

ECOLOGY ACTION'S GARDEN COMPANION

GROW BIOINTENSIVE® News from Around the World



FALL 2022

IN THIS ISSUE:

- THE JEAVONS CENTER MINI-FARM REPORT • GROW THE EARTH: SOUL OF SOIL
- THANK YOU, FOR BEING YOU • THE GUARDIAN: LET FALLEN LEAVES LIE
 - SOIL SCIENCE SPOTLIGHT: SOIL FERTILITY AND GYS RECOMMENDATIONS
 - BUILDING FERTILITY WITH LEAVES • ROASTED SWEET POTATO SALAD
 - HERBAL SPOTLIGHT: SAGE • A TEEN'S TAKE: GROWING MYSELF, BIOINTENSIVELY • GARDENS OF MERCY • DAHLIA DIVIDING OBSERVATIONS
 - WHY TOO MANY CHILDREN: THE STORY OF SAMBURU WOMEN
 - DIY: WINTER GARDENING • EVENTS, OPPORTUNITIES...AND MORE!

The Jeavons Center Mini-Farm Report

By John Jeavons, Ecology Action Executive Director

We've had another year of exceptional drought in California, but summer is over, and the first frosts are touching the mountains above Willits this week. Like farmers all over the northern hemisphere, The Jeavons Center team is getting ready for the cold and (hopefully!) rainy season in the GROW BIOINTENSIVE mini farm. If you're looking for inspiration, or just want to know what we're doing, here are some of the crops we have already planted, and will be planting through the winter into 2023, and why.

Already planted

Dahlias – This crop is still in from the main growing season and we considering taking the tubers out are as the rains begin, to protect them from rotting. This is an important research crop, since some of its varieties can produce many calories in the tuber, carbon for compost materials in the stalk, and income (and pleasure!) from the flowers. They are beautiful, and we will be replanting them in the spring!

Wheat - We prefer the *Hard Red Spring* variety of wheat to the *Hard Red Winter* type as it thrives at our site much better.

Currently planting

Barley – We enjoy this crop as it can produce a large number of calories in the form of edible grain, and a generous amount of compost-building carbon from the stalks in only 3 months, while wheat and other winter grains generally take 8 months to produce a similar yield of carbon and calories, meaning they tie up the growing beds for 6 extra months! So far we're growing *Gopal*, *Black Nile*, *Karan-16 Himalayan*, and *Mason Naked* varieties. Starting in Mid-February of 2023, we are hoping to begin screening the effectiveness of 50 additional varieties of barley at TJC (where our soil, growing season, climate, and water limitations provide good challenges for determining which varieties are good producers). The seeds we're using are provided by the KUSA Seed Society, which is expert in its selection of good grain and seed varieties – and not just barley! Check out the KUSA catalog at: ancientcerealgrains.org/seedandliteraturecatalog1.html

Fava Beans - *Banner* cold weather fava beans, interplanted with *Woolly Pod* vetch. We like the *Banner* va-

riety as the plants are robust and can grow well down to 10 degrees Fahrenheit. *Banner* also produces more biomass than the *Frederick*, and *Veroma* fava bean varieties. *Woolly Pod* vetch has the capacity to fix up to 0.63 pounds of nitrogen per 100 sq ft compared with other temperate legumes that fix 0.21 lbs in the same area, so less seed is needed to accomplish building up and holding nitrogen in the soil with *Woolly Pod*. *Banner* seeds are difficult to locate, so some beds are devoted entirely to this mix, growing to seed so we have a supply for future seasons; but we also plant it around our perennials during the cool/cold/rainy season as well.

The advantage to interplanting legumes with other crops and then harvesting the legumes when they first go to flower (instead of waiting for them to go to seed) is that the nitrogen fixed in the root nodules can remain in the soil to grow whichever crop you choose to plant in the next season, rather than going into producing legume seed. This means that, instead of using valuable bed/crop/months to grow a nitrogen-fixing crop to fix nitrogen in the soil for a third season after you grow a grain, seed or other nitrogen-intensive crop, you can grow the nitrogen, in many cases at the same time as the primary crop, and leave extra bed/crop/months—and nitrogen!—for the growing of calorie and carbon crops.

Planning to Plant

10-Bed Unit Complete Balanced Diet Crops in the main mid-May through mid-October growing season at TJC. Three different 10-Bed Unit diet designs will be grown at TJC by our Farmer/Teacher/Trainer team in 2023. The crops noted below are historically and climatically especially important for these designs:

Sweet Potatoes – we are growing the rarer 3-month maturing heirloom varieties from Sand Hill Preservation Center available at: [sandhillpreservation.com/sweet-](http://sandhillpreservation.com/sweet-potato)

[potato](http://sandhillpreservation.com/sweet-potato). If you are interested in growing these as well, be sure to order very early, as supplies are usually limited. As with the other short-season varieties we're planting, 3-month sweet potatoes provide more nutrition using fewer bed/crop/months than the standard 8-month varieties.



We grow sweet potatoes using miniature greenhouses (see plans in *How to Grow More Vegetables*) for the added heat needed in our northern temperate climate, and with the crop protected with gopher cages (for a description and pictures on how to make a simple, fairly long-lasting gopher cage for a GB growing bed, see growbiointensive.org/news-0705.htm).

Sorghum – We prefer the *Dale* variety. We find it performs better at our latitude.



Potatoes – 65-Day maturing *Yukon Gold* variety, which provide more nutrition in less time than 90- or 120-day maturing varieties, again leaving more bed/crop/months for growing additional crops. Selecting and trialing varieties that have the potential to grow good yields in a short time is an important part of creating a successful garden plan for growing a complete, balanced diet in a smaller area – the primary focus of our international 10-Bed Unit Project.



Corn – *Oaxacan Green* variety does best for us given our relatively cool night climate. This 95-day maturing variety is “dent corn” used to make cornmeal, and has beautiful emerald green kernels.

Many Other Crops – carbon and calories aren’t enough! Additional crops provide the necessary vitamins, minerals, and

essential amino acids to create a full, varied, and nutritionally balanced diet, and each 10-Bed Unit will incorporate different crops according to the taste and preference of farmer-designer. This topic is explored in Ecology Action’s Booklet 31: *Designing a GROW BIOINTENSIVE® Sustainable Mini-Farm*, 2022 revision.

