

ECOLOGY ACTION'S GARDEN COMPANION

GROW BIOINTENSIVE® News from Around the World

SUMMER 2024



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The Jeavons Center Mini-Farm Report

By John Jeavons, Ecology Action Executive Director

Things have been busy at The Jeavons Center! Our online **8-Month Internship** began in April and runs through November, with 20 participants (from Mexico (8), Costa Rica (1) Peru (1), Spain (1), Kenya (5), and the United States (New Jersey (1) California (3)) meeting on Zoom every Tuesday with myself and Matt Drewno (both of us Certified Master-Level GB Teachers). I feel blessed in my teaching interactions, and love to share the unique and inspiring ways people approach learning about and using GB. For example, at the end of the first class, 8-Month Intern Juan Angel Barra Ramirez from Mexico sent us this thoughtful message:

“The first session was moving; hearing your voice and those reflective stories show me a lot about how things work, and sometimes we lack clarity regarding our own obstacles. The question you posed about how the current state of the planet affects us and how it might affect us in the future made me think in many ways. However, the first thing I recognized in my own experience is that there are circumstances that affect us positively and other times negatively. But as they say, it all depends on the lens through which you view it.

I feel somewhat divided in my interpersonal relationships; currently, I'm surrounded by people who are also, from their own places, engaging in this process of spreading awareness about the importance of the environment. They are the ones

who inspire me to continue forming and learning about their teaching methods to continue with this exercise of sharing. But on the other hand, I'm also surrounded by people, even family, who live in the city and adhere to that lifestyle that is part of a system that has been so harmful to genuine human development for many years. I feel that the lack of information or connection with nature prevents them from seeing the problems we are currently facing, which are extensive and present in many areas of the planet: the soil, the oceans, the air, the forests, the mountains, and food. In my case, I realize that part of the actions they take to remain trapped in an industrialized model is because they haven't had real contact with nature. But I know that when they do get close, even for a moment, they can feel that sense of tranquility, setting aside stress and worries. So, this is where I feel inspired to share with this group of people about the importance of being in tune with our senses and all that the earth gives us. This situation also affects me positively and allows me to take action in this area that is so important for teaching. With this comment or reflection, I wanted to respond to that question you asked in the first session that I didn't have time to participate in; I was on a ladder trying to put up a curtain in the greenhouse to protect the plants from the intense heat that day. But I didn't want to miss the opportunity to share my feelings through this message. This first session connected me with my childhood and my great passion for going out to play in the mountains, always surrounded by the mysticism of the plants around me.”

In another example, a person from the midwestern US just finishing a prison sentence wrote to Ecology Action that he wanted to start a program



to teach former inmates GB so they would have a good way to earn a living once they return to society. He was already familiar with and excited about GB, so we sent him several self-teaching publications, including the latest edition of *How to Grow More Vegetables*.

Our **Spring Garden Tour** was held on May 5 this year (to complement the May 4 tour at Victory Gardens for Peace on the Mendocino Coast). Participants included many people from the greater Willits area—our site holds particular interest for locals because they share our difficult growing conditions and our beautiful garden inspires them!—as well as Angel and Juan Lopez from Tecate, Mexico, who both participated in our 2023 8-Month Online Internship and were awarded a 2024 EA Intern Stipend because of the quality of their work. It was a pleasure to see them in person (and you can read a little about their project on page 11 of this issue).

The tour is seven hours long and gives a good introduction to GROW BIOINTENSIVE® Sustainable Mini-farming, what our practical research is accomplishing, and how our method relates to world agriculture. Activities include a discussion of the overall world challenges that humankind faces in the areas of soil, food, and nutrition, a walking tour of our mountainside mini-farm garden, and several short classes on an easy form of double-digging; composting; the 8 Essential Elements of GB; herb gardening; and growing dahlias as a key crop for calories, compost materials, and beautiful flowers. Discussion and questions are encouraged along the way, with presentations given by our staff including Mini-Farm Manager Melvin Castrillo, Assistant Manager Suraya David Sadira, and Farmer-Teacher Trainers Jessi Mikow and Evandro Rafael.

Of particular interest are the **10-Bed Units** (1,000 sq ft) Suraya and Jessi have designed, each one capable of producing a complete balanced diet with crops selected for the best production in our region. A few of the highly efficient crops used (and discussed during the tour) include:

- **Guatemalan Green Corn**, a relatively rare, nitrogen-fixing corn that has aerial roots high up on the stalk that drip a nitrogen-rich solution onto the soil, assisting in a good yield.
- **Yukon Gold 65-Day Maturing Potatoes** that produce the same yield and amount of nu-

trition as 90-day and 120-day maturing varieties. More food and nutrition in less time!

- A special cereal rye called **Sangaste** (considered to be one of the oldest cultivated cultivars of rye in the world) which in addition to producing heavy seed heads, also produces a huge amount of biomass to use in our compost piles. It grows seven feet high and has a root system that can produce three miles of roots in one day, and 367 miles of roots and 6,603 miles of root hairs in a season—on a single plant! Multiply these numbers by the 833 plants that we plant on 5-inch offset centers in one 100 square-foot growing bed, and you can see how much difference choosing the right crops for your garden can make. Crops like Sangaste help us build up a lot of organic matter in our soil, and roots like this can even help a heavy clay soil be more friable.
- Other grains grown include wheat, barley and oats. Barley is especially important in water-scarce regions, as it only takes 3 months to mature, compared with 8 months for most wheat.

If you missed the spring tour—we've got another one in the fall, on October 13 (and Victory Gardens for Peace has one on October 12). For information and to register for either tour (or both!), go to growbiointensive.org/tour •



The World Situation and Our Agricultural Crisis

By Matt Drewno, VGFP Mini-Farm/Seedbank Manager

The following is adapted from longer article, which you can read at growbiointensive.org/Enewsletter.

