



# echo news

Hope Against Hunger | volume 46 | issue 4



**in this issue:** equipping the saints at Bible schools • a call to missions  
dry seeds, abundant growth • innovative green charcoal briquettes



Abram Bicksler, President/CEO

***“He has told you men what is good and what it is the Lord requires of you: Only to act justly, to love faithfulness, and to walk humbly with your God.”  
Micah 6:8***

As I write this, we have just concluded our 30th International Agriculture Conference, where 193 were gathered from around the world to connect: connect to new ideas, options, and strategies and connect to ECHO and each other. That’s what ECHO does best: we connect those front line workers – who are working daily with small scale farmers and the poor – to agriculture strategies that can reduce hunger and improve lives all around the world. Our ECHOcommunity.org membership portal now numbers about 19,000 global organizations and individuals – many of whom are trainers, leaders, and managers of God’s Global Church!

What an incredible privilege to be a part of the World Christian Movement – as God’s Church globally takes the message of hope through the Gospel and combines it holistically with improved lives, the reduction of hunger, improved market access, social well-being, and the care of creation. I saw this in action three weeks ago during our 8th ECHO Asia Biennial Agriculture and Community Development Conference in Chiang Mai, where over 200 workers (mostly from 20 countries

in Asia) gathered for four days to share with and strengthen each other’s work. I met a Naga (Nagaland is in NE India on the border of Myanmar) pastor\* who pastors a church of farmers and is a farmer himself. He proclaimed: “This [attending the ECHO conference and learning new skills, ideas, and connecting with colleagues] is exactly what I and my church of 1,000 farmers have needed! I have been encouraged with new ideas and will share what I have learned with my congregants and all the other pastors in the area. There are 1,700 churches of over 1,000 members each! Just wait and see the impact this will make!”

It is the stories like this which propel us forward into our new strategic plan and boldly into the future, knowing that we serve a Great and Mighty God who desires his Church to be his hands and feet on the ground bringing blessing to mankind and care to the creation. ***Will you join us this holiday season with a generous gift to help us jump-start our next strategic plan so that together we can reach more with this hope?*** Imagine what God can do through us through **the power of partnerships** like what that Naga pastor expressed! And he is just 1 of 19,000 similar workers connected to ECHO.

Blessings and thanksgiving,

Abram J. Bicksler, Ph.D.  
President/CEO

\* Pastor’s name withheld



ECHO is a global, Christian organization that exists to reduce hunger and improve lives through agricultural networking, training, and resourcing.



**Cover photo:** Planting rice becomes a training exercise at ECHO Asia. Their system of rice intensification demonstration regularly becomes a living classroom as visitors come to learn from the experienced staff.

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Please share your comments about *ECHO News*. Write: 17391 Durrance Road, North Fort Myers, Florida, 33917, e-mail: [info@echonet.org](mailto:info@echonet.org), or call: 239-543-3246.

# in this issue




Bible schools **3** call to missions **9** abundant growth **11** green charcoal **15**

## ECHO Asia Tropical Agriculture Development Course **February 21st - 23rd, 2024**

An 'introductory survey course', to tropical agriculture, this event will present a broad overview of many options suited to smallholder agricultural contexts in Asia.

This course is designed for development workers, missionaries, and volunteers looking to engage their communities with low-cost, high-impact agricultural ideas and techniques. Trainees will be

introduced to various agricultural practices and technologies through classroom time and hands-on activities on the farm, learning to 'use what you have to make what you need.' 

To learn more, email [echoasia@echonet.org](mailto:echoasia@echonet.org) by January 19.



**Register Today**



Left: Future pastors being trained at Banankeledaga Bible and Agricultural School gather to discuss how they used new techniques learned from ECHO in their home villages during the summer break. Right: The Director of the IBTEA Bible School shows a harvest of beans drying indoors.