Looking ahead, Ecology Action will present our **4-Saturdays Introductory GROW BIOINTENSIVE Workshop** online this spring on Feb. 25, March 4, 11, & 18, 2023. It’s fun, interesting, and easy to participate in! See growbiointensive.org/workshop.html for details and registration. I hope to see you there! ●

Soul of Soil

From GROW THE EARTH (johnjeavons.org)

A couple of years ago, I wrote this to share my hope and enthusiasm for the simple, vital act of growing the Earth in harmony with the gentle and powerful forces at work in Nature. Beautifully illustrated by Judy Chance Hope, this is a letter from my heart to the world. Here’s an excerpt (download the essay bit.ly/SoulofSoil or hear it at bit.ly/SoulofSoulTUCRadio).

The industrial revolution is based on “fire” – and we are “burning up” the planet.

*As you simplify your life,
the laws of the universe will be simpler;
solitude will not be solitude,
poverty will not be poverty,
nor weakness weakness.
~Henry David Thoreau*

*In Silence, You can Hear More.
~Henry David Thoreau*

It is Time to Listen.

We can choose to work with the most powerful energy source on the Earth—photosynthesis.

Let’s take the Green Path. It provides a balanced reasonable planetary temperature.

In fact, properly applied, it can be the solution to climate change.

*Our greatness lies not
so much in being able
to remake the World,
as in being able to remake ourselves.
~Gandhi*

We need to *experience* this life-giving Force. As we heal ourselves, so will the planet consist of thriving resilient sustainable mini-ecosystems.

Be the first neighborhood in your area to have one. ●



Thank You, For Being You

By Matt Drewno, VGFP Mini-Farm Manager

I would like to take a moment to direct our collective attention towards one of our most important resources, and perhaps one of our greatest hopes. **You.** Congratulations! While things around the world shift towards increasing instability, and despite all odds, you are still here and bringing light! There is so much going on beyond our immediate purview, it's quite easy to wake up and feel immobilized and that there is nothing we can do to turn this ship around. We all see it coming, that giant catastrophe down the road, and we appear to be accelerating towards it. How do we stop in time? How do we correct the course?

Maybe we just have to get off this disaster train and start doing what is right for us. There is an interesting thing that happens when we make this decision. It may seem selfish to think about doing things for ourselves when there is so much work to be done, but it can be the most important decision we make. And it can be the best thing we do for the world around us. I encourage you to grow a garden. Do it for yourself. Do it because you need to relax and direct your attention towards something enriching and engaging. Do it because you love flowers, you love food, you love all the life it brings. Do it because it awakens you to the mystery of growth. Do it because you want to learn how to grow food sustainably. Do it because it makes you happy!

The garden can be a place that we retreat to for our own well-being. It can help us relieve stress in our lives and connect with the greater web of nature. It can teach us how to work with nature, revealing the great and profound reciprocity of nurturing that which nurtures us. The garden is more than something we do for recreation or as a hobby- it is an unfolding world of constant imagination, creativity and learning. It's a place of inspiration. It's a place where our mistakes are forgiven. It's a place of sustenance and happiness. It can be a place of awakening, stoking that fierce green fire that quietly burns within. It's a wholesome place, where we participate in life, with nature and work to better ourselves, our family, our neighbors and our planet. In this moment, what could be more vital, important and appropriate than growing a garden? What could be more revolutionary, engaging, enriching and good for the Earth?

People contact us frequently, looking for answers on how to grow food without depleting the soil and how to conserve water, increase yields sustainably or grow a complete diet. These are very important questions and we dedicate ourselves to providing those answers. But for me the best part of working for Ecology Action is helping people realize that they themselves are the solution they have been looking for, that the best answers are within and learned through direct experience- that it's just a matter of starting down the garden path and experiencing the journey that awaits us. I wish to honor you, and all that you care about and do. You are so important to the future of our planet. If you haven't started a garden yet, and would like to start on this never-ending, life-affirming, aromatic and delicious journey, contact us. We have many free resources, workshops and courses which can help you start wherever you are at, whatever your goal may be. If you know someone whose life would improve through working with life in the garden, encourage them! We are here for you because we know that the world would be less without you, and that with you, we can work together to help one another grow strong. We know that the garden is so much more than a place to grow food. And we know that the most fun way to create a better future is together.

See you in the garden! ●

John Jeavons and Matt Drewno Present: A "4-Saturdays" Introductory Workshop on Backyard Biointensive Gardening



*On Zoom:
Feb. 25, March 4, 11, & 18, 2023*

*Learn to grow healthy food and fertile soil from
the author of "How to Grow More Vegetables"
growbiointensive.org/workshop.html*



Let Fallen Leaves Lie, Gardeners in Netherlands Town Urged

The following is an article published in The Guardian in October 2022 at <https://www.theguardian.com/environment/2022/oct/24/let-fallen-leaves-lie-gardeners-in-netherlands-town-urged-eindhoven>. GB helps urban gardeners to grow small gardens with plenty of biomass for compost, food for pollinators, habitat for beneficial insects, and a healthy microbiome for improved soil fertility!

A municipality in the Netherlands has declared fallen autumn leaves to be worth their weight in gold – ecologically speaking.

Eindhoven, in North Brabant, is encouraging its citizens to abandon blowers and rakes and to let fallen leaves in gardens or parks lie.

Martijn van Gessel, an Eindhoven council spokesperson, said they were trying to change ideas about how public spaces should look. The city wants to retire leaf blowers in parks and create a warm, wet, winter leaf layer for insect life – even if it looks messier.

“For a long time, people were convinced that the grass always had to be mowed, the leaves had to be collected, and everything had to look tidy,” said Van Gessel. “But in parks, we should let the leaves lie.”

Raymond van de Sande, a manager at Ergon landscaping firm, said he sometimes had to explain the mission to the good folk of Eindhoven. “What is good about this is that it breaks with the tradition of gardening and the idea that everything has to look tidy,” he said.

