Sandoval Extension Master Gardener Newsletter

http://sandovalmastergardeners.org/

New Mexico State University • Cooperative Extension Service • U.S. Department of Agriculture

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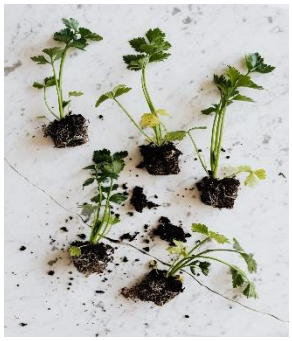
March

From Barbara Boyd, Advisory Council Chair

This is the time of year when we have spring one day and winter the next! It is great to get snow that slowly melts into our soil, but the change of weather can confuse our plants. The beginning of March is often cool and windy. The best way to protect your plants is to observe your landscape and find microclimates that will buffer the effects of these temperature swings. Planting fruit trees and other cool loving plants along a north-facing wall will keep them from budding too early and dropping due to that last late freeze. Select trees with the highest chill hours as possible to ensure later blooming. Look for "late blooming" trees or a minimum of 600 chill hours and 800 for higher elevations.



South and west facing walls will hold the warmth of the sun in winter and warm up earlier in the spring allowing to get a jump on warm season vegetables and melons. They also extend the growing season in the fall for cool vegetables. East facing walls provide the most temperate climate for plants; provide wind protection and early sun and afternoon shade. Your best gardening tool is your power of observation and making a site map showing sun and shade patterns throughout the year. **Time to plant!** *From Lynda Garvin, State Extension Program Manager.* *Photo: Pexels*

At the Corrales Family Practice Garden we are getting the soil ready by adding sulfur and lightly tilling in the compost. We will layout the irrigation tape March 7 or 8 and then start planting on March 10 and March 12. We are getting all our cold weather crops planted such as lettuce, bok choy, chard, radishes, carrots, and onions. It is great to get back in the garden!

Another **Gardening with the Master** Online was presented on February 25 on Growing Vegetables from Seed by Jim Peters. If you missed it, please log onto our website and see the taped version. https://sandovalmastergardeners.org/gardening-classes/gardening-with-the-masters-online/

It is indeed time to plant your seeds. The Master Gardeners are going to be LIVE at the Corrales Growers Market for our annual plant sale on April 24 at 9:00. Please come see us and purchase our seedlings. For the Master Gardeners, please plant some extras and bring to the Growers Market. This is in addition to the on-going plant sales mentioned in last month's newsletter.

~*Barbara*

SAVE THE DATE: Corrales Garden Tour is back!

Sunday, June 5
10:00 am – 4:00pm

Six beautiful gardens to tour!

We will keep you updated as the time grows closer.

8 Surprising Health Benefits of Gardening

Planting flowers and vegetables can reap bountiful bouquets and delicious harvests for your dining table. But did you know gardening also can do wonders for your well-being? Here are eight surprising health benefits of gardening.

1. Gardening can build self-esteem. After tilling, planting, nurturing and harvesting plants, you might see a slightly different person in the mirror: a person who can grow things and is a little more in tune with the earth. If you can grow a garden, what can't you do?

2. Gardening is good for your heart. All that digging, planting and weeding burns calories and strengthens your heart. "There are physical benefits from doing the manual labor of gardening," says UNC Health internal medicine physician Robert Hutchins, MD, MPH. "It's hard work to garden, and it provides some cardiovascular benefit."

3. Gardening reduces stress. Gardening can help reduce symptoms of depression and anxiety. "Gardening gives you a chance to focus on something and put your mind to work with a goal and a task in mind."

4. Gardening can make you happy. Getting dirt under your nails while digging in the ground can make you pretty happy. In fact, inhaling M. vaccae, a healthy bacterium that lives in soil, can increase levels of serotonin and reduce anxiety.

5. Gardening can improve your hand strength. All that digging, planting and pulling does more than produce plants. Gardening also will increase your hand strength. What a great way to keep your hands and fingers as strong as possible for as long as possible.

7. Gardening can give you a boost of vitamin D. A healthy dose of vitamin D increases your calcium levels, which benefits your bones and immune system.

8. Growing your own food can help you eat healthier. If you have a vegetable or herb or fruit garden, you're getting fresh produce that you know hasn't been treated with pesticides.

Life In The Soil Was Thought To Be Silent. What If It Isn't?

Excepted from Knowable article by Ute Eberle 02.09.2022

The first time that Marcus Maeder stuck a noise sensor into the ground, it was on a whim. A sound artist and acoustic ecologist, he was sitting in a mountain meadow and pushed a special microphone he'd built into the soil. "I was just curious," says Maeder, who is working on a dissertation on the sounds of biodiversity at the Swiss Federal Institute of Technology in Zürich.

He certainly wasn't prepared for the clamor of sounds that started to flood his headset. "They were very strange. There was thrumming and chirring and scraping. You need a whole new vocabulary to describe it." Maeder was eavesdropping, he realized, on creatures that live in the soil.

Ecologists have long known that the ground beneath our feet is home to more life, and more diverse life, than almost any other place on Earth. To a layperson, soil seems little more than a compact layer of dirt. But in fact, the ground is a labyrinthine landscape of tunnels, cavities, roots and decaying litter**. In just a cup of dirt, researchers have counted up to 100 million life forms, from more than 5,000 taxa.** Underground denizens range from microscopic bacteria and fungi and pencil-dot-sized springtails and mites, to centipedes, slugs and earthworms that can reach several meters in length, to moles, mice and rabbits in their tunnels and dens.

