



“The real voyage of discovery is not in seeking new landscapes, but in having new eyes.” — Marcel Proust

“The best way to predict the future is to create it.” — Peter F. Drucker

January 2023

Dear Friends,

Happy new year from all of us at Ecology Action! On frosty winter mornings, everything is so quiet in the garden here at The Jeavons Center. The creatures that make the world rustle, squeak, and chirp from before first light in the warmer months are nestled in their dens, or have flown south for the winter. Other than me, there’s one lone crow up, perched in a pine tree, calling out, over and over, a questioning “CAW?” across the frozen mountain.

Sometimes it’s easy to feel like we’re working alone. Ecological and financial challenges, coupled with the physical isolation of the past few years, can sometimes make it seem like we’re the only ones in the world. **But that’s not true.**

In my upcoming book *The Next Steps*, I reference something Wendell Berry said: *“The care of the Earth is our most ancient and most worthy, and after all our most pleasing responsibility. To cherish what remains of it and to foster its renewal is our only hope.”* Berry writes in a way that resonates with me, about the counterpoint an agrarian lifestyle can provide to the challenges of divisiveness, anxiety, and isolation that our world can present. It resonates with me because in the letters, reports, and personal communications I receive from our GROW BIOINTENSIVE Global Family, I see, over and over, the positive, hopeful, transformative power of our agrarian life-work. **Separated by geography, we are nevertheless together, as one, “caring, cherishing and fostering the renewal” of our home, the Earth, and creating fertile soil right where we are.**



Every Biointensive practitioner—and each person they teach or demonstrate the GB method to—is part of a widespread reawakening to the fact that growing food and soil sustainably, of becoming attuned to the **LIFE** energy flowing through the plants that feed us, of caring for the Earth—even one small garden at a time—is powerful, and essential. Ecology Action has known this truth for a long time, and season after season for over half a century, we have been joined by optimistic, enthusiastic, caring, strong, and powerfully motivated people determined to grow a better and healthier future for themselves, their families, their communities, and our planet. And like seeds planted in fertile soil, this vision and work is coming to fruition: **where Biointensive goes, hunger and poverty retreat, and peace and well-being spring up in their place.**

Now, even as we confront a world that can make us feel distracted and alone, we all need to focus on *“our most pleasing responsibility”*. Because we are *living a paradigm shift* to a more sustainable way of life, and the work we are doing is making a difference: the interconnected challenges of hunger, resource scarcity, declining soil fertility, and climate disruption can no longer be ignored. Political groups, international organizations, scientists, NGOs, farmers, and activists are resonating with what we have been saying for decades, and what I see in every report I receive from Biointensive practitioners globally: **small-scale biologically-intensive food-and-soil-growing is our best hope for creating solutions to the challenges presented by climate change, hunger, and poverty.**

Compared to conventional farming methods, GROW BIOINTENSIVE® (GB) saves a huge amount of water, builds soil fertility 60x faster than nature, increases food and biomass yields and income, reduces or eliminates inputs and energy use across the board, efficiently sequesters carbon to reduce global warming, and helps protect wild lands from agricultural impacts. **No other method has the potential to provide all these benefits—sustainably and affordably for almost everyone. The ongoing challenges created by climate change, the pandemic, and global inflation show this even more clearly, with Biointensive gardens providing food and livelihoods when other sources falter.** Each person who participates in our programs creates a positive ripple effect as they grow food and teach GB to their neighbors. As these grassroots training networks develop, they not only strengthen local people and communities and ecosystems, but they also provide solutions to some of the most serious challenges facing us all.

Through our work and that of our partners, millions of farmers, educators, government officials, and concerned citizens are being trained directly and through farmer-to-farmer training initiatives. The result: over 10 million people are practicing Biointensive agriculture in 152 countries around the world. Each garden planted, each person educated, is another root filament in the resilient network that makes up our **Ecosystem of Hope**.

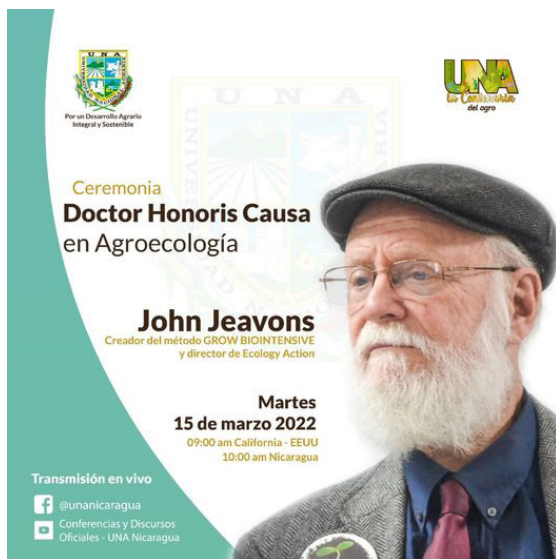
As challenges to food security and sustainable, healthy, *connected* living continue to grow, we continue to develop our programs to reach out to an ever-greater number of people. Together, we are leading the way to a better, happier, more just tomorrow through true, sustainable, regenerative food security for all.

From across the hillside, through the frosty morning air, a sleepy second crow, woken by its friend's insistent cry, finally answers a life-affirming: **"CAW!"** The joy and relief in the first crow's delighted response is apparent, even to this human: he's so happy to know that he's not alone.

And neither are we. It's good to work with you all.

Here are some highlights from our GB Family in 2022, and plans for 2023:

In the US and Online



Ecology Action Director John Jeavons was surprised and delighted to be awarded an **Honorary Ph.D in Agroecology by the Universidad Nacional Agraria (UNA)** of Nicaragua in 2022 (growbiointensive.org/Newsletter/Spring2022/tjc.html) and continues to work on his latest full-length book, *The Next Steps* (a sequel to be used in conjunction with the bestselling *How to Grow More Vegetables*), which we are hoping to have published this year.

The crops are growing well, and the soil at The Jeavons Center (TJC) Mini-Farm is healthy and fertile under the care of Mini-Farm Manager Melvin Castrillo. In particular, the growth of the large potato bed on the Upper Knoll is beautiful, with other crop areas (including corn, dahlias, and sorghum) thriving, too. Due to continuing drought (rainfall reduced to 20" in 2022 from our normal average of 45") we concentrated the active annual growing space this year to ~7,100 sq ft, plus a larger area devoted to hardy perennials. After having to import 10,000 gallons of water in 2021, we were able to increase our farm water reserve to

20,000 gallons from a nearby wellspring in 2022.

Suraya David Sadira is a capable Farmer Teacher-Trainer (FTT) and Assistant Mini-Farm Manager who joined us last year; Suraya taught classes on composting and herbs at our garden tour in July, and is specializing in growing dahlias and herbs, and continuing our ongoing 20-year data-gathering "Bed 21 Project": a comparison of plants grown in four types of plant-based compost with different C:N ratios.

Jessi Mickow is our newest FTT: she started with us in a temporary, part-time capacity, quickly transitioning to full-time, and is now interested in becoming a long-term Mini-Farmer at TJC. She is specializing in "low natural rainfall cropping" and in "Ultra" – a new method of accelerated learning and teaching designed to accommodate the accelerated interest in using GROW BIOINTENSIVE to grow food in a small space while using fewer resources. Jessi taught a double-digging class at our garden tour, inspiring participants with how simple and effective the technique can be.

Liv Dennen, a senior at University of California-Santa Cruz, returned to TJC for an additional 10-Week Internship in 2022 and did well at the mini-farm and with academic work, working part time as an assistant FTT. Liv has expressed an interest in becoming a long-term Farmer/Teacher Trainer in the summer of 2023.

In 2021, we established an experimental **10-Bed Unit (10-BU)** at TJC and maintained many perennials in our limiting serpentine soil and extreme water scarcity. Work on this project continued in 2022 as our FTTs refined the crops and timings for each diet design as the season progressed. In the 2022-2023 season, Melvin, Suraya, and Jessi will each grow out an updated 10-Bed Unit design based on this work, in which 65-day maturing Yukon Gold Potatoes and Oaxaca Green Flour Corn will stand out. Potatoes are an important crop because they provide good nutrition from a small growing space and are an important staple crop globally: 12% of calories, 8% of protein, and 18% of the calcium eaten worldwide are



The Jeavons Center Farmer Teacher-Trainer Team, 2022

provided by potatoes grown on only 2.4% of the cropland! 65-day maturing varieties provide the same yield as 120-day varieties which means fewer bed/crop months to harvest. At TJC, we begin sprouting potato starts on January 15, planting on February 15 on 9-inch offset centers, 6-inches deep, with sprouts emerging from soil on March 15, and harvesting beginning on May 15. Oaxaca Green Corn is a 3-month maturing variety that yields more calorie-containing seed in our cool nighttime climate than other varieties; it also tastes good and produces a good amount of dry biomass for composting. Corn is best planted at our site around June 15 and harvested around October 1. We are also experimenting with other timing.