He added that leaving leaves alone had many environmental benefits. “You let natural processes take their course, and you see that there are advantages not just in the areas of ecology and biodiversity but also with fewer weeds, and less need for water in the summer. When it rains, there is less runoff to the drains: it creates an entire process of improvements.”

The council is putting out 200 “leaf baskets” around the city and is encouraging people tidying up fallen leaves around their street or home to deposit them to be diced, mulched and used as compost for city plants next spring. ●

Note: You can read an article on using leaves and branches that cannot be left to lie where they fall as mulch to improve soil fertility in your garden on page 7 of this issue.

"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."

—Buckminster Fuller

Soil Science Spotlight: Soil Fertility Approaches and GYS Recommendations

By John Beeby (growyoursoil.org)
Ecology Action Soil Fertility Advisor

Understanding soil testing and the correct use of organic soil amendments is an important part of GB. John Beeby and Ecology Action created the “Soil Science Spotlight” to introduce the topic to the GB community. The whole series, with frequent additions, is online at growbiointensive.org in the “Protocols” section.

In general, there are four main approaches that have been developed to improve the fertility of agricultural soils with organic fertilizers over the last century.

- The first is the *Base Cation Saturation Ratio (BCSR)* which prioritizes achieving an ideal ratio of calcium, magnesium and potassium in the soil.
- The second is the *Sufficiency Level of Available Nutrients (SLAN)* which focuses on ensuring a crop has sufficient levels of all nutrients needed to maximize its yield and quality. It can be summarized as feeding the crop.
- The third approach, called “*Maintenance*”, considers the amount of nutrients that will be removed by a crop and adds that amount back to the soil (typically assuming that nutrients are not returned to the soil through composting and/or safely and properly processed human waste).
- The fourth approach, called “*Build-Up*” focuses on ensuring nutrient levels are above the minimum needed for the crops being grown to provide a buffer to the farmer if soil testing and fertilization become difficult to do in future years.

A *Grow Your Soil* (GYS) organic fertilizer recommendation for your soil is created by combining the best of all four approaches, as well as additional factors. A GYS recommendation is designed for organic farmers and gardeners growing a diversity of crops in a year, using sustainable soil management meth-

ods. While most recommendations are designed for a specific crop, a GYS recommendation is designed to feed the soil and ensure that it has enough organic matter and nutrients to allow a wide variety of crops to thrive. Many small-scale farmers and gardeners grow a wide variety of crops and they do not want to have to deal with a different fertilizer recipe for each of their crops. Not only is working with many fertilizer recipes a very error-prone approach for most small-scale growers, but having a fertilizer recipe specialized for a particular crop can be non-optimal for a grower rotating crops within a year. In addition, GYS ensures that the organic fertilizers we recommend are available to you and will amend our recommendations if you cannot access the recommended fertilizer(s). A recommendation is of little use if you can't find the fertilizers or apply them at the rates recommended! Application rates in a GYS recommendation are designed to ensure sufficient nutrient availability while gradually building up soils that are less fertile, based on past performance and responses by the soil, the degree to which nutrients are being retained in and returned to the soil by the grower, and the availability of soil testing and fertilization to the grower in the future.

Small-scale growers are often faced with resource constraints that limit the amount of soil testing they are able to do, with some only able to test their soil every few years or less. *Grow Your Soil* takes all of these factors into consideration and aims to ensure that the soil not only has sufficient nutrients for that season for the crops being grown, but has some reserves that for the most part will be replenished through sustainable soil management practices such as GROW BIOINTENSIVE.

The goal of *Grow Your Soil* is to provide an organic fertilizer recommendation that helps you create a soil that can support a wide variety of crops, hold and store a maximum amount of water and nutrient, and minimize the loss of its nutrients, so that when you then recycle crop residues by adding compost, you are able to maintain and even improve your soil's overall fertility now and into the future. ●



Soil Science Spotlight

*If we understand a soil,
we can improve it*

How To: Build Fertility with Leaves & Branches

From the Bountiful Gardens Archive

While it is always better to let leaf litter lie where it falls to protect the soil and insects in your ecosystem (see the article from The Guardian on page 5 of this issue), sometimes that's just not possible. So, our advice is, when life gives you lots of leaves (and branches) use them to improve your soil!



Over the years, farmers and gardeners have noticed that **soil gains in fertility when it is covered up**—even by something that has no nutrients, like snow or plastic. Why? Nobody knows! There are factors in play we don't understand. But you don't have to understand it to profit from it. Any mulch will give a slight increase in fertility, reduce soil compaction, reduce soil loss from rain or wind, and reduce the number of weeds. If you have nothing better, flattened cardboard boxes will do all of the above and feed earthworms as well. (We do not recommend plastic.)

Of course, **if the cover is a mulch of organic matter, the effect is much, much greater**, because of all the nutrients released by the mulch and all the soil life that is drawn to it. Carbon in particular is food for many many micro-organisms, as well as larger life forms like earthworms that build fertility. Mulch starts an upward spiral, because the earthworms make tunnels—which brings oxygen deeper into the soil so that even more life can thrive and build even more fertility! So straw, lawn clippings, or leaves build richer soil, even in winter.

Only recently have we realized how leaves and smaller branches feed the soil. Gibberellic acid, which sparks seed germination for many plants, is much, higher in forest soils where leaves, twigs, and fungi form the soil. Scientists have also learned that humus is formed more rapidly by mycelium--the underground network made by carbon-eating fungi--than by most composting methods. Leaves are

FALL 2022

high in the minerals--calcium, potassium, and magnesium--that build strong healthy plants. Instead of giving your plants a big boost of nitrogen that causes fertility to spike and then fall, they give your soil well-balanced and long-lasting richness. If you have access to leaves, there is no better mulch to prevent weeds, feed earthworms, and build fertility.

Harness the carbon in ramial wood. Research in Canada has shown that chipped branches and twigs--called ramial wood--has many more nutrients than the wood from tree trunks that we use for construction, firewood, and so on. Far from being "waste", this ramial provides food for the fungi and bacteria that make rich soil. It is also a great, easy-to-use weed-smothering mulch. Applied in winter, a ramial mulch is colonized by beneficial fungi during the winter and can be incorporated with the top 3 inches of soil to make a fertile seedbed come spring.

