough sun, fir to birch when the birch has no leaves. Thousands of fungi partner with certain trees (like alder, birch, and fir), while other trees work with their co-evolved partners. Trees and plants, fungi and soil with myriad microorganisms, coordinate. Big trees give from their huge resources to little seedlings that are trying to grow up from the darkness and couldn't make it on their own. Because they nurture, Simard calls big trees Mother Trees. They are the most interconnected and the most needed trees in the forest.

There is also kinship among trees. Mother Trees give preferentially to seedlings from their seeds. Even at the end of their lives they pass more information and nutrients to their seed lineage. Trees and fungi from all the biodiversity of the forest send signals of drought and disease and decline, and marshal chemicals and apportion water to help and heal. There is competition among individuals, but strong cooperation for the resilience of the whole. Simard has followed this in the forest with radioactive tracing and DNA analysis and other wonderful modern methods, but she knows that science is old. This network of intelligence and sharing was passed down from long ago by indigenous peoples. An elder, Subiyay, of the Snohomish tribe from the Coast Salish told her that the fungi people and plant people and tree people taught us that under the forest floor there is an intricate web that keeps the forest healthy. They teach us also about building alliances and the diverse roles each of us has in the community. First Nations people protected all nature, fish to trees. We are all one.

First Nations people protested tree cutting. In the 1960's and 70's when small-scale tree-cutting became industrial clearcutting, they fought. In the 90's they fought more intensely. But clearcutting was not stopped. The ancient forests in barely 50 years have been almost eliminated. After clear-cutting, herbicides and burning are used to eliminate competition and mono-cultures are established of the desired tree (Douglas fir or lodgepole pine). Only 3% of British Columbia's inland old growth rainforests remain.

Forests are too valuable to be clearcut, with their trees made into 2"x 4" sticks and toilet paper. Forests keep carbon locked up in their trunks and roots and in the soil, they store most of terrestrial carbon. They are home to 80% of our land biodiversity. They are the source of clean water. They provide oxygen - life's breath.

Clearcutting leaves a wasteland. There are more jobs in selective horse-drawn tree harvesting. Slow work and a light touch guards biodiversity and beauty. We must save old forests, their magnificence, their Mother Trees.

With climate change, forests are even more threatened. There is rapid warming, less moisture, bigger storms with stronger winds and fires, faster insect reproduction, more disease. Trees will have to move to higher elevations and further north to survive. Adaptation to different conditions, and migration, take much more time than allowed by the fast pace of climate change.

Better understanding and practices are coming with work like Simard's, and her ability to share the vital science. And we could get to know our forests with our children and friends. These forests would convince us to cherish them.

The Mother Tree Project is Suzanne Simard's huge (almost Sweden-sized) forest renewal, hundred-year study in British Columbia. Worth joining. And repeating, in drylands.



Lindley's Blazing Star

P2113 *Menodora scabra*
Rough Menodora 5☼ 💧
Broad ranging perennial of dry mesas, slopes & meadows from low elevations to 7,500 ft. Showy yellow flowers followed by two wee capsules of the double ovary. This little one foot tall plant is easy pleasure. Sow anytime.
Packet (50 seeds)

P2117 *Mentzelia lindleyi*
Lindley's Blazing Star 8☼ 💧f
Easy, 1-3 ft. tall annual. Vivid yellow 3 inch flowers with hundreds of stamen amidst 5 broad petals. Very fragrant. Sow in spring for summer bloom.
Packet (100 seeds)



Sensitive Briar

P2118 *Mimosa rupertiana*
Sensitive Briar 5☼ 💧f
Sandy gravelly soils support this dryland sensitive perennial whose leaves fold up when touched! It has prickly long stems forming a 1½ ft. mound 5 ft. across. The flowers are pink pompoms with yellow tips that develop long fingered seed pods. Fragrance of an old fashioned rose. Soak in water 8 hours before sowing or sow outside in spring.
Packet (50 seeds)



Monkeyflower

P2130 *Mimulus guttatus*
Yellow Monkeyflower 4☼ 💧
1½ ft. tall and wide with bright yellow flowers often freckled with red. Great for a wet spot, sun or shade. Attracts hummingbirds. Summer blooming. Leaves and flowers are edible. Reseeds readily. Sow anytime. Packet (100 seeds)

Of all the sayings in the world
The one to see you through
Is, never trouble trouble
Till trouble troubles you.

Mother Goose



P2119 *Mirabilis longiflora* **Angel's Trumpets** 5☼ 💧f
Another plant for your night garden, this 3 ft. tall perennial has star-shaped 4" long tubular flowers, ½" diameter, with magenta stamens. Opens at dusk and fades around ten o'clock the next morning. Sweetly scented, attracts hawkmoths.
Cold stratify. Packet (20 seeds)

P2120 *Mirabilis multiflora*
Desert Four O'Clock 3☼ ⛓
Mounding perennial, 2 ft. tall and 4 ft. wide. Many magenta blooms open each afternoon. Dies back in the winter and re-emerges in spring from its taproot. Cold stratify 2 months and sow in spring, or sow in fall.
Packet (10 seeds)



Desert Four O'Clock



Pat with the root of Desert Four O'Clock

P2150 *Monarda fistulosa var. menthifolia*
Beebalm 2◑ 💧f
Stunning purple flowers and mint scented foliage. It produces an armful of flowers. Also called Oregano de la Sierra, adds flavor to sauces and stews. Very cold hardy perennial. Spring sow.
Packet (200 seeds)



Beebalm

P2310 *Oenothera caespitosa*
White-Tufted Evening Primrose 4 f

Large, wonderful, 3-4", fragrant, white flowers open in the evening and close in the mid-day heat. This low-growing perennial (to 8" high and 1-2 ft. wide) has gray-green, fuzzy leaves. Blooms early summer. Good drainage is a must, likes rocky soils. Slow, sporadic germination, 1-2 months of stratification improves germination. Sow spring or fall, cover well.
Packet (50 seeds)

P2312 *Oenothera coronopifolia*
Sand Evening Primrose 5 f

Profusion of white blooms on this perky 8 inch tall perennial. Blooms spring through summer with little care, once established. Sow anytime.
Packet (50 seeds)

P2318 *Oenothera elata*
Yellow Evening Primrose 4 f

Night-flowering biennial, open evenings, morning and all day if cloudy. Big, bright yellow flowers (fading to red) borne profusely on 2-5 ft. stalks. Invasive, or abundant, under irrigation. Sow anytime.
Packet (100 seeds)



White-Tufted Evening Primrose



Yellow Evening Primrose



Insects and birds enjoy nectar and also pollen for their service of pollinating flowers. Flowers have special colors and fragrances to attract their pollinators. Yellow evening primrose is pure yellow to our eyes. The photo on the left is as its pollinator sees it. This photo was taken with an ultra-violet filter and shows the pattern that directs the insect to the flower center where the pollen, ovary and nectar are. Many insects, including bees, have vision which sees a different portion of the light spectrum than we do. They may not see all the red wavelengths we do, but can see ultra-violet which we, unfortunately, cannot.



Missouri Evening Primrose

P2322 *Oenothera pallida*
Pale Evening Primrose 6

Fragrant, 3" white-fading-to-pink flowers open in the evening on this rhizomatous, spreading perennial. Blooms in the summer and reaches 1½ ft. tall. Sow anytime. Easy.
Packet (100 seeds)

P2324 *Oenothera speciosa*
Mexican Evening Primrose 5

Constant-flowering, 1½" pink blossoms on a wide spreading perennial ground cover. Thrives on little or no care on hot, dry slopes – even in parking strips. Dies back in winter. Annual over 6,000 ft. Sow anytime.
Packet (300 seeds)



P2321 *Oenothera macrocarpa ssp.macrocarpa*
Missouri Evening Primrose 3 f

Fragrant, canary yellow flowers, 4" wide, open in the evening on this spreading perennial. Big interesting seed pods. Summer bloomer. Showy in a rock garden or border. Sow anytime.
Packet (100 seeds)



Pale Evening Primrose



Mexican Evening Primrose



P2330 *Oxytropis lambertii*
Lambert's Locoweed 3

Perennial to 1 ft. with many bright purple, pea-like flower spikes and gray-green basal leaves. Common around Flagstaff. A stunning plant for your garden, but use cautiously. Locoweeds are cumulative poisons to horses and cattle. Soak seed 6-8 hours in water. Sow in spring.
Packet (100 seeds)



P2340 *Oxytropis sericea*
White Locoweed 2

From the plains to the high mountains the deep rooted, drought tolerant legume, to about 14", blooms in spring with a bundle of flower, pure white. Striking. As other locoweeds, poisonous to cattle and horses. very hard seed, try soaking, 2 month stratifying, sow in spring.
Packet (100 seeds)



P2504 *Penstemon ambiguus*
Sand Penstemon 5

Tough, 3 ft by 3 ft sandy-soil bush. Delicate, very light pink to pink phlox-like flowers. Plant, covering lightly, in fall, or cold stratify.
Packet (100 seeds)

P2502 *Penstemon alpinus*
Alpine Blue Penstemon 3

Perennial to 1 ft. with many bright purple, pea-like flower spikes and gray-green basal leaves. Common around Flagstaff. A stunning plant for your garden, but use cautiously. Locoweeds are cumulative poisons to horses and cattle. Soak seed 6-8 hours in water. Sow in spring. Packet (100 seeds)

P2505 *Penstemon angustifolius*
Pagoda Penstemon 4

Numerous sky-blue flowers encircle the stalks in summer like a pagoda. A fine perennial to 1 ft., with blue-green leaves. Tolerates many conditions.
Sow in fall or cold stratify.
Packet (200 seeds)

P2506 *Penstemon barbatus*
Scarlet Bugler 2

Brilliant scarlet flowers borne in profusion on 2-4 ft. stalks. Hummingbirds love it. Blooms in spring and, sparsely, in fall. Needs well drained soil. Sow in fall or cold stratify. Packet (200 seeds)



Firecracker Penstemon



Scarlet Bugler

P2507 *Penstemon cyananthus*
Wasatch Penstemon 3

Wasatch Penstemon bears handsome, 1" long, tubular blue flowers above thick, waxy leaves. It grows to 3 ft. and blooms spring to early sum-mer. One of the most beautiful blues available. Sow in fall, or cold stratify.
Packet (25 seeds)

P2513 *Penstemon cardinalis*
Cardinal Penstemon 5

Big strong plant with red tubular flowers loved by hummingbirds. Sow in fall or stratify 2 months and sow in spring. Packet (100 seeds)

P2508 *Penstemon cyaneus*
Blue Penstemon 4

A plant of the high plains and sagebrush areas. 2 ft. stems with hosts of blue, sometimes pinkish, flowers. Attractive to hummingbirds and bees. Sow in fall or stratify 2 months and sow in spring. Very cold tolerant. Packet (100 seeds)

P2509 *Penstemon eatonii*
Firecracker Penstemon 3

Long, narrow scarlet flowers borne on numerous 2 ft. high stalks. A spring to early summer perennial with large, triangular, green leaves. Attracts hummingbirds.
Sow in fall, or cold stratify. Packet (200 seeds)

The smallest dog can pee on the tallest building.

P2512 *Penstemon grandiflorus*
Large Flowered Penstemon 3
Huge, lavender-blue flowers bloom on 4 ft. stalks over smooth, gray-green, fleshy basal leaves. Summer blooming perennial. Sow in fall or cold stratify.
Packet (200 seeds)

P2520 *Penstemon jamesii*
James Penstemon 4
Lavender to purple flowers with inflated tubes and dark purple lines on the throat of this 1 ft. tall perennial. Blooms early summer. Very drought tolerant.
Sow in fall or cold stratify. Packet (100 seeds)



Large Flowered Penstemon



James Penstemon



Mountain Meadow Penstemon

P2522 *Penstemon oliganthus*
Mountain Meadow Penstemon 4
Small blue to purple flowers with white throats bloom mid-summer on this 1½ ft. perennial with slender leaves above an evergreen rosette. Group in dappled shade for a delicate, airy appearance. Sow in fall or cold stratify.
Packet (100 seeds)

P2524 *Penstemon palmeri*
Pink Wild Snapdragon 4 f
Very fragrant penstemon bears large pink-white blooms. Its many flower stalks reach 5-6 ft. Can bloom the first season from seed. Great cut flower. Sow in fall or cold stratify and sow in spring.
Packet (200 seeds)



Pink Wild Snapdragon

P2525 *Penstemon parryi*
Parry's Penstemon 6
Many 2 ft. stalks of pink flowers burst into bloom above basal rosettes. This charming penstemon is part of the early spring display in the Sonoran Desert. Tender perennial at higher elevations. Sow anytime.
Packet (200 seeds)

P2526 *Penstemon pinifolius*
Pineleaf Penstemon 3
This plant resembles a dwarf pine, 1½ ft. tall and cushion-shaped. Bright needle-like leaves are evergreen in winter. Beautiful, tubular red-orange flowers bloom all summer. A splendid border perennial for paths or steps. Hummingbirds love it!
Sow in fall or cold stratify.
Packet (200 seeds)

P2590 *Penstemon procerus*
Pincushion Penstemon 2
Small alpine penstemon to 12"tall. In the summer, whorled clusters of diminutive white throated, light purple flowers gracefully bend downward. Grows in meadows and along the slopes of mountains.
Sow in fall or cold stratify.
Packet (50 seeds)

P2528 *Penstemon pseudospectabilis*
Desert Beardtongue 5
Shocking pink flowers are borne in profusion on this robust, bushy, 3-4 ft. tall plant. The blue-green, triangular leaves are fused together around the stem. Blooms in spring and again more lightly in summer.
Sow in fall or cold stratify.
Packet (100 seeds)



Parry's Penstemon



Pineleaf Penstemon



Desert Beardtongue with Broadleaf Yucca

P2529 *Penstemon rydbergii*
Rydberg's Penstemon 2
A small mountain penstemon, to 1 ft. tall, excellent for rock gardens. Displays 1-10 flowering stalks with 2-3 tight, spherical clusters of dark blue tubular flowers above each other on the stem. Requires good soil and extra water, grows in sun or light shade. Sow in fall or cold stratify.
Packet (200 seeds)



Rydberg's Penstemon



Sidebells Penstemon

P2527 *Penstemon secundiflorus*
Sidebells Penstemon 4
In the early spring, 2 ft. stalks emerge from a basal rosette and beautiful, delicate, pink to lavender tubular flowers bloom. Older plants sometimes have dozens of luminescent, flowering stalks. Attracts hummingbirds.
Sow in fall or cold stratify.
Packet (100 seeds)

P2534 *Penstemon strictus*
Rocky Mountain Penstemon 2
A 2 + ft. perennial with multiple spires of large, dark to brilliant blue-purple flowers. Blooms early summer. Very hardy. One of the easiest penstemons to grow!
Sow in fall or cold stratify.
Packet (200 seeds)

P2535 *Penstemon superbus*
Superb Penstemon 7
Brilliant coral-red flowers from April to June. Can grow to 24". Found in hot dry locations. Treat as an annual above 5,000 feet.
Packet (100 seeds)

Our store near Santa Fe is in Agua Fria Village.
We are happy to be in a traditional village
that cares so much about the environment and its people.
On pg. 49 are fragments from
Agua Fria as a State of Mind by William Mee,
our wonderful village mayor.