"It's a staggering amount of biodiversity," says Uffe Nielsen, a soil biologist at Western Sydney University in Australia. It's also a vital one: Collectively, these subterranean communities form much of the basis for life on our planet, from the food we eat to the air we breathe.

Today, in a relatively new field known as **soil bioacoustics** — others prefer terms such as biotremology or soil ecoacoustics — a growing number of biologists are capturing underground noises to open a window into this complex and cryptic world. They've found that something as simple as a metal nail pushed into the dirt can become a sort of upside-down antenna if equipped with the right sensors. And the more researchers listen, the more it becomes apparent how much the ground below us is thrumming with life.

Understanding this underground life is important because soil ecology is crucial. "Soil helps to transform the nutrient elements like carbon, nitrogen, phosphorus and potassium that feed plants — for food, for forests, or to fill the air with oxygen, so we can all breathe," says Steven Banwart, a soil, agriculture and water researcher at the University of Leeds in the United Kingdom, who cowrote an overview of the functions of soil in the *Annual Review of Earth and Planetary Sciences*. Worms, grubs, fungi, bacteria and other decomposers are involved in every step.

And every soil organism produces its own soundtrack. Root-munching larvae emit short clicks as they break the fibers of their meal. Worms rustle as they crawl through tunnels; so do plant roots as they push past grains of soils, as Swiss researchers reported in 2018. But the roots move slower than the worms do, and at a steadier pace. By distinguishing these sounds, soil acoustics stands to shed light on some hitherto unanswerable questions. Like, when do plant roots grow? At night? During the day? Only when it rains?

Many of the myriad creatures living belowground can be distinguished by the sounds they make —

intentionally to communicate or as they simply move around. Shown here are two small soil-dwelling creatures: a springtail (*Folsomia candida*) and an enchytraeid worm, also known as a pot worm. *CREDIT: ANDY MURRAY*

We humans might be among the last to discover this underground soundtrack. Birds can often be seen hopping across lawns with their heads cocked. Researchers believe that they do this because they're listening for worms below. Often, they peck at the soil at just the right moment to pull up their unsuspecting quarry. The North American wood turtle, for its part, capitalizes on the attention that worms pay to vibrations from the patter of rain. The turtle stomps its feet on the ground to mimic that patter so the worms come to the surface, providing a juicy snack.

Some of these underground sounds are audible to the human ear, but many are too high or too low in frequency (as well as in volume). To capture these, researchers use tools like piezoelectric sensors, which work like the contact microphones you might clip onto a guitar. Attached to a nail, sometimes up to 30 centimeters long, that has been pushed into the ground, these sensors detect vibrations that researchers then convert into electronic signals and amplify until humans can hear them.

Carolyn-Monika Görres, a landscape ecologist at Geisenheim University in Germany, was among those shocked to discover how much underground noise can reveal. With funding from the National Geographic Society, Görres studies root-feeding beetle larvae known as white grubs — she's specifically interested in the gases, such as methane, that they emit. Biologists suspect that these small insects, of varying species, contribute substantial amounts of climate emissions, due to their sheer numbers. (An example of what insect emissions can amount to: Termites are estimated to produce about 1.5 percent of global methane emissions. For comparison, the amount from coal mining is 5 to 6 percent.

When we talk about sound, we mostly refer to pressure waves that travel through the air. As they hit our ears, they vibrate the eardrums, and our brains ultimately translate these oscillations into sounds. These waves can also travel through other media, like water or soil. Acoustic emissions can also travel through different media simultaneously. Male mole crickets (*Gryllotalpa major*) dig horn-like burrows into sandy soil, from which they stridulate by rubbing their wings together. The chirping aims to court females that are flying in the air. But it also travels as vibrations through the soil where it may warn off other male crickets in their own subterranean burrows.

It makes perfect sense that underground animals incorporate sound into their lives, says Matthias Rillig, a soil ecologist at the Free University of Berlin. "Sound is a high-speed signal that comes at little extra cost," he says — certainly less than producing chemicals like pheromones for communication. Sound also tends to travel faster and farther than chemical signals. The rumble of an elephant can propagate for miles. Vibrations initiated by a small underground insect may only reach a few dozen centimeters, but in a world where much is measured in micrometers, that's still a long distance.

There is already some evidence that plants, at least, make use of sound to help their survival. In tests, evolutionary ecologist Monica Gagliano offered garden pea plants (*Pisum sativum*) the option to grow their roots down different plastic tubes. All the tubes were filled with soil, but some were exposed to the vibrations of flowing water (running through a tube on the outside of the pipe). Gagliano, of the Biological Intelligence Lab at Southern Cross University, the University of Western Australia and the University of Sydney, reported that the pea plants favored growing roots toward the sound of water, even though the water itself was not accessible to the plants and no moisture could seep into the tubes.

Besides informing ecologists, underground acoustics could help us take better care of the environment and detect pests that cause billions of dollars in damage every year. As far back as 1478, "pasture scarabs were causing significant damage to Swiss Alpine meadows to such an extent that the Bishop of Lausanne excommunicated the offending herbivores," scientists wrote in a 2015 review paper on root-feeding insects. (To name one current example, infestations of the grape root borer *Vitacea polistiformis* can decrease a grapevine's yield as much as 47 percent.