Most houses have some area that is too narrow, too public, too ugly, or too shady to be a prime garden spot. Make it a fertility farm instead. Screen unsightly views and harvest free fertilizer at the same time. Fast-growing deciduous trees not only fill the space with beauty and bird life instead of problems--they can also be a source of fertilizer that increases for decades. If you choose species like empress tree, locust, and alder that can be cut back and regrow from the roots, you have a source of garden posts and trellis as well. Trees bring minerals from deep in the soil, and then conveniently drop those minerals on your yard.

Sources: Many people are able to mulch their whole garden just by taking what their neighbors leave at the curb yard waste. Other people are able to benefit from municipal programs that convert "yard waste" into compost or mulch. If you have any trees or shrubs that are shedding leaves, you can leave them where they fall on perennial beds, use them to mulch on vegetable beds, or mix them in compost along with fluffier ingredients. Some people, remembering about gibberellic acid and seed germination, make a special compost high in leaves to use for seed-starting.

Since ramial branches are the very part that most tree services, county road crews, and telephone companies are wanting to get rid of, there is a vast amount available, often for free. Just ask your city, county, telephone company, and private tree services if they have excess wood chips. Some will come and dump them on your driveway. ●

Recipe: Roasted Sweet Potato Salad with Chipotle-Lime Crema

By Shannon Joyner, Garden Companion Editor

Autumn in Northern California means a mix of weather: some days are as hot as midsummer, while nights are getting chilly with the promise of winter. Autumn dinners are in the liminal zone between refreshing salads and warming roasted vegetables. This recipe covers the whole spectrum with a salad of arugula, cilantro, and scallions, warmed up with crispy roasted sweet potatoes and chickpeas seasoned with a gently spicy blackening mix, topped with crunchy roasted pecans and a creamy chipotle-lime cashew crema dressing. Yum.

Ingredients (~4 servings)

½ c raw cashews
2 T nutritional yeast
1 t salt
Juice of 2 limes
½ t ground cumin
2 t chipotles in adobo sauce (to taste)
½ t smoked paprika
4 T olive oil, divided, plus more for drizzling
~1/3 cup of water
5 c baby arugula (or other hearty greens, torn)
1 cup chopped cilantro (can sub Italian parsley)
3-4 sliced scallions
2 medium-large sweet potatoes
1 (15 ounce) can chickpeas, drained and rinsed (or 2 cups home-cooked)
1/2 cup chopped toasted pecans (can sub other toasted nuts or seeds)
Blackening spice (mix together 1 T each ancho chile powder and cumin, 2 t smoked paprika, 1 t each brown sugar, salt, and onion powder, 1/2 t each garlic powder, dried oregano, and thyme)
1 T Cornstarch
Lime wedges for serving

For the Chipotle-Lime Crema: Place cashews in a small saucepan, cover with water by ½ an inch, bring to boil over medium heat, remove from heat, add squeeze of lemon or lime juice, cover and let sit for 20 minutes. Drain. Place soaked cashews, nutritional yeast, salt, lime juice, cumin, chipotles in adobo, smoked paprika, and 2 T olive oil in a food processor with

1/3 cup of water. Blend until very smooth, adding a little more water bit by bit as necessary to achieve the pour-able consistency of salad dressing. Adjust seasoning to suit your taste – add more salt, yeast, cumin, lime, paprika, or chipotle till it's how you like it. Set aside.

For the Salad: Preheat oven to 450°F. Wash and dice sweet potatoes (peel if you prefer) into bite-sized chunks. Toss with 1 T olive oil, ~2 T blackening seasoning mix, cornstarch, and a bit of salt until all pieces are covered evenly. Spread on a sheet pan or cast-iron skillet, and roast in the oven until tender and browned, about 25 minutes depending on your oven. Gently turn once or twice during cooking to allow all sides to brown nicely.

Toss chickpeas with 1 T olive oil and sprinkle with blackening seasoning mix and a bit of salt. In the last ~10 minutes of roasting time, place in the same pan as the sweet potatoes, stirring once or twice to make sure they're crisping up nicely.

Divide the arugula, cilantro, and scallions between 4 plates (reserve a small amount of cilantro and scallions as garnish). Top the greens with the hot roasted sweet potatoes and chickpeas, toasted pecans, and the reserved cilantro and scallions. Drizzle everything with a little olive oil, and dress with Chipotle-Lime Crema. Serve immediately with lime wedges and extra crema on the side. ●



Herbal Spotlight: Sage

By Shannon Joyner, Garden Companion Editor



Sage (*Salvia officinalis*) is a perennial evergreen shrub in the mint family, with silvery-green leaves, a pungent scent, and woody stems. A native of the Mediterranean, sage grows well almost everywhere, and is considered a “sister herb” to potent rosemary (bearing the same medicinal powerhouse rosmarinic acid as well as other beneficial compounds) and has become an important part of traditional medicine all over the world (varieties with different properties include Spanish sage (*Salvia lavandulaefolia*), Chinese sage (*Salvia miltiorrhiza*), and White Sage (*Salvia apiana*). Most uses involve ingesting the leaves by chewing them or creating a tea, tincture, or extract; or creating a topical application such as a salve, to apply to the skin. Extensive research has shown that sage has potent anti-inflammatory and antioxidant effects, can improve memory retention, has antibacterial action (particularly as a mouthwash to prevent dental decay), contains high amounts of bone-strengthening vitamin K (100g provides almost a third of the US-RDA), can mitigate the symptoms of menopause, soothes skin conditions, helps control blood sugar fluctuations, lowers cholesterol levels, and improves digestion.

It’s also delicious. While a short Internet search can provide a variety of medicinal preparations that use sage, with the holiday season approaching, I’m going to go with Hippocrates and say

“Let food be your medicine” with a recipe for a traditional wintery culinary herb mix that relies heavily on sage. Don’t be fooled by the name! Poultry seasoning isn’t just for poultry! According to foodnetwork.com poultry seasoning can “...spruce up classic roasted vegetables (think Brussels sprouts, carrots, and potatoes). For apps and salads, try mixing a tablespoon of poultry seasoning with Greek yogurt to make a dip for a crudité platter, or whisk some seasoning with lemon juice, salt, and olive oil to make salad dressing. Take things sweet by sautéing apple wedges with butter, honey and poultry seasoning until golden and serve the lot alongside a cheese plate. ...[use] poultry seasoning in a compound butter to serve with Parker House rolls, or even in a morning-after-Thanksgiving quiche. Or use it to bolster chestnut-studded corn muffins.”

