

#echofightshunger | volume 47 | issue 3





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

I planted the seed, Apollos watered it, but God has been making it grow. 1 Cor 3:6

Greetings all!

Thank you for joining prayerfully, thoughtfully, and financially with ECHO to defeat hunger and improve lives all around the world!

We have a great edition of ECHO News for you this quarter, covering some of the amazing work happening through our four Regional Impact Centers with more to come yet this year! In this edition of ECHO News, you'll learn more about our Director of Research and Publications, Dr. Tim Motis; hear about how the Basic Utility Vehicle that ECHO has helped to promote is opening up economic opportunities throughout Africa; learn of the impact of farm-made bioliquid fertilizers to improve soil health and lives; and of the importance of local and community seed banking for generations to come!

In addition to these updates, we have been hard at work publicizing our new

2024-2029 Strategic Framework, updating our social media presence (join us on Facebook, Instagram, and LinkedIn!), and getting the word out to the world about ECHO so that more lives may be touched here and now and for eternity.

It is an incredible privilege to lead an amazing group of men and women worldwide who are dedicated to defeating hunger and improving lives, motivated by the love of Jesus and a desire to glorify God through our professional work in agriculture.

Thank you for making our work possible as we support an amazing network of over 19,000 active development organizations, workers, and individuals worldwide!

I am grateful that God has been making the seeds of faithfulness grow for 43 years through ECHO!

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



Strengthening the capacity of a diverse global network to defeat hunger and improve lives through sustainable food and agroecosystem strategies.



Cover photo: ECHO Asia Conference Center Supervisor Ae smiles as she connects with network members at the eightday International Biochar Academy training in May 2024.

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edited by Danielle Flood

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

in this issue



Asia Internship **Opportunities**

Do you know a passionate community leader in Asia? As a participant in our Asian National Internship Program there are endless opportunities for learning, whether it is a new crop variety, specific practice, or new appropriate technology.

In this case... fruit tree propagation techniques! Our interns learned air layering techniques and variety of different 'top working' grafting techniques for fruit tree species.

Our Asian National Internship Program offers on-farm housing and a small stipend. Spaces are limited. 🦚





A Powerful Platform

By Leeann Estrada

Dr. Tim Motis began working for ECHO in 2003 and has greatly contributed to ECHOcommunity.org's rich knowledge-collection and global dissemination of information to smallholder farmers, missionaries, and development workers.

Dr. Tim Motis has been a foundational piece in ECHO's history. Since 2003, he has contributed ECHO's research and publication initiatives, eventually leading a team to research and publish techniques based on small-holder farmers' inquiries through the ECHOcommunity website. His hard work and knowledge-sharing through ECHO has impacted many small-holder farmers globally. To Dr. Motis, words are the medium through which lives are changed.

Growing up as a missionary kid in Liberia, Ethiopia, and Eritrea, Tim was always in the garden. His love for plants in early childhood led him to select horticulture as his major at South Dakota State University. Then, just like the flowers in springtime, his desire for missions blossomed his sophomore year: "I didn't want to go into missions just because that's what my parents did. I wanted it to be my own calling. Once I got the bug, I couldn't stop thinking about it." Little did he know how God would use him in a different kind of mission field.

In 1996, in between his master's and PhD, he spent time in Ethiopia with the International Mission Board's Journeyman Program as a worker with tree nurseries and vegetable demonstration sites. That was where he heard about ECHO. He would receive ECHO Development Notes (EDNs) - informational agricultural articles - in the mail and even bought some books from the ECHO bookstore.

He proudly pointed a limited-edition hardcover book on his book shelf titled "Fruits of Warm Climates."

For Motis, "it's very rewarding to be able to reach a lot of people through writing." Indeed, his expertise specific answering questions from small-

holder farmers, international development workers, and non-profit organizations has been a great benefit to ECHO's network. "ECHO has found over the years that a lot of information, even if it is targeted to a specific region can still benefit a broader audience and concepts are often broadly applicable even if some practices are just by nature better suited to one region than another." This allows him and his team to multiply their impact.

When receiving inquiries online, enjoys he questions about Green Manure Cover Crops (GMCCs) the most. Some examples include, "Can I plant cowpea at the same time as maize?" or "How should I integrate legumes into another crop like corn?" To answer these questions, he uses the collective knowledge from ECHO's network. but also incorporates his own research into the equation to better inform the audience. He says, "It's rewarding that we're

not repeating what's in the literature but we're finding things out ourselves." It is a constant flow of, ideas and innovations between people that keep his role and ECHOcommunity alive.

