



echo news

Hope Against Hunger | volume 46 | issue 2



in this issue: the 'dirt' on bioliquid fertilizer • welcoming new Directors
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"For God was pleased to have all his fullness dwell in him, and through him to reconcile to himself all things, whether things on earth or things in heaven, by making peace through his blood, shed on the cross.

Col 1:19-20



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

Dear friends, colleagues, and champions of ECHO:

Greetings as we move into spring (for you northerners) and the rainy season (for those of you from the tropics); both of which point to newness and rebirth. I am reminded of my January devotional for our ECHO staff, which centered on the idea of "new" as we read in the Greek New Testament. Unfortunately, in English, our word "new" doesn't capture the nuance of different Greek words in the New Testament in important verses such as "Behold I am making all things new," (Rev 21:5) or "if anyone is in Christ, he is a new creation." (2 Cor 5:17)

As Rev. Dr. Dave Bookless, Director of Theology for A Rocha, points out, in Greek there are different words for "new" including *neos* (completely brand new) and *kainos* (renewed, refurbished, restored) that add textured nuance. In almost all verses in the NT where we have new, the word is actually *kainos*, which has meanings of restoration, rejuvenation, and even recycling. When Jesus says "I am making all things new" in relation to the end times of the cosmos, He's really talking about restoring, refreshing, and rejuvenating His cosmos, which is in keeping with Christ's supremacy and work as reconciler of all things in Colossians 1:15-23.

That *kainos* moment has come to ECHO as we move into a time to praise God for what He has done through the last strategic plan (2017-2021) and seek Him corporately for guidance and wisdom as we move into the next global strategic planning process. It is also an exciting time of renewal and refreshment as we have added *neos* and *kainos* staff alike (Patrick Trail – ECHO Asia Director and Larry Comstock – Director of Advancement – Pg. 11) and have begun the search process for additional new and refreshed teammates. A refreshed organization structure for ECHO Florida is also being rolled-out to make us more effective and to pave the way for new Regional Impact Centers and strategic approaches in the years to come.

Change is scary, but when we approach it through a *kainos* lens, it can help us to rejoice in the refreshing that God is providing. It is an exciting time at ECHO as we corporately praise God for His faithfulness over 42 years. Now we look to the future, roll-up our sleeves, and co-create to ensure that we remain relevant, useful, and effective in honoring God by empowering the undernourished with sustainable hunger solutions.

Thanks for joining with us in your prayers, encouragement, and financial partnership during this *kainos* moment for ECHO. If you would like to provide feedback or be a part of the strategic planning process, please contact advance@echonet.org.

For Christ and His Kingdom,

ECHO exists to follow Jesus by reducing hunger and improving lives worldwide through partnerships that equip people with agricultural resources and skills.



Cover photo:

197 women from the Benkadi Cooperative were trained in above-ground gardening with tires to meet their families' nutritional needs.

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edited by **Danielle Flood**

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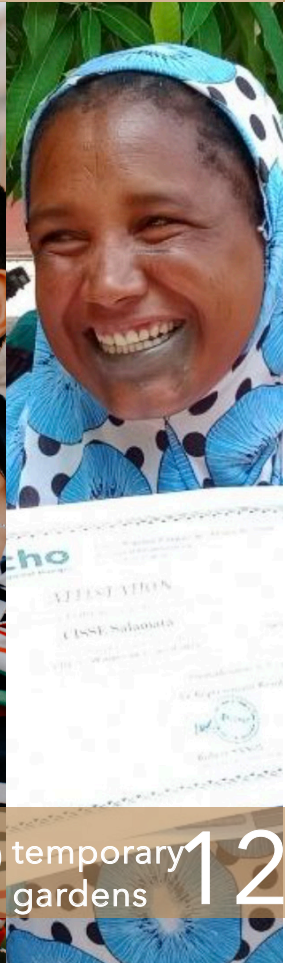
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Benkadi Means Moving Forward Together

The word 'benkadi' in the Jula language means 'working together in the same direction' and this was the heart of the Cooperative when they asked if ECHO trainers in Burkina Faso could come and teach various techniques to their members.

Accompanied by a local trainer, the ECHO West Africa team trained 197

people in February, mainly members of the Benkadi farming cooperative from the Dédougou region of Burkina Faso.



Working together to create fermented bokashi, a homemade soil amendment.