It’s a seasoning with a strong, earthy and astringent flavor, so go easy with it until you know what you like. For example, try adding 1 to 2 tsp. to 4 cups bread cubes for traditional Thanksgiving stuffing, or with some oil to a pan of roasting vegetables. This mix doesn’t contain salt, so you’ll still need to salt whatever you’re making with it according to your taste.

Poultry Seasoning

- 3 T ground sage**
- 2 T dried thyme**
- 2 T dried rosemary**
- 1 T dried marjoram**
- 1.5 t ground black pepper**
- 1.5 t smoked paprika (optional)**
- 1 t celery seed**
- ½ t ground nutmeg**
- ¼ t cayenne pepper (optional)**

If you are using whole herbs rather than powdered, place everything in a spice grinder or mortar and pestle and process until you have a fine powder. Store the mix in a glass jar with a tight lid in your pantry. Properly stored, it should last up to a year – after that it will probably still be good but might not have as much flavor or nutritional value, as the volatile oils in the herbs degrade over time. ●

Note: While sage is generally recognized as safe for culinary use, it should not be consumed in large amounts or used medicinally without professional supervision. As always, the content in this article is meant to inform, not to diagnose or treat any ailment. Always use common sense, and consult with your healthcare provider before attempting to treat yourself or others.

A Teen's Take: Growing Myself, Biointensively

By Francesca L. Mills, VGFP 2022 Intern

Victory Gardens for Peace (VGFP) has been approached by a local high school to to integrate GB classes into their Career and Technical Education Program so students can receive credit for work-study at VGFP, and apply what they learn to manage their own school garden in the town of Mendocino. Our current 1-year intern, Francesca Mills, is a high school student working with us to develop this opportunity for other students.

Daylight breaks as I flip the viny green sign on the garden gate that reads “C'MON IN”. The crisp air breezes past my skin as vermilion light illuminates the barley and squash through the fog. Coming in before school, I open the garden – and my day – with intention and presence. I open the solar dryer to harvest the earliest rays. I hear myself breathing deeply. After tending to the grounds, I feel energized for school.

I am a seventeen-year-old girl raised in Mendocino, California; a coastal kid who spent her time in the undomesticated woods instead of on metallic jungle gyms, and swimming in the brisk Big River instead of chlorinated pools. Thanks to this idiosyncratic connection, I have always felt an instinct to protect nature, as she has raised me.

Out here in the sticks, adolescents are often anxious and uncertain, looking for a way to escape our little town. Anticipating the next part of our lives has filled our schedules since Sophomore year.

Just like in the garden, there are outputs from school: sometimes positive and negative. I quickly become drained by the 35-hour-a-week onslaught of incoming information. School: locked into uninspiring classrooms, finding it laborious to maintain my attention in class. In the way my ceaseless mind works, the amount of time and energy is often not fruitful; the unsustainable busy work doesn't yield satisfaction. Instead, for many people in my stage of life, the yield from school sometimes takes the form of anger and frustration.

But when my first-year botany teacher dropped “How to Grow More Vegetables” on our desks, the cover's brightly depicted veggies enticing me to open it, I was sold. It contained what I was after, simplicity and a cerebral systematic example of sustainability that transcends cultures all within 239 pages of

gold. Instead of treating the soil like a “natural resource” to exploit, we read about how to work in harmony with it, exuding appreciation for all it does for humanity. It just made sense and it gave me something to direct my abundance of energy into. This is something I could implement even without a PhD in agronomy. From that point onward, the school garden and having my hands in the soil was something I looked forward to everyday. But at this point, I had no idea how much I would grow in a fully Biointensive garden.

However, my generation is brimming with skepticism, from within the teenage brain and from what others project onto us. As a case in point, I was skeptical about farming when Matt Drewno, a towering rustic farmer extended his leathered and earth-encrusted hand towards me, almost like a dare. I started an official Internship at Victory Gardens for Peace at Stanford Inn by the Sea in the late spring of 2022, finding an outlet in double digging. Though at first it felt like stabbing into rock, I began to learn and grow in strength and nuance, feeling empowered when bringing warm black fertility to the soil. I developed a fixation on getting the full 24 inches down.

How to Grow is filled with statistics and percentages about what goes into agriculture versus what we get out, compared to conventional approaches. At VGFP, we do the math of the garden, tracking down every energy flow in time, water, biomass, calories, energy from the sun, etc. However, there are many unquantifiable inputs and outputs. Among these are personal energies such as dedication, that yield self-growth and the development of confidence that comes out of growing your own food.

The greatest yield of all has been the international community I have found. Even through a Zoom screen, we share in the excitement of a perfectly spaced bed of fava, or the successful germination of a rare purple ancient grain. This feeling of satisfaction transcends the wide range of ages and backgrounds of those inside our garden gate. Biointensive is not easy and demands adroitness, but despite the steep learning curves, I am enriched. With emphasis on conscious eating, sustainability and inter-cultural communication, GROW BIOINTENSIVE crystallized my values and gave me a metaphysical experience of gardening intertwined with food systems that I now believe all people should be exposed to.

Farming runs in my family, as it does in everyone's if you look far enough down each family tree. My mother, who was raised in rural Hungary, and

had no option but to work in the sweltering fields, harvesting summer fruits to earn just enough money for her school textbooks. My Jewish grandfather on my dad's side—who was, like me, the child of an immigrant—grew up in the Bronx during the 1940s, across the street from an original wartime Victory Garden that his family worked and grew food in during WWII. While I cannot say I garden for patriotism, our Mendocino Victory Garden is for Peace, with the goals of pre-creating security, to avert wars and other hardships and encouraging peace for all that join.