Our **legume interplanting experiments** continue. We're finding it takes less time to grow the calories and compost material for a sustainable diet and soil by interplanting carbon and calorie crops (such as corn and sorghum, which provide both edible seed and carbon-rich compostable materials) with nitrogen fixing legumes (such as John's favorite, Woolly Pod Vetch, which has the capacity to fix up to 3 times more nitrogen than other temperate climate legumes, using much less seed and time to produce more nitrogen, which is needed for healthy crops and soil). Half a pound of nitrogen is needed per 100-sq ft bed per crop per season. We add compost to the soil each season, which provides about 0.25 lb. of available nitrogen, and use 4.4 oz. of Woolly Pod Vetch seed interplanted with the main crop in order to fix the remainder of the nitrogen from the air, harvesting the legume when it begins to flower and leaving the roots in the soil to release nitrogen to the other plants. Discovering all of this is enabling TJC to design a better 10-Bed Unit.

Our 2022 training programs included our 8-Month Online Internship program with sixteen participants ranging from Mexico, Nicaragua, Guatemala, California, Nepal, Kenya, and Texas, plus an onsite summer intern from California (UC-Santa Cruz Student Liv Dennen, at TJC); and an 8-Month High School Intern, Francesca Mills at VGFP. It really is amazing to see how even things as terrible as COVID-19 and the lockdowns it brought with it can have lasting positive impacts like the inception of the online internship program. While attending live classes from 4:30 p.m. to 1:30 a.m. in some time zones is a huge commitment from the interns living on the other side of the world, it still amounts to less expense, effort, and carbon output than leaving their families and communities for eight months at a time to come learn physically with us here in California.

Master-Level GB Teachers **Director John Jeavons** and **Victory Gardens for Peace Mini-Farm Manager Matt Drewno** lead the internship classes via Zoom. In addition, small groups meet outside regular classes, a practice that became a critical part of this year's internship, as our partners in Mexico (**ECOPOL/EI Mesquite**) set up what they call *The Learning Circles*, Spanish-language group sessions, especially useful for participants who are still growing their English language skills. English-speaking Interns also meet online weekly with **Dr. Susan Craig** (an Ecology Action associate in Willits) to ask questions and to reflect on key readings. In this way, we are using technology in exciting and creative ways, and looking forward to working with more interns in 2023.

Our spring and fall **4-Saturdays Online Introductory GB Workshops** included participants from all over the map (another positive impact made possible by bringing our training programs online): Tennessee, Canada, Spain, California, Bermuda, Germany, Malaysia, and France. Our well-attended onsite **Summer Tour of TJC** attracted 12 participants from California, with a good range of ages and lots of interesting questions—two brought first editions of *How to Grow More Vegetables* for signing!

Many of the changes we have implemented over the past few years have become a permanent part of teaching and interacting with our global network of farmer-trainers and farm leaders. More people can attend our programs remotely than could ever do so if we only had in-person courses, and the lasting digital record of the classes will be valuable teaching tools for generations to come. There is truly nothing like our GROW BIOINTENSIVE Online Internship—covering in such depth and breadth such a wide range of topics and questions on sustainable closed-loop Biointensive farming—available anywhere else in the world. Those interested in applying to our 2023 online 8-Month Internship program can find information and registration at: growbiointensive.org/Internship.

A few examples of the important and positive impact this program include:

- Participants experience closer communication with skilled trainers from other regions, such as Master-Level GB Teachers **Juan Manuel Martínez (Founder and Director of ECOPOL)**, **Agustín Medina and Marisol Tenorio (Founders/Directors of El Mezquite NGO)** located in Mexico, premier soil specialist and **STAAR instructor John Beeby** located in New York, as well as GB education specialist and homesteader **Dr. Susan Craig** located in California.
- Former intern **Noé Saúl Castillo Simón** volunteered to translate our **GB Farmer's Mini-Handbook** into Nicaraguan **Miskitu** (released online this summer growbiointensive.org/Enewsletter/Summer2022/miskitu.html).
- An intern from Nicaragua with an academic background volunteered to strengthen the **Biointensive Master's Program at Nicaragua's Universidad Nacional Agraria** in the areas of nutrition, diet, and planning.
- A 2022 intern from Guatemala, **Mauricio Montalvo**, wrote a beautiful summary of his experience in the program, describing the profound impact it had on his relationship with the soil and the world growbiointensive.org/Enewsletter/Summer2022/8mi.html).



Njoki's 40-Bed GROW BIOINTENSIVE Garden in Kenya

- **Simon Nyaga**, a Kenyan who learned GB through Kenyan NGO G-BIACK (Ecology Action's Partner for Africa) wrote of his experience teaching GB to a young woman named Njoki, at the height of COVID-19 in 2020, with extraordinary results growbiointensive.org/Enewsletter/Summer2022/40bu.html).

There was continued progress bringing content online in 2022, adding to our existing resources including our *6th Grade GB Curriculum*, our beautiful *Introduction to GB* animation (on our home page growbiointensive.org), our GROW BIOINTENSIVE 2-Week Farmer's Course providing 17 webinars (some free, some fee-based) given by key GB practitioners at vimeo.com/ondemand/ecologyaction, our *4-Saturdays Introductory Workshops* (spring and fall), our *GB Farmer's Mini-Handbook* available in at growbiointensive.org/Self_Teaching.html

in ten languages, our collection of electronic-format books, booklets and information sheets in English and Spanish at growbiointensive.org/ePubs, and our 9-part film about the Global GROW BIOINTENSIVE Family *En Nuestras Manos/In Our Hands* at vimeo.com/465494278.

New content released in 2022 included the addition of electronic versions of many booklets and information sheets (an ongoing project to get all of our publications online at growbiointensive.org/ePubs), *Booklet 43: Growing a Living Fence* (print and e-booklet) by David Troxell, a Spanish translation of *Booklet 38: A Path to Peace and Sustainability: Growing Soil, Food and Seed in as Little As 1,000 sqft* by Matt Drewno (published online in October 2022), new topics in the *Soil Science Spotlight* series from Ecology Action's Soil Fertility Advisor, John Beeby at growbiointensive.org/SoilScienceSpotlight, and our tri-annual newsletter *Garden Companion* curated by editor Shannon Joyner, online at growbiointensive.org/Enewsletter. More electronic publications will be added this year, and work has already begun on a Spanish translation of *Booklet 32: GROW BIOINTENSIVE® Composting and Growing Compost Materials*.

The GROW BIOINTENSIVE® Soil Test Analyst and Amendment Recommender (STAAR) Standards and Certification Program continued in 2022. Under direction of John Beeby, soil science/GB expert and Ecology Action board member, the program's inaugural class of 14 participants (all Certified GB Teachers nominated to the program by our international partners, and even more participants in a second class that begins in 2023) started training in May 2021 to become certi-

fied GB Soil Test Evaluators at Basic (two years) and Advanced (four years) Levels. The process includes training in soil testing, soil test evaluation, and accurate soil amendment recommendation, carried out through weekly meetings and a new computer program. The program was funded for the first two years, with year three funding anticipated by the end of January. You can read more, at growbiointensive.org/PDF/STAAR.pdf.

In order to best test soils, make good recommendations for sustainable soil fertility, demonstrate the potential of GROW BIOINTENSIVE, and serve a region's communities, Ecology Action has developed the **10-Bed Unit/Soil Test Station (STS) Program**, which is an integrated part of the **STAAR Program**, in which the trained STAAR Soil Test Evaluators monitor 10-Bed Units in differing soils, climates and environmental systems across the globe. **There are currently eleven 10-BU Soil Test Stations maintained by STAAR participants across the Americas and Europe.** The data gathered from these sites will help improve the GB method to function optimally in different conditions. Having completed the second year of the program, STAAR participants at STS sites are ready to begin analyzing soil samples submitted by GB farmers in their communities and provide sustainable soil amendment recommendations based on local conditions and amendment availability. This program will partially fund itself through a nominal cost for soil analysis paid by farmers (not enough to deter poor farmers from testing, but enough to help offset program costs). We are excited to share updates from the interconnected **STAAR/STS** programs over the coming years.

The initial research phase of the **Soil Sustainability Research Project (SSRP)** has officially been completed, culminating in the publication of *Booklet 38: A Path to Peace and Sustainability: Growing Soil, Food and Seed in as Little As 1,000 sqft.* Many of the partners who had been working for five years collecting and refining data for the SSRP are now participating in the STAAR/STS Programs.



2019-2020 Kent Whealy Scholarship Fund for Ecology Action awardees have completed their projects!