The 'Dirt' on Bioliquid Fertilizer

By Talia McWright

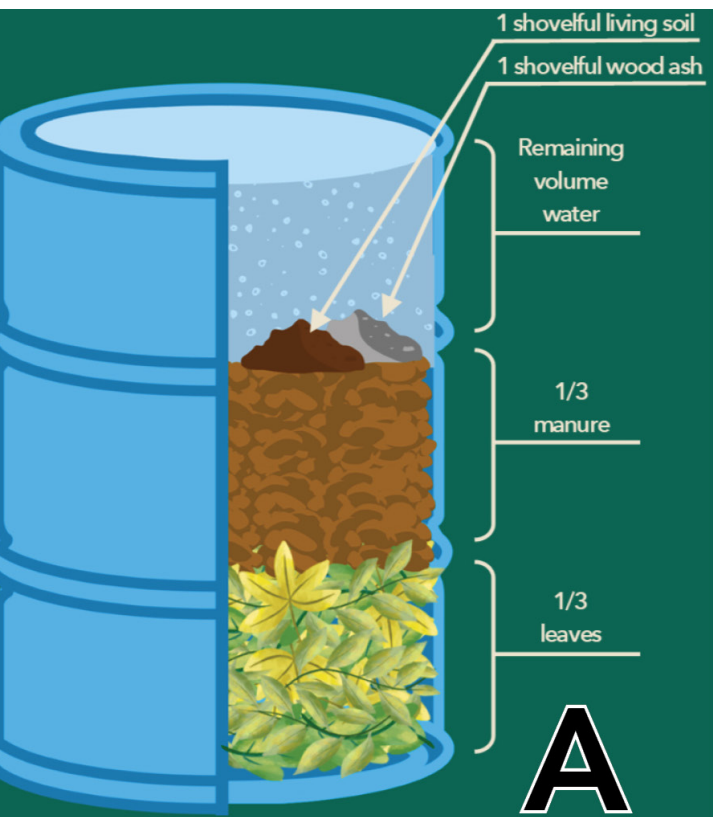
Dr. Tim Motis and his team at ECHO Florida have been testing bioliquid fertilizer recipes that were first identified in West Africa to better understand the timing and available nutrients over time. Letting the data tell the story allows ECHO's training and resourcing teams to better equip and empower those we serve with validated knowledge that directly impacts their harvests and livelihoods.

Soil health is key to growing crops that flourish and produce an abundance of food for communities. Dr. Tim Motis and his team at ECHO Florida have been testing bioliquid fertilizer to find out when to apply it. The team found that, with a recipe that includes plant material and manure, three is the magic number as nitrogen reached its highest level at the three-week mark. High levels of nitrogen are important, because many farmers experience a deficiency of this nutrient in their soil. This is an example of discoveries, validated through research, that Dr. Motis and

the ECHO team share with a global network of practitioners serving small-scale farmers.

Originally identified in West Africa by a guest presenter at an event and shared with ECHO Florida, bioliquid fertilizer is a water-based fertilizer comprised mainly of nutrient-rich plants, manure, or both. Dr. Motis' team has evaluated three recipes, all of which include water as well as leaves and young stems of a plant called Tithonia (*Tithonia diversifolia*, also known as Mexican Sunflower). One of the recipes is just water and Tithonia while

the others include manure and/or "living soil" (soil with lots of microbial life) and wood ash. Other high-nutrient plants could potentially be substituted for Tithonia for similar results. Whereas compost requires careful attention to temperature and the turning of piles, the bioliquid fertilizer that Dr. Motis has been working with simply requires a few minutes of stirring each day.



Right: Tithonia plant material used in both formulations. By Quinn Beitzel, volunteer research assistant.

Opposite: Bioliquid fertilizer ingredient ratios (A) and the process of mixing (B). Provided by Weslee Green (A) and Dr. Tim Motis (B).



The team collected samples of the bioliquid fertilizer over an 11-week period, on a weekly basis for the first several weeks and then biweekly. The fertilizer samples were sent to a laboratory for analysis of nitrogen and other nutrients plants need. Results were then graphed to show how many weeks, after mixing up all the ingredients, it takes for the nutrients to reach their highest levels. Test results showed that nitrogen levels peaked at the two-to-three week mark, whereas levels of other nutrients reached their highest levels between the third and fifth week. Results showed that the best time to apply bioliquid fertilizer depends on the recipe and on what nutrients the farmer wants to prioritize.