# 'Equipping the Saints' at Bible Schools

By Anna Pearson

*Students at Bible schools across West Africa are learning ECHO's farming techniques in order to bring back the valuable knowledge to their communities and churches.*

Driven from his field with his wife and nine children because of his Christian faith, 39-year-old farmer Sanou Arnaud fled everything he knew in order to pursue a relationship with God. Arnaud and his family are just some of the many who have become Internally Displaced Persons (IDPs) because of their faith.

Taking refuge in a nearby church, he encountered an ECHO training session and was given a small plot of land to apply the techniques he had learned.

Soon, he was producing over twice the amount of corn he previously had, even with a smaller plot of land. The training that Arnaud received was one of ECHO's many Bible school training sessions that have been taking place in West Africa since 2018.

Robert Sanou, Director of the ECHO West Africa Impact Center, saw an opportunity to bring people to Christ by involving the church in community development. The training sessions were meant to teach future pastors farming methods

***"With ECHO, we learned to love God in nature. And we farmed according to God's principles, and this way of farming affected my life. I learned that we can take care of God's creation and all of nature. This is a part of the ministry."***

in order to be self-sufficient and produce abundant food at their institutes. In the first year, ECHO was able to partner with 24 Bible schools across West Africa, and now has trained 1959 students from Ghana, Côte D'Ivoire, Burkina Faso, Mali, Guinea Conakry, and more.

Following the principles of ECHO's gospel-centered approach, the training teaches the Foundations for Farming (FFF) method, also known as Farming God's Way. Daniel Kabore, director of the Biblical and Theological Institute of the Apostolic Church in Burkina Faso, had been teaching holistic ministry already, but ECHO offered him a new perspective.

"With ECHO, we learned to love God in nature. And we farmed according to God's principles, and this way of farming affected my life," Kabore said. "I learned that we can take care of God's creation and all of nature. This is a part of the ministry."

These four-day-long Bible school training sessions seek to address the main challenges of agriculture in each country they are hosted in, teaching theology students who will later work in both rural and urban areas with farmers and gardeners.

The idea that God has provided a foundation for faithful stewardship of land and creation is the overarching theme of FFF. The training emphasizes a set of guiding principles for sustainable agricultural practices and transformation of the way people farm.

"The Bible has many references where God is talking about the way of farming," Promesse



Kansie said, an ECHO West Africa trainer who leads these sessions. "People are surprised - even I remember last time when we were in Nigeria, this director said that it feels like he hadn't read the Bible before. He didn't know that there are verses talking about farming, and specifically the right way of farming."

Various traditional farming techniques such as burning mulch and tilling fields were destroying living organisms in the soil and decreasing the soil fertility with each passing year. In order to combat these ongoing issues, ECHO teaches farmers to make bioliquid fertilizer and pesticide from natural ingredients; gardening techniques; recipes from plants like neem and pepper; what nutritional plants add value to their diet; and methods of animal husbandry.

As Kansie explains, farmers leave training sessions with a "complete kit" of knowledge: FFF, including fertilizers that will feed the soil, and pesticides that will protect their crops with ingredients that are not harmful for the environment or their health.

"The way God is farming in the forests, nobody is going there to spray any pesticides," Kansie said. "The plants protect each other. So, we are imitating nature."

Students are taught how plants like moringa can be used to improve their food's nutritional quality, even using parts of the plant for medicinal purposes or to improve health. Plants like chaya have been brought from the ECHO Global Farm in Florida to grow in West Africa for their benefits.

**Families serve together at Bible Schools in West Africa and young children often play near their parents as they work.**



In order to provide their own food, many of the Bible schools started gardens on their campuses to supply fresh fruit and vegetables for the schools' kitchens. One of the former students who had received training at ECHO was hired to work at another Bible school in Burkina Faso, where they were spending money on vegetables that had been treated with unknown chemicals. This student implemented a garden there to reduce food expenses, using only what he had learned at ECHO to feed the students.

"By building their own garden, it also helps the students to learn more," Kansie said. "And then when they go to their own house or their own community, they're going to say they can also do it for themselves or train the church members to do it."