Without a way to pinpoint infestations, ground managers commonly have to resort to fighting pests like these with blanket pesticide applications, says Louise Roberts, a bioacoustician at Cornell University. "But that kills all sorts of things underground." Often, it would be enough to treat just parts of a field or golf course, since soil insects tend to cluster. "But for that to work, you need to know where the pests are," she says.

And so Roberts and her colleagues, with funding from the US Department of Agriculture, have been conducting a study to see if ground managers can push sensors into turf grass and use the frequencies of collected sounds to pinpoint subterranean pest infestations and to identify the species. The work isn't done, but early results suggest it is possible, she says.

To their dismay, researchers are discovering that not everything they detect underground is exotic and new. Some noises are disturbingly familiar. When Maeder listens underground in his home country of Switzerland, "I can hear construction sites and highways that are far away. Even airplanes." It's still unclear what impact human sound pollution has on subterranean life. But "it's hard to believe it wouldn't have any," says Rillig.

Scientists are also finding that the underground orchestra of animal activity has started to fall silent in large tracts of land, particularly in intensely farmed fields, where "things go quiet," says Maeder. A lessening of noises hints at diminished biodiversity and thus a less healthy soil. That dovetails with a recent report by the Food and Agriculture Organization finding that a third of the world's land has been at least moderately degraded, often through agriculture.

Maybe soil acoustics will help more people realize what we're in danger of losing, Maeder says. He has started a citizen science project that lends people in Switzerland acoustic sensors to listen for underground activity themselves. The recordings are being assembled into a national library of soil sounds with the hope of raising awareness. Demand so far is high, Maeder says. "The sensors are always booked."

GARDEN2TABLE 2022

By: Cassandra D'Antonio (SEMG 2012)

EAT YOUR WATER, WINTER SALADS & MORE

EAT YOUR WATER. How many of you have recently purchased a head of iceberg lettuce? My husband did a few weeks ago when I asked him to pick up a package of spring mixed greens, claiming the store had been emptied of all spring mix, so he thought iceberg was the next best thing. I can't remember the last time I bought iceberg lettuce, knowing for years that darker is better wheren lettuces are concerned—highly nutritious, low in calories, high in vitamins A and K, folate, and manganese, in addition to providing fiber to assist in the natural detoxification process.

Staring at this ball of iceberg lettuce reminded me of my childhood, when my mother served us salad with every meal—chunks of iceberg lettuce, sliced cucumber, and a wedge or two of not always ripe tomato, along with our choice of Italian or Thousand Island dressing. Ugh!

But when I made myself a sandwich using iceberg lettuce, I found that it was surprisingly one of the best sandwiches I had made in a long time. Between two slices of whole grain, seeded bread, I coupled thinly sliced turkey and cheddar cheese with a generous chunk of iceberg lettuce and found heaven. The cold crunch of the lettuce was an absolute delight. It also reminded me of some of the more satisfying salads I have made using colorless chopped cucumber, radishes, and celery left over from a crudité dish. Which made me wonder why the crispest, most water-laden, and sometimes neutral tasing produce are often the most satisfying and refreshing, and whether they have a place in a healthy diet plan.

I found my answer when I Googled "most water-laden vegetables," and the answer is a definite yes. Because the human body is 55–60% water, it needs a fresh daily supply for proper digestion, to keep organs functioning, joints lubricated, and otherwise stay healthy. Water is essential to your survival by:

- Regulating your body temperature
- Moistening your eyes, nose, and mouth tissues
- Protecting your organs and tissues
- Bringing nutrients and oxygen to your cells
- Lubricating joints
- Flushing out waste products
- Dissolving minerals and other nutrients for your body to use.

But you don't have to drink all the water you need; you can just eat some of it. Fruits and vegetables all contain water, and many are mostly water. Below are a dozen fruits and veggies that are at least 90% water, according to *Healthline*, *Medical News Today*, and the University of California's *Berkeley Wellness*. That means a cup of any of them contains nearly a cup of water. All of them are healthful, delivering fiber and different vital nutrients. (Follow the links for recipes plus selection and storage tips from the U.S. Department of Agriculture.)

Bell peppers: High in vitamin C, plus some potassium, iron, and calcium.
Cabbage: High in vitamin C, good source of calcium, plus some iron.
Cantaloupe: High in vitamins A and C, good source of folate, plus some calcium and iron.
Cauliflower: High in vitamin C, good source of folate, plus some calcium and iron.
Cucumbers: Good source of vitamin C, plus some vitamin A, calcium, iron, magnesium, and vitamin K.
Celery: Good source of vitamins A and C, plus some calcium, iron, and vitamin K.
Iceberg Lettuce: Modest amount of vitamins A and C, plus some calcium, iron, potassium, zinc, and vitamin K (leaf lettuce is also a good source of folate).
Spinach: High in iron, folate, and vitamins A and C, good source of magnesium, plus some calcium, iron potassium, and vitamin K.
Strawberries: High in folate and vitamin C and antioxidants, plus some potassium, iron, and manganese.
Tomatoes: High in vitamins A and C, good source of potassium, plus some iron, folate, vitamin K, and the antioxidant lycopene.
Watermelon: High in vitamins A and C and antioxidants, plus some potassium, zinc, copper, and B vitamins.
Zucchini: High in vitamin C, plus some calcium, iron, manganese, magnesium, and vitamins A and K.