Motis and his team are sharing results with the other Impact Centers so that they can be disseminated around the world. "With this knowledge, farmers will be able to decide when to apply bioliquid fertilizer based on the recipe they are using and the nutrients their plants need most," Dr. Motis said.

Farmers with no access to manure can still make biofertilizer with just plant waste alone or in combination with "living soil" and wood ash. ECHO research findings not only showed when to apply bioliquid fertilizer but also the differences in nutrient levels provided by different recipes. If a farmer uses a recipe that is less nutrient rich than another recipe, she/he will know to compensate by applying that recipe at a higher rate.

"There's no simple technique to solve every plant problem," Dr. Motis said. "There's no silver bullet, but this is a practical option in a farmer's toolbox."

One downside of bioliquid fertilizer is its weight. It could be tiring to carry and apply a heavy liquid over large fields. A method used by ECHO Florida staff, that overcomes the problem of weight, is called fertigation. With the turning on of a valve, the bioliquid is quickly distributed directly to the plants through drip irrigation lines.

"With this knowledge, farmers will be able to decide when to apply bioliquid fertilizer based on the recipe they are using and the nutrients their plants need most"

Dr. Motis' team continues to explore nuances and options related to bioliquid fertilizer. Findings by Dr. Guin Perry, for instance, are showing the importance of wood ash in stabilizing pH of the fertilizer, an important factor influencing the ability of plants to take up nutrients. She is

also exploring an approach to making bioliquid fertilizer that eliminates the need for daily stirring. ECHO researchers hope to provide a range of on-farm fertilizer options that farmers can implement themselves to positively impact their communities by meeting hunger needs. The results will empower farmers to experiment, encouraging their communities to do the same.

Taking this validated research back to West Africa gives the team even more confidence in the practices that they teach. 🌍

In Their Own Words: Bopoma Villages Staff

Most people in Zimbabwe are subsistence farmers, but in the Zaka region, it is especially dry and crop yields are often poor. Bopoma Villages' programs are restoring health through clean water, nutritious food, and improved hygiene. Recently, their lead trainers spent three weeks at ECHO East Africa to experience, participate, and become multipliers of techniques and options with potential to make a difference in the regions they serve.

“Let me start by appreciating the privilege of being accorded the time at ECHO Arusha. We were accorded first class hospitality by the most humble ECHO staff. My time at ECHO Arusha was helpful to me in my work because I learned how it is important to involve the community when bringing in some new technology. If they're involved in decisions that will leave them proud that they're part of the creation through innovations to the new technology and this will encourage them to sustain the implementation and even pass it on to their neighbors.” – Ronald Gondongwe

“The work at ECHO is Christ centered. I loved the way they made everyone comfortable at trainings regardless of their different religions. I was moved by the ‘father-heart’ of God which moved Erwin in making sure that he speaks the heart of God to everyone, and I mean everyone around him. It is amazing. Reaching

out to a society which is so diverse and making sure that no one is going to be left behind no matter their religious or cultural differences, this moves my heart so much and has given me a new perspective in the way I see my community now, no one is to be left behind, it's never meant to be easy but with Christ all things are possible.” – Victor Norest

“Among other many lessons, I loved the way they work with their stakeholders. In the short time we had at Arusha we learned that their initiatives are recognized and are being adopted by the communities, other NGOs, community champions, and government ministries. More so they are advocating on the radio and in community meetings. We are living in a time where we need to be self sustaining and the agroecological way is a solution where one will have what is needed to take life further.” – Phainos Manzuma

Ronald, Victor, and Phainos learned in the field with ECHO team members and participated in village-level trainings on draft yokes.



A Transformative Experience

By Makenzi Johnson

Past ECHO intern, Laura Havenga, sees her ECHO internship as 'transformative' as she serves rural farming families in Panama.

While studying horticulture at Michigan State University in 2006, Laura Havenga knew she wanted to do agricultural missionary work, but wasn't sure how to get started.

The opportunity came when missionaries from Malawi came and spoke at her church. Hearing about their work, Havenga realized it was exactly what she wanted to do and spoke with them. The missionaries told her to do two things, attend EARTH University in Costa Rica and attend the Urbana missions conference.

At the conference, she met ECHO's intern director who told her how she could get involved and what she should do to get started.