Early on in his time with ECHO, Dr. Motis was involved directly with small-scale farmers. He recalls a visit to Haiti – the place where the idea for ECHO was first born in 1971 - where he and his team brought in a valuable perspective

> to traditional farming methods. He recalls how they re-evaluated a cropping system called "2-4-2" consisting of two rows of maize with four rows of legumes and maize again. They began trialing different kinds of legumes which caught the attention of a network member, Bob Morikawa, with

the organization Plant with Purpose. They then partnered together and shared this training with 600 farmers through Farmer Field Schools in the Dominican Republic, Haiti, and the Central African Republic. "That was a good example of research that doesn't cost a lot, but does take some manpower...some on-the-ground guidance but can easily be done."



Above, left: Dr. Motis and volunteers plant research fields at ECHO North America. Above, right: Dr. Motis presents a poster session on the 2-4-2 cropping system research after training 600 farmers through farmer field schools.

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With a learner's posture, they realized they needed a low-cost unit of measurement with which the farmers could measure their crop yield. They discovered that farmers were already using a "kigo" - a unit of measurement that was measured by a bag of maize kernels and then converted to grams. "Our research trials had progressed from being on-site trials to doing trials in the community on farmers' fields, visiting contact farmers. That was very rewarding."

His collaborations are far-reaching but close to home. One of his favorite EDNs was about moringa, where he collaborated with David Strong whose rich experience with moringa-drying in Southeast Asia was invaluable. In EDN #163 "Harvesting and Drying Considerations for Quality Moringa Leaf Powder," Dr. Motis experimented to see what the ideal temperature would be for drying moringa. In addition to weaving in his own personal research, he also learned easier ways to dry moringa for best nutrition and quality. The techniques he learned from David he has used in ECHO's Get-Into-Gardening (GIG) and Tropical Agricultural Development (TAD) courses.

"I have a great team," he shares, "and there are always people who can bring in new vision to the work, new ideas." The hard work and dedication of his team including Stacy Swartz paid off when one of their articles in conjunction with the ECHO Asia

team appeared in the highly-acclaimed scientific journal called "Experimental Agriculture".

As he reflects on his time at ECHO, some of Dr. Motis's favorite memories at ECHO are watching interns catch muddy tilapia and help filet the fish at the annual fish harvest. Once, he was the lead investigator on a research project in South Africa. There, he and the team had to traverse a steep mountainside: "I vowed I would never be the driver up a mountain that steep, but that time I was the only one on the insurance...so I drove." He also went to an International Horticulture Congress meeting in Istanbul, Turkey and attended a Moringa Symposium in the Philippines where he was able to share the work of ECHO and invite people into the network.

God has used Dr. Motis's wide range of life and career experiences to bring him to a greater understanding of "faithfulness in small things [knowing that] the bigger things will work out." Like the mountain he faced in South Africa, so too has he faced big things in his career path, but the Lord has blessed them – one cup of coffee at a time. He has also blessed the next generation of hunger-fighters by writing reference letters for scores of interns. He finds it rewarding to see them live out God's call for their life.

Excited about the years to come and ECHO's Strategic Framework, Dr. Motis comments "I like the strategic framework's idea of focusing on community seed banks, and especially strengthening the global church and agriculture. Our leaders always say, 'Serve the network, build the network,' and that reminds me of how we can also 'serve the Church, build the Church' through agriculture by meeting hunger needs as agents of restoration." Indeed, ECHO has used his words as a mighty platform for which people's voices can be heard around the world. Network members are doing the practices, but he says, "we put words to it." By doing so, many lives are changed for the glory of God.

Left: Dr. Motis and teammate Stacy Swartz model a book by author Roland Bunch, published by their team.

BUV Ministry Partners with ECHO **to Serve Global Farmers**

By Leeann Estrada

Will Austin, ECHO network member and creator of the Basic Utility Vehicle, shares how an idea changed his life and the life of many others in rural Africa.

Twenty-six year-old Ghanaian Issah longed to marry, but was unable to earn enough to save for a dowry. As a yam and cassava farmer and the primary caretaker of his family, this task proved a challenge. It wasn't until a pastor reached out to him with a three-wheeled, diesel-engined vehicle called a Basic Utility Vehicle (BUV) that life began to turn around for Issah. He earned an income by delivering sand, gravel, and water to others in his community. This story, along with many others, gives a powerful testimony of what one man's faithful stewardship of a Godgiven idea can do. BUV founder Will Austin, a long-time ECHO network member, shares ECHO's passion to actively meet people's needs, especially those of smallholder farmers.