Worth noting: Broccoli, carrots, grapefruit, kale, oranges, and peaches aren't on the list above, but are all above 80% water and good choices, too.

GUIDES TO PLANTING & HARVESTING LETTUCES. Most greens and salad crops, such as lettuce, spinach, Swiss chard, collards, and kale, are cool season crops that should be sown early before temperatures are too warm. This cool-season vegetable germinates best at 65–70°F. Therefore, if you plant them outside too early in the spring they will die. And if you plant them too late, your lettuce won't produce a harvest before the first frost arrives in the fall. Here are two excellent guides to planting lettuce in New Mexico:

Here is the BEST Time to Plant Lettuce in New Mexico (2022) - The Gardening Dad
NMSU: Home Vegetable Gardening in New Mexico

WINTER SALADS. Though spring is fast approaching, it's not too late to indulge in a variety of winter salads, which are heavier than a summer salad because they typically include grains, legumes, cruciferous and root veggies, winter squashes, hardy greens, and seasonal citrus fruits. To make this task easier, below are links to dozens of delicious, satisfying winter salad ideas.

Greens Aren't Just for Summer: 19 Delicious Winter Salad Ideas | Food & Wine (foodandwine.com)
25 Winter Salad Ideas - Best Recipes for Winter Salads (delish.com)
37 Best Winter Salad Recipes We Can't Stop Making | Bon Appétit (bonappetit.com)
26 Best Winter Salad Recipes - Insanely Good (insanelygoodrecipes.com)

ROASTED CAULIFLOWER SALAD WITH CREAMY HONEY MUSTARD VINAIGRETTE is our featured recipe for March. I selected it because who can resist roasted cauliflower and chickpeas tossed in smoky chipotle and paprika, served alongside avocado and topped with a creamy mustard vinaigrette?

GARDEN2TABLE March 2022 Recipe

Roasted Cauliflower Salad with Creamy Honey Mustard Vinaigrette

Cauliflower and chickpeas, roasted with olive oil, smoky chipotle, paprika, and garlic until lightly charred, crisp, and delicious. All tossed together with a simple honey mustard vinaigrette.

Ingredients

- 1 large head of cauliflower, cut into florets
- 1 can (14 ounce) chickpeas, drained
- 1/4 cup extra virgin olive oil
- 1 tablespoon chipotle chili powder
- 2 teaspoons smoked paprika
- 2 cloves garlic, minced or grated
- 1/2 teaspoon crushed red pepper flakes
- kosher salt and black pepper
- 6 cups mixed greens
- 2 Persian cucumbers, sliced
- 2 tablespoons fresh chopped chives
- 1/4 cup fresh herbs, such as parsley, basil, and or dill, roughly chopped
- 4 ounces feta cheese, crumbled
- 1-2 avocados, sliced

Creamy Honey Mustard Vinaigrette

- 1/4 cup extra virgin olive oil
- juice of 1 lemon
- 3 tablespoons honey
- 2 tablespoons Dijon mustard
- 2 tablespoons tahini
- 2 tablespoons apple cider vinegar
- kosher salt

Instructions

1. Preheat oven to 425^{0} F.
2. On a large, rimmed baking sheet, combine the cauliflower, chickpeas, olive oil, chili powder, paprika, garlic, crushed red pepper flakes, and a pinch each of salt and pepper. Toss well to evenly coat. Transfer to the oven and roast for 20 minutes, or until tender and lightly charred.
3. Meanwhile, in a large salad bowl, combine the mixed greens, cucumbers, herbs, and chives.
4. To make the vinaigrette, combine all ingredients in a glass jar or measuring cup and shake (or whisk) until completely smooth. Taste and adjust the salt and pepper.
5. Toss the roasted cauliflower and chickpeas in with the salad. Add a little of the vinaigrette and toss to combine. Top the salad with avocado and feta cheese. Serve and enjoy! The salad keeps well for 3-4 days in the fridge. Add the vinaigrette just before serving.

Source Recipe/Photo: www.halfbakedharvest.com

Beyond The Garden Wall — Flour Trip

Excepted from, Eater by Dayna Evans Feb 7, 2022,

Where were you during the great bread baking boom of 2020? Me, I was cleaning out a trash can full of dog food to make room for 50 pounds of flour.

A store of flour weighing as much as a small child felt necessary then: No one knew how long the pandemic would last (a long time, still ongoing, maybe forever), and for the many (the many, many) who had taken up baking in March and April of 2020, tentative forays into bread-making had evolved into full-blown lifestyles. As a result, the demand for flour exploded, and by summer, access to a product that had previously seemed as pedestrian and ubiquitous on grocery store shelves as cornflakes and ketchup — and which typically costs under about 50 cents a pound and was designed to last forever — became tenuous at best. At King Arthur, the brand that became synonymous with the millions of sourdough loaves baked during the pandemic, business boomed: In 2019, it sold 23.7 million 5-pound bags of flour to consumers; it sold nearly double that between April and November 2020 alone.