"They told me I should get experience overseas, and I said, 'I'm doing that, I'm going tomorrow!'" Havenga said.

Havenga went to EARTH University for a study abroad to gain more insight and knowledge of tropical agriculture. After returning from Costa Rica, she applied for the internship and soon became the lowlands intern in the fall of 2009.

During her internship, Havenga worked with rice and bananas, helped at the Seed Bank, and took care of the rabbits. The 12 month, full-time commitment of the ECHO Internship Program helps interns gain hands-on experience in tropical agriculture, living in community, and learning about community development work from a Christian perspective.

Still serving in Panama, Havenga is grateful for ECHO as a resource for those she trains.

Havenga completed her internship in 2010 and went to volunteer with the Sustainable Agriculture Systems Program in Peace Corps Panama. After volunteering for three and a half years, she took the position as a trainer for incoming sustainable agriculture volunteers and has been working there ever since, and in 2023 was promoted to Program Manager for Sustainable Agriculture Systems. As a trainer, Havenga would help about 25 volunteers each year prepare to go out into other areas of the country to help small-scale farmers. She regularly uses the resources ECHO produces and teaches her volunteers to do the same as it greatly serves their work in the field.

Her internship at ECHO did more than just prepare her for the technical and practical work she is doing now in the field. Describing the encouraging environment and sense of community that the internship prioritizes, Havenga said, "Being in a place that really understood me was really transformative. It confirmed my commitment to live out my faith and help transform lives by serving rural farmers and families overseas."

"God had always put it on my heart to be involved in development work overseas"



what's happening



Trainees gathered near Cotonou, Benin to learn how church members can be more involved in community development, bio-pesticides and poultry-rearing.

#echofightshunger



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



Cooking 'Neglected & Underutilized Species' (NUS) from the ECHO Asia Small Farm Resource Center. So many nutritious crops, including vegetable fern, banana flower, amaranth, fishtail palm, rattan, and more!

Biochar First Hand



P'Toh leads a biochar workshop during ECHO Asia's Tropical Agriculture Development Course in Chiang Mai, Thailand.

g at ECHO



ECHO in the Classroom

ECHO's Community Garden Intern, Karuna Taylor, and her advisor, Tour Coordinator, Russ Luther, spent a morning chatting with second grade students at Evangelical Christian School. Their theme of "Careers in the Field" helped students connect what we eat to future ministry and vocational opportunities.

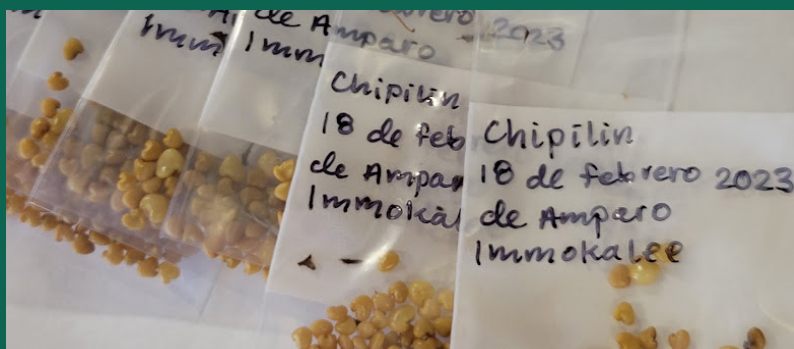
Chaya Samples While You Wait



Anna, ECHO trainer, taught families about perennial vegetables and served chaya at Mungere clinic in Tanzania.



Seed Swap in Rural Florida



ECHO staff and interns participated in a partner's seed swap in Immokalee, Florida. They shared that "the ECHO team was essential for intensive registration and seed cataloging. Of course, your education component was excellent!"

Explore Cultural Differences This Summer

By Lucy Mylin

Kickoff your family's summer with these seven activities that will inspire your children or grandchildren to learn more about our world!

As the structure of the school year ends and summer approaches, we've put together seven ways your family can grow in their knowledge of the world and its cultures in the coming months. Hopefully, together we can raise up a generation of people passionate about the preservation of our earth and the celebration of global cultures.

1. One of ECHO's main ministries is resourcing and training partners and farmers around the world, and this often includes providing trial-sized seed packets. ECHO seeds are tested for germination so that we know farmers have the best potential for a healthy crop. You can germinate your

own seeds from foods that are already in your kitchen. Try tomatoes, beans, or pumpkins and watch the young seedlings germinate.