P2550 *Phacelia campanularia*
California Bluebells 8
An exceptionally showy annual with brilliant blue, bell-shaped flowers blooming all summer long. Grows to 1 or 2 ft. This native of the Mojave and Colorado deserts is well-adapted to the entire arid West. Sow in late spring.
Packet (300 seeds)

P2555 *Phacelia integrifolia*
Scorpionflower 5
The first bee plant of the spring! Annual, 1-2 ft. tall. Curving clusters of purplish blue flowers resemble a scorpion's tail. Does well in dry, sandy soils. Grows at elevations up to 7,000 ft. Sow anytime, cover well. Packet (200 seeds)



Scorpionflower



Jacob's Ladder

P2600 *Polemonium foliosissimum*
Jacob's Ladder 3
Lots of sky blue flowers with yellow stamens over ladder-like leaves. Summer woodland bloomer. 2 ft. tall. Easy and pretty perennial, especially massed.
Sow in fall or cold stratify.
Packet (100 seeds)

Agua Fria was named Ca-Tee-Ka, meaning "cold water" by Tewa and Tano people. Recent excavations show habitation as long ago as 3000 BCE. An early community of pit-house builders had domesticated turkeys, and a later pueblo, 1150-1400, was called Pindi (Turkey) Pueblo.

The Spanish entered New Mexico in the 1500's. After the Pueblo Revolt, coordinated over a vast area, in 1680, and the "reconquest," land grants were given to Spanish officers like Captain Roque Madrid whose parents and grandparents had farmed in Agua Fria since it was settled in 1640.

Farming was the way of life of the Spanish here, using the ancient irrigation systems and the river that flooded and fertilized their fields. It was their livelihood, and they provided food to Santa Fe, until 1945 when the City of Santa Fe raised its reservoirs and illegally cut off the acequias and the ability to farm. The river does not flow now, but it may again.



Devil's Claw



Niki Threlkeld

P2675 *Proboscidea parviflora*
Devil's Claw 5 f

Sonoran tribes domesticated this annual for the long black fibers of the "claw." The fibers are used in basket weaving. Seeds are high in protein and eaten like sunflower seeds, or press them for oil. Beautiful pinkish fragrant flowers, then this dazzling fuzzy pod that splits open. Full sun. Sow when soil is warm or start indoors. Packet (25 seeds)

P2710 *Psilostrophe tagetina*
Paperflower 5

Extravagant, bushy perennial with bright yellow flowers. Mounds 2 ft. high and 3 ft. wide. Fine border plant and good in meadows. Nice dried flower. Blossoms turn papery and keep their yellow color. Blooms summer through late fall. Sow in spring or summer. Packet (100 seeds)



Paperflower

Thank you Pope Francis and Bishop Wester
for a conversation toward
nuclear disarmament.
We all want to live, we all want life-affirming jobs.



Pasque Flower

P1090 *Pulsatilla patens*
or Anemone patens
Pasque Flower 1

Beautiful 8" perennial flowers in early spring. Feathery seed-heads. Wonderful rock garden or woodland plant. Cool moist soil in sun or part shade. Sow in fall or cold stratify. Packet (50 seeds)

The light and warmth
of the sun offer
great healing.

P2780 *Ratibida columnifera*
Mexican Hat 3

Same species as Yellow Coneflower. Mexican Hat has mahogany red petals sometimes outlined with yellow. Crosses easily with Yellow Prairie Coneflower. Sow anytime. Packet (400 seeds)

P2782 *Ratibida columnifera*
Yellow Prairie Coneflower 3

Yellow daisies with slender, raised, cone-shaped centers. 1-3 ft., with finely divided leaves. Blooms summer to fall. Tolerant of poor soil. Good cut flower. Sow anytime. Packet (400 seeds)





P2850 *Rudbeckia hirta*
Black-Eyed Susan 4

These big, yellow, brown centered daisies are excellent cut flowers. They reach 3 ft. and bloom profusely all summer and fall until a harsh freeze. Cheerful biennial.
Sow anytime. Cover lightly.
Packet (200 seeds)



Cutleaf Coneflower

P2891 *Salvia azurea var. grandiflora*
Blue Sage 3

Vigorous, aromatic foliage and airy, 4 ft. tall spikes crammed with large, sky blue flowers in fall. Perennial. Sow in spring.
Packet (100 seeds)



Threadleaf Groundsel



Black-Eyed Susan

P2860 *Rudbeckia laciniata*
Cutleaf Coneflower 4

Fast growing and long blooming 3-4 inch sunflowers with swept back petals. Big, deeply cut leaves. Butterflies love this tall, to 6 ft., elegant perennial. Sow anytime.
Packet (200 seeds)



P2870 *Senecio flaccidus*
Threadleaf Groundsel 4

Large yellow daisies cover this 1-3 ft. tall and wide shrubby perennial. Flowers mid-summer through fall over soft, silver foliage. Found in meadows and on rocky hillsides in the arid West. Sow anytime.
Packet (100 seeds)

P2880 *Silene laciniata*
Indian Pink 4

Long blooming perennial with 1½" red-orange, deeply cut flowers in summer on 1 ft. tall delicate plants. Hummingbirds love it.
Sow anytime. Packet (50 seeds)



Goldenrod

P2898 *Sphaeralcea ambigua*
Desert-Mallow 6

The most drought tolerant of the Sphaeralceas and one of the largest flowered, apricot in color with mauve variations. The stems become woody and very numerous, a hundred from a single root! 3,500 ft. elevation and lower, this perennial can bloom almost all year.
Soak seed in water 6-8 hours and sow in spring. Packet (200 seeds)



Indian Pink

P3100 *Solidago canadensis*
Goldenrod 1

Grand perennial 2 to 5 ft. tall and almost as wide. Bold leafy stems, huge golden flower clusters. Exciting and vigorous. Not particular about soil, likes a little extra water.
Sow seed in fall or cold stratify.
Packet (200 seeds)



Desert-Mallow









Nitrogen Fixers

Flowers: Bundle flower, Lupines, Sensitive Briar, Purple Prairie Clover, Locoweeds, Golden Banner

Shrubs: Indigo bushes, Mountain Mahoganies, Apache Plume, Cliffrose, Bitterbrush, Mesquite, NM Locust (Robinia)

Clockwise from bottom left: Lupine, Cliffrose (with close-up), Curl-Leaf Mountain Mahogany, Apache plume, Indigo bush

Finally, after the huge volcanic eruption of Mt. St. Helens in 1980, a little plant emerged from the avalanche debris. It was a lupine helped by having nitrogen to fertilize it. Nitrogen fixing plants are essential. Bacteria living on the roots of legumes and other nitrogen fixers convert atmospheric nitrogen into forms that can be absorbed by plants.





P2895 *Sphaeralcea coccinea*
Scarlet Globemallow 5

Low growing, long blooming perennial or hot, dry areas. Flowers of copper or salmon color contrast with gray leaves. Food, medicine and dye plant. Visited by butterflies and hummingbirds. Packet (200 seeds)

P2897 *Sphaeralcea grossulariifolia*
Gooseberry Globemallow 6

Red-orange flowers bloom in spring and summer on 10" and up plants. Very tough ground cover. Soak seed 6-8 hours in water or cold stratify 2-3 months and sow spring or summer. Packet (200 seeds)

P2920 *Stanleya pinnata*
Prince's Plume 4

Extremely drought tolerant perennial to 4 ft. tall with a large mound of coarse foliage at the bottom and tall brushy stalks of yellow flowers in summer. Though small, the flowers are so numerous, the effect is quite spectacular. Thrives in poor, dry, sandy soil. Easy from seed. Sow anytime. Packet (100 seeds)



Heath Aster



Scarlet Globemallow, Paperflower behind



Prince's Plume

P1185 *Symphyotrichum falcatus var. commutatus*
Heath Aster 5

2 ft. woody perennial blooming in late summer and fall with hosts of small, white, daisy-flowers with yellow centers. The white equivalent of purple aster, but perennial. Looks stunning with grasses. Sow in spring, cover lightly. Packet (100 seeds)



Perky Sue

P1905 *Tetraneuris argentea*
Perky Sue 3

Six to eight inches above fuzzy, silver leaves is the earliest blooming yellow daisy. Blooms April and May with a light bloom in the fall. Does well in rocky, poor soils. Stunning in rock gardens. Perennial. Sow in spring. Packet (100 seeds)

P3185 *Thelesperma filifolium*
Plains Navajo Tea 5

Yellow flowers on this 10-20" annual or biennial can carpet the dry plains and hills after a good winter or summer rain, June to October. 4,500-7,500 ft. Packet (100 seeds)

V7250 *Thelesperma megapotamicium*
Cota, Navajo Tea 5

With their pleasant taste and reputed medicinal qualities, both flower and leaves can be steeped for tea. Delicate 1-2 ft. perennial with thin, nodding stems, slender divided leaves and small yellow flowers. Needs sun and good drainage. Sow anytime. Packet (100 seeds)

"To make Feast Day Indian tea – just put it in water." Tessie Naranjo



Golden Banner



Cota, Navajo Tea

P3200 *Thermopsis montana*
Golden Banner 1

Lemon-yellow, pea-like flowers on 2 ft. stalks. Blooms between May and August, depending on elevation. Good but well drained garden soils. A nitrogen fixer that spreads by rhizomes. Sow in fall or spring after soaking seed overnight in water. Packet (50 seeds)

P3335 *Verbena macdougalii*
Spike Verbena 4

Tiny, purple flowers bloom up the spikes on this 2-3 ft. tall summer blooming perennial anchored by long serrated leaves. Grows in mountain meadows and looks great in a patch. Needs water and is happy in full or partial sun. Sow in fall or cold stratify. Packet (200 seeds)

P3345 *Verbesina encelioides*
Golden Crownbeard 5

Showy, fast-growing annual with a profuse display of bright golden daisies in fall. Marvelous along fence rows, in meadows or at the back of a casual garden. Sow anytime. Packet (200 seeds)



Spike Verbena



Golden Crownbeard at Frenchy's Field



Joe Pye Weed, Ironweed

P3343 *Vernonia missurica*
Joe Pye Weed or Ironweed 2

Striking plant in the fall, reaching 5 ft. with big, flat, bright purple flower clusters. Good for a back border or a show-stopper spot. Very hardy. Sow anytime. Packet (100 seeds)

P3395 *Wyethia scabra*
Rough Mule's Ears 5

This desert plant forms symmetrical mounds 2-3 ft. tall and wide. Covers itself with bright yellow sunflowers in summer. The long, narrow leaves feel like sandpaper. Well-drained soil. Perennial native to high deserts of New Mexico, Colorado, Arizona and Utah. Sow in fall or cold stratify 2 months and sow in spring.
Packet (25 seeds)



Rough Mule's Ears



White Zinnia

P3405 *Zinnia acerosa*
White Zinnia 7

White flowers with orange centers on a very, very drought tolerant woody perennial. One foot tall, 2 feet wide. The flowers dry on the plant or when cut, so they're fun for small arrangements. Handsome grouped or as an accent in rock gardens and borders.
Sow anytime. Slow to germinate.
Packet (50 seeds)



Usti with Prairie Zinnia

P3407 *Zinnia grandiflora*
Prairie Zinnia 4

A spectacular bedding and border perennial. This plant forms a ground hugging cushion less than 6" tall, covered with yellow flowers, orange centers, summer to fall. We've seen Prairie Zinnia on almost vertical hillsides. Vanishes in winter, but don't worry, you'll see it next summer. Sow spring and summer. Slow to germinate.
Packet (50 seeds)

Politics

Native Americans are the strongest environmentalists. Their cultures vary hugely but always embody: Water and Land are Life. And many Native American communities concentrated on individual freedom and happiness. This surprised and shocked Europeans in the 17th and 18th centuries. Who enlightened the Enlightenment? Not perhaps who we are told.

What follows are indirect quotes from the first chapters of David Graeber and David Wengrow's *The Dawn of Everything*—records from the peoples of the Great Lakes region, east and north to Montreal and south to present day Pennsylvania.

Smoking tobacco and drinking chocolate came to England and Europe from the Americas (coffee from Africa as well), and with those intriguing substances came discussions. Everyone wanted to know what the people were like and what each thought of the other. The explorers, settlers and missionaries learned native languages and Native Americans learned Spanish, English, Dutch and French. The Great Lakes societies, mostly Iroquoian speaking, of "New France", where Canada is now, placed great value on reason and debate. They did not have a good opinion of the French who were materialistic, always competing, arguing and fighting except with their superiors—then they were obsequious—little better than slaves in fear of their superiors.

No such fear existed in the Great Lakes societies. Here, from Father Jerome Lallemant's correspondence, 1644, is some of what stunned Europeans: No people are freer. Each submits only when convinced. No punishment is inflicted upon the guilty. No criminal's life or property is in danger. The Huron-Wendat system of justice makes the entire family or clan pay compensation for a crime. This makes it everyone's responsibility to keep their kindred under control. It is not the guilty but the public that makes amends. If a Huron had killed an Algonquin or another Huron, the whole country assembled to agree on the number of gifts due to the grieving relatives to 'stay the vengeance that might take place.'

The Jesuits were shocked by no punishment given to criminals, by the freedom of youth ('wild ass colts') and the freedom of women. But they remained fine recorders of what they learned. Brother Gabriel Sagard's book of traveling in Huron country was cited by both Locke in England and Voltaire in France, and many others who acknowledged the Native Americans' social critiques. Sagard contrasted French lack of generosity with Native American communities where there were no homeless, no beggars, everyone was cared for. Sagard's book was a best seller in Europe and *The Jesuit Relations*, which came out in 71 volumes, was widely read between 1637 and 1673. Europeans agreed that individual Native Americans lived in generally free societies, including women. Women had full control of their bodies, unmarried women had sexual liberty and married women could divorce at will. The debate was whether liberty was desirable. The Jesuits were vehemently opposed to individual liberty. For them the greatest sin of liberty was that it prevented submitting to the law of God.

Wendat women and men had wealth but it was very different from our present-day wealth with its terrible social and environmental cruelty, or from wealth in 17th century Europe. Land was not personal wealth, it was held communally. Wealth was ornaments and crafts. It was lavishly offered to settle grievances, offered with pride and to maintain social cohesion.

Because wealth could not become power over others it had little effect on individual freedom. The French had more material assets but Native Americans believed they had more valuable assets: ease, comfort, time. Wealth might contribute to political office but no one needed to follow orders given by office holders, they had to be convinced to do so by reasoned argument. Similarly, since no compulsion or punishment was allowed, social cohesion came from debate and agreement. Trying to force people to behave well would be unnecessary for the French if they did not maintain systems that encouraged people to behave badly—money, property rights, the pursuit of self-interest. And, like the religious doctrine of eternal damnation, European punitive law is not necessitated by any inherent corruption of human nature, but rather by social organization that encourages selfishness and acquisitiveness. The qualities the Wendat believed ought to define humans—wisdom, reason, equity—are destroyed by material interest. A man motivated by wealth cannot be a man of reason.