Long before, I had bought myself some break-glass-in-case-of-emergency flour. In the fridge, tucked behind a head of purple cabbage and next to a few cans of beer, was a small, clear bag from Castle Valley, a local stone mill located in Bucks County, Pennsylvania. “Refrigerate or freeze,” the bag read, with an expiration date of six months. That very expensive hard wheat flour was flavorful, it had personality — it wasn’t bland and white. But I also couldn’t explain what made it different.

Advocates for whole grains and the special whole wheat flour they produce have been saying that it is better for us in every single way — for our health, for our regional grain economies, for food equity, taste, and more — for decades, and yet all it took was a global pandemic to really start asking what that meant. After more than two years of touching grain, meeting millers, baking near-constantly, and seeing how the flour gets made, I had learned how alienated the average home baker is from flour as an ingredient. The inert white powder flour was what most people, me included, were used to —and the fridge flour was specialty stuff for those who could afford it. At least, that was the simple distinction I had accepted as truth.

In Darmstadt, Germany, Wolfgang Mock, the 75-year-old founder of Mockmill, was teaching me a lesson in the merit of whole grains. We discussed why whole grains are the solution to many of the health problems plaguing the Western world. Fresh flour, milled right at home, has two benefits, Mock told me: The nutrients present in the whole grain aren’t spoiled from sitting on a shelf, and because whole seeds are shelf-stable basically forever (or at least up to a year), one could make fresh flour whenever they wanted.

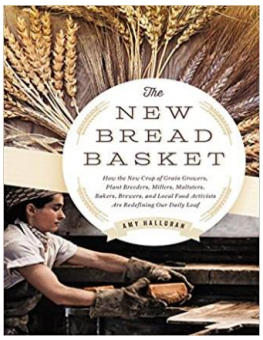
Though tabletop mills are not uncommon in Germany, Mock hoped to make his mills (or really, any mill, he says) a staple in American kitchens, too. “I think most people — nearly all the people — want to live healthy and be strong and be in good shape, and they don’t know how to do that,” he said

"[People] want the vegetables fresh. They want the salad fresh … They even bring fresh roses back home," Mock said. So why do we settle for purified enriched white flour that's been languishing on the shelf? As a result of his whole-grain lifestyle, Mock said, "I noticed in the last few years, I could drive my car without my glasses." Though "not at night," he added.

A whole grain is technically an edible seed harvested from grass. There are about 12,000 species of grasses in the Poaceae plant family, countless of which produce grains that humans have cultivated for consumption. For the purposes of this piece, we're primarily talking about wheat. **There are three important parts of a wheat grain: the bran, the endosperm, and the germ. Bran is the outermost layer, full of fiber and vitamin B, while the endosperm represents the carbohydrates and starchy parts of the grain; the germ contains the highest percentage of nutrients in the form of minerals, vitamins, protein, and fats**. Whole grains, with all their components intact, give us energy and keep us full.

Once early humans discovered cereal grains, they knew they were onto something. **That's because grains provided two benefits that meat and plants couldn't: Not only were they packed with nutrients and energy, they came with a natural packaging that made them largely shelf-stable.** The grains by themselves were too hard on our ancestors' digestive systems (not to mention teeth) to break down, so humans developed rudimentary stone systems to crush and grind the living hell out of grains to get to the much more valuable nutrients on the inside. Like otters beating clam shells with rocks, we did our best. Flour was just a pulverized version of seed, which we mixed with water and baked in a slapdash fashion.

In 1785, inventor Evans was responsible for devising the first automated flour mill, which could run without an overwhelming amount of human intervention, making it easier to ramp up production as the U.S. expanded and wheat was being cultivated on land unfamiliar to the colonizers occupying Indigenous land.



"We did so much production in the Northeast at the beginning [of the United States]," Amy Halloran, author of *The New Bread Basket*, told me. Over the next century, regional grain economies thrived across the growing country, supported by local mills, farms, and bakeries. America entered a golden age of bread and flour production, with fresh flour milled by local millers, often using wheat that had distinct regional qualities dependent on local weather patterns, soil, breeds, and seasons. The quality of the flour wasn't nearly as standardized as it is now, which could translate to a variable consistency, but flour back then was full of regional nuance and made with individual skill.

Then the roller mill crashed onto the scene. Invented in Hungary and Switzerland in the early 1800s, it found its way to America in the late 1800s, and it was exactly the solution the nation needed to standardize and revolutionize flour production. Unlike a stone mill, which grinds the whole grain into flour without splitting apart the grain's components, roller mills split the endosperm from the bran and the germ, making two separate products. Separating the grain, passing specific parts through the mill again, and sifting makes a flour that is consistent to bake with, less prone to spoilage from containing a lower percentage of the oily part of the grain, and a lighter color for breads, cakes, and desserts (which made it more attractive to the wealthy). Flour could be shipped internationally and kept for much longer periods of time, which meant an exponentially greater output was possible.

"[Flour milling] became a thoroughly mechanized, large-scale industry, drawing its ever more varied wheats from ever more distant sources, submitting them to a cleaning and reduction program whose broad outlines were thoroughly standardized," writes Teague, "producing flours and feeds of remarkable purity and uniformity, and disposing of a constantly increasing volume of production in ever expanding markets." These standards have been present in America ever since.