Looking at our world situation, there are many reasons to be alarmed. While industrialized agriculture increases production, it comes at great cost to people and planet. Not only is it destroying our communities and biosphere, it is not even economically sustainable: the USDA reported in 2019 that *US farmers had to earn 83% of their income off the farm*. Addressing the rising suicide rate among US farmers, Secretary of Agriculture Sonny Perdue stated in 2020, *“In America, the big get bigger and the small go out.”*

But the problem is much larger than agriculture—it is systemic. It is not only how we farm, it is also an issue of access to affordable, healthy food. Clearly, a transition is needed to a more compassionate, equitable and actionable vision for human society, but the food and farming crisis will continue as long as we have inequity. In the US, it was reported in 2020 that the top *1% of households own 15 times more wealth than the bottom 50% of households combined*. As this wealth gap increases, so will our food crisis.

The result? Food aid and welfare programs have become the only hope for many struggling families. Anti-hunger organization *Feeding America* reports 1 in 4 US children (1 in 6 families) are now facing food insecurity, and food bank users have increased 60% since 2019-2020. In November 2020, the UN World Food Program reported an 82% increase in acute food insecurity globally in a one-year period.

A *perfect storm* is a rare occasion where multiple factors converge to release a tremendous amount of energy. As more people are born to a finite planet already suffering from resource consumption, pollution, environmental degradation and climate change, we face a perfect storm that is building in strength and potential. As food insecurity and ecosystem pressures increase, we can expect political and social instability, fighting for resources, and mass migrations. In fact, this is already happening: in 2019, it was reported that 79.5 million people had been forcibly displaced globally and 80% of these families had fled their homes due to food insecurity.

After the 2008 global financial collapse, the *New York Times* reported 29 countries halted food exports and global food prices increased 45%, with staples like wheat increasing by 130%. Fossil fuel prices increased, doubling the cost of nitrogen fertilizers and leading many farmers to cultivate only half their land. Interrelated and compounding stressors like this are what we face today. Perhaps most alarming is that never before in history have so many people been so reliant upon such a fragile and unsustainable food system.

To more fully comprehend this perfect storm, here are a few additional facts:

- Currently, over 800 million people (~1 in 10) face starvation;
- By 2050, the UN states an additional 2-3 billion people will need to be fed;
- By 2030, the UN estimates that almost half of the global population will face high water stress, potentially lacking adequate water to grow food;
- Today in the US, 80-90% of our freshwater is used for agriculture;
- In 2015, the UN stated we have less than 60 years of soil remaining and by 2050 farm production must *increase* by 70% to feed everyone equitably;
- Our current growth rate requires an additional 12 million acres of farmable soil per year; we lose 30 million acres annually to erosion; it can take nature 500-2000 years to build 1 inch of topsoil.

Note: the UN topsoil estimate is based on current rates of soil depletion, but as ecosystem degradation increases, the *rate* of collapse also accelerates. For this reason, Ecology Action estimates only 20 years of farmable remains, rather than 60.

Difficult times can bring out the best or the worst in people. And while these facts can be hard to contemplate, the perfect storm doesn't have to be destructive. Its energy can be channeled into something creative and powerful. These challenges can bring us together or tear us apart. It is up to us. In a recent 8-month internship class, I heard John Jeavons say that *we cannot change our externals, but in changing our internals everything around us changes*.

Moving Forward to Create a Better Future

In this effort many of us may feel overwhelmed and that we are starting from scratch. Many of us have been taught that the answers are somewhere, *out there*. We have forgotten how to grow soil and food sustainably. Many of us have been indoctrinated

with a competitive attitude leaving us more likely to fight over resources than share them. There are two things that are for sure: (1) We have our work cut out for us, and (2) good things don't come easy! To minimize the damage and future suffering, it is important that we act swiftly. Solutions should be considered holistically and the greatest effect sought. We should work with nature and with each other.

Five key facts relating to our current predicament:

1. **Current economic policies favor industrial agriculture**, people are leaving the land and we are losing our farming knowledge/skill base;
2. **Climate change is a force-multiplier**, compounding challenges to our agricultural systems;
3. **Localization of our food system will be necessary** to keep food accessible as global economies and food supply chains are disrupted;
4. **Communities must assess local soil, water, energy and other resources** and make choices focused on conservation and ecology;
5. **Populations must reskill in food production and ecological restoration**, emphasizing resource conservation, closed-loop sustainability and appropriate technology.

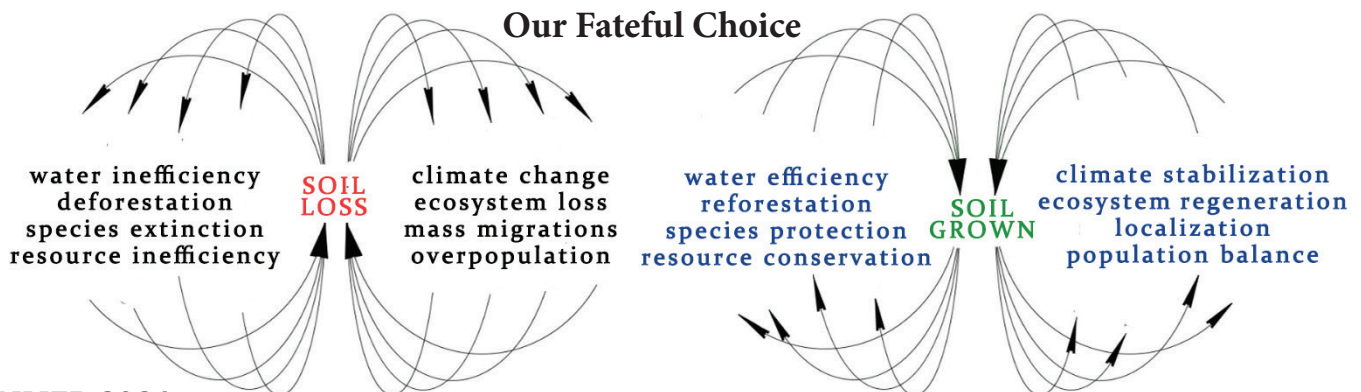
A *Confounding Variable* is a third variable created out of the cause and effect, which feeds back and influences the entire system. In chaos theory, this is similarly expressed as the *Butterfly Effect* stating that a butterfly flapping its wings in your backyard can create a hurricane on the other side of the Earth. In Buddhist philosophy, this can be expressed as the *Doctrine of Interdependent Co-origination*. These concepts can help us understand the complexities of our choices and the Feedback Loops (pictured below) which can accelerate or otherwise influence a system. One thing is clear: we can continue to mismanage resources, accelerate our soil loss and compound a global crisis—or we can shift towards a