Kandiaronk was a warrior, chief and diplomat of the Wendat. Because of his wit and brilliance, he was often invited to the table of the Montreal-based governor, Count de Frontenac, where he contrasted the more peaceful, happier Wendat with European hierarchies and strife. He explained the Wendat avoidance of wealth disparity which prevents legal systems of punishment. He negotiated for the peoples of America and was a signer to the Great Peace of Montreal in 1701. His thoughts were recorded by the French but almost immediately appropriated and altered and put in others' mouths obscuring their origin and depth.

Another Native American contribution linked to individual freedom is the fluidity of power and hierarchies. Some Plains Indians had strict hierarchies during the seasonal bison hunt with men given the power to imprison, whip, even kill those who interfered. Roles changed for the next hunt. The man who had power one year could be under the man he had disciplined or punished. The hierarchy and powers dissolved after the hunt. People were again in smaller groups. Coercion was forbidden. Plans and disputes were handled by deliberation and debate, and complied with by mutual and individual agreement.

Different forms and goals of societies pour out of the *Dawn of Everything* together with the accomplishments, experiments and playfulness of indigenous societies. History reveals, as *The Dawn of Everything* documents, that we are not by nature people of war and cruelty or people of cooperation and altruism. The authors hope that myths like these, with the inevitability of inequality and war, will be swept away and good questions will be asked to achieve sustainable solutions without hierarchy, without dehumanizing each other and destroying our fellow creatures and earth.





White Fir

S1030 *Abies concolor*
White Fir 3

Grows as low as 5,500 ft. in canyons, then in mixed conifer zone about 7,500 ft. up to 10,500 ft. Thick limbs grow out in layers -silver blue in color and fragrant. Can be 80 ft. tall but often shorter in cultivation. Fall sow or cold stratify.
Packet (50 seeds)

S1035 *Acer grandidentatum*
Bigtooth Maple 2

Small tree to 35 ft. or multi-trunked shrub 8-12 ft. A true hardwood maple that with age can be tapped to make maple syrup! Beautiful red, orange or yellow autumn leaves. Good shade for home, handsome street tree but prefers a grove.
Packet (20 seeds)



Bigtooth Maple

S1047 *Agave parryi*
Parry Agave 5

Blue-green, thick and spiny sword-like leaves form a basal rosette about 18" across. After many years, a tall, flowering spike can shoot up to 12 ft. After flowering, the mother plant dies. Off-shoots from the base continue to grow, forming a colony. Loved by hummingbirds, thrashers, bees and all insects. Sow in spring.
Hardy to 20 degrees F.
Packet (50 seeds)



Serviceberry



Indigo Bush with Honey Bee



Parry Agave

S1070 *Amelanchier alnifolia*
Serviceberry 2

Deciduous shrub to 10-20 ft. with white flowers followed by sweet, blueberry-like berries. Loved by birds. Widespread in the Rocky Mountains. Prune to a small tree or allow suckers to make a thicket. Needs shady location or extra water in arid regions. Sow seed in fall (some seeds may not germinate for a year) or cold stratify 4 months and sow in spring. Protect seedlings with shade and mulch.
Packet (100 seeds)

S1090 *Amorpha fructicosa*
Indigo Bush 3

Deciduous 4-8 ft. shrub. Branches of small purple flowers with gold stamens. Butterflies love it. Needs extra moisture in dry areas. Nitrogen fixer. Soak seeds in water 6-8 hrs. hours and sow anytime.
Packet (100 seeds)

S1089 *Amorpha canescens*
Lead Plant 5

A wonderful 5 x 5 ft. drought tolerant, nitrogen-fixing shrub. Beautiful small, soft, gray leaves run up each stem in bean formation. The spikes of indigo flowers with tiny yellow stamens are stunning in early summer. Soak, starting in hot water, for about 8 hours and sow anytime.
Packet (100 seeds)

S1125 *Arctostaphylos uva-ursi*
Kinnikinnick or Indian Tobacco 1

An evergreen carpet of glossy, dark green leaves. Small, waxy, pinkish flowers. Brilliant red berries. Needs enriched mountain soil. Does not take intense heat. Sow in fall or cold stratify for 2 months.
Packet (100 seeds)



Kinnikinnick, Indian Tobacco

S1170 *Artemisia cana*
Silver Sage 3

Freely branching shrub 3-5 ft. with fragrant leaves. That Artemisia fragrance is the West. Classic silver gray foliage covered with fine hairs. Flowers are yellow but inconspicuous; borne in late summer. Found native in the Sierra Nevada of California, throughout the Southwest, as far north as Oregon and up into Canada. Very drought tolerant. Sow in fall or spring.
Packet (200 seeds)

S1160 *Artemisia filifolia*
Sand Sage 4

Fragrant, silver-gray, evergreen shrub to 4 ft. with tiny narrow leaves and graceful swirling branches. Tolerates both sandy and clay soils. Sow anytime.
Packet (200 seeds)

S1164 *Artemisia frigida*
Fringed Sage 3

A mat-forming perennial to 1 ft. with fragrant, fine textured, silver-gray foliage. Prune to keep mat-like or allow flower stalks to shoot up. Very hardy. Sow anytime.
Packet (200 seeds)



Sand Sage

S1167 *Artemisia ludoviciana*
Prairie Sagebrush 2

A sage-fragrant perennial to 2 ft. that spreads by rhizomes, making it a great groundcover and erosion control helper. Sow anytime. Zones 2-8

S1169 *Artemisia tridentata*
Big Sage 4

A silver-gray evergreen shrub 3-4 ft. tall in New Mexico, up to 6 ft. tall in its northern range. Very rugged. The picture of the Old West. Strongly aromatic foliage. A handsome specimen or foliar accent in your unwatered or watered garden. Inconspicuous flowers. Sow in fall or spring.
Packet (200 seeds)



Big Sage

S1200 *Atriplex canescens*
Four-Wing Saltbush 4

Intricately branched shrub 4-6 ft. tall and broad. Gray foliage. Needs no extra water once established. Female plants produce lots of curious four-winged fruits. Use as wildlife habitat (loved by quail), a specimen plant, a screen or a windbreak. Sow in fall or cold stratify 2-3 months.
Packet (200 seeds)



Four-Wing Saltbush with Sand Sage in front

S1210 *Atriplex confertifolia*
Shadscale 4

A handsome gray shrub about 3 ft. tall. The female plant carries the seed through the winter. Great bird habitat and food. Dry plains and mesas. North Dakota to Oregon and south to Mexico. Sometimes in pure stands in Northern Arizona. Sow in fall or cold stratify 2-3 months.
Packet (200 seeds)

S1323 *Caesalpinia gilliesii*
Yellow Bird of Paradise 6

Perennial, drought tolerant, deer resistant shrub 4-6 ft. tall and wide with rows of small leaflets, big yellow flowers with red sex parts flying out like fiber optic filaments tipped in gold, and big bean like pods following. Blooms summer through early freezes. Loved by bees, butterflies and hummingbirds. Plant seed in fall or cold stratify. Packet (10 seeds)



Yellow Bird of Paradise

Bison and the Great Plains

Below is a very shortened retelling of the bison chapters of *The Eternal Frontier, an Ecological History of North America and its People* by Tim Flannery.

George McJunkin settled in Folsom, New Mexico after being freed from slavery in 1865 at fourteen years old. He became a cowboy on the Crowfoot Ranch (later its foreman) and learned to read. His interests encompassed so many areas, most of all natural history. The large bone pit he discovered revolutionized North American prehistory. After his death there was more extensive excavation and a long-vanished culture, with a great stone tool tradition, was given the name Folsom. In McJunkin's pit, buried in the bones of 23 extinct long-horned bison, were Folsom spear blades. These stone blades, deeply fluted and lethal, were made somewhere between 12,950 and 12,250 years ago. The Folsom people harvested plants and hunted antelope, elk, deer and other game, but mainly long-horned bison. It appears they were a part of each others lives.

The great large animals died out in North America by about 12,000 years ago for unknown reasons - climate change, hunting… Large animals got smaller. Getting smaller (dwarfing) and increased herd sizes both come from the pressure of being hunted. The bison that we recognize today came to dominate the Great Plains over thousands of years. Thirty to fifty million bison lived there, and were critical to the new ecosystem.

With bison urine and feces the soil fertility of the Great Plains was never lost, and the trampling of bison herds buried seeds, speeded up decay of dried grasses and stimulated new growth. Antelope, deer, elk, big-horn sheep all thrived. The plains of North America, and savannas elsewhere, with great herds of animals passing through are extremely productive regions.

The predators of bisons were wolves and the Plains Indians. They coexisted a long time. To indigenous peoples the bison was the symbol and reality of abundance and giving. Indigenous people used every bit of what they killed for food, clothing and shelter.

When the Europeans arrived in the 1800's they slaughtered the bison for blankets and robes, then for leather goods, later they took only their tongues and shot them for sport from trains. Near extinction, a few hundred found protected places in Yellowstone Park and Canada. The wolf was almost exterminated also. And six years after the bison were gone, in 1890, was the massacre of the People at Wounded Knee. With these tragedies came the end of the splendor and fertility of the Great Plains.

———

Flannery's dedication to his book is:

"To the North Americans: in admiration of the efforts so many are now making to win back the natural grandeur, the biodiversity and ecological balance of their exceptional land."



After the herds were destroyed the bones made money.
Photo: Detroit, bison skulls before going to the carbon factory.
Glenbow Archives NA-2242-2

S1330 *Celtis reticulata*
Netleaf Hackberry 5
Can reach 30 ft. Wonderful tree for small areas. The orange berries are loved by birds. Native Americans crushed and ate the fruit with parched corn.
Cold stratify, 2-4 months.
Packet (50 seeds)


Netleaf Hackberry

S1360 *Cercocarpus ledifolius*
Curl-Leaf Mahogany 3
Evergreen shrub, 5-15 ft. Small, dark green, leathery leaves with white undersides. Slow growing. Inconspicuous flowers; long, twisted, plume-tailed fruits catch the sunlight in the fall. Hardy and undemanding. Sow in fall or soak seed 8 hrs in hydrogen peroxide, stratify for 2-3 months and sow in spring. Packet (100 seeds)


Mountain Mahogany in seed!

S1362 *Cercocarpus montanus*
Mountain Mahogany 3
Small, wedge-shaped, dark green leaves grow in a dense branching pattern on this 6-20 ft. shrub or small tree. Deciduous. Spiral seed tails can drill seeds into the ground or carry them away in the wind. In full seed this shrub looks shimmery. Sow seed in fall or soak seed 8 hours in hydro-gen peroxide, stratify for 2-3 months and sow in spring. Hardy.
Packet (100 seeds)

S1364 *Chamaebatiaria millefolium*
Fernbush 4
Tall shrub to 8 ft., and just as broad, with fragrant, fern-like leaves. Columns of small white flowers in midsummer. Attracts bees. Evergreen in warm climates, deciduous in cold climates but re-leafs in February. Extra water helps but very drought tolerant once established. Sow in fall or cold stratify 1-2 months and sow in spring. Do not cover the tiny seed. Packet (200 seeds)


Fernbush with Honey Bee


Desert Willow


Rocky Mountain Clematis

S1391 *Chrysothamnus depressus*
Dwarf Chamisa 4
Knee high, compact shrub with pale green stems and ivory-yellow flowers in autumn. For tough spots! Sow anytime.
Packet (50 seeds)


Chamisa, Rabbitbrush

S1375 *Chilopsis linearis*
Desert Willow 6
Graceful, deciduous, shrubby tree 10-25 ft. tall and 10-15 ft. wide. Willow-like leaves and showy pink to purple, trumpet shaped flowers followed by a multitude of long, thin pods. Tolerates heat and drought but occasional deep watering gives better flowering and faster growth. Sow in a well-drained, warm soil. Packet (100 seeds)

S1398 *Clematis columbiana*
Rocky Mountain Clematis 2
Elegant small perennial vine to 10 ft. with spring blooming, almost translucent blue-purple flowers. Clusters of plumed seed in fall. Grows on trees and shrubs in forest or forest clearings. Needs water and likes good soil. Cold stratify 2 months. Sow in spring.
Packet (50 seeds)

S1400 *Clematis ligusticifolia*
Virgin's Bower 3
An exuberant vine climbing to 20 ft. on trees, fences, trellises (or along the ground). Sprays of small star-shaped flowers bloom in spring. Seeds with silky plumes catch the light of fall. Deciduous, but tendrils give good blockage in winter. Sow in fall or cold stratify 2 months. Germination is slow. Packet (50 seeds)


Virgin's Bower in seed

S1390 *Chrysothamnus nauseosus (Ericameria nauseosa)*
Chamisa or Rabbitbrush 4
Silver-blue, narrow-leaved, deciduous shrub, 3-5 ft. tall and wide. Pungent, yellow flowers in fall. Can prune strongly, blooms on new growth.
Sow anytime. Packet (500 seeds)

S1425 *Cornus stolonifera*
Dogwood 2

Deciduous shrub, 3-6 ft. tall and wide, with clusters of tiny white flowers and white berries in the fall. Bright red branches. Pliable stems used in basketry. Sow in fall or cold stratify 3 months.
Packet (50 seeds)



Sotol, Desert Spoon

S1458 *Dasylirion wheeleri*
Sotol or Desert Spoon 6

Ribbon-like leaves to 3 ft. edged with hooked thorns. Creamy white flowers in May and June on a spike that can grow to 12 ft. and looks wonderful all season. Pulling off leaves at the base gives you the "desert spoon." Sow in spring.
Packet (50 seeds)

S1442 *Cupressus arizonica*
Arizona Cypress 5

Grows in Mexico coming north in canyons to Arizona and New Mexico 3,500-8,000 ft. It has a wonderful 1" round cone with armor plates that open to release a hundred small seeds. Its leaves are tiny scales. Beautiful blue tree to 40 ft., reddish bark checkering with age. Drought tolerant. Fall sow or cold stratify.
Packet (50 seeds)



Shrubby Cinquefoil

S2650 *Dasiphora fruticosa*
Shrubby Cinquefoil 2

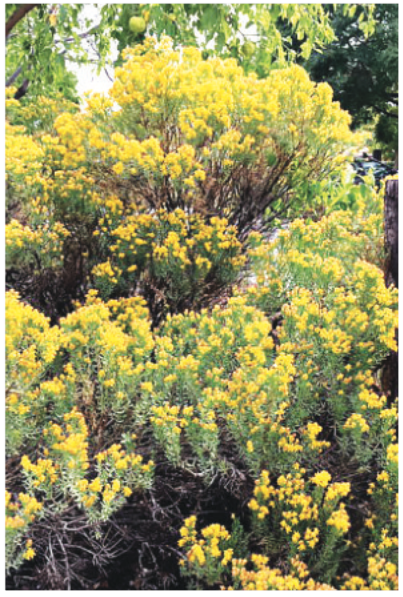
Covered by small, yellow flowers all summer. Native to the mountains, this 3 ft. deciduous shrub has found its way into landscaping all over the world at every elevation. Improved soil, regular water. Fall sow or cold stratify 2 months.
Packet (50 seeds)

Life is like riding a bicycle.
To keep your balance
you must keep moving.