Presently, growing my own food security and the joy of Biointensive gardening is a privilege and choice. Seeing me smile, covered in dirt, and bringing home food gives my mother pride. Biointensive is a beacon of hope, a wellspring of mental health, preventing generational trauma around monetary needs and food insecurity, a plan for healing our families and the earth. The beauty of the micro-scale of a GB garden is that it can be personalized for each community and individual. After all, gardens always know how to fill a space. In a world where we have depleted our soils more in the past 50 years than in the prior 10,000-year history of agriculture, we see how our current methods of food production will fail. In times of war, sickness, drought, food insecurity, and climate change we can no longer afford to depend on others to grow our food.

In contrast to my mother, I do not experience farming as labor, I think of it as an act of love. Although on the surface it may look strenuous and quite unlike something a privileged American teenager would devote their time to, in fact it energizes me. I crave more time amongst the plants, each with their own distinct personalities and needs. I see them as both fuel for the mind and the body. They enliven me as I rehydrate the living sponge cake soil they inhabit and as I reap the produce for my next tasty concoction, a cycle of reciprocity. Every available hour, I am in

the garden and when I am not, I am thinking about gardening.

Biointensive is us, the people who practice it. A living example of this deeper input-output story is Matt Drewno, the once intimidating garden manager who benevolently pulled me into the garden. The garden is a place I feel safe, heard and respected as a learner and as chiefly as a young woman seeking skill in a field that originally seemed male-dominated. Without my inputs being channeled, supported, and valued, they would not have been applied efficiently. I would not have been able to cultivate myself or the plants. Matt is someone I consider to be one of my few genuine mentors, someone who, even when I was skeptical, has never once given up on me. He is someone who has ample faith and love in the fact that anyone can do Biointensive farming when met with the correct mix of compassion and patience to pass it on to the next generation of biointensive farmers. An open mind can see far, especially when it comes to incorporating mistakenly pulled bunching onions meant for seed into a delectable leek soup (sorry Matt). He is a true people-grower. Matt's prolific investment in me has been even more deeply nourishing than N, P, or K.

Entering college, I want to bring my Biointensive farming experience into the classroom. Studying soil chemistry while never having actually developed soil would be abstract. I want to continue making food systems more sustainable and diverse, teaching others to garden in the way that Matt taught me. As I move away from Mendocino and my Victory Garden next fall, I will continue to bank and spread the literal and metaphoric seeds that Matt gifted me, sharing with anyone willing to plant them. While I still empathize with my past skeptical self, I should have known that farming and farmers are much more dynamic than the stereotype. After all, they, no we, are in the lofty game of taking chances on things that grow. ●



Gardens of Mercy: Creating a Culture of Love and Ecology

By Sister Esperanza Ortiz Macías

We received this inspiring letter (through our International Partner ECOPOL/El Mezquite) about how GROW BIOINTENSIVE is being used by an extraordinary woman to help people in need grow a better life in Baja California. Stories like this show what an important difference the GB teaching network—kind, dedicated people from a variety of cultures and climates—is making in our world. ¡Gracias, Hermana Esperanza!



I am Sister Esperanza Ortiz Macías, Consecrated Virgin. I'm a devotee of prayer and of serving poor people. I have served them for 22 years and I currently belong to the Archdiocese in Tijuana. For 17 years I lived in a monastery of contemplative nuns in Tijuana, Baja California México. Countless migrant families that were living in exceedingly precarious situations turned to the monastery for help to meet their most basic needs, especially food and medicine.

Due to the demands of the mission, I studied to earn a bachelor's degree in Pedagogy at the Universidad Panamericana in Guadalajara. By the grace of God, I finished the degree satisfactorily and I had more tools to attend to the basic education and teaching of catechism to migrant girls arriving in Tijuana or Tecate, which I did for almost 7 years.

More and more families living in abject poverty came to ask for help. I was responsible for coordinating this help, and I was able to give them rice, beans, canned food, and some medicine at the most, but I knew that was not enough. Soon, they would be hungry again and the precarious salaries they were able to earn were not enough to feed their hungry children. Their need and suffering were clear; I also suffered and cried with them when I heard about all

the difficulties they had to go through: their diseases, their needs, their hunger.

One day, after having seen a mother's suffering from having lost her baby due to a high fever that could not be taken care of because she could not afford to take her child to a doctor, I went to the adoration chapel to implore mercy and to ask God to provide me with the wisdom to be able to help his vulnerable children. Because giving them a little food and a little medicine was not solving the problem at all.

Suddenly, I felt in my heart God was answering my prayer: "Gardens"—he said— "teach them how to sow." I did not know how to do that. I had no idea. I had never worked in a garden and I didn't know anything about working the land, but a bright solution awakened inside me ... a concatenation of ideas started to emerge: If they learn how to sow, they will be able to feed their families and themselves better. If they have their own gardens, they will be able to eradicate not only the misery they live in because of the fact that they are hungry, but also, they will be healthier because eating well will be their best medicine. What a wonderful solution! By growing their own food, they will stop depending on others little by little and they won't be the victims of injustice and inequality anymore! Thank you, God! Now tell me, what do I have to do? None of the nuns in the monastery knows anything about this! Show us the way so that we can create gardens and teach the poor!

And so, a series of "miraculous" circumstances took place in my life so that I could learn. We were given a hundred fruit trees, and the next month, March of the year 2014, we had our first Biointensive garden. God brought Juan Manuel Martínez to us. He came to the monastery to teach a course about Organic Agriculture and the Biointensive Method of John Jeavons.

In 2017, I felt God's call. He wanted me to work more tirelessly to help poor people, especially children and teenagers. He wanted me to evangelize them, to love them, to educate them, to teach them how to live an ecological, healthy and sustainable life. So, I decided to leave the monastery of contemplative life and to become a modest missionary and take with me seeds of life and hope. I'm doing this with limited capacity, but bravely and decisively, and I'm giving my life to serve others and to teach them how to take care of our common house.

I have started a mission in an outlying area of Tijuana, it is called *Invasión Nueva Esperanza* (An

“Invasion” of New Hope) located in the Vía Rápida Alamar Norte, Tijuana. There are more than 300 families in the area that live in poverty, and do not receive education and have not been evangelized. There are a lot of neglected—and some abandoned—children. This is why I founded a Civil Association called *Jardines de la Misericordia A.C.* (Gardens of Mercy) and through it I opened an Educational Center and a Home where they can be taken care of in a more comprehensive way.