simpler *whole-systems ecological approach to feed humanity and heal Nature*.

Sustainability is not just about a more ecological way to grow food, it is also about equality, social justice, and ecosystem and resource conservation. It is about creating a peaceful and livable biosphere. It is about giving future generations a chance to move forward as times become more challenging, and as our ecologies and climate become more fragile. The GROW BIOINTENSIVE® (GB) method was developed so almost anyone, anywhere can use it. It is based on techniques developed over the course of human history by cultures around the world; most notably, it has its roots in the Biodynamic French-Intensive Method taught by Alan Chadwick who believed that *as individuals breathed life back into the soil, they breathed life back into themselves*. He taught that through horticulture we can connect with our deeper selves and achieve world peace.

The “best practices” of agriculture are assembled in the GB Method as a whole-systems approach to addressing the challenges we face today. This approach is skill-intensive, not labor-intensive, and the skills are easy learn. GB enables communities to conserve resources, decrease waste and pollution, increase efficiency and productivity and enhance local ecologies as they grow their own food. GB helps individuals meet their dietary needs in a sustainable way locally, while also allowing our biosphere to regenerate and heal.

As we look directly at the challenges confronting us, we become more clear-minded, and we can see that we already have the tools we need to begin creating solutions. GB can help communities create a better world by focusing on one powerful thing that each of us can do, right now: **grow a beautiful, abundant and sustainable garden**. After all, what could be more fun, challenging, and exciting than growing the future? ...{full article online}



Soil Science Spotlight: The Dr. John Doran/ USDA Soil Quality Test Kit Guide, Part 5

By John Beeby (growyoursoil.org)

Ecology Action Soil Fertility Advisor

Soil testing and the correct use of organic amendments are important to GROW BIOINTENSIVE, and the "Soil Science Spotlight" introduces this topic to the GB community. This is an excerpt from a longer article which you can read at growbiointensive.org/Enewsletter.

In parts 1-4 of this series, I introduced Dr. John Doran's *USDA Soil Quality Test Kit Guide* (bit.ly/DoranSoilTest), and discussed the *Guide's* tests for infiltration, bulk density, physical observations, aggregate stability, earthworms, soil respiration and pH which you can read at growbiointensive.org/SoilScienceSpotlight). In this issue, I want to talk about another of the *Guide's* tests: **electrical conductivity**.

Plants largely take up nutrients in *ionic* form, as negatively or positively charged atoms or molecules.

- Nitrogen is taken up as either *ammonium* (NH_4^+) or nitrate (NO_3^-). Ammonium is a molecule consisting of one nitrogen atom surrounded by four hydrogen atoms with an overall positive charge of +1. Nitrate is a molecule consisting of one nitrogen atom and three oxygen atoms with an overall negative charge of -1.
- Sulfur is taken up as sulfate (SO_4^{2-}).
- Iron is taken up as Fe^{2+} or Fe^{3+} , and there are many more nutrients (calcium, magnesium, zinc, manganese, etc.) that could be listed.

Collectively, all of these agriculturally important ions can be referred to as *nutrients* or *ions*, but they can also be referred to as *salts*. When discussing soils, these terms are used interchangeably.

A fertile soil has an abundance of nutrients in available ionic forms, typically suspended in the soil's water, so that when plants need them, they can get them. However, as with all things, there can be too much of a good thing. *Salinity* is what happens when there are too many ions or salts in the soil. When most of us think of "salts", we probably think of table salt, what we add to our foods to improve flavor; but table salt (sodium chloride or NaCl) is simply one type of salt that exists in soils. As with all salts, when dissolved in water NaCl becomes two distinct ions, *sodium* and *chloride* (Na^+ and Cl^-). When we refer to salts in soils, we are referring to

all salts, all ions, all nutrients, not just sodium and chloride. In fact, when a soil has a high content of sodium, based on its saturation percentage or the percentage of cation exchange sites it occupies, that soil is referred to as "*sodic*" not "*saline*". In contrast, a *saline* soil's distinct property is an *excessive amount of total salts or ions* (not just sodium).

The main trouble with too many ions in a soil is that plants growing in that soil have a more difficult time taking up water. Plants, like all living things, need water to grow and thrive, and they need the nutrients that come along with that water. The reason that plants can take up water from the soil is because of a physical force called *diffusion*. Diffusion is a physical property that we can see all around us. For example, when we are cooking in our kitchen, aromas spread through our living area because *molecules in high concentrations* (such as aromatic molecules in the kitchen) *want to move into areas where there is low concentration* (such as the rest of the home). As a result of this diffusion, over time everyone in the home can smell what is cooking in the kitchen! Water in the soil tends to have much fewer salts than the water inside a plant's roots. So, water in most soils has a *high concentration of water molecules relative to the number of salt molecules in the soil*, and that water will naturally move into *roots that have a lower concentration of water relative to its salts*. However, if the concentration of water and salts is similar between soil and plant—which occurs with a saline soil or a soil with high concentration of ions/nutrients/salts—then the plants cannot take up the water they need and become very prone to wilting even when the soil is not dry and has available water. Plants without sufficient water become less vigorous, more prone to pests and diseases, and unable to reach their yield potential. For this reason, soil salinity has been a major cause of the decline of past civilizations (Mesopotamia and the Vinu Valley of Peru) and continues to affect 25-30% of irrigated land in the world.