In addition to starting their own gardens, selling local poultry is an important income-generating activity for families in rural areas

of West Africa and provides higher food quality. An important topic in the Bible school training sessions is how to properly take care of poultry, including caring for chickens when they're sick and making chicken feed with locally available ingredients.

Biblical beliefs that translate into the technical teachings of FFF include planting on time, to a high standard, without wastage, and with joy.

Kansie compares FFF to working in an office – a person cannot leave their office for eight months out of the year and still expect high-quality work to be produced when they are back. Farmers must be working year round to ensure that their land will produce a good harvest.

"We tell them to give time to their activities, and to prepare for the rainy season," Kansie said. "They should dig their holes, prepare their compost, and gather the mulch."



An agricultural trainer at Banankeledaga Bible and Agricultural School demonstrates the success of plots using natural fertilizer that they learned from ECHO.



Aiming for a multiplication effect, ECHO trainers ask the Bible school students how many people they can share the topics they have learned with after the training session is complete. Some say 10 people, some say all of their church members, or even all of their village. Moreover, trainees will continue to spread agricultural knowledge by word of mouth in areas where ECHO cannot reach, further multiplying.

“My hope is to hear that there are pastors who are spreading FFF,” Kansie said. “There is an insecurity that we cannot go there, but we are transferring ourselves to another person in the community who can do it easily.”

Kansie often receives calls from past trainees, updating ECHO on their farming progress or reaching out with agriculture questions. They created a WhatsApp group (social media) as a space for continued community after training and encourage trainees to implement all of the things ECHO taught them.

ECHO’s goal is to spread their teachings past their reach for impact, so others can continue their work beyond the training sessions offered. Leaders “equip the saints for the work of the ministry,” as Ephesians 4:12 states, and ECHO’s mission is to equip the saints to improve the lives of others in the name of Christ. 🌍

**Above: Peanuts were ready for harvest when trainers visited to follow up at the Evangelical Bible School near Ouagadougou, Burkina Faso.**

# what's happening



Joseph Aliguma from Hoima, Uganda, shows a passion fruit vine, originally from ECHO, growing well along his living fence.



The Regional Impact Center Directors meet under a tree in Tanzania to brainstorm strategies and metrics for ECHO's diverse global work.

## #echofightshunger



Follow us on Instagram for pictures of ECHO's work all around the world. #echofightshunger

## Global Directors



ECHO's Global Directors: L-R Erwin Kinsey, East Africa; Patrick Trail, Asia; Robert Sanou, West Africa; President/CEO Abram Bicksler, Ph.D.; and Grace Ju Miller, Ph.D., North America.



# g at ECHO



## ECHO Leadership Team

The entire Global Leadership Team met together to collaborate during the strategic planning process this year. Representatives from all of ECHO's Regional Impact Centers, and the ECHO Global Leadership worked tirelessly together for the benefit of those we serve around the world to update and co-create the next strategic plan.

## Board Retreat for Strategic Planning



The ECHO Board of Directors met over two days to focus on goals and objectives for ECHO's next strategic plan.



## Learning from Neighbors



Left: ECHO Asia team members visited Thai-Karen partners in Doi Saket, Thailand to learn from their vibrant agroforest. Right: Coffee berries ripen in the shade of the forest.

# A Call to Missions

By: Ella Roberts

*Grace Brinsfield will continue her work in missions and agriculture in Eastern Senegal after returning from her ECHO Internship and international field experience.*

After church on a Sunday afternoon, Grace Brinsfield is found hunched over a bucket of soapy water. An hour into her laundry, a pile of dirty clothes still sits beside her. She is only about halfway done with her load. Nearby, a group of middle school girls wander around, bored, looking for something to do. They spot Grace glancing over her shoulder at her never-ending pile.

Without saying a word, they walk over to her, place their hands in the bucket of soapy water, and begin doing Grace's laundry beside her. In 10 minutes, all of her clothes are washed.

This is just one of many examples of "Teranga" that Grace experienced while in Senegal during her extended field experience - a cultural norm of abundant hospitality and accommodation, as Grace explains it - something she was not used to but is grateful for.