I do not have funds to carry out this project, but I put it in God’s hands because I trust his word: “*Seek first the kingdom of God and its righteousness and everything else shall be added unto you*” (Mt 6:33).

I’m deeply grateful for your support to be able to carry out this work of mercy. God will bless you abundantly. ●

Dahlia Dividing Observations

By Suraya David-Sadira

FTT and Assistant Mini-Farm Manager, TJC

In 2021, we established an experimental 10-Bed Unit (10BU) at TJC complementing the ongoing research on this topic at VGFP and other 10-BU locations globally. The diet design for this experimental bed included dahlias as a versatile carbon/calorie/income crop. cultivariable.com/instructions/root-crops/how-to-grow-edible-dahlias/ gives a good intro to edible dahlias.

Hello and welcome to part three of our five-part Dahlia learning series. In this article I will evaluate how the varieties have preformed this year, what I have learned about the process, and how I plan to improve the storage process this year!

This year we grew ten dahlia varieties: *Thomas Edison*, *Mikayla Miranda*, *My Hero*, *Maki*, *Who Me?*, *Chick A Dee*, *Hometown Hero*, *Citron Du Cap*, *Giggles*, and *Patches*. My first observation, now that the summer is over is that I think all the dahlias were a bit stunted due to being started in flats; I don’t think they liked being transplanted. Next year I will plant the tubers directly in the ground to test this theory. The varieties that produced the largest blossoms were *My Hero*, *Maki*, *Citron Du Cap*, and *Thomas Edison*. These varieties also produced a good amount of biomass and I suspect that they will have large bulbs, but that is something to be confirmed when I dig them up – I’ll let you know how it turned out in the next article in this series. *Who me? and Home-*

town Hero, *Patches*, and *Mikayla Miranda* were all more in the medium range on bloom size and biomass production. *Chick A Dee* and *Giggles* both produced smaller blooms and little biomass, but they produced cute and beautiful flowers that brought everyone in the garden joy, so they had value, too.

Last year I stored the tubers in cardboard boxes in our storage cellar. I checked on them regularly and sprayed them with water when I felt they were getting too dry. I don’t think this worked very well because most of them still dried out and some even developed mold. I believe the storage method lacked consistency and provided to much variation in humidity over time. This year, I plan to store the tubers in sealed plastic bags filled with coco coir. Coco coir is dried chipped fiber from the outer husk of the coconut and can be ordered easily from most garden amendment suppliers. However, you could substitute wood chips, sawdust, and possibly even newspaper (provided it was printed with non-toxic ink). I believe anything natural to your area that is dry and can hold moisture would also work, possibly even dried grass clippings. I think it would be important to make sure the substrate you use is fairly dry as too much moisture in the bag could cause mold to develop. I would avoid using peat moss, though, as peat wetlands absorb and store carbon dioxide from the atmosphere (peat holds more carbon than the combined forests of Britain, France, and Germany!), purify the water that flows through them, and are delicate ecosystems that take thousands of years to build up. Commercial harvesting of peat destroys these wetlands and releases a lot of CO₂ into the atmosphere. There are plenty of other options, so don't use peat.

Thank you for reading this season’s *Dahlia Dividing Observations*, I hope they have helped you learn some now things about dahlias with me, and I look forward to bringing you all the next report in the spring. ●



Why Too Many Children: The Story of Samburu Women

By Simon Nyaga

Simon Nyaga, Director of Bold Impact Africa (boldimpact.africa), promotes GB to small-scale farmers, as well as environmental conservation, childhood/youth development, advocacy, community and policy development, and entrepreneurship for women and youth groups. He holds degree in Community Resource Management and Extension (BSc. CRM) from Kenyatta University, and learned GB at the GROW BIOINTENSIVE Agriculture Centre of Kenya in 2016.

Samburu County lies in the northern part of the Great Rift Valley in Kenya, which is an Arid and Semi-arid region. The county, which is classified as a low potential rangeland, receives low rainfall. The county is made up of two major tribal communities: the Samburu, and the Turkana.

Most community members keep livestock as their main source of livelihood. However, due to low rainfall, degraded soils, and lack of food-raising skills, communities in the county have not been able to adequately exploit their potential, even as they continue to own huge parcels of land where only about 8% of land is cultivated for food growing. The remaining 92% of the land is rangeland for livestock production.

I traveled to Samburu County to teach GROW BIOINTENSIVE skills to more than 50 women, youths, and children, to help them gain an alternative source of livelihood by raising their own food. It was during this journey that I came face to face with a community trapped in chronic poverty, deplorable housing, malnutrition, and disease. Social amenities such as healthcare centers are miles away from where the community lives, and in addition to being trapped in abject poverty, the women also give birth to many children, year after year. On inquiry, at least from one woman I'll call "Lesiyiai" (not her real name) said the primary reason for this high birthrate was to increase the population of the clan to protect against invasion by other tribes (the Samburu and the Turkana communities are in constant fights). There have been reported incidences of cattle rustling, highway banditry, and intra- and inter-ethnic violence, which are catalyzed by the community relying on one source of livelihood: livestock. The secondary reason for having many children is for these children to take care of the parents during their old age. A



third reason is because of high child mortality rates, primarily due to diarrhea, pneumonia, and other respiratory infections, as well as other diseases.

On inquiry, with questions being interpreted a local because this woman couldn't understand the two national Kenyan languages (English and Swahili), she told me that, like many parents, she naturally assumes that a high percentage of their

children will not survive. And that giving birth to too many children to them is, to them, like some kind of insurance policy against the possibility of child loss due to disease.

Lesiyiai, with many others like herself, attended my one-week GROW BIOINTENSIVE training sessions. I noticed that she always came with four of her children, who kept interrupting the sessions because they all kept crying or running everywhere in the classroom. I made a deliberate attempt to talk to her the second day of training, and she told me she comes to the training with four children and leaves three more at home. In total, she has seven, and the four she came with didn't appear to be healthy. I asked her if she does any kind of farming and she told me she has never seen—or held—a digging hoe (*jembe*) or even a watering can. And what broke my heart was when I asked why she came for training, and she told me it's because she heard that there was food offered (snacks) and thought she could come and get some to feed her seven children. Each child she bears makes it even more difficult for them to jump out of poverty, and she is only one woman out of many in the same situation.