"I thought of that
[the theory of relativity]
while riding my bicycle."
Albert Einstein

S1600 *Echinocereus triglochidiatus*
Claret Cup Cactus 4

A beautiful cactus forming 2-3 ft. clumps. Bright red or orange flowers in spring followed by sweet, edible pods. Hardy but grows slowly. Sow indoors in bright light in sand and vermiculite.
Plant outdoors after danger of frost.
Packet (50 seeds)



Turpentine Bush

S1627 *Ephedra nevadensis*
Mormon Tea 4

Handsome shrub, 4 ft. tall and tough in drought. Ephedra is an evergreen related to conifers. The photo here is a male plant showing its pollen. The wind carries the pollen to the female plant that makes the seed. Indigenous people ground and ate the seed. The stems can be brewed for tea- Mormon Tea. Fortunately our ephedras have little ephedrine, a powerful alkaloid. Fall sow or cold stratify.
Packet (50 seeds)



Claret Cup Cactus

S1392 *Ericameria laricifolia*
Turpentine Bush 5

In the fall little yellow flowers cover this long lived compact shrub. 2-4 ft. tall and wide. Native to the Southwest growing from desert to woodland. Sun loving, tolerant of dry, sandy soil. Attracts bees, butterflies and more. Fall sow or cold stratify 2 months.
Packet (50 seeds)



Mormon Tea



Apache Plume

S1720 *Fallugia paradoxa*
Apache Plume 4

White rose flowers cover this plant twice each season, spring and again in late summer, followed by beautiful, pink, plumed, silky seedheads. Apache Plume is a deciduous, multi-branched shrub from 3-6 ft. tall. Drought tolerant and hardy. Excellent ornamental.Takes pruning – blooms on new growth. Nitrogen fixing. Fall sow, or cold stratify. Packet (300 seeds)



Cliff Fendlerbush

S1725 *Fendlera rupicola*
Cliff Fendlerbush 4 f

Delicate shrub to 6 ft. with many sweet scented, white, 2" flowers in spring. Rupicola means lover of rocks. It grows along rocky hillsides and in canyons. Browsed by deer. Heat tolerant. Sow in fall or stratify for 1-2 months and sow in spring. Packet (50 seeds)

S1721 *Forestiera pubescens*
New Mexico Privet 4

A deciduous shrub to 20 ft. with delicate leaves turning yellow in fall. Pruning creates an open, airy tree form; if left to sprout at the base, it fills out for dense screening that can be hedged to any height. Pest resistant. Tiny yellow flowers bloom before leaves emerge. Both male and female plants are needed for berries to form. Attracts birds. Sow seed in fall or cold stratify.
Packet (50 seeds)



NM Privet, small male flowers

"I have nothing, I owe a great deal, and the rest I leave to the poor."
Rabelais' Last Will & Testament, 1553



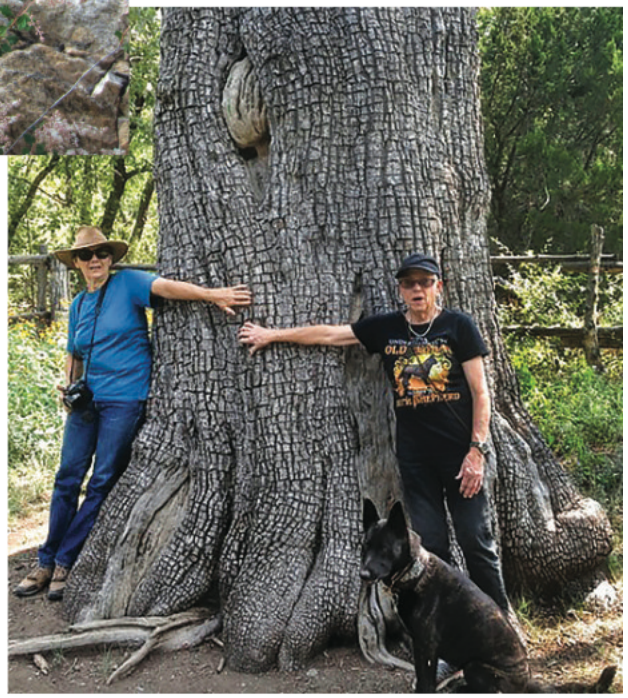
S1750 *Holodiscus dumosus*
Cliff Spirea 4

A mountain shrub to 7 ft. with sprays of white flowers in spring. Grows in rocky or gravelly soils. Widely used ornamental. Fall sow or cold stratify 2-4 months.
Packet (300 seeds)

Cliff Spirea

S1812
Juniperus deppeana
Alligator Juniper 5

Dry hills 4,500-8,000 ft. elevation, growing 20-40 ft. tall. If its trunk is more than 3 ft. in diameter it may have seen the last millennium. Beautiful plated bark. Dense foliage. Please plant for the next millennium. Gordon planted two at our office 20 years ago. They are 15 ft. tall already. Fall sow or cold stratify 1-4 months.
Packet (30 seeds)



Alligator Juniper with Betty, Jacinta and Reckless

S1820 *Juniperus monosperma*
One-Seed Juniper 5

Growing at 3,500-7,000 ft. elevation in N. Arizona and New Mexico often with piñon pine. Tough, deep rooted tree. The main source of early spring pollen allergies but since the sexes are on different trees, only half the trees (male) offend. Used by more ingenious, earlier peoples for everything -medicine, gum, dye, blankets, shoes, food and fuel. Fall sow or cold stratify 1-4 months.
Packet (50 seeds)

S1830 *Juniperus scopulorum*
Rocky Mountain Juniper 3

Rocky Mountains west to Nevada, east to Oklahoma and the Dakotas. Upright to weeping, elegant 20-30 ft. tree with blue foliage, edible berries for us and other wildlife, and wood that lasts forever as posts and is fragrant in the fire. Plant outside for nature to follow its course; germination is improved with 3 months in warm, just damp soil followed by 3 months cold stratification.
Packet (50 seeds)

S1340
Krascheninnikovia lanata
Winterfat 3

1-3 ft. tall shrub with ornamental woolly, white seedheads in the fall. Attracts birds and is an excellent winter feed for livestock. Tolerates alkaline soils. Exciting in dried arrangements. Do try this plant - it's an eye-catcher. Packet (100 seeds)



Winterfat



Creosotebush

"Nothing is more responsible for the good old days than a bad memory."
Franklin Pierce Adams

S2112 *Larrea tridentata*
Creosotebush 7

An evergreen desert shrub from 4-8 ft. high and wide with bright green, glossy foliage. One of the most abundant plants of the Southwest. Extremely drought tolerant and long lived. Useful screen or windbreak. Attracts honey bees. Sow in spring. Nick seed coat with a knife or puncture with a needle to allow water in and soak 8 hours. Germination erratic. Put a handful of leaves in the shower for their fragrance. Packet (200 seeds)



Desert Holly

S2114 *Mahonia haematocarpa*
Desert Holly or Redberry Mahonia 4 f

Holly-like evergreen shrub, 12 ft. tall and wide. Very cold hardy. A host of fragrant yellow flowers, then stunning coral red berries in fall for jelly and birds. Fine wildlife habitat. Sow in fall or cold stratify. Packet (100 seeds)



Desert Holly Berries

S2116 *Mahonia repens*
Creeping Mahonia 2 f

Water-loving, evergreen shrublet to 1 ft. with holly-like leaves that are purple maroon in winter. Yellow, bell-shaped flowers and edible berries. Sow in fall or cold stratify 1-3 months. Packet (100 seeds)



Beargrass



Creeping Mahonia

S2250 *Nolina microcarpa*
Beargrass 6

3 ft. tall evergreen with a multitude of long, shiny leaves. Tall flower spike of small whitish flowers. Very tolerant of drought and poor soils. Soak seed overnight and sow in spring. Packet (50 seeds)



Tree Cholla

S2265 *Opuntia imbricata*
Tree Cholla 5

Six foot tall, often as broad. A spiny guardian for any gate and for many birds' nests (the curved bill thrasher, cactus wren ...). Big, purple-red flowers are jewels of summer. Fruits are edible, if dry, and the woody skeleton is ornamental. Needs very warm soils to germinate. Packet (50 seeds)

We are the only industrialized country
in the world that does not have
national health insurance.
We are the richest in wealth
and the poorest in health.

Studs Terkel

S2280 *Philadelphus microphyllus*
Littleleaf Mockorange 3 f

Masses of white flowers, delightfully fragrant-like orange blossoms, June to August. A fine-textured shrub with slender twigs, brown and white bark and small silvery leaves. Hardy to 9,000 ft. Sow in fall or cold stratify 1-2 months. Packet (100 seeds)



Littleleaf Mockorange



Bristlecone Pine

S2600 *Pinus aristata*
Bristlecone Pine 2

With prickly cones and branches dense with needles (with white dots of resin) they grow 7,500 ft. to treeline and give gnarled testimony to the harsh weather and their great age to 5,000 years old. They, and Creosote Bush, are among the oldest living creatures. Wonderful bonsai look. Grows slowly 30-60 ft. No pretreatment necessary though cold stratification may help. Packet (50 seeds)

S2602 *Pinus edulis*
Pinon Pine 3

New Mexico's state tree. Beloved for its delicious nuts which come abundantly on their own schedule, and for its rugged durability and beauty. At 7,000 ft. it does not require any extra water, at 5,000 ft. it does. Grows 12-30 ft. tall and wide. Food, fuel and home to many of us. Plant in fall -no treatment needed though sometimes 1-2 months cold stratification helps. Packet (25 seeds)

Nuts	Protein%	Fat%	Carb%
SW White Pine	30	60	9
Piñon Pine	14	62-71	18



Ponderosa Pine

S2608 *Pinus strobiformis*
Southwest White Pine 3

Long, soft needles, five per bundle. Open-branched, stout tree to 60 ft. growing on wooded slopes and canyons 3,500-8,500 ft. Takes heat and wind, but deep water in high heat. Fall sow or cold stratify 2-4 months. Packet (20 seeds)



Pinon Pine seedlings

S2300 *Picea pungens glauca*
Blue Spruce 2

Grows at 8,000-11,500 ft. near Engelmann Spruce but it is more silvery and blue, has longer, sharper needles, bigger cones and gray bark. Hailed as the most beautiful evergreen, it has traveled the world. As a grown-up, it is drought tolerant at 7,000 ft., at lower elevation give it extra water. Plant outside - no pretreatment needed. Packet (50 seeds)

P2606 *Pinus ponderosa*
Ponderosa Pine 3

The most common and widely distributed of the western pines (7,000-10,000 ft.); one of the nation's most beautiful conifers. Long needles, soft appearance, vanilla-smelling bark, fast growing, 2 ft. a year, (once established) to 100 ft. Sow in fall or stratify seed 1-2 months. Packet (50 seeds)



Screw Bean Mesquite Seed

S2630 *Prosopsis pubescens*
Screw Bean Mesquite 6

Tree or shrub in the pea family. 10-15 ft. tall and wide. Branches have thorns. The trunk gets shaggy with age. Yellow flower spikes, then screwy seedpods. Full sun. Very drought tolerant. Seeds germinate in warm, damp soil. Packet (20 seeds)

S2660 *Prunus americana*

Wild Plum 3 f

The only plum native to the Southwest. Covered with white flowers in spring. Grows in mountain fields and along ditches and fences. Small tree or shrub (if allowed to sucker) to 10 ft. Good hide-out for animals. Delicious, miniature plums. Sow in fall or stratify 4 months and sow in spring.
Packet (20 seeds)



Wild Plum



Chokecherry

S2670 *Prunus pumila var. besseyi*

Western Sand Cherry 3 f

A hardy, deciduous, shrub from 3-8 ft., with shiny leaves and pink-white blossoms followed by sweet, dark fruits that attract birds and make tasty jelly. Crimson fall color. Plant in fall or cold stratify 3 months.
Packet (20 seeds)

S2672 *Prunus virginiana*

Chokecherry 3 f

Elegant, 1-20 ft. tree with clusters of white flowers followed by black berries, great for making jelly and attracting wildlife. Prune suckers at the base or let them fill in if using as a screen. Sow seed in fall or cold stratify 4 months and sow in spring.
Packet (20 seeds)

S1448 *Psorothamnus scoparius*

Broom Dalea 6 f

A mounding, 3-4 ft. shrub with leafless gray stems topped by masses of small, fragrant, dark purple pea-like flowers in summer. Native range from El Paso to Albuquerque and from the Rio Grande Valley to 6,000 ft. A good bee plant and nitrogen fixer. Sow anytime in a well drained, sandy soil.
Packet (100 seeds)



Broom Dalea

S2720 *Ptelea trifoliata*

Wafer Ash 3

Small tree to 10 ft. Perfect courtyard tree. Fragrant, ash-like leaves are bright green. Charming branch pattern. Papery oval seed from which it gets its name. A cold hardy relative of citrus trees. Sow in fall or cold stratify 3 months and sow in spring. Packet (25 seeds)



Cliffrose

S1440 *Purshia mexicana*

Cliffrose 4

A rugged, intricately branched shrub to 6 ft. Small, dark, evergreen leaves. In the summer, white, fragrant flowers appear and long, silky plumes cover the plant in fall. Heat and cold hardy. Slow growing. Sow in fall or soak seed in hydrogen peroxide for 6 hours, cold stratify 2 months. Germination is erratic.
Packet (50 seeds)

S2730 *Purshia tridentata*

Antelope Bitterbrush 4

In spring, this 4 ft. shrub covers itself with small, yellow flowers resembling wild roses. Leaves are tiny and evergreen. Cold hardy. Closely related to Cowania, both very interesting landscape plants. Browsed by deer. Sow seed in fall or soak seed for 6 hours in hydrogen peroxide, cold stratify 2-3 months and sow in spring.
Packet (100 seeds)



Antelope Bitterbrush

S2755 *Rhus glabra*

Smooth Sumac 4

Large shrub 4-6 ft. tall, often tree-like, can form thickets. Big compound leaves turn red for 2 months in fall. Terminal clusters of small white flowers become striking heads of red berries in fall. Attracts birds. Impressive ornamental. Fall sow or soak seed 8 hours in water, cold stratify 3 months and sow in spring.
Packet (100 seeds)



Smooth Sumac

S2757 *Rhus microphylla*
Small Leaved Sumac 6
Spikes of tiny white flowers in early summer turn to orange red fruits with tangy lemon flavor. Excellent wildlife habitat and forage. Dark, beautiful evergreen shrub to 10' tall and broader still. Sow in fall or soak seed 8 hours in water and cold stratify 3 months before spring planting.
Packet (20 seeds)



Small Leaved Sumac



Three-Leaf Sumac

S2770 *Rhus trilobata*
Three-Leaf Sumac 3
Deciduous shrub to 6 ft. and just as broad, although more commonly 3-4 ft. tall and wide. Leaves are divided into 3 leaflets that turn yellow, orange or red in fall. Tart red berries can be used to make a lemony drink. Attracts birds. Tolerant of poor soils and drought. Sow in fall or soak seed 8 hours in water and cold stratify 3 months before spring planting.
Packet (100 seeds)

S2800 *Ribes aureum*
Golden Currant 3 f
Deciduous shrub to 6 ft. with fragrant flowers in early spring. Delicious orange to black currants in summer. Leave currants on shrub to become the best raisins ever eaten –if the birds don't beat you to them. Bees visit newly opened flowers for nectar. Red centers tell bees the flower is older, don't bother. Maple-like leaves with lovely fall color. Excellent ornamental, tolerates a wide variety of cultural conditions, likes regular water. Sow in fall and mulch seed bed lightly or cold stratify for 3 months and sow in spring. Packet (100 seeds)





Golden Currant

S2801 *Ribes cereum*
Wax Currant 4
Grows to 3-8 ft. tall with small spines, whitish flowers, bright red berries and fall color. Flowers May to July. 6,500-9,500 ft. elevation. Loved by wildlife. Full sun to part shade. Low to moderate water.
Packet (100 seeds)

S2802 *Robinia neomexicana*
New Mexico Locust 3
Small, thorny tree (8-15 ft.) with pink flowers on drooping racemes. Can take strong pruning. Attractive landscape tree for small spaces. Suckers form clumps good for erosion control. Tolerates alkaline soil. Fixes nitrogen. Scarify seed by nicking with file, soak overnight in water and sow anytime.
Packet (50 seeds)

S2803 *Ribes leptanthum*
Trumpet Gooseberry 4
This 3-6 ft. spiny shrub has white flowers followed by plump black berries. Its tasty fruit is eaten by birds and seed collectors. Luckily, we didn't eat them all before we could introduce them to you! Sow in fall or cold stratify 120 days. Packet (30 seeds)



New Mexico Locust



Woods Rose

S2824 *Rosa woodsii*
Woods Rose 3 f
Fragrant, pink, single rose, blooms profusely. A freely suckering native from 3-4 ft. tall and wide. Unlike almost all roses can bloom in full shade as well as full sun and enjoys the cool forest or the hot plains. Fall sow or cold stratify 2 months. Packet (100 seeds)

S3100 *Vitis arizonica*
Canyon Grape 5
Native grape first cultivated by Pueblo Indians. The fruit makes delicious preserves and wine. Good tasting fresh. Unlike commercial grapes, it has one large seed. Usually found growing along streams. Leaves turn stunning shades of red in fall.
Sow in fall or stratify 120 days.
Packet (30 seeds)

"The only thing you need to write a good song is three chords and the truth."
Harlan Howard

Each yucca has an intimate relation with its own yucca moth. Neither could survive without the other. The moth gathers a ball of pollen and places it on the stigma of the flower. The flower is fertilized and seeds will ripen. Then she lays her eggs in the ovary. When her eggs hatch the larvae feed on many but not all of the seeds. The life cycles of the plant and the moth are completed because they are together.