- We are particularly proud of **Fredrick Onyango**, and his Kenyan GROW BIOINTENSIVE Demonstration/Education and Research organization **Sustainable Agroecological Development Action (SADA)**, which continues to impressively expand the number of farmers trained (SADA regularly reaches 300 people a month with GB training programs) and the number of funding sources to support their continued work, including crop sales. SADA is experiencing a significant increase interest in organic GB food growing due the pandemic and environmental factors, and as people learn of the importance of better and more sustainable, locally-produced nutrition in their lives. Ecology Action has been able to assist this continued effort with monthly financial support. Great work Fredrick!
- **Marcia Suarez** used her grant to help improve food security, sustainability, and nutrition by promoting GB to families in Nicaragua, established her own GB Demonstration Mini-Farm, and helped a nearby women's group in developing a GB Farm. In 2022, Marcia and her husband qualified for a 5-month internship with **Baker Creek Seeds** Headquarters in Missouri to learn everything about growing, harvesting, preserving seeds. The purpose is for them to set up a seed business around their GB Mini-Farm in Nicaragua. Well done, Marcia!
- **Ana Lucia Cantillano**, from Nicaragua, maintains a 50 m² GB garden and helped 6 families start their own GB gardens this year. She continues work on her film, *The Rule of Return* documenting how GB is used in her county. Ana is currently working on post-production, and hopes to release her film in 2023 – we look forward to seeing it!
- **Ariel Pinto's** project (teaching GB agriculture in Chilean schools) was hampered by COVID-19 challenges. However, his GB Demonstration Mini-Farm *Huerto Libre Wallmapu* is developing beautifully, and he is taught an introductory GB workshop in Paillaco, in Southern Chile in 2022. Good luck Ariel!

Ecology Action continues to mentor farm leaders, giving technical advice for key projects and programs worldwide and channeling funds to several. For example, in 2022:

- We sent funds to our partner organization, **ECOPOL/EM** (*Ecología y Población/El Mezquite* biointensivistas.ning.com, biointensivoenlinea.com) on a monthly basis and had ongoing communication with its director Juan Manuel Martínez and *El Mezquite* co-founders Agustín Medina and Marisol Tenorio, to promote quality assurance for the GB method, teacher certification progress, and other important issues affecting GB programs in all 42 countries in greater **Latin America**, plus 6 countries in **Europe**.

- Former EA interns Samuel Nderitu and Peris Wanjiru Nderitu, Co-Directors of our partner organization **G-BIACK** (GROW BIOINTENSIVE Agricultural Center of Kenya, g-biack.org) in **Kenya**, received assistance with farm/education data reporting and administrative techniques from Ecology Action, as well as fiscal sponsorship (channeling funds to them from other sources to support their ongoing GB education programs, including 42 Satellite Centers).
- Sharon Coombs and James Christie Fougere receive technical assistance and mentoring for their demonstration, teaching and research Mini-Farm *Future Heirlooms* at the **The Kootenay Society for Sustainable Living** (KSSL) in **British Columbia, Canada** (growsustainability.org). Ecology Action support helps Coombs and Fougere to conduct more research and crop grow-outs, develop more programs and help establish new GB gardens in their community.
- We sent Mlesh Elijah, former EA Intern from **Kenya**, direct support in 2022 for his **Garden of Hope** project, as well as channeling funds to him from other sources. We have also created a crowd-sourcing page to raise additional funds for his project, at donatenow.networkforgood.org/gardenofhope.
- See more about our international projects and partners in the following pages.

Our work is having a positive impact in far-flung corners of the world, with ripples spreading from each interaction and growing into waves of change. We and our international partners are continuing to experience an increase in requests for Biointensive solutions: training, information, farmer-leaders, seed-saving initiatives, garden-friendly community planning, and GB gardens. Now, more than ever, it is vital that people learn to grow their own food, and help heal the Earth and each other, right where they are. We are grateful and honored by the trust our funders place in us, and the work our GROW BIOINTENSIVE Global Family is doing. We are proud to be a part of that work, and look forward to growing strong through 2023 and beyond!

Victory Gardens for Peace

Matt Drewno, author of Booklet #38, *A Path to Peace and Sustainability: Growing Soil, Food and Seed in as Little as 1,000 sqft* (published in 2021 at growbio-intensive.org/ePubs) manages our **Victory Gardens for Peace Mini-Farm** (VGFP, victorygardensforpeace.com) in the town of Mendocino. Formerly known as the Green Belt Garden, the VGFP Mini-Farm was renamed in 2015 to focus on developing strategies for localization, community-building efforts and re-invigorating the Victory Gardens movement through sustainable application of the GROW BIOINTENSIVE Method. Since 2015, the VGFP Initiative has developed several key programs, including two **9-Part GB Courses**, the **Garden Friendly Community Resolution** (GFC), the **Victory Gardens for Peace Seed Bank**, and the **GardenCorps Program**.



Over the course of 2020-2022, the COVID pandemic brought great suffering, economic challenges, and disorientation. The Stanford Inn Eco-Resort which hosts the VGFP Mini-Farm was hit particularly hard, as the tourism industry came to a halt and its staff were laid off. Ecology Action stepped up in response to help the Stanford Inn, by paying Matt's full wages so the 220-bed mini-farm at Stanford Inn could be maintained during this challenging period. After 2 years of assisting the Inn in this way, and after the stress of the pandemic creating challenges for all, the decision was made to refocus EA's resources to the original 70-bed VGFP Mini-Farm. This led to a structural re-organizing of the garden, its mission, and staff. Sydney Grange, former Assistant Mini-Farm Manager at VGFP has taken a position with Stanford Inn to help manage their gardens, and continues to pursue her GB Teacher's Certification, and former VGFP staff Katie Alibrio is teaching guests about GB to fulfill her basic-level teaching requirements, so we are confident the GB emphasis we have established at the site will continue. Ecology Action and VGFP would like to thank The Stanford Inn Eco-Lodge for continuing to help our work grow by contributing the land and water for the VGFP 70-bed Mini-Farm.

As COVID gradually evolves toward an endemic situation, we find that perhaps more than ever, the GB Method and focus of Ecology Action and Victory Gardens for Peace in Mendocino are an important resource for communities here and abroad. The support and energy we have felt through these trying times has been an uplift. The dedicated work of our staff and its supporters gives us hope that despite the challenges, we are creating a way forward.

VGFP has been approached by the local high school and community college to offer classes and coursework for students. The high school is looking to integrate GB into their CTE (Career and Technical Education) Program to enable students to receive credit for work-study in an apprenticeship atmosphere at our VGFP Mini-Farm. It is possible that these students will then apply what they learn to manage their own school garden in the town of Mendocino. Our current 1-year intern, Francesca Mills, is a student at Mendocino High School and is working with us to develop this opportunity for other students. We are also exploring the possibility of working with the Mendocino Community College to integrate GB teaching into their curriculum in the form of an internship of course series offered at the campus. This could enable our internship programs to become accredited and accessible to students looking to receive college credit for their GB study. This is another exciting development, and our curriculum has been well-received among their program directors and agriculture department.

The VGFP Seed Bank is currently maintaining 994 accessions. Our community seed bank emphasizes seeds that have been locally grown, with the goal of increasing accessibility to locally adapted varieties, sharing stories and information on the growing of unique varieties to seed, creating networks of seed savers to reintegrate seed saving into our culture, and documenting the process of running a seed bank to share this experience with others so it may be replicated. Several growing beds have been allocated for seed grow-outs in 2023 to maintain quality and availability of the collection to our community. Several classes on seed banking have been incorporated into the **GardenCorps** curriculum to teach others what we have learned in starting, maintaining, and encouraging participation in community seed banks and seed libraries. This work is often a strong entry point for people to learn more about GB practices and encourages communication and follow-up through seed exchanges, workshops, and general communication, in person or via email.

In addition to the seed grow-outs, we are continuing with **VGFP 10-Bed Research, Education and Demonstration Plots** (part of the larger **International 10-BU Project**) where staff and students develop their own 10-bed sustainable diet designs and grow them out, documenting the results. Some of this research will be incorporated into the next edition of *Booklet 38*. Our work with John Beeby (growyoursoil.org) and 14 other GB training sites around the world will continue with the **Soil-Test-Station (STS)/Low-Input Experiment**. We have dedicated 16 beds to replicating this work, which will hopefully contribute to a peer-reviewed and published research article confirming what we have found in Kenya: that a *one-time dose* of organic fertilizer used in a GB system can increase and sustain high yields over time. One factor which will be vital to future investigation will be how safe human waste recycling can provide the fertilizer dose to help close the sustainability loop on this important experiment. Matt is one of the 14 Certified GB Teachers participating in the **STAAR Program** with John Beeby, and the data gathered in the STS beds will contribute to the STAAR program goals as well.

Matt has been co-teaching the **8-Month Online International Internship** with John Jeavons, including classes in *Seed Production and Storage*, *History of Biointensive Agriculture*, *History of Victory Gardens*, and more. Additionally, VGFP has provided free local classes and workshops, as well as several farm tours. VGFP will begin hosting **Onsite 4-, 6-, and 8-Month Internships** again this year, see growbiointensive.org/Internship for more information.