While we can celebrate the advancements of industry that made grinding and transporting wheat a consistent and predictable task, it has cost us: Ever more alienated from the ingredients that make up our food, roller-milled commodity white flour rendered farmers, millers, and bakers faceless and nameless. And that pure white flour frequently isn't nourishing, either. The whiteness is a result of removing the bran and germ entirely — and with certain brands, often bleaching and bromating (a process of treating flour to improve elasticity and produce a higher rise in baked goods). Because commodity white flour is so "purified" by the industrial milling process, the FDA requires big flour companies to fortify certain white flours after the fact with additional nutrients and vitamins, even though grain when it's milled whole is itself naturally nutrient-dense.

Industrially produced whole wheat flour is a little more complicated. Jeff Yankellow, director of bakery foodservice sales at King Arthur Baking Company, told me that their whole wheat flour — despite being made on an industrial roller mill — is no different than stone-ground whole wheat flour. "You put a hundred pounds of grain into a mill, a hundred pounds [of flour] come out," he said, explaining that the King Arthur whole wheat flour is exactly what the name implies: the wheat grain is kept whole. "As a company, our whole wheat flour is never enriched because the nutrients are already there," Yankellow explained. The browner, textured fridge flour I used was also called whole wheat flour, but Yankellow told me that the coarser texture comes down to technique and mill. "You could run flour on a stone mill that could be finer or coarser. You could run flour on a roller mill, it could be finer or coarser."

"There's a lot of speculation about what other companies are doing," Yankellow said. "If you look at the definition of whole wheat flour on the government website, it has to be 100 percent whole grain. I don't see how any company gets away with selling the flour without all its parts back in it." One 2020 study in the ***Journal of Food Science*** **commissioned by Community Grains, an Oakland-based miller, looked at a sample of grocery store flours labeled as whole wheat and found that they contained up to 40 percent less of a certain whole wheat protein than the 100 percent whole grain standard.**

"I think that we've so desensitized people, really removing people's reliance on their own senses," Mai Nguyen, a farmer in California, told me. When Nguyen opens a bag of stone-ground whole-grain flour, they "can smell the different flavors." When they open a bag of commodity flour, "I can smell in there that there's nothing."

Nguyen continued: **"What does it mean to be a modern-day eater when people aren't really growing their own food or interacting with any kind of natural cycles and production? So much is processed through this really long commodity chain. What do you really know?"**

I traveled to Scotland to meet Connie Hunter. Hunter is the miller for **Scotland The Bread**, A nonprofit whose mission is "to grow better grain and bake better bread with the common purpose of nourishment, and food sovereignty. Hunter was the first miller I had ever met, and seeing her work was the first time I saw how the flour I had been baking with for years – was made. She scooped grain from a bag, stood on a step ladder, poured it into that *Twister*-looking robot, and it shuffled through the machine until it came out as textured brown flour into another bag. "We only sell wholemeal flour because we went to all this effort to find the most nutritious grains and mill it in the most nutritious way possible," Hunter said. The flour she had milled in front of me would go right into a bag for sale.

In 2020, major flour companies couldn't keep up with the demand of the legions of new home bakers, so many bakers turned to small local mills, making artisan bread flour on stone mills, to order flour. "The [flour] that cannot be replaced speedily is the stuff that's coming from the big millers because everything is so massive and centralized," Monica Spiller, founder of the Whole Grain Connection, a nonprofit organization that advocates for and promotes the usage of whole grains, told me about pandemic flour-purchasing. "So the people who are filling the gap are all these small millers that have sprung up. They're the ones who were supplying flour to people during the pandemic."

My break-in-case-of-emergency flour came from Castle Valley Mill in Pennsylvania. That flour produced much different breads than I was used to, with powerful flavors and interesting textures. It was confusing to me at first — I had no idea how to actually bake with it — but buying it was a bulwark against the pandemic-induced scarcity that we were all experiencing. When I realized the mill I had bought the flour from was a 30-minute drive from my house, I saw another opportunity to get to know my flour in the most local way possible. It was time to meet not just any miller — my miller.

Fran Fischer and her husband Mark, along with their kids, own and run Castle Valley, which has been in Mark's family for three-quarters of a century. Their milling is still done with several cleaning apparatuses and stones that grind against each other, using wheat grown in Pennsylvania. One type of flour they offer is sifted so that it *kind of* looks like white flour and is meant to be used in place of traditional bread flour, but for the heartier varieties they sell, none of the parts of the grain are sifted at all. (In the baking world, this is called 100 percent extraction flour.) Much of the machinery dates back to the late 19th century. "It works like a charm," Mark said, pointing at one of many pieces of grain-cleaning equipment in the building. Mark, who has a background in aviation, put the equipment for his stone mill together by going to the patent office and referring to documents from two centuries ago. It took years. Fran leaned into me. "I call it 'forensic milling.'"

The Fischers had agreed to give me a tour of their mill when I had asked what it was like to be one of the few small mills in America that took off in 2020 as commodity flour started to sell out at grocery stores. The family worked together to get the flour to consumers day and night. There was a lot of education involved, which was time-consuming: People who had never baked with stone-ground flour questioned the way it acted when it was mixed into dough (why did it suck up so much water?), its smell (hay), and its taste (healthy). The fact that the flour had to be refrigerated was confusing enough on its own.

This was a time of fast learning for a lot of American consumers, with a lot of information to sift through. Was brown flour always better? Was fresh flour the most important? Were commercial brands always evil? Many people evolved past the question of "How is flour made?" to "How do I want *my* flour to be made?"