You can determine if your soil is saline, or close to becoming saline, with an electrical conductivity (EC) meter, which measures the water's ability to conduct electricity. Pure water (H_2O) is a very poor conductor of electricity; it is only when it has ions (positively or negatively charged elements) or salts in it that electricity can pass through it more easily. The more ions there are in water, the easier it is for the water to conduct electricity. An EC meter is a

relatively inexpensive tool that is essential for anyone working with soils, particularly in arid or semi-arid environments. In such environments, there is often not enough natural precipitation to leach excess salts (which may have accumulated due to fertilization or simply due to capillary action bringing water to the soil surface where it evaporates and leaves the salts it carries on the soil surface) past the root zone. In more humid environments with more precipitation, salinity is much more infrequent, since rain and snow-melt naturally moves *downward* through the soil, carrying excess salts with it. Soil salinity is also more of a risk in clayey soils in drier climates compared to sandy soils in drier climates, since clayey soils will not leach as easily and are more prone to water movement through capillary action.

To determine the electrical conductivity of a soil or water, you can either send a sample to a laboratory for testing or you can do it yourself. For instructions on taking a soil sample and submitting it to a lab for testing, see www.growyoursoil.com.

To measure electrical conductivity yourself, you will need an EC meter and at least one calibration solution, typically a 1.413 dS/m (decisiemens per meter) solution. EC meters are relatively easy to use, but they do require calibration to ensure they are reading accurately. Most electrical conductivity meters come with instructions on how to calibrate them with 1 or 2 calibration solutions, and how to use them once they are calibrated. In addition, their instructions will describe the care needed to maintain the probe and solutions to ensure accurate results for many years to come.

To measure the electrical conductivity of irrigation water, simply calibrate your EC meter, place the probe in the water, and take the reading.

To measure the electrical conductivity of a soil, you will also need a small measuring cup (something like 1/8 cup or 30 ml), a container with

lid (about a 1/2 cup or 120 ml, or slightly larger), and a small amount (1/8 cup) of distilled water:

1. After calibrating your EC meter, take a representative and composite soil sample. If you are not sure how to do this, check out www.growyoursoil.com/sample.
2. Use your 1/8 cup scoop to transfer that amount of sampled soil to your larger container.
3. Add an equal volume (1/8 cup) of distilled water to the container (to make a 1:1 dilution of soil:water), seal the lid, and shake it vigorously at least 25 times.
4. Wait 15 minutes for the soil to settle, and then place the EC meter into the soil water mixture.
5. Take the reading while the soil particles are still suspended in the mixture, and you can use the meter to stir the water to keep in suspension. Do not immerse the EC meter below its maximum immersion level which will be indicated on the meter.
6. Allow the reading to stabilize (stays the same for about 10 seconds) and record the reading. If needed, convert readings' units to dS/m (see below for conversion factors).

To evaluate your measurements and determine if irrigation water or a soil is saline:

1. First, you need to understand the units of the measurement. Electrical conductivity can be expressed in several units which are listed below:

dS/m (decisiemens per meter) = mS/cm (millisiemens per centimeter) = mmhos/cm (millimhos per centimeter)

dS/m (decisiemens per meter) x 1000 = μ S/cm (microsiemens per centimeter...)

... {Continue the online at growbiointensive.org/Enewsletter}



Soil Science Spotlight

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

Certified STAARs (Soil Test Analyst and Amendment Recommenders) for Your Soil!

By John Beeby (growyoursoil.org)

Ecology Action Soil Fertility Advisor

Want expert advice on improving your soil? The **STAAR (Soil Test Analyst and Amendment Recommender) Program** is an extensive online training process covering foundational soil science and focused on small-scale sustainable agriculture, as well as multiple case studies of soils and farms all over the world. The program is “growing” soil scientists and experts, and has produced its first three certified STAARs: Liliane Spendeler from Spain, Guillermo Barriero from Spain, and Matt Drewno from the United States. Please see below for information about each one and how you can contact them to help you improve your soil. Other current students in the program are from Canada, the United States, Mexico, Scotland, Guatemala, Kenya, Nicaragua, Spain, Portugal, Ecuador, Nepal and Peru.

Before a soil can be improved, it—as well as the farm site, farmer resources, farming method, climate, and region—must be understood. Certified STAARs are trained to understand a soil based on soil laboratory testing, but if that is not available, they are effective at understanding what a soil needs—and just as importantly, what it does not need—based on soil quality testing and cultivated and wild plant observations, which require less cost to the farmer.

As we have more and more certified STAARs, Ecology Action hopes to gain funding to be able to advertise their services on *Read Your Soil* (readyoursoil.com) so more people can gain access to soil experts and improve their soils, wherever they are in the world. As our soils continue to lose fertility at an alarming rate, and arable land per person continues to decline, these skills and services are needed now more than ever.