In the community of **Point Arena, CA** (35 miles from VGFP) over 70% of children grow up in poverty. A local non-profit and the Point Arena City Council have approached VGFP to help them pass a **Garden Friendly Community Resolution** and organize a community-based food movement incorporating local composting programs and community gardens, like the work we did with **Fort Bragg, CA**. It is anticipated that in 2023, several individuals will be identified and supported to participate in **VGFP's GardenCorps Program** to strengthen these efforts. We hope that communities who pass the GFC Resolution and GardenCorps graduates will communicate with each other and demonstrate how these efforts can create a network of small teams trained in GB to be resources, influencers, and teachers in our overlapping communities. Our 2021 GardenCorps graduates have gone on to form a Board of Directors in Fort Bragg establishing a community garden, and providing resources and classes to their community.



Browsing the VGFP Seed Bank

In 2022 we paused our GardenCorps Program as we cultivated our relationship with the Point Arena team, re-structured the VGFP Mini-Farm, trained new staff, and assisted in the online 8-Month Internship. Our GardenCorps Manual is in its 2nd edition and our curriculum has been refined, enhanced from our experience in 2021. **We look forward to training the next GardenCorps team in 2023!**

Africa Outreach

GROW BIOINTENSIVE programs in Africa keep growing. In Kenya, husband and wife team Samuel Nderitu and Peris Wanjiru continue their work as Co-Directors of **GROW BIOINTENSIVE Agriculture Centre of Kenya (G-BIACK, g-biack.org)**, in Thika, near Nairobi. Since 2008, G-BIACK has trained over 19,000 farmers and interns from all over Africa and beyond, established a seed bank which stores and offers seeds to the community, and teaches farmers to use and save open-pollinated and indigenous seed varieties well-suited to the local climate and culture. The impact of G-BIACK's work has been great: we estimate that over 3.5 million people are practicing GB in Africa as a result of this and other programs, and we are looking forward to continuing our partnership with G-BIACK to promote GB education, networking, and dialog across the region.

G-BIACK's satellite farm pilot program, developed in 2016, is a success. In 2021 we were pleased to report that there were 37 Satellite Centers in operation, and in 2022, despite all the challenges facing Kenya including an historic ongoing drought and the pandemic which continues to propagate in waves across the country, excellent progress was made, with the result of **43 Satellite GB Centers now operating across Kenya!** The new additions are in multiple regions, with a high concentration in Machakos and Kiambu Counties. The Satellite Center farmers have started to teach their neighbors to use GB. The main purpose of the satellite farms is to help G-BIACK to scale up their outreach program so that the method reaches as many farmers as possible.

G-BIACK has been especially effective at teaching marginalized and vulnerable young women to use and teach GB, as well training them in sewing, tailoring, cooking, baking, textiles, basketry, bead work, and computer literacy, so they can grow nutritious food as well as earn a small income. This **18-month Girls Empowerment Programme (GEP)** trained 22 young women in 2022 (an almost 100% increase from 2021's COVID-restricted program), housing them in dormitories built onsite to ensure their safety and access to the program. Many GEP participants take on NGO attachment projects, where



they work with different non-governmental organizations for several months to establish gardens and teach GROW BIOINTENSIVE to the NGO staff they work with. Due to the success of this program in improving the lives of vulnerable young women, in July 2022 a pilot **Youth Empowerment Program (YEP)** to include boys was initiated, in the hope that it will improve youth involvement in agricultural production and hopefully help stem the damaging cycle of youth migration to urban areas. You can see the first combined girls/boys class in the photo to the left.

G-BIACK's seed sovereignty program continues to thrive, and the G-BIACK Seed Bank holds more than 1000 accessions, including rare, indigenous, and endangered species collected from surrounding communities. G-BIACK propagates as many species as possible, with the goal of redistribut-

ing seeds to the farming communities. The seeds are given to farmers who need them, but they are required to return a quantity of the same seed at harvest to ensure future growth. **G-BIACK started two new seed banks in Machakos County in 2022** and plans to establish more seed banks in other communities as funding allows. In addition to the seed bank, The G-BIACK has a **Community Resource Library**, open to the public, where community members can source information from an expanding collection of more than 2,000 books. The thousands of farmers trained in GROW BIOINTENSIVE



G-BIACK Students and Interns in 2022

at G-BIACK are also trained in construction of solar cookers and solar dehydrators, and how to use them in the **G-BIACK Solar Cookers and Dehydrators Project**. They use this resource-free technology at G-BIACK to cook for the large number of people fed each day, and the farmers who learn to build and use these appliances are able to cook and preserve food without the use of expensive and polluting fuels.

G-BIACK's 4-year Scaling up GROW BIOINTENSIVE Agriculture and Environmental Conservation for Sustainable Livelihoods Project has successfully concluded. With an extension of the original 3-year time frame to accommodate pandemic-related delays, the ambitious goal of reaching three thousand farmers over the duration of the project was met, with 3,432 people taught GB techniques in the 13 targeted communities. There is discussion to extend the program to reach even more farmers in the areas they have been working in, and a similar multi-year program, the **Sustainable Livelihoods Expansion for Farmers through GROW BIOINTENSIVE Agriculture and Food Sovereignty (SLEF-GBFS) Project**, launched in 2022 with the goal of reaching more than 2,000 farmers in a different part of Kenya, primarily from Muranga, Kiambu, and Machakos counties.

According to Samuel, *"The new SLEF-GBFS project intends to address the problems and challenges that are faced by the Kenyan small-scale farmers who are struggling every day as they try to reduce extreme poverty within their families through agricultural production, which is the main source of food and income for the majority of families in Kenya."* G-BIACK reaches farmers in these outreach programs through workshops, demonstration farms, and on-farm follow-up visits. The follow-ups are a vital part of G-BIACK's teaching method, because they provide individual farmers with the opportunity to receive technical support on their projects, as well as providing G-BIACK representatives the ability to ensure farmers are using GROW BIOINTENSIVE correctly for sustainability and good yields.

As part of these programs, **G-BIACK has begun assisting farmers to select and produce rapidly-maturing cash and food crops**, which can quickly increase farm income. The overall object is to grow to sustainable livelihoods in the targeted communities through improved family food production, nutrition, and income, with the long-term aim of achieving self-sustaining GB mini-farmers. Again, from Samuel: *"This project strives to assist the farmers in fighting some of the challenges they face each day vis-a-vis food insecurity, limited farmers' incomes, soil degradation, and environmental destruction. All these will be alleviated if the farmers are able to implement and adopt the GROW BIOINTENSIVE farming techniques, cultivation of short duration cash crops, and reclamation of species of indigenous foods [native plants]."*

A new development in 2022, Samuel is on TV! He writes, *"I wish to inform you that I have been privileged to teach GB on a local TV that broadcasts in Kikuyu (our vernacular). I started 2 months ago [August 2022] and it's going for the next 2 months. This station is watched by thousands of people. I teach every Saturday. We have been receiving so many farmers at G-BIACK recently who have watched me teach. This is a big favour for us, and means GB will be practiced by more farmers in Kenya's central region."*

G-BIACK trained more than 3,000 small-scale farmers in 2022 (most of them women) through dozens of workshops. Many of the farmers trained are from Machakos, which is currently G-BIACK's primary objective, as it has a large vulnerable community.

Also in Kenya:



Boaz Odour, 2008 EA intern and Director of **Good Nutrition for Everyone** (GNE, formerly Organic for Orphans, Kenya) continues to teach Biointensive farming to struggling African farmers, students, prisoners, and refugees.

In addition to coping with last year's move to a new site, the pandemic, the ongoing drought, and his participation in Ecology Action's 2022 8-Month Online Internship as a refresher course, Boaz continues his extraordinary work with two staff members, and with financial assistance from Ecology Action. GNE averages four workshops a month with at least fifty participants per workshop, focusing on northern and remote Turkana (the largest county in Kenya), as well as Kakamega county in the summer; **they achieved their 2022 goal of training 3,000 people by the end of the year, averaging 350 participants per month.** Many of these events are associated with area churches and prisons. Boaz points out that since church pastors often

visit and pray with the sick, GNE is focused on training them in the importance of a good diet, growing organic food, and understanding basic natural medicine, so they can protect their own health, and share healing information with their parishioners. Many Kenyan prisoners are charged with crimes but not convicted, and most cannot afford lawyers and a trial, and so may go to prison even if they are innocent. Even actual criminals, Boaz points out, need to be rehabilitated and taught useful skills so they can better themselves and provide for their families upon release, and so GNE teaches prisoners to grow food using GROW BIOINTENSIVE.