For Will, this passion began when he was eleven years old. While living overseas, he and his family vacationed in Chiang Mai, Thailand and visited a nearby village one day. He felt the weight of his sneakered-feet sink beneath him as he interacted with barefoot villagers. The comparison between their conditions deeply weighed on him. He knew he wanted to do something to change that. It was in South America as an adult that God laid it on his heart to journal about a low-cost vehicle that would help marginalized people in difficult-to-access areas worldwide.

Will first displayed a full-sized BUV at the 2009 ECHO International Agriculture Conference. ECHO purchased that early model BUV and now has it on display on the Appropriate Technology Tour in North America. When networking at the conference, he would regularly hear about farmers' needs for affordable farm-to-market transport because "no matter what you do to improve the productivity of the farmers, it still has to get to market." With a 1,500 pound payload, the BUV can transport about 75 times the amount of weight one person can carry alone over long distances. When asked about his vision for the future. Austin shares: "I would love to see at least one BUV factory in every country in Africa providing the vehicles locally, but also having the parts, being able

Basic Utility Vehicles carry heavy agricultural loads over bumpy roads.

support the vehicle in the field."

to do repairs, and

Technologies like the BUV and other appropriate technologies that ECHO identifies and shares provide life-changing impact and access to sharing the Gospel in hard-to-reach places, and for Issah, this was only the beginning. After earning an income and hiring two more people to help his business, the enterprise-inducing BUV helped him pay for his girlfriend's dowry – allowing them to get married. Later, he became a follower of Jesus – and that is why partnerships between ministries like ECHO and BUV matter.

what's happening



Our East Africa team savored nutritious Chaya vegetables

#echofightshunger



Follow us on Instagram for pictures of ECHO's

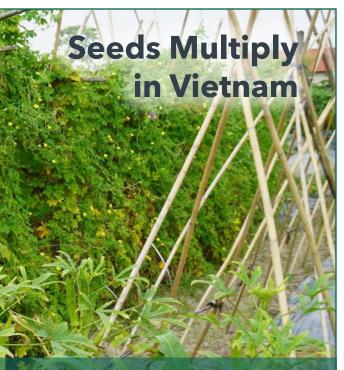


Proud to Participate



Training teams issue certificates that are proudly displayed for years. In this west African village, Trainer Adama Soma presents Kambire Sebou with his certificate while inspiring the group to share what they learned with others.

at ECHO



We are very happy to "see and touch" the results from seed packages donated by ECHO Asia that have flowered and fruited in Vietnam. ECHO seeds such as bitter melon, okra, and sunflower that were planted grew very well, and are especially resistant to weather and pests.



Household Food Security

Women in West Africa gathered to learn about aboveground gardens with recycled materials and tires, how to prepare mixes of potting soil, peanut shells, and rice husks for their crops and how to make bio-fertilizers and biopesticides, all to support food security in the home.

Internship at The Living Classroom





Fermentation for On-Farm Feed



ECHO's Asia team makes FFJ or Fermented Fruit Juice from discarded oranges that could not be sold at market. Fermented fruit juice (FFJ) is a natural, fertilizer made by fermenting fruit sugars to create a nutrient-rich solution.

Sharing Natural Fertilizers in Cameroon

By Anna Pearson

ECHO taught Silas Nfor how to make bioliquid fertilizer when he visited the North America Impact Center. Now, he is teaching everyone he can about the benefits of making their own fertilizer.

As the war between Russia and Ukraine continues into 2024, common chemical fertilizer prices remain high due to uncertainties about fertilizer imports and exports. Russia produces 25% of the world's nitrogen fertilizer. When Silas Nfor heard about the bioliquid fertilizer that the ECHO North America Impact Center was testing, he knew he needed to teach more people about this natural solution to an ongoing problem.

Nfor came to ECHO's headquarters with the intention of learning about appropriate technology, but soon became interested in the bioliquid fertilizer and insecticide sprays ECHO was developing. Originally identified and trialed in West Africa by the ECHO West Africa team, the North America team picked up the concept and began researching it. An example of ECHO's powerful networking model in action! After spending a week in Florida, he returned to Nkambe, Cameroon, gathered the ingredients for bioliquid fertilizer, and brought the recipe to farmers in the area he lived.

Recently, Nfor shared that he has spread information about bioliquid fertilizer to nearly 1,000 people.