For King Arthur, the concept of freshness — and its relative importance — is a complicated one. King Arthur's flour has a 12-month expiration date, which isn't Yankellow's ideal. "In food service, we don't want that at all. We want you to be using it within four to six weeks," Yankellow said, but the reality is that their whole wheat flour will be fine if used within a year. It wasn't sustainable to expect consumers would use their flour immediately after buying it. That is, until the pandemic happened.

In the sea of people with opinions about flour, they're all experiencing at least one thing in common: Consumers are asking more questions.

People ask how they can support local agriculture, Mark Fischer said, but for some reason that thinking used to stop with flour. "Can I buy local chicken? Can I buy local honey? But nobody was thinking of local flour. Flour has just always been there," he said. "'It's a commodity. It's nothing special.'" The Fischers working at a back-breaking pace to get flour to people who had never even thought about it wasn't the ideal — the ideal was people looking into their regional grain economies and supporting those local mills in the long term.

Over email, in between production, Nan Kohler of Grist and Toll, the first urban mill in LA in almost 100 years, shared what the pandemic had taught her about our relationship to commodity flour. "It is pretty clear that even with such a long history of dominance in the production of cheap, industrial food, we certainly aren't feeling much food security these days." **One global crisis was enough to prove that many of the systems we rely upon are dangerously fragile. "**More regional control could give some of that [security] back. Industrial systems can't adapt quickly. Smaller businesses like mine can, but we lack the supporting infrastructure right now. We really need capital investment and government policy changes to help us put some of that back into place."

Among the many questions being asked of millers — big and small — about flour, there is one on the tips of our tongues: If this special flour full of wholesome whole grains is $19 for a 10-pound bag, who can really afford it?

In the middle of all this reporting, I somehow ran out of the trash can flour. I was staying with friends for the weekend, and I needed to have bread with us in the house. (*A house is not a home if there isn't bread in it* is something I imagine an embroidered pillow would say.) Though it pained me to use up so much of the expensive flour that I kept in my fridge, I had little time and the bread simply had to be made.

Using my go-to sourdough recipe, I mixed dough with the fridge flour alone, baked it up, and brought it with me. When we ate slices of it with just a little butter, my friend asked if I had added cinnamon to the dough. I hadn't. The taste had come from the unfiltered, unprocessed whole wheat flour. When I asked Fischer about that taste, he confirmed that the flour did have a warm, spicy flavor — it had come from the wheat. "This year, the hard wheat that everybody grew had a little bit of a cinnamon smell to it," he explained. "It's just the variety, the climate, the water, the soil, it's what happened this year. Last year it didn't taste like cinnamon. Next year maybe it'll taste like lemon. It's in your dirt, it's in your environment." The flour, as a result, was special.

Advocates in the whole-grain movement point to research that whole-grain flour is more nutritious than products made with white flour; that whole-grain foods are more filling and are easily digested by people with gluten sensitivities; that the flavor, the taste, the every little thing is better with non-commodity flour

Throughout the pandemic, Fresh Roberson, a Black chef and activist, has done work on getting whole grains and non-commodity flour to communities where they haven't always been available. "People who are thinking about it's important to eat local aren't thinking about this neighborhood that doesn't have access to local," Roberson, a resident of Chicago's South Side, told me.

The conversation around access to more nutritious — but typically more expensive — flour is happening when food insecurity has skyrocketed. How fair is it to expect a world where all wheat is grown and milled into flour regionally when 23.5 million Americans still live under food apartheid? When, in 2020, four in 10 Americans visited food banks for the first time? If the goal of the grain revolution is a more local, sustainable, and accessible agriculture, that requires reaching beyond privileged communities filled with bakers newly taken with making bread — it requires interrogating the preexisting system, and who is granted access to wholesome foods in the first place.

For the **Whole Grain Connection's** Monica Spiller, the ideal path is investing in milling infrastructure and designing an alternate to the commodity system. "The key next step is that the grain is stored locally and distributed locally. And we need a lot of mills," she said. "The restaurants and the food service people and homes, everybody should have a mill available to do small-scale milling from the grain as an automatic thing. And the big bakers [should] be located next to the bigger mill locally, getting their grain locally from the big storage locally."

Farmers need subsidies and infrastructure; millers need the same, as well as local support, a loyal customer base, and strong relationships with farmers; bakers need consistent and approachable flours to bake consistent and approachable goods for their consumers; home bakers need a little bit of everything, but most of all access to fairly priced flour regardless of their income status. It's hard to imagine how all these needs can be met. "I think the niche of fresh flour is expanding," Halloran told me, "but it's tough to say how far it can [expand], given the differences in scale and price supports that keep costs of commodity products so low."

But maybe it is possible, if we just make an effort to care. That requires consumers who are able to begin investing in our local grain economies, baking with regional flour, and learning who our millers are. Roxana Jullapat, owner of Friends & Family Bakery in Los Angeles and author of the cookbook *Mother Grains*, dreams of walking into any grocery store and seeing a flour aisle as big and varied as the cereal aisle. "That's my 10-year plan," she said. "That is another food policy decision or answer. It's not one baker's responsibility … We want to see the USDA and even the local health departments encourage this kind of business."

There is a way to do these things — to make locally milled flour available and accessible, Nguyen said. "We just need public will."

Nicole Medina is a Philly-based illustrator who loves capturing adventure through her art using bold colors and patterns.