The Certified STAARs



Liliane Spendeler grew up on a farm in the French Alps. After receiving her PhD in physics, she moved to Spain and worked for twenty years for an environmental organization. In her fifties she decided to move back to the countryside, in a small village of Spanish Pyrenees, with the goal of producing her own food. At the same time, she had the opportunity to learn

about GROW BIOINTENSIVE and to become a Soil Test Analyst and Amendment Recommender. She is now combining her work at the environmental organization and her dedication in cultivating her garden biointensively. With her partner over the next few years, she plans to transform a small farm with a vineyard, grain crops, and garden to become regenerative and sustainable, with guidance and trainings offered to other farmers. Liliane can be contacted at lspendeler@gmail.com



Guillermo Barriero is from Spain, but lived part of his life in Central America where, in 2014, he learned about GROW BIOINTENSIVE and began to grow his own food. Guillermo gained his basic-level GB Teacher Certification in 2016,

and his intermediate-level Certification in 2018. He now lives in Galicia (Northwestern Spain) where he established *O Torno Biointensive Garden*. Guillermo has also participated on the Ecology Action 8-Month Internship with John Jeavons and Matt Drewno. Now, Guillermo is part of the Cooperative “*A Milpa do Salnés*” which is promoting GROW BIOINTENSIVE in Spain. He manages *O Torno*, participates in GB research, and offers workshops and consultancies on GROW BIOINTENSIVE and improving soils as a certified STAAR. Guillermo can be contacted at Guillermo@amilpadosalnes.com; Web: amilpadosalnes.com; Facebook: [amilpadosalnes](https://www.facebook.com/amilpadosalnes); Phone: 0034 656955330



Master-Level GB Certified Teacher *Matt Drewno* runs Ecology Action's Victory Gardens for Peace (VGFP) Initiative in Mendocino, California. He manages the VGFP Research and Education GB Mini-Farm, curates a free Community Seed

Bank with over 1,000 accessions, offers local and international GB training programs, and teaches a GB gardening course at the local community college. He is excited to incorporate affordable and accurate soil testing into his work to help others manage their soils more effectively and sustainably. Matt was fortunate to receive a scholarship to attend the first 3-year STAAR Training Program and is grateful for all the patience, wisdom and great information John Beeby provides his students and also to John Jeavons and donors, who made this opportunity possible. Matt can be contacted at Matt@victorygardensforpeace.com. •

Mt. Tabor Monastery Grows with GB

By Ecology Action Staff

Holy Transfiguration Monastery in Redwood Valley, CA, originally established in 1972 as "The Monks of Mt. Tabor" and later re-named, is a contemplative community and part of the Ukrainian Greek-Catholic Church. The monks endeavor to follow the advice of St. Seraphim of Sarov, "*Acquire inner peace and a thousand souls around you will be saved.*" The church is open to all, and one does not need to be Ukrainian to join the monastery or attend church services.

The Monastery's Brother Zacharias participated in our 2023 Online 8-Month Internship Program and this year, working with a poor soil and limited water, he and his fellow monks have established a truly inspiring mini-farm on the monastery grounds with a wonderful range of crops including: late-planted wheat, squash, lettuce, arugula, onions, and garlic, as well as potatoes and corn, (pictured below) with excellent results. The Mt. Tabor Team are learning well together, and sharing their GB knowledge with their church as well as visitors to the monastery. Over time, Brother Zacharias also hopes to learn from the nearby tribe of Pomo Native Americans. ●



EA Africa Partner G-BIACK Celebrates World Environment Day

From <https://www.facebook.com/gbiack>



Happy World Environment Day!

On June 5, the G-BIACK (GROW BIOINTENSIVE Agriculture Centre of Kenya, gbiack.org, gbiack.netlify.app) team celebrated by getting our hands dirty for a good cause! We planted a variety of fruit trees at the center, contributing to a healthier environment and a more sustainable future. Planting trees is a fantastic way to:

- **Combat climate change:** Trees absorb carbon dioxide, a major greenhouse gas.
- **Improve air quality:** Trees filter pollutants from the air, giving us cleaner air to breathe.
- **Promote biodiversity:** Trees provide food and habitat for a variety of wildlife.
- **Ensure food security:** Fruit trees offer a delicious and nutritious source of food.

What are you doing to celebrate World Environment Day? (Hint: you can celebrate any day you want!) ●



Creamy Vegan Caesar Dressing and Almond Parm-Dust

By Shannon Joyner, Garden Companion Editor

Garlicky, creamy, and tangy, this delicious vegan dressing is an improvement on ordinary Caesar dressing, which can be heavy. Instead of eggs and oil, raw cashews are blended with water into a rich, creamy sauce; capers, mustard, and miso fill the umami niche instead of anchovies and parmesan; lemon juice and vinegar add fresh tanginess; and garlic gives it a spicy bite. Use it as a dip or spread, or for the traditional Caesar experience, toss with crisp chopped romaine lettuce (or kale) top with crunchy croutons, a sprinkle of vegan almond parm-dust, and a squeeze of lemon. Yum.



Creamy Caesar Dressing

- 3/4 cup raw cashews**
- 1/2 cup hot (not boiling) water**
- 2 garlic cloves, chopped**
- 2 teaspoons capers**
- 1 tablespoon vegan Worcestershire sauce**
- 2 teaspoons Dijon mustard**
- 1 teaspoon white miso paste**
- 1 teaspoon white vinegar**
- juice and zest of 1 large lemon**
- ~1/2 teaspoon salt (to taste)**
- 1/4 teaspoon freshly ground black pepper**

Add cashews and water to a blender and soak for 5 minutes. Add the rest of the ingredients and blend until smooth. Taste and adjust seasoning. Add a little more water if it's too thick. Makes ~1 cup of dressing. Store in refrigerator, stir before using.