## A PERSONAL FAITH

Grace's faith became more personal when she went to college and was confronted with personal convictions. Growing up involved in the church, Grace struggled with sin because she knew it was wrong. She found it easy to go astray in the college environment.

***"One of my worries when coming to Senegal was if I would find close Christian relationships, and the Lord has blessed me abundantly with the spiritual family I have found."***

After joining Baptist College Ministries, Grace went on her first immersive cross-cultural experience in Cambodia where she taught English to high school students. That was where she learned that church planting is a long-term commitment.

"Just after the one-month mark we were already halfway through, but they were just starting to trust us and open up to us," Grace said.

Grace left Cambodia considering international missions as something she would want to pursue long-term. After graduating college in 2020 amidst the COVID-19 pandemic, she was left with one big question; How do ministry and agriculture go together?

## GROWTH WHILE AT ECHO

After getting a recommendation, Grace applied to the ECHO Internship for the summer of 2022. Grace was assigned to take care of the Monsoon garden, acquiring knowledge, techniques, and relationships that would eventually be of support to her in Senegal.

**Left: Grace made bio-pesticides from various plants that grow wild in Senegal.**



About a month after the conclusion of her internship in Fort Myers, Grace took the opportunity to go on the extended ECHO field experience which supports interns to apply what they learned in Florida in the developing world with partners. This brought her to Senegal, West Africa, where she worked on the BeerSheba Project for six months.

On the farm, Grace spent her time breeding a Senegalese chicken that is well-suited for the climate, testing various plant-based and farm-made pesticides as overnight seed soaks to prevent millipedes from eating young plants, and woodworking a winnower for seed banks using a design she learned about while in Florida.

Senegal is made up of about 95% Muslims, 5% Catholics, and is 100% animistic. Grace quickly realized there were a number of unreached people in Senegal, meaning certain ethnolinguistic groups do not have the people or resources to share the gospel with them. This is why outsiders were often needed - to help mobilize locals to go to other unreached contexts.

Grace was invited to a local Christian's house for Bible discussion and Ataya, a Senegalese tea.

***"I'm grateful that ECHO led to this connection"***

The conversations that took place had to be translated three times (English, Pular, and Wolof) for everyone to get the message. Despite the language barrier, the group had

warm fellowship and prayer.

"One of my worries when coming to Senegal was if I would find close Christian relationships here, and the Lord has blessed me abundantly with the spiritual family I have found," Grace said.

### **THE NEXT FOUR YEARS**

While in Senegal, Grace met an American couple receiving training at Beersheba that has been in



Senegal for 20 years. The family welcomed Grace right away, and as she spent more time with them, she decided she wanted to be mentored by them long-term. Upon arriving back home to Maryland, Grace was hired as an apprentice for their new agriculture training project in Eastern Senegal to work to improve farmers' standard of living.

She will also be joining their sending organization, which has seen spiritual growth in Senegal over the years. Her focus will be on indigenous church planting.

Grace completed her training in August and will begin her 2-year apprenticeship in early 2024.

"I'm grateful that ECHO led to this connection," she said. "I was especially feeling like I needed to have what's next figured out and the Lord answered my prayers by providing a connection and people who I really respect and have a similar heart and mindset related to holistic missions and agriculture." 🌱

**Above: Grace is coached through making Ataya tea for the first time after watching the preparation of the drink many times. Ataya tea is generally made from Chinese green tea, to which mint and sugar are later added, and the custom consists of three separate rounds of tea drinking. Photo submitted by Grace Brinsfield**

# Dry Seeds, Abundant Growth

By: Sarah Bakeman

*ECHO researchers are working towards an accessible two-ingredient desiccant that assists in the process of drying and storing seeds.*

A mason jar sits on the counter of the lab of ECHO's Florida campus, (now known as the North America Regional Impact Center (RIC)) black pea-sized beads at the bottom with cloth-wrapped bell pepper seeds sitting on top. Yesterday, Educational Research Associate Dr. Guin Perry put wet and slimy seeds into the jar. Today, those seeds are dry. In one more day, they'll be dry enough for long-term storage - ensuring bell pepper seeds can be planted in the future.