Nfor and others in Nkambe share about bioliquid fertilizer through local radio stations, markets and have met with farmers in Bamenda to teach them how to make it and answer their questions.

"I have maybe 50 contacts where I just put 'farmer,' 'farmer,' 'farmer,' as the name because there are too many people asking questions who I don't know," Nfor said. "So I just put 'farmer' in my phone."

The knowledge that Nfor gained from ECHO has been a catalyst in creating a wave of demand for learning how to make bioliquid fertilizer and insecticide sprays in his community.

The materials to create bioliquid fertilizer can usually be found for free - Tithonia, wood ash, and manure. Although making this fertilizer takes more effort than buying its chemical alternatives, it is more cost effective for the farmers as well as for the soil in the long run.

"Chemical fertilizer kills a lot of the microbes that live in soil, because of the salt and copper in it, a lot of things that the microbes don't like," Dr. Guin Perry, an educational research associate at ECHO said. "The bioliquid fertilizer is not only helping the plant, but it's also feeding the microbes that live in the soil."

With repeated use repeated use of chemical fertilizers, soil will degrade, making it harder Increased use of chemical fertilizers is expensive for farmers, usually derived from fossil fuels, and also increases the chance of releasing greenhouse gases into the atmosphere.

Above: Silas Nfor smiles as he mixes a batch of bioliquid fertilizer with others in Nkambe, Cameroon, that he learned from ECHO.

"It's a harsh cycle that is necessary in a sense because there are so many people on the planet - we are quite dependent on chemical fertilizers," Dr. Perry says. "What many farms are trying to do is to balance the use of chemical fertilizers, adding natural or organic inputs."

Nfor calls this farming "feed to feed," because the farmers feed the soil so that the soil will feed them, producing hearty crops. Although a slow process, eventually the soil will have regained its essential nutrients and organic matter to nurture plants.

Every year the soil is treated with bioliquid fertilizer, the soil fertility and health increases. The microbes that chemical fertilizer kills are nourished by the bioliquid fertilizer, which acts as growth hormones for the plants - and the bigger the plant is, the more sugars and biomass it makes, in turn feeding the microbes.

Equipped with the knowledge of how to make bioliquid fertilizer, the Cameroonians taught by Nfor are thankful for the increased soil health and profit from their crops.

"My dreams were really answered," Nfor said. "Now thousands of Cameroonians are benefitting from the bioliquid fertilizer because of ECHO."

When Nfor first introduced bioliquid fertilizer to his community, it was already partially into planting season, and some farmers didn't want to implement a new farming method midseason. This year, Nfor introduced the fertilizer early in the planting season to give the farmers a better start.

"I have a good network of people using biogas digesters, slurry, and fertilizer, and we are all working together," Nfor said. "Lord willing, I will be at ECHO in November to learn more."

My name is Samuel Souleymane. I attended the ECHO training in Niger several years ago, around 2015, I think. I'm a veterinarian, but also have for many years helped the NGO World Renew as a trainer on things like agriculture and animal husbandry.

Ever since the ECHO training, we have adapted much of our agriculture training to include the way that we were taught at ECHO, for example with liquid fertilizer and biothermal compost, along with of course zai holes.

Through the partners that World Renew works with and I have helped trained, more than 100 villages have received agriculture trainings. I have even trained several Bible schools in agriculture, among other things.

In Their Own Words:

Here is a testimony from Keche a student at a Bible school that I recently trained on agriculture.

He says, "In years gone by, I didn't have enough crops, my production only covered needs for 4 months. I went into debt to pay my children's school fees. Now, thanks to the work I've done in my maize field, my harvest seems to be abundant and will cover our needs for 7 months. Today, even if I must borrow money, it won't be much. Agricultural training has helped me to overcome certain challenges, such as having enough food and paying for my children's education."



What is seed sovereignty?

By Anna Pearson

In March of 2020, the COVID-19 pandemic shut down Warorot Market in Chiang Mai, Thailand for the first time since a fire in 1968. As one of the busiest markets in the city, many Chiang Mai residents struggled to find food.

Some knew how to eat leafy plants and gather food from the forest, but if the seeds were not saved from the plants they were consuming, in just over three years it would have all been gone.

"I think it's very important to prepare and encourage more about saving food and saving seeds," Ratakarn 'Wah' Arttawuttikun said, agricultural operations manager of the ECHO Asia Impact Center.