The Kenyan economy is struggling with inflation, and Boaz tells us that GB is helping to mitigate the effects, *"The cost of living is hitting the ceiling, 2 kilograms of corn is trading at 2.05 USD, all the foodstuff is unaffordable, and people are having one meal a day, but people who have learned Biointensive are on the safe side economically."* Plans (if funding is secured) include holding three 5-day workshops per month (at different venues, where GB demonstration gardens could be established during the workshops), five-day workshops to establish GB demonstration gardens at prisons, and holding a pastor's conference to train a large group of church leaders. The long-term goal is to build a sustainable orphanage and full GB demonstration center, with gardens and buildings for housing orphans and training them in life skills as well as gardening, like the program at G-BLACK.

Mlesh Mlegwa (2016 EA intern) is the director of the grassroots, non-profit CBO **Garden of Hope** (GOH) in Taita-Taveta County, Kenya. With over 40 double-dug beds planted in the GB 60:30:10 crop ratio, and site-grown compost enriching the soil, GOH is now in its 6th season, which is a huge accomplishment under the difficult circumstances of the past three years. COVID-19 is in its 6th wave across the country, with health restrictions reemerging; inflation has impacted the economy, causing food prices to double in June; and Kenya continues to endure its worst drought in 40 years, according to the government and UN. More than four million people are "food insecure," and 3.3 million can't get enough water to drink. Taita-Taveta is one of the 23 Kenyan counties reclassified as "Arid and Semi-Arid" as the drought continues, and Garden of Hope has been impacted, with some newer additions to the main garden failing due to lack of water and depredation by zebras, baboons, and elephants(!) foraging in the parched environment.

Nevertheless, work continues in the mini-farm (including establishing more sunken "fertility trench" beds to increase soil organic matter and encourage water conservation), experimenting with fast-maturing sweet potatoes (50% shorter growing time means less water used per harvest), and creating a "bio-repellent" out of hot peppers to deter the "large pests" mentioned above. The **GOH Tree Nursery Project** started in 2020 continues to grow, providing seedlings for the community to plant, with papaw, cluster apples, guava, purple plum, and passion fruit saplings established in water-efficient compost-filled holes at GOH for the community to enjoy.

Other work includes maintaining a growing list of partnerships and networks (including building GB demonstration gardens and teaching soil-growing and



Planting a Tree Sapling in a Water-Conserving Fertility Trench at Garden of Hope

water-harvesting techniques with the **Ghazi Community Investment Task Force**, and **Hand in Hand Eastern Africa**); hosting interns from our partners **G-BIACK** and **Good Nutrition for Everyone**; conducting meetings, workshops, and tours (as allowed by COVID and the weather); participating in virtual meetings, trainings and conferences; coordinating **Mbulia Farmer Field School** activities including 1-day tour/workshops); continuing to provide SIFA FM radio programming; participating in a **Village Savings and Loan Program** providing microloans to community members at 10% interest, which allows neighbors to buy supplies while also getting together for training (Mlesh explains, "*This has been a trade for getting soft credits without the restrictions imposed by banks. This activity is keeping the [farmer training] group together because they meet every two weeks, some to pay their shares and interests and others to take out loans.*"); and participating in the **Ghazi Sublocation Community Investment Project** (funded by Agricultural Climate Resilience Enhancement Initiative ([ACREI adapation-fund.org/project/agricultural-climate-resilience-enhancement-initiative-acrei-ethiopia-kenya-uganda](https://adapation-fund.org/project/agricultural-climate-resilience-enhancement-initiative-acrei-ethiopia-kenya-uganda))). The project has identified land on the river near GOH where a weir will be built to provide irrigation water for smallholder farmers and allow for much-anticipated gardening programs at primary and secondary schools. Garden of Hope visited the site with the project engineer and the community task force; construction should be complete in 2023, rendering the water situation better for everyone. In a hopeful sign, the citrus trees that were planted in 2019 bore fruit for the first time this past winter. All work continues in 2023.

Malawi

Partners **Ephraim** and **Themba**'s project **Grow Biointensive Agriculture Center of Malawi** (GBACM) continues to spread GB in one of the poorest countries in the world. Eighty percent of Malawi's population relies exclusively on subsistence farming using only rain for irrigation, and malnutrition is endemic, particularly among children. Each January, the horror of the "lean season" (where the previous season's harvest has been sold and nothing remains to eat) begins and can last up to 6 months. Adding to these challenges, a punitive new tax system and 70-80% inflation rates are destabilizing an already fragile economy, which means farmers cannot afford to purchase commercial seed, chemical fertilizer, or farming machinery to feed their families, so GB training is of vital importance to the people here.

GBACM Demonstration Mini-Farm "Mbowe" is in Mzuzu, the main city in Malawi's Northern Region, which provides a service hub for the remote north. Since 2014, GMB has implemented their **Empowering Rural Poor in Malawi Project** in Mzimba, the largest district in Malawi, with the goals of increasing long-term household nutrition, food security, and income; strengthening local development structures and programs to improve livelihoods among resource poor families; and improving collective sustainable agriculture skills.



Building a compost pile at Mbowe

GBM directs their own training programs and meets with other NGOs to help with programs such as seed banks, as well as finding new participants and locations for workshops. Ephraim and Themba hold monthly GB workshops (regularly attracting 30-50 participants or more) as well as shorter classes at Mbowe, do follow-up visits to farms ensure quality control, and travel to give workshops and classes, which reliably draw many dozens of participants (two assistants care for the garden when they travel). The training varies from 1-day workshops on topics like *Nutrition* or *Seed Saving*, to 2-week intensive sessions covering the whole GROW BIOINTENSIVE method. **Their program has consistently reached up to two thousand participants per year. As of August 2022, the number was already up to 1,834, and their most recent report confirms that they trained 4,000 people in 2022, with the assistance of 27 trainee teachers.** One 2-day workshop in Chipambo alone attracted over 100 attendees. Other workshops this past summer were held in Malevechi and Chiputula, Hill Top in Nkahta-Bay District (where Mzuzu is) and Lupatso in Rumphi District. People hear about the workshops through word of mouth and through other programs in the **Malawian government's Rural Development Program (RDP)**.

Many NGOs work together through these RDPs, which provide access to small-scale **Village Savings and Loan Programs**, which has fueled interest in cultivating crops for profit, which has in turn spurred the creation of co-ops. In addition, groups are establishing seed banks at various locations; GBM is deeply involved with this planning.

At Mzuzu, water is hand-carried from the pond to the garden, but there are plans to purchase a solar-powered water pump. In 2022, generous support from the **Buddhist Global Relief Foundation** (the project's major funder through Ecology Action) meant Ephraim was able to buy a motorbike, enabling him to travel further to hold workshops. The tree nurs-



eries established in 2021 have expanded (a vital resource, as trees across Malawi are converted into cooking charcoal, which spurs desertification of the soil), and their important work continues in 2023.

Latin America Outreach

Ecología y Población (ECOPOL) was founded by **Juan Manuel Martínez** in 1992 after he trained with John Jeavons at Ecology Action and received the first Spanish translation of *How to Grow More Vegetables*. Juan implemented GB in a rural development project he was conducting for the Mexican Department of Social Security; he was so inspired by the results that he retired from government work and embarked on a career focused on spreading GB across Mexico. **The work he started 30 years ago has reached millions of people throughout Latin America and Europe, and he has travelled to all 42 countries in Mexico, Central America, the Caribbean, and South America, plus at least five European countries.** A Certified Master-Level GB Teacher, Juan continues to incorporate four key infrastructures in his GB work: farmers, the university system, NGOs, and Federal and State governments. He works equally well with *campesinos*, *tecnicos*, *academicos* and *politicos*, and has been able to reach an incredible number of people as a result. His dedication to and enthusiasm for GB and for helping rural populations is joyous and inspiring. **In 2019, ECOPOL merged with Certified Master-Level GB Teachers Marisol Tenorio and Agustín Medina's NGO *El Mesquite* to become the NGO ECOPOL/El Mezquite (ECOPOL/EM biointensivistas.ning.com and biointensivoenlinea.com).** Ecology Action has partnered with ECOPOL since its inception, and ECOPOL/El Mesquite representatives have come to act as GB ambassadors across Latin America and Europe. **ECOPOL/EM has trained 7.8 million farmers in the last 21 years with their overall Certified Teacher approach.**

As with much of the world, **Mexico and Latin America are enduring economic turmoil and inflation.** Food prices have increased dramatically across Mexico for several years, and Juan informs us that many citizens spend most of their income on food, but still suffer from hunger and poor nutrition. As cheaper, low-quality, processed foods take a larger place in the nation's diet, diseases like diabetes and high blood pressure are becoming commonplace where they were once rare. **As economic and nutritional pressures grow, interest in and demand for GB training grows, and ECOPOL/EM continues nurture and strengthen the network of GB practitioners and certified GB teachers.**

Ecology Action's publications continue to be translated into Spanish with ECOPOL/EM's help. Booklet 38, *A Path to Peace and Sustainability: Growing Soil, Food and Seed in as little as 1,000 sqft* by Matt Drewno has been translated (a longer process due to technical complexity) and formatting for digital version is complete (released at growbiointensive.org/epubs in October 2022). Booklet 38 drew on information from the **Soil Sustainability Research Project (SSRP)** which relied on ECOPOL's involvement: from project organization to management of their partners' land, to synchronizing data collection protocols, ECOPOL/EM was instrumental in the project's success. The full-length book *Future Fertility* has been translated, and author John Beeby is reviewing the text for accuracy; we expect to publish online this year. Our *GB Farmer's Mini-Handbook* was translated into Miskitu (an indigenous Central American language, growbiointensive.org/Enewsletter/Summer2022/miskitu.html) and John Beeby's *Soil Science Spotlight* articles are now available online in Spanish at growbiointensive.org/SoilScienceSpotlight).