During the last day of training, Joshua Leteruwa, a community health volunteer, visited to see what we were doing. I was keen to ask his views, on the sidelines, about why women in his village tend to have so many children despite the high poverty rates and low-standard housing, conditions which make it almost impossible raise a healthy family. He told me that on top of the reasons given above, children herd the livestock, collect firewood, cook, and fetch water,

ECOLOGY ACTION'S GARDEN COMPANION



Type of housing "Lesiyiai" lives in with her 7 children among many other household tasks. In short, to the community, these children offer cheap labor. But on top of that, he told me many women like Lesiyiai are not allowed by their husbands to take contraceptives and/or have no access to reproductive health education and services. It is to be noted that approximately 34% of the population in Samburu has the ability to read and write, and the women majority of women are illiterate. Women are regarded as the property of men and are not allowed to make any decision regarding their own lives, including how many children to give birth to. This disturbed me!

On my journey back home, I kept asking myself what it would take for women like Lesiyiai to be empowered to provide for their families. How GROW BIO-INTENSIVE trainings can be tailor-made to benefit women like her, and how other young women can be empowered and educated not to be enslaved and trapped into poverty because of having many children. I think reproductive health education and services are also important for all the women of reproductive age in this county. I think that programs to liberate the communities economically is of equal significance. But I also deeply think that a retrogressive culture that undervalues women should be stopped, and women must be brought to the decision-making table if change and progress is to be realized.

In the end, I think GROW BIOINTENSIVE ways of growing food, coupled with nutrition education should be promoted and sustained in these communities. That requires more than a one-week GB training! If cattle theft, intra and inter-ethnic fights is to be stopped, then high-yielding, soil-growing, sustainable, small-scale food-farming methods that uses fewer resources should be encouraged. I know one day, if this is done, I will return to the community and find women allowed to give birth to children they can raise comfortably, where a community thrives in good health and nutrition, and where GROW BIOINTENSIVE contributes to food and nutrition security of every household. ●

FALL 2022

DIY: Winter Gardening From the Bountiful Gardens Archive

The following is an excerpt of a longer article, which we are unable to print due to space considerations. Read the full article at growbiointensive.org/Enewsletter

Winter survival depends on more than just cold: excess dryness, alternating high and low temperatures, and saturated soil will all kill plants that might have survived the cold. Here is a simple checklist for winter survival:

Choose the right varieties. For example, wild, lettuce sprouts early in spring, when the ground is just above freezing. It matures as the days get warmer and longer. It is more cold-hardy as a seedling than as a mature plant. Over the centuries, people have selected some lettuce varieties for late-summer and fall planting in order to have fall and winter crops. A little time spent in selection will make a huge difference in results. To make it simple, we have salad collections for different seasons. If the ground is already very cold, choose the spring collection. If planting in late summer or fall for cold weather later on, choose the fall. The same goes for other vegetables. Choose the types that are meant for the season. Usually, the faster-growing varieties are meant for spring, and the longer-season types are more cold-hardy. This is true of cabbage, beets, carrots, and many other crops.

Good soil preparation is key—plenty of compost will encourage good growth that is also hardy, as well as promoting both good drainage and water retention. Since water-logging and drying are two major causes of winterkill, this is a simple way to give your garden its best chance. Make sure there is plenty of potash, which gives your plants hardiness and disease-resistance (greensand, ashes, and seaweed are good sources). Seaweed increases cold hardiness and disease resistance by supplying several other substances besides potash, and is a valuable supplement for winter gardens, either as mulch, a soil amendment, or a foliar spray. Kelp meal is a type of seaweed available in some garden stores that can be incorporated into your soil. Maxi-crop is more concentrated, and is water-soluble: easy to use when watering, or as a foliar spray.

Stable Soil Temperature is often more important than how cold it gets. Plants that are hardy in cold or even frozen soil will be killed by alternating freeze-and-thaw conditions. Plants “wake up” and come out of dormancy during ...*[continued online]*

ECOLOGY ACTION'S GARDEN COMPANION

WRITER/EDITOR AND ART DIRECTOR: Shannon Joyner

CONTRIBUTORS: John Jeavons, Matt Drewno, John Beeby, *The Guardian*, Francesca L. Mills, Sister Esperanza Ortiz Macías, Suraya David-Sadira, Simon Nyaga, EA Staff, and GROW BIOINTENSIVE® friends from around the world.

Ecology Action
5798 Ridgewood Road Willits, CA 95490-9730
Phone: (707) 459-0150

Ecology Action newsletters and full-length articles
are available online at
growbiointensive.org/Enewsletter/Archive.html

Printed with soy ink on 40% post-consumer paper

© 2022 Ecology Action. All rights reserved.

ECOLOGY ACTION EVENTS: 2023

Dear GROW BIOINTENSIVE Family,

Our schedule (subject to change) of public events
is as follows.

The *online* Spring 4-Saturdays Introductory Workshop:
Feb. 25, March 4, 11, & 18, 2023. Register at:
growbiointensive.org/workshop.html

2023 8-month *online* and *onsite* (VGFP) internships:
growbiointensive.org/Internship/8Month.html

Garden Tours at TJC and VGFP:
growbiointensive.org/events_main.html

GardenCorps Program at VGFP:
victorygardensforpeace.com/garden-corps

Our 2023 schedule of events:
growbiointensive.org/events_main.html
or call 707-459-0150

Wishing everyone good health and good gardening,
Ecology Action

Ecology Action

5798 Ridgewood Road
Willits, CA 95490-9730



51 years.

152 countries.

Millions of people educated.
Millions of garden beds created.
Billions of pounds of
fertile soil grown...
And we're just getting started.

Grow Hope. Grow Abundance.
GROW BIOINTENSIVE®!

Your donations keep
us growing!
www.growbiointensive.org

Non-Profit Org.
U.S. Postage
PAID
Willits, CA
Permit No. 2

Address Service Requested