If you plant a yucca beyond its native range it may flower, but without its own specific moth it can not make living seed.

S3401 *Yucca elata*
Soap Tree Yucca 4

State flower of New Mexico. A tree-like yucca with a definite trunk 6-8 ft. tall. Creamy white, lily-like flowers. In late summer, it shoots up the tallest flower stalk of the yuccas. Sow seed in fall or cold stratify.
Packet (50 seeds)



Soap Tree Yucca

S3400 *Yucca baccata*
Broadleaf Yucca 3

Short clumps of tough, sword-like leaves. 2 ft. long clusters of flowers in summer, red-brown outside and white inside. Yucca fiber was used to make rope, shoes and baskets. Sow seed in fall or cold stratify.
Packet (50 seeds)



Broadleaf Yucca

S3403 *Yucca glauca*
Narrowleaf Yucca 3

Stemless with stiff, narrow, sword-like, evergreen leaves that fan out from the base. The greenish white flowers are borne on long, narrow spikes to 4 ft. All the yuccas contain saponin, a natural hair shampoo. Sow in fall or cold stratify.
Packet (50 seeds)



Narrowleaf Yucca

Cover Crops

add back to the soil what we take out, and protect the soil from driving wind or water. They are the green manures in crop rotation.
Plant them for organic matter and nitrogen, for erosion control, for weed control, for loosening compaction and improving tilth. Don't stop with these offerings. There are many cover crops - oats, pinto beans, barley. And mixing cover crops for differing contributions to the soil is very helpful, for example using winter rye and hairy vetch together. **Cover the earth!**

C1000 Buckwheat
An aggressive plant if kept well watered; assists in weed control, tolerates poor soil and makes phosphates available. Needs warm soil to germinate. The summer cover crop! Sow in late spring. Good bee plant making a strong, dark honey.
1-2 lbs. per 1,000 sq. ft.

C1010 Sanfoin
Perennial nitrogen-fixing legume. Takes poor soils and some drought. Sow in fall, winter or early spring for spring germination. May be tilled under at maturity or used as hay or forage. Does not cause bloating! Beautiful pink flowers, loved by bees.
2-3 lbs. per 1,000 sq. ft.

C1020 Hairy Vetch
Adaptable, perennial nitrogen-fixing legume. Plant early fall to establish before cold weather. Or plant in spring. 2 lbs. per 1,000 sq. ft.

C1130 Ladak Alfalfa
Deep-rooted legume. A top dry-land and harsh soil performer. Loved by bees.
¼ lb. per 1,000 sq. ft.

C1160 Daikon
Mild flavored, very large white radish. Fukuoka's favorite for penetrating and improving tough soils. Sow after frost. Keep well watered for veggie use. For breaking compaction water as best you can.
2 lbs. per 1,000 sq. ft.

C1040 Winter Rye
Planted in autumn, this grass can grow more than 3 ft. in spring. Till in before stems grow stiff. A high production plant tolerant of poor soils.
2 lbs. per 1,000 sq. ft.

C1045 Annual Ryegrass
Best adapted to moist regions with mild winters and cool summers. This coarse grass tolerates partial shade, some traffic and a wide range of soils. Good cover crop, good forage. Can persist and be too competitive with excess water. Sow in late spring for a summer cover crop.
1 lb. per 1,000 sq. ft.

C1030 Organic Winter Wheat
The grain that made the Midwest our breadbasket. A winter annual germinating in autumn, overwinters as a seedling and although dormant provides soil stabilization. Mature height is about 2 ft. Allow plants to go to seed if you want the grain or turn under for soil improvement. For wheat juice cut at 4" and blend.
2 lbs. per 1,000 sq. ft.

C1110 White Dutch Clover
Shallow-rooted perennial whose creeping stems root in all directions. Relished by livestock. Provides erosion control and nitrogen for the soil. Flowers attractive to bees. Sow in late spring for a summer cover crop. Prefers 30" of precipitation.
½ lb. per 1,000 sq. ft.

C1120 Strawberry Clover
A foot-tall perennial, nitrogen-fixing legume with little pink flowers that look like strawberries. The stems trail along the ground making a springy turf. They lie down in winter. Fairly drought and alkaline tolerant. Sow in spring; once established, twice a month watering should do.
¼ lb. per 1,000 sq. ft.

C1070 Field Peas
Sow this nitrogen-fixing legume in early spring for vigorous growth. May be turned in late spring or left to improve the soil throughout the season. Alkaline tolerant. Field peas are a good animal fodder.
2-3 lbs. per 1,000 sq. ft.

C1180 Orchard Mix
Blend of Sanfoin, Hairy Vetch, Buckwheat, Daikon Radish, Red Medium Clover, Oats, and Field Peas. Used in orchards, farms, yards and gardens to help build up the soil. Water regularly. 1 lb. per 1,000 sq. ft.

Social media feeds you with flattery, it feeds you what it sees you want: clothes and conspiracies, flashier games and violence, fear, and better iPhones. It exhausts you. Timothy Snyder said, "You're already enough you! Expand your imagination."

Social media gives wonderful opportunity for sharing and problem solving, but the corporations running this media want our money and take advantage of us with lies and advertising. They should be censored, then put out of business. We citizens own the airwaves. We are responsible to make the proper regulations and laws. We have to inform ourselves. Know our values. Vote. These couple of pages are about the vote and the spirit behind the vote. We dearly need our democracy and freedom.

Born free. No we are not. We are dependent for many years. Little by little, we see that everybody else wants to be free too. That comes with sharing and compromise – rules at home; with laws in the streets and states; and with our culture that provides space and spirit – politeness in conversation and tolerance of differences. The values and democracy we've tried to create have inched forward. We are more equal at home and more equal before the law than earlier in our history. Treating each other as equals is a core commitment and telling the truth about the past and intentions for the future. Values and science change with deeper insight, but they remain unchanged in careful observation of factual events and commitment to understanding. Lies are easy. Telling the truth takes practice.

There is as much prejudice and poverty in the North as in the South. The North made as much money on slavery as the South. The problem has been the same throughout US history. Money is power.

Vote out big money in politics (out with "Citizens United," the 2010 Supreme Court decision)! Vote in term limits so a legislator's term is not for collecting money to run again! Tax the Rich! Many rich people are fine with that. Peter Yarrow (who co-wrote Puff, the Magic Dragon) didn't mind in the 1960's being taxed about 90% of his income. He remained wealthy and his taxes made a social contribution. Warren Buffet wonders why he's still paying a lower rate relative to his income than his secretary. Many huge corporations pay their owners a dollar a year which is one way to avoid taxes. US tax is on income from work, not wealth. Vote for a wealth tax! Wealthy people can borrow money to pay for their lifestyles. Borrowed money does not count as income. And the wealthy have lobbyists and lawyers, the loophole specialists, to keep taxation unfair. If the wealthy paid their share our government would have billions of dollars a year to help with our citizens' desperate needs – healthcare most of all.

Vote for appropriate, higher corporate taxation! The 2017 legislation cut the corporate rate from 35% to 21% of profit. This is a low tax, if it is paid at all. Many corporations have left the country to avoid taxes, and they have gone to countries where laborers get only a few dollars a day. The tax gap, the difference between what is owed and what is paid (for individuals, corporations and employment tax), is many hundreds of billions per year. Laws without adherence or enforcement are worse than none, they make a mockery of the laws. In the case of taxes our present Congress will not fund the IRS investigators needed, so the tax gap remains. Estimates are that there are five lobbyists for every state legislator, greasing palms. When there are economic crunches, and even when there are not, corporations get the handouts. Agribusiness, which is the agriculture of today, receives $16 billion per year and has for a decade. Agribusiness has dire environment impact. Loss of insects with agricultural poisons is a disaster.

Other subsidies or give-aways of public lands have similar results, like leases to oil and gas companies. We don't need more oil and gas. We do need to retrain and support oil workers and their families. Leases are collected by oil and gas companies to increase their assets on paper. They take the estimates (made-up) of future revenue to the banks to get loans. It's the old bubble game of false assets with banks playing along. Our government knows about, and is complicit with, this and with corporate billing fraud (billions in health care billing), false news, planned obsolescence, externalities, i.e. polluting water, land and air with no cleanup, commercializing children…Vote out big money in politics!

There are lots of good corporations. There are lots of good, small companies. These are the foundation of the US economy, not those who are gaming our democracy.

We should feel strong as citizens in our ability to get done what we want done for ourselves and for nature. We own the public land and off-shore waters. We own our airwaves. Our taxes have launched most of the great science and technology innovations of recent history. We can choose the purposes our taxes are put to. This is because of the right to vote. But our representatives must represent us, they cannot merge with the moneymen. First and foremost, we can not lose our hard-won vote.

The John Lewis Voting Rights Advancement Act

Restores and strengthens the Voting Rights Act of 1965 that outlawed discrimination in voting.

The Freedom to Vote Act

Expands voter registration and access, limits voter removal. Election day is a Federal holiday. Reinstates past criminal offenders. Prohibits hindering a person from registering to vote or helping another do so. Election security with post-election audits. Rules for congressional redistricting. No campaign financing by foreign nationals. More disclosure on funding and spending. Disclaimers on certain advertising. Alternative campaign funding system for federal office.

After those two all-important Acts are law, Congress must pass legislation for: Universal Health Care, Climate Crisis Action, Immigration Reform, Women's Right to Choose, Free Education, Living Wages, Prison Reform, Police Reform, Gun Control, No Nukes, Huge Military Reduction. At least half of these issues have enormous citizen endorsement. Vote those representatives, who have not understood this, out!

For our future: Youth – get out of town. You'll make friends with all kinds of people different from yourself. Go travel. It's ancient medicine. Even learn another language (a glimpse into another soul – Charlemagne). Best, take a walk in nature and watch the creatures. There's no lying or cheating. Look at the sky, the night sky especially. Go on a Walkabout, an Indian Ramble.

When you come back (if), vote.

Historian Timothy Snyder reminds us that from 1870 on the Democrats were the voter suppression party, the last fifty years the Republicans have been the voter suppression party. We need very different parties. He is not optimistic about our democracy. His perspective on the Big Lie, that Trump won the presidential election, is striking, and he is passionate in insisting that it be utterly debunked. The failed coup on January 6 in his opinion is practice for another coup attempt. And most horrid for him, and probably most of us, was watching the Republicans, representatives from all over our country, fearing for their careers, vote on that very night, against democracy. We must understand this event and we must have accountability.

Beyond accountability, in the bright future we hope to have together, our call, the same here and worldwide, is for reconciliation.

VEGETABLES

No GMOs here! Let some of each of your veggies go to seed. Collect for next year. You never have to buy seed again!

Our ancestors ate from every plant family. Our diets have become very restricted (and even in the families represented here an enormous number of varieties have been lost).

V6259 Victoria Rhubarb - *buckwheat family*
Introduced in 1873, this is the gold standard for heirloom rhubarb. Abundant large, fat, bright red stems. Grown as a long-lived perennial it will yield years of copious harvests with little trouble and few pests. Use only the stalks. Easy from seed. Packet (100 seeds)

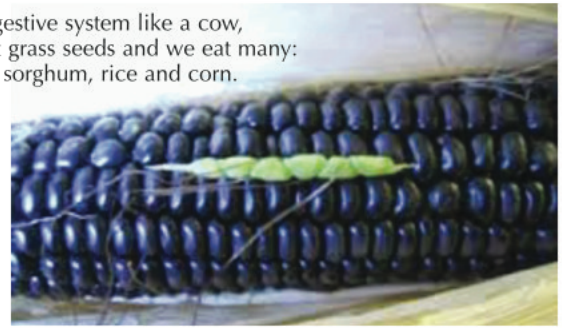
V6261 Clemson Spineless Okra - *same family as hibiscus and cotton*
All American Winner in 1939 and still the most popular okra. Meaty dark green pods, high yielding heirloom. 65 days. Packet (100 seeds)

Grass Family

We can't eat grass. We'd need a digestive system like a cow, camel, or kangaroo, but we can eat grass seeds and we eat many: wheat, barley, rye, teff, millet, oats, sorghum, rice and corn.

Corn

Sow after the last frost late in spring. Do not plant different corn varieties close together or they will cross-pollinate. To see if ripe, inspect corn when tassel is brown. If the kernels are plump and milky, pick. If growing for storage, wait until the kernels are hard.



The tiny head of a wild grass called Teosinte is shown lying on top of a blue corn ear. How did our Central American ancestors breed this little grass with only six kernels into a big, delicious corn? Genius!