As you learn about another country's meal traditions, take time with your family to discuss the foods that are important to you, and how they've brought you all closer together.

2. Here at ECHO we're plant and animal lovers. If your kids are as into growing things as we are then volunteering at a local community garden might be the perfect way to teach them some sustainable practices and get them eating more fruits and veggies! Check online to find a community garden near you to get involved.

3. 3.37 billion people in the world are unreached – meaning those people have never heard the good news of Jesus Christ. Partner together with your kids to be dedicated

to both praying for and learning about the unreached peoples in the world. If you'd like a helpful video, search Youtube for "What is a UPG?" and share this video from Global Frontier Missions explaining unreached people groups. Then check out the Joshua Project's map to learn the names and areas of specific unreached people groups. Finally, read *Frontier People Groups*, a free online children's book and prayer guide published by Indigitous. Not only will this book educate your children on worldwide cultures, but it will give them prayer requests specific to individual people groups. We hope this spurs a desire in your children to see the Gospel spread to every nation!



Above: Photo by Jonathan Borba on Unsplash Opposite: Photo by Mi Pham on Unsplash



4. Every home has some food waste, and in the US, on average, 40% of the food that is produced is wasted. Why not put it to work while making your home more environmentally friendly? Composting is an easy way to teach your kids the importance and joy of stewarding the earth. ECHO has an online article that will teach your family how to get started on your very own worm compost bin! (Google: ECHO worm compost) You can also pick up *Compost: A Family Guide to Making Soil From Scraps* at ECHO's Bookstore to learn even more.

5. Looking to talk directly to someone from another culture? Global Penfriends provides your family with a safe and easy way to get connected with a penpal. Through either snail mail or online messaging, you and your children can discover new friends that you haven't met yet.

6. Maybe you have an avid reader on your hands? If so, some culturally diverse books might interest them. In the ECHO Bookstore we have a variety of children's books that take place all over the world. *Emmanuel's Dream* by Laurie Ann Thompson is a true story of a Ghanaian boy who is missing a leg. Despite opposition in his life, Emmanuel rises above trials and goes on to be an inspiring figure to many of us today. *Mama Panya's Pancakes* by Mary and Rich Chamberlin gives kids insight into life in Kenya and teaches to share what you have. To give your children a broader view of the world consider *If The World Were A Village* by David J. Smith. This book addresses topics such as food, religion, and age on a global scale.

7. Help your kids learn about different cultures by expanding their palate. Discover with your children other cultures' traditions by cooking an authentic meal together. Try Spanish paella, Indian tikka masala, or Korean barbecue. Whichever dish you choose, make sure to research and share the cultural significance of that dish. As you learn about another country's meal traditions, take time with your family to discuss the foods that are important to you, and how they've brought you all closer together.

Have other ideas? Let us know! Email info@echonet.org to share your suggestions.

We recognize you have to be intentional about how you spend your time. Whichever way you choose to grow your child's worldview; be it through books, gardening, food, or your own personal ideas, we are excited to come alongside you and cheer you on. 🌍

Teams Welcome New Directors

As the needs globally rise, God continues to provide the leadership that will allow our teams to strategically train and equip partners around the world.

As 2023 takes shape, we are excited about God's provision of two Directors leading the charge into the future: Patrick Trail, and Larry Comstock.

Patrick Trail has been part of our team for more than seven years. As the Regional Director, Patrick will be responsible for overseeing the strategy, networking, and operations of the Asia Regional Impact Center. His strong leadership skills, networking, and deep understanding of our mission will be invaluable in driving growth and success.

"Greetings from Chiang Mai. I am thrilled to be stepping into this role! I look forward to crossing paths with many of you, whether here at the ECHO Asia Small Farm Resource Center or throughout the region. I value your contributions and service to the marginalized of this region, your participation in our training and networking forums, and the innovative practices, techniques, and technologies that many of you possess. Please keep sharing!"

Patrick is originally from Louisiana, USA, but spent most of his growing-up years in southern Africa. After completing an undergraduate degree in International Development, he returned to Virginia Tech to complete a Master's degree in Crop & Soil

Environmental Sciences, while working on a Feed the Future project in Senegal. Before moving to Asia, Patrick participated in ECHO's internship program as the 'Tropical Monsoon' intern. Patrick has worked with the ECHO Asia team in Thailand for the past 7 years, first as a Technical Advisor and, more recently, as the Extension Coordinator and member of the Interim Management Team.