Ecology Action's 8-Month Internship is popular with ECOPOL/EM's network of GB practitioners, but since the classes are conducted in English, participants with varying levels of English language skills benefit from a Spanish language



GB Garden Projects established by ECOPOL/EM Network Member Un Kilo de Ayuda in Mexico

question-and-answer session after class. To facilitate this in 2022, **Agustín hosted a weekly group (via Zoom) in which he reviewed the class and lead a discussion in Spanish.** He helps participants with their homework, answers many of their questions, and communicates any gaps in the material's absorption to John Jeavons, who can then modify his lesson plan or go over concepts again. To ensure future 8-Month Internship participants have adequate English language skills going forward, ECOPOL will conduct language proficiency screening with potential participants prior to their admittance into the program.

Complementing and building on Agustín's group sessions, **Marisol continued her *Learning Circles* program established in 2021**, meeting via Zoom (or over the telephone when necessary) with more advanced 8-Month Interns and GB practitioners who want to take their knowledge of GROW BIOINTENSIVE to the next level. The *Learning Circles* program feeds into **ECOPOL/EM 5-Day GB Workshops** (usually led by Juan Manuel), and which then lead to teacher certification for many participants. *Learning Circles* is an important teaching tool to help encourage quality control and sustainability in the practice of GB, because participants' questions are answered, individually and until everyone understands exactly what is being taught without slowing the overall class progress. To quote Juan, "*...the collective construction of knowledge is what allows us to create bonds between the candidates and Marisol, and this results in a kind of commitment that gets them, for example, to share their knowledge with others even from this stage.*" **Juan reports that in 2022 alone, 262 participants benefited from the *Learning Circles* program, and multiple workshop opportunities have arisen.**

ECOPOL is an active participant in the **Soil Sustainability Research Project (SSRP)** and **Soil Test Station (STS) Projects**, with sites in Mexico (4), Spain (4), Guatemala, Costa Rica and Chile contributing to data management and soil experiments, as well as recommending several of its Certified Teachers for Certification in the **GB Soil Test Analyst and Amendment Recommender (STAAR)** Program.

Several GB Training, Research, and Demonstration Centers across Latin America, which are run by Certified GB Teachers, are now beginning to accept three-month interns, which is a big step in this program. At the end of these internships the participants will be eligible for Teacher Certification themselves, growing the Latin American GB Network.

To combat toxins in the food chain, Mexico has passed a new law which bans the use of dozens of harmful pesticides. As a result, farmers across the country need organic solutions to make up for the loss of these chemical interventions. In response, ECOPOL/EM has undertaken a new program, **Biointensive Gardens: for a Childhood Without Pesticides**, which was inspired by a flood of positive tests for pesticides in the blood and urine of young children all over **Jalisco, Mexico**. Originally planned for just over 100 GB gardens in that area, by the end of the workshops five more municipalities and the government of the state of **Michoacan** had asked for training.

In a related project, **ECOPOL/EM is working with several Cuban scientists who specialize in using and producing beneficial fungi and bacteria for agriculture.** The goal is to set up several locations in Mexico to produce these extremely potent and safe biocides for use by Mexican farmers. ECOPOL/EM has held several meetings so far and is hoping to have the first laboratory started by the end of this year. They are currently looking to source funds for this project.

A challenge throughout ECOPOL's existence has been accomplishing a huge amount of work with only a few people. **In 2022, two new positions were added to the team:** one person focused on **networking, social media, and graphic design**



One of dozens of GB school gardens established in the Peruvian highlands by NGO Por Eso Peru (part of the Latin American GB network) in 2022



A newly certified Basic-Level GB Teacher in Nicaragua in her Mini-Farm

to help promote ECOPOL/EM, its activities, and partner organizations; and one person to oversee the **newly established Spanish-language GROW BIOINTENSIVE educational website, *Escuela Iberoamericana Online*** (biointensivoenlinea.com), which is currently offering introductory GB training. Now that there is a person dedicated to this program, **online basic-level GB teacher certification will soon be available through the school, an important advance for the Latin-American GB teaching network.** Juan reports that while some people spontaneously join the online school, the real potential lies in using the platform to teach GB at-scale: for example, negotiating contracts with state governments to have large groups train on the platform. ECOPOL is currently in talks with the **Michoacan State Government** to have personnel from all 113 municipalities (!) take the Introduction to GROW BIOINTENSIVE course on the platform, and has already established a similar relationship with the **Puebla State Government**. Each participant in the course pays a small fee, which helps pay for the new administrative position. Currently, executives of the **Institute of Nutrition of Central America and Panama (INCAP)** are training using *Escuela Iberoamericana Online* (INCAP requested ECOPOL's assistance in training 700 advocates from eight countries located in their region of influence (**Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama** and the **Dominican Republic**).

Despite ongoing pandemic restrictions and threats of violence from drug cartels in some states, **ECOPOL/El Mezquite was able to conduct many multi-day workshops across Mexico:** four in the extremely arid state of Aguascalientes (including an extended May-June Soil-Water event for 280 participants), Jalisco (3), Guanajuato (3), Baja California (3), Querétaro, and Guadalajara States; as well as two workshops in **Nicaragua** (one a 5-day teacher certification event) and two in **Chile**.

In addition to 19 workshops, there have been 5 garden tours, 14 field visits to GB projects (including gardens established by **Un Kilo de Ayuda**, a childhood nutrition advocacy group in Mexico), 10 online conferences, and 28 less formal “GB talks” for interested groups and projects in process (including INCAP and universities), and numerous online activities in support of the teachers and Biointensivistas from Mexico, **Latin America** and **Europe** (including the *Learning Circles* program mentioned previously).

In 2022, 62 new GB Teachers were certified from Argentina (2), Costa Rica (3), Chile (8), Ecuador (5), Spain (6), Guatemala (3), Italy (5), Mexico (14), Nicaragua (12), and Peru (4), bringing the total of GB Teachers Certified over the past three difficult years in Mexico, Latin America, the Caribbean, and Europe to 334!

In addition to the growing number of certified GB Teachers in Spain and Italy, ECOPOL/EM's efforts in Europe continue to yield good results: In Spain, **Amigos de la Tierra** (Friends of the Earth-Spain), ECOPOL's most productive partner in the European Union published a report that includes very solid data 2.5 years after they established their organization (tierra.org/wp-content/uploads/2021/12/Informe_Resultados_Cultivo_Biointensivo_def.pdf). This publication has been issued in several countries of the **European Union** and Juan expects that with the support of Spanish certified teachers GB will spread quickly through the region. Biointensive farms established in **Spain, France, Italy, and Portugal** continue to create more gardens each year. In Spain, the **Biointensive Iberian Community** (led by three Certified GB Teachers who work with *Amigos de la Tierra*), met their goal of installing 30 more gardens in 2022. In Italy, the **Mais Espinato di Gandino** organization continues its work with the Certified GB Teachers in Gandino, in the Province of Lombardy, Trieste, Rome, and Naples.

We are so grateful and proud of the resilience and determination of our Latin American and European GB Family, and of the work they have done in spite of the obstacles presented by our global challenges.

Russia Outreach

GROW BIOINTENSIVE for Russia (GBFR, biointensivoforrussia.org) was founded by Californian **Director Carol Vesecky**, who has been doing amazing work in a challenging part of the world with few resources for over 30 years. GBFR works with peace activists who see GB as more than a good way to grow vegetables or improve soil fertility, and Carol coordinates with numerous partners throughout the Baltic States, working to get books and funding to them when possible, and exchanging correspondence and encouragement when not. In addition to seventeen gardens and locations in **Russia**, GBFR has partners in **Bulgaria, Sweden, Uzbekistan, Kazakhstan, and Kyrgyzstan**.