V6120 Navajo Blue Corn
Large, full ears of dark blue-purple to black corn are borne on vigorous, drought tolerant, disease-resistant plants. Grind into meal for famous southwestern blue corn tortillas. Or pick young corn and eat fresh. Also a wonderful ornamental. Perfect for Posole. (90 days) Packet (50 seeds)

V6121 Indian Ornamental Corn
Beautiful multicolored kernels. Makes great corn wreaths and other decorations. 5 ft. stalks.
(100 days) Packet (100 seeds)

V6122 Strawberry Popcorn
Tiny dark red ears, 2-3 inches long and rounded, grow on short stalks. Leave on the cob for ornamental use or make popcorn. Fun for children.
(100 days) Packet (100 seeds)

V6124 White Posole Corn
Large, plump ears on vigorous, drought tolerant plants. Traditional variety of dry corn for making posole, the hominy of the Southwest, & one of its finest dishes.
(100 days) Packet (200 seeds)

V6128 Golden Bantam Improved Sweet Corn
Dependable sweet corn, introduced in 1902. Produces 7-inch ears of yellow corn on 5-7 ft. stalks. (85 days) Packet (100 seeds)

Plant the seed of modern corn (Golden Bantam, Strawberry) 1" deep. The ancient corns (Navajo, Posole, Indian) can be planted 6" deep, or more.

AMARANTH FAMILY

Amaranth represented spirituality and wealth in Mexico, Central and South America.

Sow thinly in spring after danger of frost, covering the tiny seed lightly. Warm, sunny area. Harvest the leaves for salads, the grain to add crunch to breads or sweets, grind into flour or pop like popcorn.

V6012 Golden Grain Amaranth
A tall annual to 6 ft. grown by the Aztecs until the Spanish conquest, still found in the Southwest and Mexico. This grain amaranth has golden to green seed heads and large, green foliage.
(120 days) Packet (1,000 seeds)

V6014 Burgundy Amaranth
6-8' tall ornamental vegetable and grain amaranth. Long, elegant burgundy plumes yield large amounts of white seeds. Thrives in full sun.
(105 days) Packet (1,000 seeds)

V6013 Love-Lies-Bleeding Amaranth
3-4' tall highly ornamental vegetable and grain amaranth. Long, draping tassels of brilliant red yield extraordinary amounts of seed. Thrives in sun.
(60-70 days) Packet (1,000 seeds)



Burgundy Amaranth

V6159 Orach
An Old World plant that does well in the Southwest. Grows 2-4 ft. tall, with large triangular leaves. Eat the leaves in salads or cook like spinach. Stir-fry the flower buds. Continues to produce, even in hot weather. (30 days to first harvest) Packet (100 seeds)

V6245 Bloomsdale Long Standing Spinach
Sow ¼ inch deep in early spring, again in midsummer and fall. Thin plants to 3 inches. Heat tolerant allowing it to produce into midsummer. Large, dark green, crinkled leaves. Plant every 10 days to ensure a continuous supply. (45 days) Packet (100 seeds)

V6050 Early Wonder Tall Crop Beet
An early-maturing, tender, sweet, deep red beet, 3" in diameter. The tops make excellent greens and are used like spinach. A good canning beet. Plant both spring and fall.
(50 days) Packet (200 seeds)

V6096 Ruby Chard
Dark green leaves with deep crimson stalks and veins. Provides much relished greens in early spring before other greens begin to produce. Use leaves in salads or steamed; also a great addition to soups. (50 days)
Packet (100 seeds)

V6060 Winter Keeper Beet
For your fall crop, this beet produces large roots that remain sweet and tender no matter how big they get. They keep for months when properly stored in a box of moist sand. Excellent tops. (80 days) Packet (200 seeds)

V7350 Epazote
Distinctive flavored leaves used to season beans, quesadillas, soups, tamales, enchiladas. Also an herbal tea. Packet (200 seeds)

BEANS, PEA FAMILY

Sow beans when danger of frost has passed and the soil is warm. Plant seed 1-2" deep. When leaves drop and pods are dry, pull up the plants, shake the pods to free the seeds. Our dry beans also make delicious string beans when picked young.

Beans

V6028 Anasazi Bean
In Navajo, the word Anasazi translates as "the ancient ones". Indeed, the lineage of this bean is traced back as one of the few cultivated crops grown by ancient cliff dwelling people. A brown and white baking bean with a sweet flavor and meaty texture.
(95 days) Packet (50 seeds)

V6040 Scarlet Runner Bean
A robust annual vine, to 15 ft., that produces foot long pods filled with black and red speckled beans when mature. Young, 4" pods can be used as snap beans if picked just before the beans begin to swell. The beans are more tender when sliced French style. Allow pods to dry on the plant for shell beans. Beautiful ornamental vine for your fence or tepee. Scarlet flowers attract hummingbirds. Children love it!
(55 days) Packet (50 seeds)

V6054 Sonoran Tepary Bean
Native to the Sonoran Desert, these drought tolerant tepary beans were domesticated by the O'odham people of southern Arizona and northwestern Mexico. They are small and delicious, with more than 30% crude protein. Under desert conditions they can mature in 70 days; farther north or with cooler temperatures, they require more time.
(110 days) Packet (50 seeds)

V6056 Jacob's Cattle Gold Bean
A cross between Jacob's Cattle and Paint. The bean is dark golden with white blotches. Great flavor for cooking. The beans are borne on vigorous 2' bushes with each pod containing 6-8 beans. Harvest when pods are brown and begin to shatter. 80 days.
Packet (50 seeds)

V6030 Appaloosa Bean
A sibling of the Anasazi bean, this beautiful white bean has maroon and black mottling like the rump of an Appaloosa horse. It has short runners to 3 ft. that do not require staking, but will climb a fence or cornstalk. From Velarde in northern New Mexico.
(90-110 days) Packet (50 seeds)

V6038 Slenderette Bean
A slender, stringless, hairless green bush bean. Great picked young as a miniature vegetable, but still tender if left to grow long. Extremely prolific. For getting the most out of a small space, this one is the best. 55 days.
Packet (50 seeds)



Aztec Scarlet Runner Bean



Electric cars, 1904
After more than 100 years where are our inexpensive electric cars?

V6036 Hava/Fava Broad Bean
Also called horse bean, this ancient Old World bean is notable for its fine resistance to cold and ability to germinate in very early spring. A 4 foot tall prolific producer of large, tasty beans. Harvest green-shelled or let them mature into dry beans. A great cool-season, nitrogen-fixing green manure.
(70 days) Packet (50 seeds)

V6035 Black Valentine Bean
An old variety from the turn of the century. Slender, hairless green beans on bushy, long-bearing plants. Dark seeds. Tolerant of cold and poor soil. Delicious fresh or canned.
(60 days) Packet (50 seeds)

V6047 Purple Pod - pole variety
Bright purple beans, delicious raw or cooked, similar to Purple Pod stringbeans, but a vigorous climber. Needs a fence or trellis for support.
(65 days) Packet (50 seeds)



Milo shucking Favas

V6053 Rattlesnake Pole Bean
Said to thrive on rain alone – does well in the Southwest. 7" pods are dark green with purple streaks. Pick as a green string bean. Requires support of a fence or trellis.
(85 days) Packet (50 seeds)

"The essentials of life are: hot baths, cold champagne, old brandy, and new peas."
Winston Churchill

Peas

Sow while the weather is still cold. Sow again in midsummer for a fall crop. Keep watered and apply mulch when weather is warm. Frequent picking increases total yield. Provide string or a trellis for plants to climb.

V6211 Oregon Giant Snow Pea
Extra large snow peas (4 x 1 inches) that stay flat and straight. Perfect for traditional Asian recipes. The 2-3 ft. vines need support. Pick just as the peas are beginning to swell in the pods. (60 days) Packet (100 seeds)

V6212 Super Sugarsnap Pea
Both peas and pods are edible. Harvest the thick, sweet, 3 inch pods. Serve raw, lightly steamed or stir-fry, keeping the peas and pods together. Or let the delicious peas mature, shell them and cook as any other pea. A good freezing pea. The vigorous vines, about 5 ft., need a trellis or support.
(60 days) Packet (100 seeds)

V6214 Wando
A favorite pea since 1943. Tolerant of heat. Three inch pods packed with large, delicious peas. The pods are easier to pick if you give the 2½ ft. plants string or wire to climb. Pick young or they become fibrous. (60 days) Packet (100 seeds)





SQUASH, GOURD FAMILY

Squash & Pumpkin

Direct sow after last frost, about ½" deep.

V6267 Delicata
Sweet, rich flavored winter squash with green and orange oblong fruits averaging 3 lbs. Perfect size for stuffing and baking. Excellent keeper.
(110 days) Packet (40 seeds)

V6268 Red Kuri Winter Squash
Also know as Orange Hokkaido, this winter squash from Japan is a striking red-orange with smooth and sweet flesh. Perfect for roasting and soups. The skin is also delicious. A good storage squash. Suitable for colder climates with shorter growing season. Yields manageable 3-4 lb squashes. Packet (25 seeds)

V6256 Baby Blue Hubbard
Teardrop-shaped with smooth blueish gray skin and sweet orange flesh. Fruits grow only to 5-7 lbs, smaller than the average Blue Hubbard, A beautiful squash when grown to maturity. Packet (25 seeds)



Cinderella Pumpkin

V6255 Dark Green Zucchini
Extremely high yields. 3 inches across, 10-12 inches long. Best at about 6 inches.
(50 days) Packet (40 seeds)

V6264 Spaghetti Squash
Light yellow winter squash. Harvest before last frost. Great substitute for pasta. Bake, then fibers separate into sweet noodle-strands. Serve with butter or pasta sauce.
(90 days) Packet (40 seeds)

V6257 Waltham Butternut
The classic open pollinated butternut squash. Smooth tan fruits that are easily peeled give way to sweet, dark orange flesh. Fantastic for roasting, soups, and pies. A long storage crop if cured properly.
Packet (40 seeds)

V6254 Dwarf Summer Crookneck Squash
A very old, standard summer squash variety for the home garden. The bushes are very prolific and the fruits are smooth and light yellow at the immature, fresh eating stage. They become orange and warted at maturity. They are very tasty and can be eaten raw, lightly steamed, sautéed and stir-fried. 50 days. Packet (100 seeds)

V6239 Big Max Pumpkin
Sow seed after danger of frost has passed or start indoors a month earlier. Large, uniform fruits with broad ribs. The thick flesh makes excellent pie. Good for carving. Expect 3-4 fruits per vine, up to 60 lbs. each.
(120 days) Packet (25 seeds)

V6242 Cinderella Pumpkin
French heirloom (Rouge vif d'Etampes). Sweet flavor, deep orange color. To 15 lbs. Flattened shape makes a perfect soup tureen.
(100 days) Packet (25 seeds)

Roast seeds of squash and pumpkins: Soak seeds overnight in salty water, dry, toss with oil and salt, roast 'til golden brown, stirring as needed.

Melon & Watermelon

Sow in rich, warm soil after last frost or start indoors 4 weeks before transplanting. Plant 1" deep in hills 2 ft. apart, 3 seeds per hill.

V6180 Golden Beauty Honeydew/Casaba
Golden yellow with hints of green and creamy white flesh. Shallow furrows run from end to end. The fruits average 5 lbs with 4 or 5 fruits per vine. Very sweet, even when immature. Excellent keeper, to 4 months if kept cool and dry.
(110 days) Packet (50 seeds)

V6288 Moon and Stars Watermelon
Sweet red-fleshed heirloom, to 10 lbs. The moon and stars are bright yellow on the dark rind. Spotted foliage. Dry and heat tolerant, disease resistant.
(100 days) Packet (30 seeds)

V6286 Sugarbaby Watermelon
Short and sweet! Round fruits (about 8"), 8-10 lbs. As refreshingly sweet as large watermelons. The ripe fruits are dark except for a light patch where they touch the ground. An early producer with a strong rind. (80 days) Packet (50 seeds)



Rob with Moon and Stars Watermelon.

Cucumbers

Direct sow after last frost, about ½" deep.
Eat skin and all if harvested young. Both are good for pickling.

V6143 Armenian
Uniquely flavored slicing cucumber. Light green, thin fruits grow to 3 ft. long on bushy vines. Pick when young and tender.
(70 days) Packet (100 seeds)

V6145 Lemon/Apple
This is a pickling cucumber that is equally at home in a salad. Fruits are rounded, 3 inches in diameter, and yellow with crisp, sweet and tender flesh. A prolific producer.
(65 days) Packet (100 seeds)

V7060 Borage
Edible blue flowers that taste like honey, toss the flowers on a cake or in cocktails. Borage is also in some great gins and bitters. The leaves taste like cucumber, so here's Borage on the page with the cucumbers though it's in the Borage Family. Packet (100 seeds)

Gourds

Direct sow when the soil is warm, about ½" deep.

V6265 Buffalo Gourd *(Cucurbita foetidissima)*
Coarse, trailing perennial vine to 18 ft. or more. Grows from a huge tuberous root, has big gray leaves and 4" striped fruits. Drought tolerant. Excellent for tough reclamation.
(100 days) Packet (50 seeds)

V6262 Large Ornamental Mixed
Huge, beautiful, big leafed vines for your fences, posts or trellis. Can be made into bowls, ladles and bird apartments.
(100 days) Packet (25 seeds)

V6258 Speckled Swan Gourd
Long necks can be straight or curved resembling a swan's head. White speckles. Sow indoors or in hills with warm soil.
120 days. Packet (30 seeds)

V6266 Small Ornamental Mixed
6" long or fat, straight or crooked, smooth or knobby - bright orange, striped orange, striped green. Productive, bush or on a fence.
(100 days) Packet (50 seeds)

SUNFLOWER FAMILY

Lettuce

Sow lettuce ¼" deep in early spring as soon as soil can be worked. Plant again in summer for a fall crop. Water regularly. Prefers rich moist soil. Partial shade can be helpful.

V6172 Lettuce Cutting Mix
Ten bronze, green, and yellow, crinkly and smooth leaf lettuces. Delicious! 40-50 days, but pinch off leaves when hungry.
Packets (500 seeds)

V6173 Oakleaf
An heirloom vegetable with many ardent followers. Tender, light green leaves with a distinctive oakleaf shape. A wonderful addition to the variety and texture of a salad. Tolerates heat and resists bolting. Forms a loose head.
(55 days) Packet (500 seeds)

V6174 Romaine
This sweet lettuce is great for Caesar salad. The plant is cylindrical, erect and 10" tall. The leaves are sweet, crisp and tasty with juicy midribs.
(70 days) Packet (500 seeds)

V6175 Black Seeded Simpson
The earliest lettuce we offer -has light green, juicy leaves with good body. Old favorite.
(45 days) Packet (500 seeds)

V7090 Calendula, Pot Marigold
Pot herb giving lovely golden color to soups and stews. Bug repellent, plant with tomatoes as their protector/companion.
Packet (100 seeds)



Joe's cake with strawberries, violets and calendula petals

Sunflowers

Sow Sunflower seeds 1" deep after last frost



Sunflowers attract needed pollinators - wasps, flies, butterflies, pollen beetles, bees; 4000 bee species live in N. America.