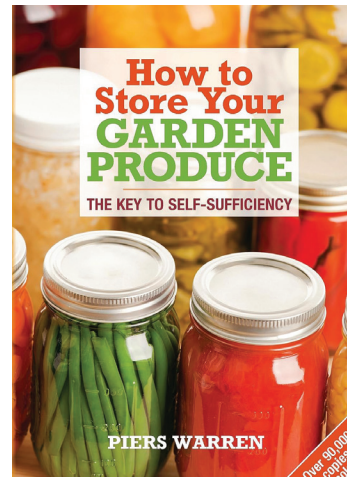
Almond Parm-Dust

- 1 cup almond flour**
- 1 vegan bouillon cube**
- 1/4 teaspoon brine from capers**
- Pinch of salt (to taste)**

Mix all the ingredients (but hold off on adding salt until you taste it, some bouillon cubes are saltier than others) together until completely incorporated. I use a mini-blender with brief pulses. Sprinkle on anything that needs a bit of savory deliciousness. Store in refrigerator. ●

Book Review: How to Store Your Garden Produce: The Key to Self-sufficiency

By Piers Warren, Reviewed by Mary Zellachild



“There is a huge sense of satisfaction in being so self-reliant that you can grow fresh fruit and vegetables all year. With less than an acre, you can cultivate enough produce to feed a family of four for an entire year – but as most produce is ripe in the summer and autumn, most of it will go to waste without proper storage. This book is a modern guide to storing and preserving your garden produce, enabling you to eat home-grown goodness all year round. It is beautifully organised with the first part detailing a variety of creative storage methods, including basic storage, clamping, drying and vacuum-packing as well as pickles, chutneys, cheese, jams and jellies. The book also features an easy-to-use A-Z list of produce, in which each entry includes recommended varieties, suggested methods of storage and a range of delicious and unusual recipes to try out...” (Amazon)

As summer gets into gear and our gardens begin to produce, thoughts turn to preserving the harvest, and *How to Store Your Garden Produce* contains a lot of useful information on this topic, packed into a small space. Descriptions of 14 different storage techniques—including “clamping” and “vacuum packing”—are brief but complete. Fruits and vegetables from apples through turnips each have their own section. Many of the recipes may prove to be an unfamiliar but enticing eating experience for gardeners in the US. This book is straightforward without a lot of filler.

One criticism: in the canning section, it mentions using the oven. The oven canning process is not safe according to the USDA and numerous other sources (for example extension.psu.edu/say-no-to-oven-canning), as it does not reliably allow the temperature to get high enough to kill bacteria that cause spoilage and illness, and it can cause also glass bottles to shatter. For up-to-date information on safe canning methods, visit the University of Georgia’s National Center for Home Food Preservation’s at: nchfp.uga.edu/how/can. ●

Notable EA Awardee Reports

Project Report Highlights from 8MIs Angel Lopez, Nereida Sanchez & Hermana Esperanza (2023-24)

Angel Lopez, Tecate, Mexico

As weather begins to slowly change to warmer days but still cool nights we've been taking full advantage of our new greenhouse. We started flats for some of our last cool-season crops, but also a bunch of new warm season crops: broccoli, spinach, four varieties of squash, tomatoes, tomatillos, cucumbers, sunflowers, chiles and herbs/flowers such as basil, lemon bee balm, lavender, zinnia, cosmos, alyssum and more. Our winter fava beans (*San Ildelfonso*) from *Native Seeds* have started to fruit and we can see the complete fava bean forming. This is a small bed (2m²) because it was all I was able to get in 2023 from *Native Seeds*, so this whole harvest will be saved to plant a full bed at the end of the year.

April 14 we planned a GB activity at our friend Jorge's. He has been participating at our volunteer GB events for the past few months and it was our time to help him with his garden. Twelve people signed up, but many canceled due to rain the previous night. We still were able to get a group of 8 involved which was plenty to get two beds double-dug and transplanted. Our communication with Jorge is strong and we have accepted him as part of our family and of the community that's forming because of their continued interest in sustainable agriculture.



We took a trip to the city of Tijuana to visit the university where we planned a 3-day GB workshop. We thought it'd be important to grab some soil and check out the quality and type of soil we'll be working with. This soil has very little organic matter, there's a big layer of small rocks (maybe from pre-

vious constructions that took place there), and the soil has a silty-clay texture from immediate observations. We took a bucket of the soil to start testing with added compost so we can start flats for their future garden at the end of May.



Jerusalem artichoke planted (6m² bed) in February during the rainy days is now 3 inches tall, doing great with no water added yet. This crop does really well with no water in its first growth phase, will keep monitoring to see when it starts to need water.

On April 21, we planted our corn directly on the bed in the form of a ritual where we were also able to cook and eat some of last year's corn in the process. We planted 9m² in total, the first of three varieties of corn we are planting this year. It is a white corn, the same we planted last year with seeds from *Native Seeds*, but this time we were able to mix our own seeds saved from last year's harvest. We spent the day working the soil doing the double-dig, adding compost and amendments. Once the soil was ready, we started cooking in our wood-fire kitchen. We made tostadas, sopes, tortillas and tetelas all from last year's harvest of corn with the "Nitxtamal" technique. It was quite a spiritual experience, because last year's labor finally paid off in this meal, and to be able to share it with some of our closest friends made this event more significant, and to say the least it was delicious.



Since we are opening garden-space for ten new 100 sq. ft. beds we hope to test the soil if funds are available. In May we will visit The Jeavons Center and VGFP, and look forward to seeing you and meeting the whole team. May 18th is our first public event "Introduction to GB" with brief topics of DD, flats, transplanting and compost, will report how it all goes. Also, our 3-day training at the university is at the end of May! So happy to be doing this work. Thanks John, big hug!

...{continued on page 12}

Notable EA Awardee Reports (continued)

Nereida Sanchez, Jalisco, Mexico



April 3-6 Our first free Biointensive course was attended by three university students on spring break. This “learning experiment” helped us encourage students to apply to learn over the summer. It also provided data to plan for future courses: some people are unfamiliar with fieldwork, lack strength to double-dig, or don’t know

about compost piles. What was good is the great interest young people have in cultivating the land; growing food to improve their health; concern for the environment and a desire to improve it—and that they realize GB is a good solution. We wanted to test this 5-day workshop model to see if we can teach GB principles and have everyone finish a growing bed. In 4 days, we went through compost, germination, growing bed preparation, transplanting, and open pollinated seeds, and shared this free online manual: biblioteca.semarnat.gob.mx/jani-um/Documentos/Ciga/Libros2013/CD001599.pdf

April 12 A school visit from an area in Guadalajara City with greater economic resources; we agreed on a cost affordable to them and good for us, so we can continue providing free activities for children in our community. 21 girls, 17 boys (13- 14 years old) and 5 adults attended, and learned about GB.