Dr. Ludmila Zhirina, one of GB's most ardent Russian supporters and Director of GBFR's most productive partner in Russia, **NGO Viola**, writes, "*I appreciate GROW BIOINTENSIVE and the book of John Jeavons [HTGMV], who has united many people. Biointensive is a conductor of friendship, goodness, health, and prosperity!*" **Since 1995, the NGO Viola has introduced gardeners, teachers, and students to *How to Grow More Vegetables* and the GROW BIOINTENSIVE method in Russia, Belarus, Georgia, and Bulgaria.** They have presented the theoretical and practical aspects of GB to more than 150 gardening families, and 1,500 students from 90 different organizations, and have helped create and develop Biointensive vegetable gardens in 13 regions of Russia and in 3 other countries. **Viola is a member of the International and All-Russian Socio-Ecological Union, and Friends of the Earth International.** Dr. Zhirina, travels extensively throughout the region teaching personal health and sustainability skills, including GB. The Russian diet relies heavily on animal products, with few fresh vegetables eaten or cultivated, and agriculture is focused on cereal crops and seed oil production. The resulting health problems from such a diet are predictable but unfortunate. Dr. Zhirina's goal is to show people that there can be joy in fresh food, GB gardening, and exercise.

NGO Viola conducts research in and around radiation zones in the region and has tested the levels of radionuclide and heavy metal accumulation in vegetables grown in contaminated soils. In 2005, Ludmila and three Viola members travelled with GBFR to 20 villages in **Ukraine** as well as in their own Bryansk province in **Russia** (Bryansk was the most heavily irradiated region after the Chernobyl nuclear accident in northern Ukraine.) Their mission was to monitor the levels of Cesium-137 and Strontium-90 radiation in the soil and harvest, nearly 20 years after the accident in 1986. They found that levels remained high. Between 2011 and 2016, Ludmila visited her former student Hannah Shutenko near Chernihiv, Ukraine several times, presenting GROW BIOINTENSIVE workshops there and in other parts of Ukraine. They helped create climate test plots, collecting and recording daily weather changes, and have helped perform soil analysis in GB beds in various climatic and soil zones. **They are discovering that GB double-digging, earthworm cultivation, and application of loose compost help gardeners grow organic vegetables relatively uncontaminated by radiation and heavy metals.** Hannah worked with Ludmila at **Bryansk Pedagogical University** researching the use of earthworms in organic farming, before continuing this work at the **University of Dublin in Ireland.**

GBFR has been very active in Ukraine, and the recent military invasion of Ukraine by Russia caused distress for all involved in this project. Ludmila has taught GB in **Crimea** (considered Russian by Russia and still part of Ukraine to Ukrainians and the US). NGO Viola has worked for decades with teachers in the western, contaminated part of **Russia**, providing them with dosimeters and training them to measure background radiation daily. Recently, **Leonid Chumakov**, a scientist from **Belarus** who also teaches GB, reported to Ludmila from Ukraine that Russian tanks raised radiation dust on roads near the **Chernobyl** nuclear power plant. He said the radiation background was increased for 1-2 days in 30km radius. Sanctions placed on Russia by the US and other western nations are directed at the country's leaders, but also affect ordinary Russians in the form of high prices for food and other commodities, poor job prospects, and an unstable economy. **Disruption of market farming in Ukraine makes GB food gardening skills more essential than ever for survival.**

As Carol writes, "*Gardeners in both countries are eager to learn techniques of growing food using less water and fertilizer, and in greater harmony with nature, as presented in trainings by our Russia-based network of GB teachers. May this terrible war end, and pronto!!! and may as many brave Ukrainian people as possible return to their homes and gardens. Then, may NGO Viola members work with their friends in Ukraine to arrange workshop tours in their neighbor country.*" Sounds good to us, Carol!

This past year, despite the ongoing political and economic troubles, Viola members **Albina Samsonova, Dr. Oleg Kalmykov and Dr. Boris Trishkin, and Dr. Ludmila Zhirina** met remotely to read and discuss *How to Grow More Vegetables*. **They also presented online GB training webinars for new gardeners and teachers, including in ecovillages.**

Viola's members and northern gardening network gardeners are working to collect heritage, open-pollinated vegetable and grain seeds, totaling 92 varieties of seeds developed over 40-50 years, including traditional



Bryansk GB gardeners use free straw from local grain fields to create compost. Dr. Zhirina visited and demonstrated how to use "waste" herbs and straw to grow huge (1500g/3lb) tomatoes without chemical fertilizers.

vegetables like turnips, rutabagas, and parsnips, as well as rare domestic farm animal forage plants. The seeds are saved in cloth bags; a volunteer places 10 seeds of the same variety on sticky paper; and then places papers with 5-10 different varieties in an envelopes. The envelopes are mailed to gardeners in nine regions of western Russia who have agreed to grow them out in Biointensive beds. The gardeners will collect and continue to breed these plant varieties through the summer of 2023. GBFR is paying for the envelopes, postage, and the seeds.

In 2022, a GROW BIOINTENSIVE workshop was held in the snow in **Yaroslav Province**. Antonina Kulyasova from Ustyansky district traveled to the **Kaluga region** to present a workshop for leaders from 12 ecovillages at the **Ark Ecovillage**, where Ludmila also taught a few years ago. A training seminar for teachers was held at a farm in Kirillov in the **Vologda region**, and events in Yaroslav province were held at a primary school and a library. Children are always excited to learn to grow plants and are some of our favorite GB practitioners.

In August, Ludmilla traveled to **Nizhny Novgorod** and **Lukoyanovsky district** where she gave a GB workshop and three presentations over a period of several days. These trainings were held in conjunction with the **NGO Green Sail**, an organization focused on creating community gardens; Lumila has known many board members for years, having sent them books or had them attend her seminars. The workshop was very well attended, and a large group of locals were inspired to create their own community garden. After the workshop was over, the director of the recreation camp where it was held took a small group to his home to show them his own flourishing Biointensive garden which he has been cultivating for four years based on what he learned from *How to Grow More Vegetables*.

Ludmila had this to say: *"These people worked on their gardens, based on the Russian translation of John Jeavon's book [How to Grow More Vegetables] for 5 years without my workshops. They really needed detailed work on each chapter of the book. They had a lot of questions taking into account their climate and soil. They participated in the workshop with great interest! They showed their huge Biointensive vegetable gardens! And I was thrilled!"*

Canada Outreach

Sharon Coombs and **James Christie-Fougere**, co-directors of **The Kootenay Society for Sustainable Living** (growsustainability.org), near **Kimberley, British Columbia**, were 2016 EA interns and graduated from our program with the goal of immediately starting their own GB research and demonstration center. After procuring land, the couple (who were also new parents) transformed the property into a garden of abundance, growing compost crops to feed their array of double-dug beds, and focusing on short-season crops which grow successfully and yield well in their extremely cold and short growing season.

Their GB mini-farm **Future Heirlooms** grows abundant leeks, garlic, potatoes, beets and carrots, legumes in its 70 growing beds, but its primary focus is grains. **James and Sharon are conducting comprehensive variety trials of different cereal crops and keeping extensive planting and harvesting notes** using the same standardized cultivation and data collection methods all international partners in Ecology Action's network use.

They have also been assisting in the **Soil Sustainability Research Project (SSRP)**, to determine the smallest amount of land needed to grow a complete diet for one person for a year. Future Heirlooms is located at a high latitude with a very



short growing season, which is useful for research, as the "smallest area" needed to grow a full diet in their conditions may vary from the area used by SSRP mini-farms in temperate climates. They are continuing to devote ten beds to the project and are also putting a 20-bed unit to work collecting data and running experiments for Ecology Action's **STAAR/STS Projects**, with excellent experimental design: running a 2-Bed Unit (BU), with a 2BU control, and 4 repetitions for a total of 16 beds. The remaining 4 beds will be planted on both ends of the 20BU to prevent edge effect and reduce data variables.

Future Heirlooms offers a variety of programs and services to their community and region, including **The Backyard Mini-Farming Initiative** (providing garden design consultation,

professional laboratory soil testing (through John Beeby's **Grow Your Soil** service), and training and assistance turning participants' backyards into productive GB mini-farms, including educating participants to use GB). **In 2022 this project established an additional 1,700 sqft of GB garden beds at 5 locations locally, bringing the total to 4,300 sqft distributed between 9 GB gardens since 2021.** The Kootenay Society secured a grant to help fund scholarships for this popular initiative. Other events included a **1-day Workshop**, and weekly **Mini-Farm Volunteer Days** during the growing season, which serve as educational and community-building events. James and Sharon reported, "*No one signed up for our workshop in August so we cancelled and spent time working on implementation of online content and online learning in 2023. We realize we may have tapped the local community and are working to reach a broader audience across Canada for future workshops.*"

The **Future Heirlooms Seed Bank** was established in 2022 (online at growsustainability.org/seed-bank) accepting accessions by donation and offering seeds internationally, including Barley, Beets, Carrots, Chard, Einkorn, Onion, Parsnip, Quinoa, Rye, Salsify, Sunflower, Triticale, and Wheat, selected from the strongest, fastest, highest yielding plants at Future Heirlooms, making them cold and frost tolerant, adapted to extreme day/night temperature shifts, and acclimatized to the dry climate, dry sandy soil, and high pH at Future Heirlooms. They also began keeping bees in 2022 and plan to start building and selling **Kenyan Top Bar Beehives** and bees in 2023; other programs in progress include the recently established **Tool Lending Program**, and plans for a **School of Natural Building** and a **Microclimate Identification Initiative**.