V6269 Mammoth Sunflower
A prolific producer of thin-shelled, meaty seeds. A delicious high-protein snack for children and birds. 10-12 ft. tall and the seed heads up to 15" in diameter. (80 days) Packet (50 seeds)

V7100 German Chamomile
Relaxing tea. A children's favorite. Annual. Direct seed in sun after frost. Barely cover. Needs light to germinate.
Packet (500 seeds)

V7810 Shungiku, Edible Chrysanthemum,
Greens for extra flavor in salads, pickles, and sushi. Small orange and yellow flowers. Eat them too!
(40 days) Packet (100 seeds)

V7250 Cota, Navajo Tea
Both flowers and leaves are steeped for this renowned tea. Perennial with thin stems, slender leaves and small yellow petalless flowers. Very drought tolerant. Full sun. Sow anytime.
Packet (100 seeds)

POTATO, TOMATO FAMILY

Tomatoes

Sow indoors 5-6 weeks before the last frost, cover lightly in very warm soil. Transplant after all danger of frost. Indeterminate means vining. Stake or cage to hold weight and height. Bears all summer. Determinate is a bush, and ripens all at once.
All Tomato Packets (50 seeds)

V6275 Mexico Midget
Heirloom, ½" round cherry tomatoes. Dark crimson when mature. Rich flavor. Prolific producer until first fall frost. Indeterminate
(65 days from transplants)

V6282 Cherokee Purple
Brownish skin, deep red inside. Medium to large on short vines. Very sweet. Indeterminate
(70 days from transplants)

V6278 Yellow Pear
Heirloom favorite for preserves. Yellow fruits are 1" across, very prolific and delicious. Sprawling plant. Indeterminate (78 days from transplants)

V6274 Glacier
Rugged plum-sized tomato for cooler short season areas. Determinate
(60 days from transplants)

V6272 Brandywine
Old favorite. Abundant big fruits. Sow 6 weeks before last frost. Transplant after all danger of frost. Indeterminate
(80 days from transplants)

***Frito Pie**, born in Texas, was propelled to greatness by New Mexico chile. Teresa Hernandez at Woolworth's on the plaza in Santa Fe, served it with her Mom's Chile Rojo. In the early 1960s she sold more than fifty thousand Chile Rojo Frito Pies. Bring back this great brain food.*

Mario's backpack always has Fritos.
Fritos: good eating, great fire starters.

V6270 Santo Domingo Tobacco
Pueblo ceremonial tobacco. Big, beautiful fragrant plant. Cure leaves for a good smoke.
Packet (100 seeds)

V6280 Tomatillo
Essential ingredient of salsa verde. Taste between lemon and green tomato. Green fruits in a papery husk. Easy and prolific. Full sun. Sow after danger of frost, lightly cover.
(70 days) Packet (50 seeds)

V6279 Purple Tomatillo
As above but delightfully purple.
(70 days) Packet (200 seeds)

V6220 California Wonder Bell Pepper
Sow indoors 8-10 weeks before planting outdoors. Transplant after fear of frost. A large, dark green, sweet bell pepper, excellent fresh and for stuffing. Peppers will turn red if left on the plant.
(65 days from transplants) Packet (50 seeds)

V6281 Ping Tung Eggplant
Prolific slender dark fruits to 12" long, 1" wide. Heat tolerant with a beautiful, shiny thin skin. Stir-fry, tempura, bake, ratatouille.
(75 days) Packet (50 seeds)



Will Violet burst with tomatoes?



Poline Zeller-Meier

Chile Peppers listed from hottest to mildest but there is always great variability

Growing Your Chiles

Sow seed indoors 8-10 weeks before transplanting. Chiles take up to a month to germinate even with ideal soil temperatures of 80 degrees - that's warm! So if it's early spring keep your seed flat in a hot spot. Or direct seed after the last frost in long warm season areas. Sow ¼" deep. Requires steady warm soil temperatures and moisture to germinate. A ripening chile goes from green to red on the plant and after harvest. Climate as well as genetic make-up affect the hotness of chiles. Chile peppers are high in vitamin C. Chile powder makes an excellent salt substitute for those on low sodium diets. Chiles are hot! Remove seeds for less heat. Salsa is now the number one condiment, surpassing ketchup's reign. New Mexico grows the largest U.S. chile crop.

Packet (100 Seeds unless noted)

V6113 - Habanero
Lantern shaped, lime green turning to orange as the fruit matures. Can also be red and pink. Aromatic and distinctive, so good in sauces or pickled. Named after Havana. (50 seeds)



HOTTEST!

V6138 - Tabasco Pepper
Very hot the main ingredient of the famous sauce. Narrow and about 1½" long. Prolific bushy plants.

V6119 - Serrano
Hot, small, slender, rounded chile.
Serve fresh, dry or pickled, raw or roasted in salsas.

V6089 - Chiltepin (Tepin)
Native Sonoran perennial. Little ½" spheres, thin fleshed. Blasting, quick-to-pass spicy flavor. Very good in salsas, stews,for flavoring vinegar. Good houseplant. (50 seeds)

V6104 - Anaheim 'M'
Medium-hot and long bearing, for rellenos or sauces.



V6131 - Centennial Chile
Tiny ornamental, purple to white to red simultaneously (named for our flag's colors), pods are edible at all stages and hot! Good houseplant. Sow indoors 8-10 weeks before transplanting or direct sow in long warm-season areas. Sow ¼" deep, 12-14" apart, in rows 24-30" apart. Steady warmth and moisture to germinate.

V6112 - Cayenne
Hot, short, slender, best dried and ground for red-hot sauces.

V6106 - Sandia Hot
Very hot, thin walled, good green or red, fresh or dried, a chile lover's standard.

V6118 - Mirasol
Very hot, "Mexican Improved" variety. Use only a little of the dried pods to flavor and color soup, stew and chicken. Use green in salsa and guacamole.

V6114 - Jalapeno
Dark green, almost black, 3" long hot pepper. Good fresh or pickled.

V6102 - Chimayo
Wonderful ristra chile, also good for stews and sauces, use green or red. Hot. This is a regional variety. Always excellent tasting.

V6115 - Velarde
Another wonderful regional chile. Medium to hot. 4-6" pods.

V6117 - Santa Fe Grande
Short, thick, hot, yellow pepper, good in condiments, pickled; a nice ornamental.

V6134 - Hot Cherry Pepper
Usually pickled and served as a condiment. Peppers are medium hot and round in shape, about 2" wide on full, bushy plants.

V6108 - Big Jim
Large, mild-medium, 8" long fruit, thick-walled, ideal for rellenos.

V6135 - Mulatto
Dark brown when dried, use for rellenos, very smoky flavor, 5" long, 2" wide, mild-medium hot.

V6105 Ancho (Poblano)
Large, heart shaped, medium hot chile, good for rellenos, soups and salsa fresca.



V6110 - New Mexico #6
All-purpose chile, one of the mildest. Best used when green. A delicious introduction to chiles.

V6139 - Padron
Heirloom traditionally harvested green and small. Sweet, mild flavor. Eat off the stem after quick frying in olive oil and a sprinkle of coarse salt. Or tempura. Or dry for later salsas.

V6097 - Shishito
As with Padron, very popular for eating skin and all out of the frying pan. Prolific -harvest all season. Sweet and mild with an occasional zinger.

CABBAGE
BRASSICA, CRUCIFER FAMILY

Sow indoors ¼" deep 2 months before last frost. Transplant outdoors after last frost.
Or direct sow as soon as soil can be worked.

V6158 Arugula
A popular salad green - gives a peppery, tangy taste to salads. Flowers are shaped like a cross, hence the crucifer family. Harvest the young leaves. Easy and fast growing from seed. Let some plants go to seed. It will come up in your garden next year. (55 days) Packet (100 seeds)

V7400 Italian Green Sprouting Broccoli
Popular, old-fashioned broccoli. Heavy yields of large bluish-green heads. Richly flavored.
(80 days) Packet (100 seeds)

V7410 Broccoli Raab
Quickest to mature. Large green florets on a 2 ft. plant. Harvest tender leaves, stems and unopened buds. Fall, winter, and early spring crops. Easy!
(40 days) Packet (100 seeds)



Arugula flowers
Eat these flowers too!



Olive with Cauliflower

V8000 Wakefield Early Cabbage
Small, solid, pointed heads with an outstanding mild flavor. Resists splitting.
(65 days - transplants to harvest)
Packet (100 seeds)

"Cauliflower is nothing but a cabbage with a college education."
Mark Twain

V8005 Red Acre Cabbage
Earliest red strain. Compact plants are good space savers. Dark red, deep globe shaped heads average 3 lbs. Heads hold well for a long period without bursting. (75 days from transplants to harvest)
Packet (100 seeds)

V8200 Snowball Cauliflower
This easy to harvest cauliflower has tight, well-defined heads set high above the ground. Extremely productive.
(75 days from transplants to harvest)
Packet (100 seeds)

Kale

Low on pests, high on nutrition and deliciousness, very decorative, and grows into cold, cold weather.

V6163 Dinosaur Kale (or Lacinato)
Sweetest dark blue-green bubbly leaves, like dino-skin. Plants look like small 3' palm trees. Loaded with vitamins, great in sauce, soup, saute, or raw. Sow in early spring before last frost, and again in late summer for fall crop.
(30 days to young greens, 60 to maturity)
Packet (150 seeds)

V6160 Russian Red Kale
Deep green flat leaves with purple stems and edges. Medium in height. Add color to your salad, soups steam or stir-fry. Light frost can improve flavor. (60 days) Packet (150 seeds)

V6161 Dwarf Blue Curl-Leaf Kale
With beautiful, finely-curled, blue-green leaves this hardy kale can tolerate the heat. Yet its flavor only sweetens with a frost.
(55 days) Packet (150 seeds)

V6284 Tokyo Market Turnip
Popular, fine flavored little white Japanese turnip. Soup, salad, stir fry, snacks. Eat young green tops. Try roasting bottoms and tops (tops for chips). Plant spring and fall.
(40 days) Packet (200 seeds)



Nasturtium



Dinosaur Kale

Try Kale chips.
Sprinkle whole leaves with olive oil, salt, perhaps chile. Crisp in a 350 degree oven–just a few minutes. Too good.

V6244 Early Scarlet Globe Radish
Sow thinly ½ inch deep in early spring and again in early fall. Bright red globe with mild, crisp white flesh. A good keeper.
(30 days) Packet (200 seeds)

C1160 Daikon Radish
Mild flavored, very large white radish. Sow after frost. Keep well watered for veggie use.
Packet (100 seeds)

V04 Mizuna
Ornamental edible mustard from Japan. Bright green leaves used as salad greens. Cut back for 3-4 harvests before replanting, 20" tall, 12" wide. (40 days)
Packet (100 seeds)

V09 Tatsoi Mustard Greens
Mild flavored greens and stems add joy to salads and stir-fry. Dark round leaves, high in vitamins, easy to grow. Sow in spring after frost, into autumn for tasty quick grower. (21 days for baby greens, 45 days for full rosettes) Packet (150 seeds)

V7500 Nasturtiums
Red, orange, and yellow blooms for salads and for stuffing. The whole plant is edible and tangy-peppery.
Packet (30 seeds)

MINT FAMILY

The magical mint, the herb of hospitality in Greek mythology, has many in its family and many dimensions in food, medicine, teas, ferments, distillates, cosmetics and perfumes. Grown or spread along paths and resting places where their fragrance is reveled in.



Remember to make herbal teas from our wild natives like Beebalm, Monarda fistulosa, p39

V7070 Rosemary
Outstanding aromatic culinary and evergreen perennial.
Packet (100 seeds)

V7360 Lemon Balm
Melissa officinalis. Fresh leaves used for calming tea and in salads.
Packet (500 seeds)

V7600 Oregano
The fragrant flavor of Italian tomato sauces.
Packet (100 seeds)

V7800 Sage
For dressings, sausage and teas. Beautiful gray leaves and blue flowers.
Packet (50 seeds)

V7850 German Winter Thyme
Superb culinary variety, both fresh and dried.
Packet (200 seeds)

V7000 Italian Large Leaf Basil
Broad, oval, crinkly, 3-4" leaves, spicy flavor.
Packet (100 seeds)

V7010 Dark Opal Purple Basil
Beautiful dark leaves, pale lilac flowers.
Packet (100 seeds)

V7030 Genovese Basil
Finest pesto basil. Italian strain of sweet basil.
Packet (100 seeds)

V7033 Lemon Scented Basil
Strong lemon scent. Excellent for fish and herb vinegars.
Packet (100 seeds)

The flowers too of all mints add flavor, color and charm to every food and drink.



Chia Doll

V7150 Chia
Leaves used to season poultry and meat. Sprouted seed adds a peppery taste to salads. Also sprout the seeds on your chia pet.
Packet (200 seeds)

V7365 Munstead Lavender
Strain of English lavender, compact and bushy.
Packet (100 seeds)

Never make a big decision on an empty stomach.

CARROT FAMILY

Sow after frost and again mid-summer. Plant seed 1/4" deep.

Henry Ford believed carrots held the secret of longevity.

V6078 Chantenay Red Core Carrot
Produces successfully in tough soils. Roots are 5-6" long with deep orange color and sweet taste. Great fresh and for juicing, freezing and cellaring.
(75 days) Packet (200 seeds)

V6075 Kyoto Red Carrot
Beautiful RED (not purple) carrot up to 10" long. Tender and sweet.
(120 days) Packet (200 seeds)

V6082 Little Finger Carrot
An early, almost coreless, richly colored, gourmet baby carrot to about 5" long. Plant spring and midsummer.
(60 days) Packet (200 seeds)

V6085 Touchon Carrot
Sweet tapered deep orange roots, 6-8" long. Grows well in cool and warm areas of the Southwest.
(65 days) Packet (200 seeds)



Fun to watch Swallowtail caterpillars on dill. They'll eat it all. Don't touch their orange antenna. Yes do, you'll never forget it. If you collect the caterpillars and feed them, you can watch chrysalis formation and hatching.

V7300 Bouquet Dill
Beautiful feathery leaves and yellow flowers flavor vegetables, soups, salads. The seeds especially flavor pickles.
Packet (200 seeds)

V7355 Fennel
Adds a gentle anise flavor to salads and dressings. Beautiful big plant hardy to Zone 8.
Packet (200 seeds)



Milo and Mo with Little Finger Carrot

V6140 Cilantro (Coriander)
Leaves - cilantro; seed - coriander. Spice up your life and health.
Packet (200 seeds)

V7370 Lovage
Celery-like flavor in leaves, stalks and roots. Seeds for spiciness. Big, handsome perennial to Zone 4.
Packet (100 seeds)

V7075 Forest Green Parsley
The curliest of curled parsleys with tall, upright stems. Very healthful, use in everything.
Packet (200 seeds)

V7700 Italian Dark Green Parsley
Biennial, flat leaves, especially flavorful, dry or fresh. Try parsley pestos.
Packet (200 seeds)

ONION FAMILY

Onions are a big time medicine - great for the lungs, the bowels, the bones - and always associated with strength. George Washington said that onions were the most favored food that grows. Napoleon ate fried onions and potatoes before battle.

V6020 Mary Washington Asparagus

Asparagus is now its own family but it's close to the onion and lily families.

Perennial vegetable produces succulent spears. Ready to harvest after two growing seasons. Drought tolerant but water for production. Fern like leaves and red berries make it excellent in an edible landscape. Packet (50 seeds)

V6200 Ishikura Bunching Onion

Also called spring onion, scallions, Welsh onion (they are originally from Asia, for that matter Egyptian onions are from N. America). Mild. White stalks topped with delicious greens. Crunchy, savory, for salads and soups. Excellent fresh or cooked. Full sun. Plant early and midsummer for fall harvest. (70 days) Packet (200 seeds)

V7200 Chives

The smallest edible onion and the only one native to both the Old World and the New. Cold tolerant, often naturalizes, and is pretty in the garden with its violet flowers. Also useful as a pest control. Eat flowers, leaves and bulbs raw, pickled or cooked.
Packet (100 seeds)

V6195 American Flag Leak

Easy to grow. Harvest little (size of a pencil) or thin out and wait until they're fat in the fall. Very ancient vegetable (Egypt, Mesopotamia) and cherished as a delicate onion: boiled, fried, baked in a tart, or raw.
Packet (250 seeds)



Allium cernuum – Pink Nodding Onion p19
The onion-flavored buds and flowers of this delicate native plant are used to garnish salads, soups or stews.