The black beads at the bottom of the jar are the secret behind the quick drying. They're also the result of seven months of research, testing, and tweaking between Perry and Appropriate Technology (AT) Manager Elliott Toevs, who seek to create a reliable and cheap two-ingredient desiccant for ECHO community members.

"Having a desiccant that is easy to make and accessible is critical for the project," Toevs said. "Anything focused on smallholder farmers' success

and profitability is a worthwhile endeavor for us to be pursuing."

A desiccant is a substance designed to induce and sustain a state of dryness. Cat owners buy kitty litter - a desiccant - in order to keep the litter box dry. New products have silica gel packets in the box to prevent moisture damage. Farmers and gardeners use zeolite beads, a commercial desiccant, to dry seeds before and between planting.

Drying seeds with a desiccant allows for more effective long-term storage. There's a minimized risk of fungus and disease damage and premature sprouting due to moisture, and the seeds don't get damaged as they might when dried in the sun. With more certainty, growers can be self-sufficient, use less seed, save money, and save seeds for longer.

"Let's say a farmer has an awesome crop this year. Being able to keep seeds from that awesome crop

***"It improves the chances of having healthier crops every year because now they're able to save seeds faster without infection."***



means that next year's crop has the potential to be great too," Perry said. "It improves the chances of having healthier crops every year because now they're able to save seeds faster and better for longer."

Seed Bank Manager Holly Sobetski encounters the importance of seed drying in her own work on ECHO's Florida campus. Outside, the summer weather is often surpassing 90 degrees, and the humidity can easily be described as sticky. The dampness in the air prevents the seeds from reaching the ideal moisture content, opening the door for seed spoilage.

Sobetski avoids this by drying seeds in heated dryers before storing them in sealed containers in a 45 degree, 40% relative humidity environment. She'll often add a silica bead packet in bulk bags of seed as a safeguard.

In short, Sobetski stores seeds in ideal conditions.

"But most farmers and communities cannot afford equipment to keep their seeds in these conditions," Sobetski said. "It's expensive."

**Opposite: Bell pepper seeds are inspected a day after being put into a jar with the two-ingredient desiccants. Although they were wet and slimy the day prior, the seeds were dry and nearly ready for long-term, low-moisture storage.**

**Above: Educational Research Associate Dr. Guin Perry starts the process of separating clay from soil and water by pouring it through a multi-level filter. The clay will later be mixed with wood ash to create a desiccant. Center: Dr. Guin Perry holds a handful of Zeolite, a desiccant that can be used for drying seeds. Her goal is to make a free, homemade, and accessible version of the product. Below: Purdue Improved Crop Storage (PICS) bags are one solution to post-harvest storage tested at ECHO North America.**



Without education about or access to seed drying techniques such as desiccants, farmers can face devastating seed loss. Sobetski remembers one Tanzanian farmer who stored a large bag of valuable cowpea seeds.

After storing, the hope was to plant the seeds half-an-inch deep into warm soil. The results would be quick, with the legume producing after about two months. Once harvested, the cowpeas would be cooked like a green bean and enjoyed, and more seeds would be saved.

With this in mind, the farmer properly sealed the seeds into an airtight, multi-layered crop storage bag, protecting the cowpeas from weevils.

The seeds, however, were moldy and unusable when taken out for planting. The cowpeas had too much moisture when they were put into storage, largely due to the humid conditions. Had the farmer dried the seeds with a desiccant before sealing them in the bag, spoilage could've been avoided.

"Farmers and community seed banks need low-cost options for drying down seed before storage as well as keeping seeds dry in storage, especially if the storage conditions are not optimal," Sobetski said.

While Zeolite works for some, Perry realizes it is not an affordable or readily available desiccant option for many of the farmers ECHO equips.