Southwest Plant of the Month

Maximilian sunflower

Helianthus maximiliani

General Information

Plant Form	Flower	**Plant Size**	6' x 3'
Plant Type	Perennial	**Water Usage**	Low
Sunlight	Sun	**Colors**	Yellow

Physical Description: Lush, dark green foliage on tall erect stems, the top third of which are lined with stunning yellow blossoms in fall. Plant form large clumps from dense networks of fleshy rhizominous roots.

Care and Maintenance: Needs room. Rhizomatous spreader controlled by withholding moisture. Spent stalks must be removed in late winter after birds have harvested seeds. Drought resistant but requires supplemental water to perform well.

Gardener's Notes: Fast growing, long lived, beautifully flowering plant. Dried seed heads provide important winter food source for wildlife. Root clumps can be divided in early spring. Native to Pecos and Rio Grande valleys of New Mexico and Texas.

Source: https://desertblooms.nmsu.edu/plantadvisor/

March Garden Checklist

1. Order bare root roses
2. Start your garden seedlings indoors
3. Select the penstemon for your garden
4. Cool season veggies can be planted in the garden after St. Patrick's Day
5. Wait to prune spring blooming plants

***Source**: Month-by-Month Gardening, Arizona, Nevada & New Mexico by Jacqueline A. Soule*

CORRALES GARDEN TOUR

Jerry Kaye – SEMG 2018

VOLUNTEERS NEEDED

The much anticipated and always enjoyable Corrales Garden Tour will be held on Sunday June 5th of this year.

Showcasing six outstanding local gardens this annual fundraiser is produced by the group, Corrales Main Street, with the help of the Sandoval Extension Master Gardeners.

Our help consists of asking for ***24 SEMG volunteers*** so that each garden has two of our members for ~~a~~ 3 and 1/2 hrs shift, either morning or afternoon, between the hours of 8:45am -12:30pm and 12:30-4:00pm.

This is an excellent opportunity for SEMG volunteers to greet and interact with tour attendees and also raise the SEMG profile as to our existence, our website and as an information source in sustainable high desert gardening.

In addition, there will be a brief one hour training session prior to the tour, usually the week before, which will allow the volunteers to become familiar with the gardens and event protocol.

Each volunteer will be able to use their tour hours towards their annual SEMG required Outreach hours.

If you wish to be a volunteer in this worthy event, please go to the SEMG website and look for the Volunteer sign up list. The sign-up sheets are posted under volunteer – Working With The Public on the members page.

Any questions may be directed to
Jerry Kaye – contact info in member roster
Charlene Spiegel – contact info in member roster

Veteran Master Gardeners
Remember To Get Your Education Hours In for 2021/2022

Mo Casey, Membership Chair – SEMG 2019

Veteran Master Gardeners are required to complete ten (10) hours of continuing education each fiscal year to remain active members. One of the easiest ways to do this is to take classes through the Master Gardener Intern presentations. The quality of these presentations has been stellar. And they are easy to access at your convenience.

You can access the Zoom lectures at https://nmsuondemand.nmsu.edu . All you need to do is enter your e-mail address. You do not need a password. When the site opens, select **Modules**. That will open up another screen with the Modules that are available. When you select the Module you want, another screen will open up. It will show how many videos there are for that Module. And, if you scroll down you will see Notes Pages and Readings. All of these can be downloaded. It makes it very easy to take notes as you listen to the presentations. When you finish all of the videos, scroll down and select "Next." Scroll down on the next page and select "Next." This will take you to the survey. Select the instructor from the Module list. Scroll down and select "Veteran."

You do not have to take the quiz, but you must complete the survey part to get credit for taking the class.

Modules
1. Orientation
2. NM Climate & Water Cycle
3. Soils
4. Botany
5. Tree Selection & Care
6. Ornamentals
7. Entomology
8. Beneficial Insects
9 Growing Vegetable
10. Growing Fruits
11. Integrated Weed Management
12. Plant Pathology
13. Watering Yard & Garden
14. Plant ID
15. Master Gardener Outreach Program
16. Turfgrass Selection & Care

Many Hands Make Light Work

HELP WANTED #1

While the weather is still cool, and you'd rather be inside – We have a deal for you!

The Sandoval County Admin Building has some indoor plants in sore need of watering.
If you are interested, please contact Eydie Francis at eydie.francis@gmail.com.
I will be able to give you details. It takes about 2 hours to water all 3 floors.
We will be following state protocol for COVID-19 precautions.

HELP WANTED #2

There's a new volunteer opportunity in town!

If you have a technical background, enjoy tinkering with electronics, or simply love poking around apps and software to bend them to your will, consider lending a hand to the newly created **Meeting and Audio/Visual Services Team**.

Sound like fun? Contact Scott Lake webmaster@sandovalmastergardeners.org to learn more.

HELP WANTED #3 – Outreach Opportunity

Master Gardener Veterans to sign up for
ONE - week **email helpline** shifts

Sign up on our website.
REWARD
One week shift = 10 outreach hours

REMINDER TO ALL MEMBERS and GRADUATES – the 2021/2022 time sheets are available on the member side of our website.

http://sandovalmastergardeners.org/semg-members/members-only-information/

Under TIME KEEPING

Upcoming News:

NMSU State Master Extension is bringing back the
NMSU/UNM Cancer Patient Gardening Project in 2022.

Watch for further updates.

Sandoval County