Larry Comstock joins ECHO as the Director of Advancement, based out of ECHO Florida. Larry will lead the Advancement team in sharing the "Why" of ECHO's mission.

He joined ECHO in February, 2023, after ten years in senior development positions at Gordon-Conwell Theological Seminary and World Vision. Prior to that, he had a long career in the financial services industry. He has seen first-hand the impact of Christian philanthropy and expertise on small holder farmers and their families. Larry is committed to Henri Nouwen's approach to fundraising as ministry to both donors and beneficiaries. A graduate of Brown University (BA) and Tuck School of Business at Dartmouth College (MBA), Larry lives in Naples, Florida with Alison, his wife of 43 years. 🌍



ECHO News





Gardening in a Temporary Place

Not far from the 'tent city' where she is staying, Salamata Cisse stands behind her certificate with a huge smile. Without many reasons to hope, she believes that providing for her family through new small-scale gardening skills gives them a future regardless of their challenging temporary home.

Salamata is one of more than 1.9 million people who have been internally displaced in the last five years across Burkina Faso. Every day, people flee conflict and disasters, becoming displaced inside their own countries. Some cross borders to become refugees. This internal movement in Burkina Faso has become a challenge to many communities. Families arrive in a neighboring region with few resources and fewer options.

"Too often, displacement and hunger come as a one-two punch," said Hassane Hamadou, Country Director of the Norwegian Refugee Council. "People forced to move have left behind their fields and livestock. Many displaced families report being down to one meal a day. Recent waves of displacement only heighten the urgency to act."

Despite immense challenges to provide shelter, water, healthcare, and education among other essential services, communities have rallied to support each other.

According to the United Nations, out of Burkina Faso's 20 million citizens, more than 2.8 million people are food insecure, and this number is expected to rise significantly over the coming months as the country braces for a longer dry season.

Salamata and the Ipelce community still have many needs, but for the 54 families trained, hope is a game-changer. Salamata shared, "I didn't know that I had so many options to grow food in our space. This will mean the world to us." 🌱

Opposite Left: ECHO Asia's new Regional Director, Patrick Trail with wife Brittany and daughter Amelia. **Opposite Right:** ECHO's new Director of Advancement Larry Comstock. **Above:** Salamata Cisse is presented a certificate for her training at ECHO.

Resource Spotlight

Indigenous Microorganisms (IMO)

Natural Farming, abbreviated NF, is a system of farming that includes some principles from organic farming but it has been developed as a complete, integrated system with specific applications and practices. Inputs for farming are made by farmers from locally available materials. One important NF input, indigenous microorganisms, (abbreviated as IMO) is harvested from the soil and used as a soil amendment.

IMOs carry out two major functions: they decompose organic matter, releasing inorganic nutrients that can then be absorbed by plants; and they create other compounds, such as enzymes, lactic acid, and fixed nitrogen.). IMOs contain a mixture of known and unknown microorganisms, including *Azotobacter* (that fix nitrogen), *Actinomyces* (that suppress diseases), yeast fungi (that break down complex sugars) and lactic acid bacteria. IMO is considered the basis for making fertile land, because with good conditions and available food, use of IMO greatly increases the population of the beneficial microorganisms in the soil. Fungi will grow, and other microorganisms and larger organisms like earthworms will be attracted to the healthy soil culture.

anaerobic and aerobic microorganisms. Cover the box with porous paper (to allow air to move in and out) tied snugly with string or a rubber band. Place the covered container into a shallow hole located in the soil of an area where leaves are falling and decomposing with the presence of fungus. The weight of the leaves accumulating on top of the covered box should not be allowed to press the paper down to touch the rice surface. Leave out for two to 10 days depending on the temperature (two days in hotter climates and 10 days in colder ones). Results are often better when there is adequate soil moisture.

Use of IMO greatly increases the population of the beneficial microorganisms in the soil.