"I thought 'maybe we can come up with something that's free, that people can make themselves, that's a version of Zeolite,'" Perry said.

In January, Perry and Toevs began developing a desiccant made up of wood ash and clay. ECHO community members can feasibly gather these resources by collecting wood and clay-rich soil. However, making a desiccant takes more care and attention from that point on.

After gathering the soil, Perry separates clay from the mix. This is accomplished by stirring together the soil with water and then allowing everything that isn't clay to sink to the bottom. The clay binds to the water and stays on top. This top layer can be poured off and strained into a separate container, leaving the sand and silt behind. After sitting for as long as 24 hours, the clay regathers and settles to the bottom of the mixture. The final step is pouring the mostly-separated water and clay through a cloth, allowing the water to run through while the clay stays in the fabric. The cloth can be tied up and left to dry for about 12 hours, and what's left behind should be soft and smooth clay.

Wood ash is created from the combustion of wood – it's the white, powdery residue remaining after a bonfire. This can be gathered and used for the desiccants.

Once the clay and wood ash are ready, they can be mixed together with water. As Perry has progressed in her work, the desiccant balls have improved. They are now rolled with a more consistent and smaller size, maximizing the efficiency of the absorption.

After a batch is rolled, the desiccant balls must be fired in heat of almost 1000 degrees Fahrenheit – a job fit for a forge, which Toevs fires at the Appropriate Technology Shop.

Beyond the forge or a kiln, Perry and Toevs are researching whether or not this firing could be accomplished by a rocket stove.

The heat of the firing process creates calcium oxide, the chemical compound that pulls moisture in to the bead. The beads can be dried out in an oven and reused up to five times before losing significant absorption abilities. Perry is most proud of this reusability that she has discovered in her research.

***"The people that we're seeking to serve, smallholder or subsistence-level farmers, the marginalized in the whole scheme of things, have fewer resources at their disposal to make a change."***

"It does take energy to make them, but if I can use them five times and dry out seeds for my crop for five seasons, then I make them once every five years, and I get to use them over and over again," Perry said.

Reusability is crucial for the future adoption of the desiccants among ECHO community members. Perry and Toevs are now investigating whether refiring the beads in the 1000-degree Fahrenheit heat used in the original firing would reactivate the calcination process, creating more calcium oxide. In other words, they are looking to dry the beads out, revive the absorbent qualities, and boost reusability for seed drying.

As Perry and Toevs continue to tweak the desiccant-making process, small-scale farmers like the man in Tanzania are at the forefront of every decision made by ECHO. The most sustainable,

accessible, and labor and resource efficient methods are prioritized to minimize economic and productivity risks to the smallholder farmer.

"The people that we're seeking to serve, smallholder or subsistence-level farmers, the marginalized in the whole scheme of things, have fewer resources at their disposal to make a change," Toevs said. "A small change like this can provide better and longer seed saving which in turn can lead to better harvests and nutrition."

Your support of ECHO makes this research, and so much more possible to benefit small-scale farmers around the world.

From clay and wood ash, to healthier and drier seeds, we are grateful for the abundant growth in lives all around the world! 🌍

**Below: Final clay beads produced by Dr. Guin Perry and her team are affordable, easy to make, and reusable. The clay has been mixed with wood ash and fired to create a desiccant.**





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# Innovative Green Charcoal Briquettes

At ECHO's Appropriate Technology Symposium, Clement Mzinga and Rehema Onesmo of Women Development for Science and Technology Association (WODSTA) demonstrated the Portable Cement Stove, Wonder Basket Stove, and briquettes made and promoted by their organization to inspire others to make their own.

Made with agricultural waste, green biomass charcoal does not release the smoke and carbon dioxide that the conventional briquettes emit when burned and is gaining popularity in the East African country, where 80% of residents rely on wood and coal to cook their meals, according to the national statistics bureau.

These spheres can be used as an alternative to other fuels such as coal and oil, both in household uses, and for heat, which recycles, reduces fuelwood deforestation, reduces costs and creates economic opportunities, improving lives! 🌱