April 11 & 18 University students studying agronomy, economics and sustainability at the Technological Institute of Tlajomulco visited (39 men, 15 women and 1 teacher). Their ecology teacher brings students every semester, so they can see a self-sustaining project. They are taught to work for companies that use agrochemicals; that the economy lives at the expense of farmers; and that “sustainability” is producing cheaply—so they normally do not think in the long-term. So, we want our time with them—the garden tour, tasting our products—to be meaningful, and for these future professionals to see value in ethics and ecology. The support Ecology Action gives us enables this teacher and her students to visit us for free, as the students can’t/won’t pay. In contrast, agrochemical companies pay students to visit, and give them gifts, hoping for future employees. Against this, the teacher looks for alternatives.



April 19 & 25 A primary school in the community heard from the preschool about our activities which led to four groups of 6-13 years visiting us (60 girls, 59 boys, 48 adults (teachers and parents, also interested in our work)). The younger ones toured the farm and tasted garden produce. The older ones learned and practiced GB: viewed and smelled compost, learned about planting in growing beds, tasted leafy vegetables, and ended with a dialogue about our community, how to care for it and contribute to improving our health and our environment.

April 19 We formalized a group from the *Mujeres de mi Tierra Community Center* of more than 20 mothers of preschool and primary school students who have visited us. We are preparing space to receive them, starting with making compost in the Center’s garden and each woman starting to compost at home. We begin May 18, meet every third Saturday of the month, a class on Biointensive cultivation and garden work, and follow-up every week.

Tuesday April 23 Monthly preschool visit (82 girls and boys, 6 teachers) prepared a gift for Mother's Day (plant a pot with fast-growing flower seeds) and to learned with this activity. The theme of the day was **LOVE**: love for our mother, our land, and everything that surrounds us. The visit raised awareness about plant care, the constancy of love and constancy in watering, and that love and plants grow—and we have replacement plants just in case.

April 27-28 Invited to give two children's workshops at the *Native Fruits and Seeds Festival* in El Limon. Adults participate too, and learn to protect our environment. We made seed bombs with native local flower seeds and clay, and discussed how they could fill the town with native flowers and provide food for pollinators. In El Limon, diseases caused by agrochemical use have been detected in children, and several people already promote GB constantly and locally to improve their diet and health.

Also in April I had the opportunity to go to Costa Rica, and visited Ligia Espinoza (2014 EA Intern growbiointensive.org/Enewsletter/Summer2017/Ligia.html), who showed me her farm and all her great work in her garden, getting to know her climate and ways of working in her community. This thanks to the *International Meeting of Biointensivists*. In April we trained a total of 376 people. **THANK YOU FOR ALL THE SUPPORT TO MAKE THESE ACTIVITIES POSSIBLE.**

Hermana Esperanza, Tijuana, Mexico

In this month of March we were able to continue with the spring-summer rotation, since this year the winter has lengthened, which has allowed us to have more time for the seeds and tubers to be ready for transplanting. We prepared the beds for planting potatoes, radishes, peas and tomatoes. We have been taking care of our chili, cilantro, pea, and lettuce seedlings, which still need to be transplanted.



In each workshop we make layers of compost, so children and adolescents already know that in the **SUMMER 2024**

garden everything is used and that compost is essential to have good harvests and helps us to be grateful by returning to the earth what it gives us.

Additionally, this month we were fortunate to receive a group of 80 students from the *Madre Teresa de Calcutta Free University* in Tijuana, Baja California, who are preparing to be primary and secondary teachers. We teach them the basic principles to make Biointensive school gardens. We feel very satisfied to see them so happy and eager to teach this to their students in the school program.



We continue to marvel every day at everything that God gives us in nature, and we do not stop sowing these seeds of love, culture and ecology in others, especially in those who are less favored in the eyes of the world. Thank you, John Jeavons and Ecology Action, for being part of our noble mission. Thank you for letting God act in us through your valuable support. God bless you; we love you very much. We hope to see you soon. ●



Summer Gardening: The Right Plants in the Right Location

Adapted from the Bountiful Gardens Archive



As empty spots appear in the garden, they fill up with weeds: more work for you, and less return for your effort. Garden books suggest sprinkling some lettuce seed in the gaps, as a "catch crop." Great concept—except that lettuce hates to sprout in hot weather. Books also suggest having flats of seedlings ready to plant when a gap appears, which is not realistic for most of us. We like to use a real-world combination of the right plants and the right location: the key is creating microclimates by layering sun-lovers above and shade-lovers underneath, just as nature does.

Say you have a bed of broccoli or lettuce. As you cut the veggies, bare spots appear. If you scratch in a few seeds for *heat-adapted crops* like orach, purslane, amaranth, or squash, they'll cover the ground quickly and you'll have a healthy, juicy crop to harvest. Learning how to use a bumper crop of an unfamiliar heat-lover is better than watching weeds choke out a few bitter, stressed, cool-weather crops like lettuces, or radishes. Using the right crops makes it easy, if you're willing to try something new.

Creating the right location is mostly a matter of pairing tall sun-lovers with short shade-lovers. Carpet the ground under and between your taller plants with varieties that need protection from direct summer sun. Any plant that tends to have problems with bolting, tip burn, scorching, sun-scald, or bitterness when grown in hot sun is a great candidate for the understory layer. Beets, lettuce, cucumbers and arugula do well under tomatoes; cilantro and greens thrive under corn. Less room for weeds, more food

for you! Smaller plants that love sun are best placed to the south of your tall sun-lovers. That is where the hot sun will slant in. Plant basil on the sunny side of your pepper plants to protect the peppers from sun-scald.