Bermuda Outreach

AgraLiving Institute (ALI, agraliving.org) located in **Smith's Parish, Bermuda**, was established by **Chris Faria** in 2006, to improve local food security and provide sustainable GB farming education opportunities for Bermuda and neighboring islands. The ALI website states: "*Bermuda has lost an estimated 87% of its agricultural land in the last 85 years. Using [GROW BIOINTENSIVE] on the already zoned 735 acres of arable land we would be able to grow enough food for half the population.*" ALI was awarded a license to use the "Kitchen Garden" at the **Bermuda Botanical Gardens** in 2020, and after clearing years' worth of overgrowth, and put over 2,000 sq. ft. into GB cultivation.

- **The ALI mini-farm has been growing for two seasons now, demonstrating that GB works well in sandy tropical soils,** growing grains, Irish and sweet potatoes, carrots, lettuce, garlic, onions, roselle, amaranth, tomatoes, basil, celosia, zinnias, safflower, flour corn, pigeon peas, and cucumbers.
- **ALI hosted workshops in 2022, teaching over 300 people** despite COVID-19, including *Garden Planning, Sustainable Farming 101, and Medicinal Plant (Calendula) Workshops*, as well as a popular *Children's Gardening Club* (an after-school program for 3-to-10-year-olds). Chris taught a sustainable farming series for **Mirrors Bermuda** (a middle-school mentoring program) in the spring, and again with 30 students in the fall. In partnership with the **Bermuda Education Network**, ALI hosted 224 third graders in a program introducing food security, growing healthy plants, and identifying food crops. They are expanding this program for fifth graders. ALI has been approached by the **Westgate Correctional Facility** to run a gardening program at the prison over the winter, starting with 5-8 inmates growing a small garden, then scaling up to grow healthy whole food for their kitchen.
- **AgraLiving Institute offers a Garden Support Consultation Service**, including a 1-hour site visit, a 6-month Biointensive garden plan, providing customers advice on any garden-related questions during the visit, and offering soil testing services from collecting the samples to sourcing the amendments recommended by John Beeby's **Grow Your Soil** (growyoursoil.org).



ALI director Chris Faria teaching future farmers about GB seed-spacing at the Children's Gardening Club

ALI continues to work with the **Heydon Land Trust** to secure more arable land and housing; renovations have begun on a building owned by the trust, with plans in the works to convert it into a GB training facility, with housing for apprentices and interns. Plans are also in development to create an employee-run, cooperative business selling seeds and plant starts, with a focus on grains, as well as eco-products, and an onsite cafe. All work continues in 2023.

All of this amazing work is just a selection that highlights what has been accomplished in 2022, and what is being planned in 2023 by our GROW BIOINTENSIVE Family across the US, Latin America, Canada, Russia, Africa, the Caribbean, Europe, and beyond!

Ecology Action is blessed to be part of a community of wonderful, powerful, joyful people working on this beautiful, resilient Earth, determined to foster the renewal of our world, and to grow a better, healthier, happier, and more sustainable future for all, **together**: Melvin, Suraya, Jesse, Liv, Matt, Francesca, Susan, Noé, Mauricio, Simon, David, John, Shannon, Fredrick, Marcia, Ana Lucia, Ariel, Peris, Samuel, Boaz, Mlesh, Ephraim, Themba, Juan Manuel, Marisol, Agustín, Carol, Ludmila, Hannah, Albina Oleg, Boris, Antonina, James, Sharon, Chris, our dedicated staff, apprentices, and interns, our wonderful workshop and tour participants, the proactive organizations and individuals supporting our work and that of our partners, and many, many more who go out every day into gardens and communities and boardrooms and classrooms and minds and hearts across the world, and plant the seeds that will bring the future we envision into beautiful and abundant fruition.

It fills me with gratitude and joy to be a part of this amazing group.

Energetic support for and interest in biologically intensive food-and-soil-growing is intensifying around the globe. More people than ever are connecting with us, learning to grow healthy food, soil, and beautiful, abundant, and sustainable communities. **Our Global GROW BIOINTENSIVE Family** is more than the sum of our parts: each of us growing the solutions the world needs, right where we are, together.

YOU are an important part of this family. We are filled with gratitude for each of the generous and thoughtful donors who make it possible for us to carry this work forward. We hope you will consider contributing to the fund for the coming season of outreach, training, and practical research. We cannot do it without you!

If you want to predict the future, create it!

Best wishes for a peaceful winter and a healthy, joyful, and abundant 2023!



John Jeavons
Executive Director, Ecology Action

“People will be willing to change if they have a compelling vision and are provided with the tools to help them bring it into being. The vision must touch their core to engender the necessary passion as commitment needed to overcome the inevitable obstacles on the path to realizations.” — David Gershon

GROW BIOINTENSIVE workshop participants at our Willits Headquarters



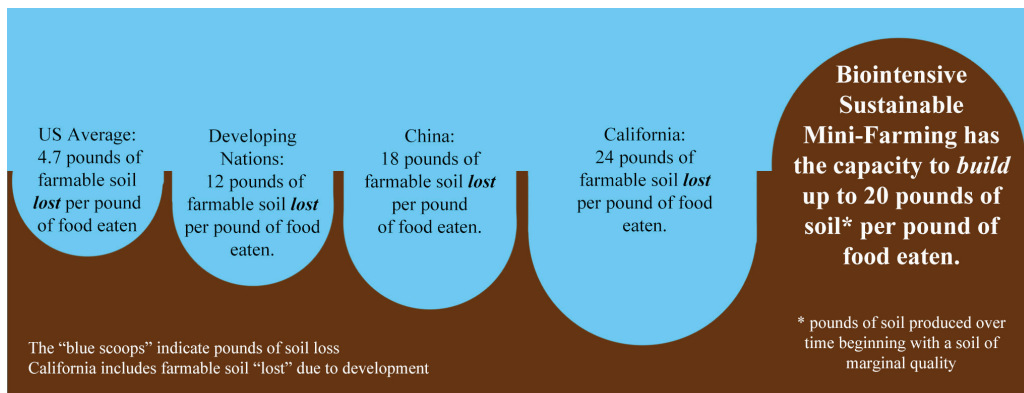
ECOLOGY ACTION • 5798 RIDGEWOOD ROAD • WILLITS, CA • 95490

PHONE: 707.459.0150

EMAIL: contact@growbiointensive.org

WEBSITE: www.growbiointensive.org

What is GROW BIOINTENSIVE®?



Ecology Action has dedicated 50 years of research to rediscovering the scientific principles that made millennia-old traditional farming systems like those of the Maya and the Ancient Chinese so sustainable and successful. These principles have guided us to the eight essential aspects that are the foundation of GROW BIOINTENSIVE Sustainable Mini-Farming System:

- **Double-Dug, Raised Beds** – to create a healthy environment for roots and beneficial soil organisms
- **Composting** – to provide healthy, inexpensive fertilizer that keeps the soil producing year after year
- **Intensive Planting** – to maximize efficiency and productivity, and to conserve water
- **Companion Planting** – to take advantage of the beneficial synergy between certain plants
- **Carbon Farming** – growing fertilizer while growing food
- **Calorie Farming** – growing the greatest number of calories per pound of food
- **The Use of Open-Pollinated Seeds** – to encourage farmer independence and regional food security
- **A Whole-System Farming Method** – using all aspects of the system to create a healthy, sustainable farm

This means that, using our GROW BIOINTENSIVE mini-farming techniques, small farmers can grow food using:

- **67% to 88% less water.** So they still may grow food in a drought, like the one taking place in Kenya right now.
- **50% to 100% less purchased fertilizer.** So they can still grow food even when they don't have much money.
- **99% less energy than conventional agriculture,** while using a fraction of the resources. So they don't contribute to agricultural pollution. In fact, GROW BIOINTENSIVE helps sequester carbon in the soil, which helps reduce greenhouse gas levels in the atmosphere.

...and that GROW BIOINTENSIVE, when used as recommended by Ecology Action, can also help farmers:

- **Produce up to 2 to 6 times more food per unit of land,** as compared with conventional agriculture. This means more food security and less poverty, particularly for those who need it most: small farmers in developing countries.
- **Build fertile soil – sustainably, through carbon sequestration – up to 60 times faster than nature.** So farmers can continue to feed their families and communities into the future, without destroying their environment.
- **Reduce the amount of land needed to grow equivalent amounts of food** and compost materials by as much as 50% or more, as compared with conventional agriculture. This means protected ecosystems, more wild-land, safer wildlife, and a healthier, happier planet for us all.

51 Years.

152 Countries.

Millions of people educated.

Millions of garden beds created.

Billions of pounds of food and fertile soil grown.

...and we're just getting started.

Grow Hope. Grow Abundance.

GROW BIOINTENSIVE!