Sprouts have more nutrients per calorie than any other food:

"They produce loads of fresh food from pennies' worth of seed, using just one or two square feet of space that doesn't need to be well lighted. Sprouts can be eaten raw or cooked, used in salads, sandwiches, or stir-fries, and some can be juiced. The most common seeds to sprout are alfalfa, broccoli, radish, clover, mung bean, soybean, lentil and wheatgrass. Sprouts retain the nutrition from their seeds and create yet more vitamins and proteins."

Fresh Food From Small Spaces, p74, R.J. Ruppenthal

Pandemics, Bacteria, Viruses

Of greatest importance in disease control is wild habitat protection. Microbes - bacteria and viruses - have made the earth the way it is and they maintain earthly balance. They live in the sea, rivers, and in the earth in great numbers, and in plants and animals of which they are an essential part. Since bacteria and viruses are passed between all these elements, the less we mess with others' habitats the better health for all.

These days we hate microbes, viruses in particular, for killing our loved ones and messing with our lives. They'll do it again without malice or forethought. We better have the forethought. And they have always been with us. Presidents Bush, Obama and Trump had to deal with viruses.

The greatest achievement of President George W. Bush was his AIDS Relief, passed in 2001, the largest relief ever directed at any disease. With viral suppressing drugs, 14 million lives have been saved and the transmission of AIDS from mothers to children has been stopped.

During President Obama's terms, 2009-17, there were four potentially awful viral pandemics. None exploded as they might have:

- H1N1, Swine flu, detected in 2009 in the US then worldwide. It spreads as airborne droplets, just as COVID does and as did the 1918 flu pandemic.
- Zika, 2015, a mosquito carried virus, originally perhaps from apes.
- MERS, Middle East Respiratory Syndrome, a very deadly COVID virus illness. It mysteriously stopped.
- Ebola. The outbreak started in Guinea in 2013. Highly contagious from contact with blood etc. "Most Ebola patients die of dehydration before their immune defenses can work. Lives can be saved with replacement of fluids." Dr Paul Farmer works to establish health care for the world's poorest people. Here he is stating a simple first step to possible recovery, but there needs to be health care available.

Obama had a manual (as did HHS and CDC) on early response to dangerous infectious diseases, and a task force which was dissolved by Trump.

Epidemics are overwhelming vulnerable people the world over. Tuberculosis, in addition to COVID, remains one of the deadliest with 1.5 million lives lost last year (WHO). AIDS prevention and ongoing care is necessary. The AIDS virus mutates even faster than COVID-19. Measles, so preventable with vaccinations, kills thousands and thousands of young children each year. And Ebola persists. Money from wealthy countries is often directed toward containment but not cures, as Dr. Paul Farmer sadly reminds us.

Public health systems everywhere are essential for control and prevention of diseases. Public health, extended to the poorest, is part of establishing justice.

The largest pandemic in recent history, which started in a midwest military base (probably going from humans to pigs and back to humans, showing a danger of age-old animal domestication), is the 1918 flu. It killed perhaps 100 million people worldwide, 650,000 in the US, millions in India "who died like rats without succour," (R. Tagore). Horrifying as the 1918 pandemic was, it does not compare to the unimaginable deaths in the Americas after the arrival of the Europeans. Charles C. Mann's book, *1493*,

Uncovering the New World Columbus Created, gives the story vividly. After the arrival of the Europeans, diseases engulfed the peoples of the Americas. They had no immunity, no natural defenses. The reason is way back in time. The continents as we know them today joined 250 million years ago in one landmass. They separated over millions of years and remained separated for millions of years. The plants and animals and people of the Americas and Asia and Africa developed differently. Africans had genes that partly protected them from mosquito-carried malaria. Europeans, Africans, and Asians lived with many domesticated animals - chickens, cows, pigs, goats, horses, camels - and because viruses go back and forth between people and animals, they developed some resistance to those types of diseases. The people of the Americas had dogs but few other domesticated animals - llamas, guinea pigs, ducks in South America, turkeys in North America. The Eurasian and African microbes were not in the Americas.

The arrival of the Spaniards in America brought these microscopic invaders - viruses that cause smallpox, influenza, hepatitis, measles, encephalitis, and a viral pneumonia; bacteria that cause tuberculosis, diphtheria, cholera, typhus, Scarlet fever and bacterial meningitis. The first recorded epidemic, perhaps due to swine flu, was in 1493. Smallpox entered terribly in 1518. Spanish takeover of the great cities of the Americas, cities larger and more organized than any in Europe, could not have occurred without European diseases. In the 16th and 17th centuries, close to 80% of the peoples of the Americas died and watched their way of life die with them.

Mann goes on to point out that the discovery of silver, a mountain of silver, in present Bolivia and then mercury with which to purify it, brought another great change in the 1550s. Global trade - GLOBALIZATION. Silver to China and Europe. Silver, porcelain, spices and slaves back from China. Slaves from Africa to the Americas. Tobacco, rum, sugar to Europe and Africa. Guns, horses...

Slavery... there has been slavery seemingly forever, slavery from war, from famine, from religion, from debt, and power over children and women. From ancient times China, India, Egypt - all agricultural, hierarchical societies - used slaves of their own people and neighboring people. Now there are more money-centered international slave systems. Microbes and globalization, Charles C. Mann believes, caused slavery to prosper, and while Asians were once only in Asia, Europeans in Europe, Africans in Africa, now they collided as cultures, colors, religions, as conquerors and conquered.

It cost money to bring workers across the ocean to work in America. It cost less to bring someone who was going to survive, and Africans survived in the areas where sugar, tobacco and cotton came to be grown, areas where malaria had also come from the old world to the new world. Africans survived because they had lived with malaria for eons and had some genetic resistance. The reason wasn't understood but the economics became clear.

Aedes aegypti, the old world mosquito did not live in the Americas before this time. Quickly that mosquito and malaria naturalized in the Americas (a few native mosquitoes came also to carry malaria). The mosquito malaria temperature range reached from the mid south of the present US through the Amazon basin. A vast healthy part of the world became less habitable.

The death of American peoples throughout the Americas - there were perhaps 80 million people - by Eurasian microbes was not the intent of explorers. Columbus, brutally cruel as he was, was ignorant of microbes. He had promised gold, silk and

spices to his Spanish funders. He and his men brought back corn and potatoes (and bacterial syphilis the only returned disease for the many brought). The Spanish and Portuguese conquistadors who followed exploited the ravages of disease. Power and greed blinded them and they blindly plundered. God, gold, glory. Still there were marvels, new foods came to Europe and China. The most important for Europe was the potato. For the first time Europe was free of famine that came every few years. And with dryland crops like corn and sweet potatoes, China, which similarly suffered from periodic famine, had enough food. In time the inevitable followed. Bird droppings, guano, to fertilize crops mined by Chinese slaves off Peru's coast, arrived in northern Europe in 1843 and with it the micro-organism, potato blight, that spread like wild fire. The Irish most of all died of starvation. Their English lords took almost all Irish crops. In China, ignorance of good farming methods for corn and sweet potatoes caused vast erosion and flooding. Later in southern and eastern Europe, when the very poor had nothing to live on but corn, they did not have the know-how to treat the corn to increase its nutrition and release niacin, needed to prevent pellagra, "the disease of the poor".

In summary, the rapid introduction of organisms to ecological and social systems that didn't evolve to handle them in the New World and then back into Europe, England, China were wildly disruptive. As Charles C. Mann helps us see this invisible history has had greater consequences than histories we are familiar with.

And we don't ask people from other cultures how they understand things, most significantly we don't ask about land care, or about health and disease. Cooking corn with lye (about 1% by weight, originally from wood ash) has been done for better health by Mesoamericans for over 3500 years. Regarding disease, a thousand years ago people in India and China may have been inoculating against smallpox. Giving a mild case of the disease causes the body to produce substances that fight it. In China powdered smallpox was blown up the nostrils. Live smallpox was also used until banned as too dangerous. But live material was used elsewhere, placed on a cut or scratch on the skin. An enslaved African named Onesimus ("useful"), by his condescending master Cotton Mather, taught Mather about inoculation. Mather convinced Dr Z. Boylston, a Boston physician, to test its effectiveness. Dr Boylston inoculated his son and about 200 Bostonians. Violence erupted, but soon people saw good results, and many lives were saved in Boston's 1721 smallpox epidemic.

Islam, from the 700's through the 1200's, was the center of science and cultural exchange in music, algebra, optics, surgery. Their hospitals and universities began in North Africa. (We should ask what Arab-Islam conquest and colonization meant to indigenous people.) Their knowledge of inoculation spread along Arab trade routes. Sadly these were also slave routes. Probably a third of the Africans brought to North America were Muslim and many no doubt had been inoculated and had knowledge of smallpox prevention. Colonial Americans could have learned earlier than they did about smallpox prevention had they not been masters.

Ben Franklin was inoculated against smallpox and was a strong proponent of inoculation. Franky, his son, died of smallpox at the age of four in 1736. His inoculation had been postponed because he was sick with diarrhea. Ben Franklin wrote, "I long regretted bitterly and still regret that I had not given it (smallpox) to him by an inoculation."

Another prominent person along the way to inoculation acceptance was Catherine the Great of Russia who was very afraid of smallpox, the disfigurement and death. In 1768 she asked Dr. Thomas Dinsdale from London to inoculate her. She had horses posted all along the roads he would take in escaping had she died. Two weeks after an inoculation she felt well and Russian nobles clamored to be inoculated. In 1774, King Louis XV of France died of smallpox, Catherine said, "what a barbarism, science can treat this disease."

Smallpox is eradicated. (It exists now only in one US lab and one Russian lab.) Smallpox only passes between humans. There are no animal or insect reservoirs or vectors (tda.gov). Perhaps that is why it was finally, with vaccination in 1980, eliminated (almost). Other viruses go back and forth between animals and people, mutating all the time. Zidovudine, the HIV antiviral called AZT, is no longer effective against HIV AIDS because the virus has changed. We don't know for sure the origins of viruses: HIN1 from pigs, Zika from apes, MERS from camels, Ebola from bats, or who they can pass through. We do know that animals are healthy in healthy environments just as we are, and that we must protect natural environments everywhere.

Wild animals and domestic animals have epidemics and pandemics. Plants do too. European vineyards in the mid 1800s were destroyed by the North American grape-root aphid that had gotten abroad. Cherished vines were replanted on American rootstock that had resistance.

The greatest US forest disaster started in the early 1900's with an Asian fungus that traveled through Europe then to the US. It killed millions of chestnut trees that made up a quarter of the eastern hardwood forests - great and beautiful trees that provided vast amounts of nuts for animals and people. It killed them all. (Chestnut tree roots are still alive so someday with some mutation maybe there will be a chestnut forest again.)

The 1918 pandemic that infected a third of the world's population was a bird flu (and through us humans it spread to pigs). Between 1997 and 2005 the H5N1 virus caused the death of more than 140 million birds, many slaughtered in an effort to contain it. In 2015-16 from Taiwan to France perhaps 30 million ducks and geese were killed in the attempt to curb a bird flu. The next wave, 2016-17, 4.5 million birds were killed. Now five years later there's a new strain of bird flu. A million ducks and geese may be killed. And from Sweden to the Mediterranean farmers try to keep domestic poultry separated from wild birds. Birds are not the only animals we slaughter to prevent diseases from spreading.

Bacteria mutate, viruses mutate even faster. Within huge confinements of flocks and ghastly animal factories of pigs and cows mutations occur fast and furiously. These disease breeding grounds and their poorly contained mountains and lakes of excrement are not only allowed by our government (and whistleblowers criminally prosecuted), but subsidized by the agriculture industry's very low grain prices. See Union of Concerned Scientists! "CAFO's (concentrated animal feeding operations) Uncovered".

Packed imprisonment of animals for our profit is our peril.

Animals on enough land enrich the land in the cycle of eating and manuring. (Move back to the land, young farmers. Grow us good food and protect water and soil.)

Most of the antibiotics in the United States are used on factory farms to prevent crowded animals from getting sick, and to fatten them faster. Their meat is not safe for us or other animals and entire water systems are polluted with their waste because of overuse, and mutations, bacteria have developed that our present antibiotics are useless against. Many people die each year from antibiotic resistant bacteria.

The discovery of antibiotics was a miracle in medicine. Penicillin, a powerful antibiotic. originally from molds, was first used in the early 1940s. It has saved millions from TB, gangrene, pneumonia. It helped the allies win WW II by curing men with infections. Now new antibiotics are needed, even more so with our recent acknowledgement that bacteria play a part in stomach cancer and ulcers, heart disease and diabetes.

But, ah, bacteria and viruses will always be ahead!

In and on our own bodies there are 10 times more bacterial cells than cells with our own genes. We are only one tenth us. We could not live without bacteria. They break down waste, purify water, put oxygen in the air, fix atmospheric nitrogen in plants which we then live on. They fight almost all the sicknesses that befall us. Some, perhaps one in a thousand, are harmful to us. And some that are helpful in their own environment, like cholera bacteria in brackish water, are very harmful if they get inside us.

Much smaller (mostly) than bacteria are viruses. They have fewer genes and cannot reproduce on their own. They burst into action when they get inside a 'host' cell and take over its genes. Then they multiply themselves enormously.

Globally there are 10,000,000,000,000,000,000,000,000,000,000 virus particles, more or less. Most viruses are harmless to animals and plants. They help plants with drought and cold tolerance. Though they can attack organisms of all kinds, most infect and destroy bacteria, protozoa, algae, fungi... keeping them in check.

Viruses are the nutrient recyclers of the world's rivers and oceans.

Viruses last only a short time but reproduce their astronomical numbers every minute and every minute may destroy millions of tons of microbes, breaking up and moving genes between organisms, giving the opportunity of new forms of life.

Quoting David Quammen, *Nat Geo* 2/21, "… cells (bacteria) and viruses may share in being the foundation of life (parasite and host, predator and prey), they are co-drivers in evolution. About 8% of our DNA comes from viruses that infected our long-ago ancestors and patched viral genes into their genomes. Some of these genes now play crucial roles in the early stages of the developing embryo and the placenta that surrounds it."

Lynn Margulis, 1960's on, fought hard for the recognition of symbiosis in evolution. Here is her thought: "Life is the long lasting intimacy of strangers."



Our catalog is organized by botanical name in each category, making it possible for anyone in the world to find the sought after plant for which there might be many common names. Here is the Common Name Index of the plants we carry.

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Curve-billed Thrashers are cactus lovers - for their homes, raising kids, and eating its seeds and fruit - other berries too and insects and insect caterpillars that they stuff down their babies throats (see p7). Thrashers stick with us in winter! And they're singing all the time!

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