The Three Sisters

This "high-low" planting theme isn't new: home gardeners are rediscovering the "three sisters" garden that fed North America for hundreds and probably thousands of years, which follows the same model.

Indigenous peoples in several regions grew all their own staple foods using hand tools and traditional methods, using plants native to the Americas and adapted to grow well here, particularly corn, beans, and squash. Like sisters, these three did not grow in isolation, but together. Each gave something to create the best conditions for all to thrive. Because the sister crops were the staff of life, they are the focus of legends, songs, and ceremony. In some regions, a fourth sister might be included: in fertile areas like the midwestern US, it would be the sunflower; in drier areas, local basketry or pollinator crops like sunflowers might be planted; while zinnias might be grown among the squash to attract pollinators.

The three sisters work in home gardens now for the same reasons they worked then: they produce big yields without mechanized equipment; they provide a well-balanced diet; they are easy to grow, harvest, and store. They are delicious both fresh and as dry staples. And the way they are grown as companions, forms a little ecosystem within the garden:

- The corn makes a trellis for the beans to grow on, its deep roots break up the soil for the weaker bean roots, and the sugars in the sap of the corn plant leak out into the soil a little bit, giving other plants—as well as beneficial soil microorganisms—energy for growing.
- The nitrogen-fixing microorganisms that inhabit the bean roots use that corn-sugar energy to pull nitrogen out of the air and fertilize the soil, feeding the nitrogen-loving corn and squash.
- The big, sprawling squash leaves provide a living mulch that keeps the ground moist, and the low-growing blanket of vegetation makes a sunny clearing that smothers weeds while allowing the higher-growing corn and beans to get the sun they need.

The corn is planted in a circle, fairly well spaced. Pole beans grow up the corn. Squash carpets the ground outside the circle. Since all of these are sun-lovers, they need to be spaced fairly widely for the sun to get in.

Three sisters plantings traditionally focus on flour corn, drying beans, and winter squash—crops that can be stored over the winter, and do well with a long growing season and hot weather. However, in short-season areas, or places with cool summers, a faster-growing, fresher alternative is to use sweet corn, green/string beans, and summer squash.

The three sisters model can be adapted to use other plants as well: sunflowers and amaranth can replace the corn. They still provide a tall trellis for beans, produce plant sugars during the hot days, shade the beans just a little, and benefit from the nitrogen from the beans and the moist soil under the squash. Corn, amaranth, and sunflowers are what scientists call “*C-4 photosynthesizers*” which means they have a metabolism that can use sun that is too strong for other plants to produce sugars through photosynthesis on hot days when other plants shut down.

You can also use the shade among the squash plants to shelter *brassicas* like kale and collards from the heat when they are young transplants. The strong smell of the *brassicas* confuses pests who might be looking for squash, and they go on to make a winter crop once the squash has finished.

The key to creating a “sisterhood” in your garden is to use plants that prefer the conditions created by the other plants in the group, and give some benefit to the others as well. ●

SUMMER 2024

The Guardian: Blue corn and melons: meet the seed keepers reviving ancient, resilient crops

The following is an excerpt of an article published in The Guardian in April 2022 which you can read in its entirety at <https://www.theguardian.com/environment/2022/apr/18/seed-keeper-indigenous-farming-acoma>. The resilient heritage crops developed by indigenous peoples evolved to thrive in sometimes extreme climates and soils, and are a vital part of building food security and an adaptive agro-ecosystem. We applaud those doing the work of reintroducing these crops to their people. GROW BIOINTENSIVE projects across the globe support the free exchange of open-pollinated & heritage seed varieties!

On a windy winter day in Acoma Pueblo in north-western New Mexico, Aaron Lowden knelt beside a field near the San Jose River, the tribe’s primary irrigator for centuries. “*The soil has been building up,*” said Lowden, an Indigenous seed keeper and farmer, pushing his hand into the soft, dark dirt at the base of a stalk of dried Acoma blue corn. In the summer, this otherwise dry stretch of land turns into a “food forest”, said Lowden, pulling up a photo on his phone showing lush rows of corn, intercropped with Hopi yellow beans, and Acoma winter squash – the “three sisters” of Pueblo agriculture.

On the edges of the field are giant heirloom sunflowers – used to attract pollinators – and rows of amaranth. “*By companion cropping, you’re replicating those systems you see in nature,*” said Lowden, describing the traditional Indigenous practice of interplanting crops to deter weeds and pests, maintain moisture and enrich the soil. “*This is thousands of years of knowledge passed down,*” he added.

For the past decade, Lowden, 34, has worked to restore traditional crops and farming practices in Acoma. As program director for *Ancestral Lands*, a non-profit that supports land stewardship in Indigenous communities, he reintroduced traditional Acoma crops into the community and created a bank of 57 arid-adapted seeds native to the region. His work is part of a broader movement to build food and seed sovereignty on tribal lands amidst staggering global biodiversity losses created by the modern agricultural system and growing food insecurities caused by climate crisis. “*It’s so important that we can bring back our seed diversity,*” said Lowden... “*To stop monocropping and bring these resilient seeds home.*”

...{full article online} 15

ECOLOGY ACTION'S GARDEN COMPANION

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ECOLOGY ACTION EVENTS: 2024

Dear GROW BIOINTENSIVE Family,
Our schedule (subject to change) of public events
is as follows.

Onsite Garden Tours:

VGFP on Oct 12, 2024 • TJC on Oct 13, 2024
9AM-4PM

<http://growbiointensive.org/tour>

Online Fall 4-Saturdays Introductory Workshop:

Nov. 16, 30, Dec. 7, 14, 2024

growbiointensive.org/workshop.html

Our full 2024 schedule of events:

growbiointensive.org/events_main.html

or call 707-459-0150

Watch our 2-Week Farmer Training Course:

vimeo.com/ondemand/ecologyaction

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