When you retrieve the rice from under the porous paper, you should see a white mold growing on it. This harvested IMO material (including the old rice) can be mixed with molasses (at a 1:1 rate) and fermented for at least one month. The resulting fermented IMO material can be used to make various IMO solutions and products. For instance, the fermented IMO product can be diluted in water (0.1-0.2%) and sprayed onto transplanted seedlings to help them with their establishment

Asia Farm Manager, Khun Sombat, recently collected a batch of Indigenous Microorganisms (IMO) from a bamboo forest soil. To learn more, check out ECHO Development Notes #110. <http://edn.link/edn110>. 🌱

Do you use IMO on your farm or garden? Share your advice at conversations.echocommunity.org.



Multiplying Indigenous Microorganisms

To collect IMOs from wooded areas, fill a wooden box up to 7 cm long with steamed rice. Do not compact the rice, as you need to accommodate both

Khun Sombat with a batch of beneficial Indigenous Microorganisms made from bamboo forest soil.



Extraordinary Plants: Caimito

If you could pluck your favorite characteristics from the earth's bountiful variety of fruit and put them all together how would your fruit taste? How would it look? You might include the red of the strawberry, the sweet flavor of the mango and the refreshing juiciness of the carambola (just to name one of the combinations). Imagine for a moment, a fruit that possessed the deep purple-copper skin of the concord grape, the juicy, soft, melt-in-your-mouth texture of a mango and the pleasant balance of acid and sugar that makes such fruits as the honeybell tangelo so popular and you've got the Purple Caimito, a.k.a. Star Apple (*Chrysophyllum cainito*). Add to these characteristics a convenient size and shape (think medium tomato), small, unobtrusive seeds, and a heavy-bearing nature and you've got the makings of a star - apple that is!

Of course, every rose has its thorn and every caimito has its bitter, unpalatable skin. The fruit is best eaten out-of-hand. Simply cut the fruit in half, horizontally, to reveal the star-shaped pattern. The flesh is a beautiful, translucent white and can be spooned out. The seeds and skin are discarded.

Native to Central America, other great features include its attractive size, shape, and colorful leaves. In the tropics, it can attain heights over 80 feet. However, in subtropical Florida, 25-50 feet is more realistic. The round, spreading, evergreen canopy is full of oblong, two-toned leaves. They are dark green above and copper-brown underneath—quite a sight when rustled by the wind. 🌿

FAQs about Gift Annuities

What is a charitable gift annuity?

A charitable gift annuity is a contract between an individual and ECHO where, in return for a gift, ECHO agrees to pay a fixed amount of money annually for a donor's lifetime. After the individual's lifetime, the balance in the annuity account is retained by ECHO to support the global mission.

How are the payments determined?

ECHO bases the payments on the annuity rates set by the American Council on Gift Annuities, an independent nonprofit organization that recommends charitable gift annuity rates for use by charities nationwide.

Are the gift annuity payments guaranteed?

Gift annuity payments are a general obligation of ECHO. Even if an individual gift annuity account is exhausted, ECHO will still make annual payments for life to the annuitant. ECHO is a financially stable institution and has never missed a payment to an annuitant.

Can a gift annuity be designated at ECHO for a particular use or area?

Absolutely! ECHO's Advancement staff is eager to help donors identify a segment of ECHO's ministry that is most meaningful to them.

What do I do next?

Simply call Larry Comstock, ECHO's Director of Advancement at 239.567.3341 or email: lcomstock@echonet.org. He will provide a detailed illustration showing your annual payment based on your personal annuity rate and potential tax savings.*



*This is not intended to be tax or legal advice. Please connect with your financial advisor.



17391 Durrance Road
North Fort Myers, FL 33917
239-543-3246 | www.echo.net.org



Potential New Appropriate Tech

Exploring the possibilities and challenges of innovations in appropriate technology among small-scale agriculturalists in West Africa.

At the Burkina Faso National Forum in February, delegates were eager to try out a new tool for small-scale zai hole mechanization.

The 'Zainer' is being developed by Netherlands-based nonprofit, Practica, who sought out ECHO to test their prototype among small-scale farmers and those who serve them.

The Zainer can potentially dig zai holes faster and more accurately than an individual farmer, meaning that more field could be prepared in less time. These innovations often have exciting potential but also have to overcome many hurdles. One major challenge is the price of the units being out of reach of many small-scale farming families while new technologies take time and funds to adjust and improve.

At present, the Zainer needs more exploration, but we are hopeful that identification of innovations like this from our network can inspire other appropriate options that will improve productivity and efficiency of those who need them most. 🌍

For more information on zai holes, visit: <http://edn.link/tn78>