ECHO's goal to increase food security and serve farmers with locally sourced seeds of the highest quality begins with teaching about the importance of saving seeds, and fighting for seed sovereignty in order for farmers to independently grow their own culturally appropriate and desired food.

"Seed sovereignty is being free," Faith Juma said, the seed bank manager of ECHO's East Africa Impact Center. "The farmers being free to use their own seeds, to exchange them, to sell, to their friends or to the people nearby, or to anyone whom they want to share with."

Currently, four seed companies control over 60% of the seed market. Mass-produced seeds, sometimes genetically modified, can seem appealing to farmers. Instead of trading local seeds, farmers then gravitate towards purchasing from these companies in order to ensure they're able to provide increased healthy yields.

Additionally, farmers prefer buying seeds for popular crops that are widely consumed. In the markets of Thailand, many shelves have the same varieties of vegetables, and local seeds are declining in numbers as local varieties are not saved for continued planting.

When seeds are cleaned and stored improperly, only about half of them will germinate and grow to a full crop. ECHO workshops teach farmers about simple, scientifically valid techniques, like using vacuum sealers or bicycle pumps to package the seeds and extend their shelf life.

Several international conventions have been working to ensure that farmers' rights are protected. ECHO works to help farmers build

> networks of local seed bank teach seed saving techniques seed banks.

> managers who can then share. in workshops, and inspire communities start their own

"People from Laos, Myanmar, or other countries come here [for training] and then go back and start their own seed banks in their countries." Paw

Danmalidoi said, the seed bank supervisor of ECHO's Asia Impact Center in Chiang Mai.

ECHO teams share trial seed packets with active development worker, facilitate "seed swaps" when teaching workshops, and disseminate information about what climate and weather conditions work for each crop. Keeping records of trial seeds allow ECHO staff to share valuable information with farmers.

"It's not only sharing our experience, we are sharing with each other." Arttawuttikun said. "We learn from the farmer, and the farmers learn from us as well. It's very important."

Some of the farmers buying mass-produced seeds aren't aware of the impact that their

"We learn from

the farmer, and the

farmers learn from

us as well. It's very

- Wah Arttawuttikun

important."





Above: Left, Seeds from the ECHO Asia Impact Center dry in the seed bank before being stored, saved, and shared. Right, Ratakarn 'Wah' Arttawuttikun and Paw Danmalidoi teach seed cleaning with the ECHO network from Cambodia. Below: People gather for a seed exchange at the Highlands Myanmar Seed Banking Workshop in Pyin Oo Lwin, put on by ECHO in collaboration with the Lisu Baptist Association.

purchases will have on the future of farming. Many seed varieties are going extinct, because they aren't being planted year after year.

"They're coming from families where their parents and their forefathers were keeping seeds before them [but don't any longer]," Juma said. "Some of them were born in urban places, for instance, and they probably haven't seen how the seeds were stored."

ECHO's mission is to break down barriers in agriculture for people around the world to grow their own food in sustainable ways that preserve culture and the environment, and seed sovereignty is just a small part of that. Saving local seeds reduces costs for farmers,

helps to preserve climatically adapted crops, preserves local biodiversity and cuisine, and increases food security and nutrition. ECHO is working to ensure local seeds do not get forgotten in formal systems.

Preserving seeds is more than just creating seed sovereignty for farmers — it's passing seeds from generation to generation, sharing God's creation and the love of farming to everyone.

Advancing global seed banking is both part of our historical DNA and also one of our new five global goals. Your support of local seed banking globally is urgently needed to resource seed savers around the world!



A Simple Bag

...making a big difference

In Ekenywa village lives a homemaker named Veronica. Her days are defined by the daily task of cooking meals for her family. Each morning, she begins with the daunting challenge of gathering enough firewood or managing the biogas supply to prepare breakfast.

One day, a new cooking innovation called the Wonder Bag reached her ears and piqued her curiosity. She heard tales of its ability to cook food with minimal fuel once brought to a boil, but skepticism lingered in her mind. Could such a simple-looking bag make a real difference in their lives?

Veronica decided to give it a chance. A nonelectric slow cooker, the Wonder Bag allows food to continue to cook up to eight hours without any additional energy source. With cautious optimism, she prepared a pot of boiling beans using their traditional biogas stove, then carefully transferred it into the Wonder Bag as instructed.

Closing its lid, she waited. Hours later, she unveiled the pot from the Wonder Bag, the beans were cooked, tender, and flavorful, despite having used significantly less biogas. Her family's skepticism melted away as they savored the meal, amazed at the efficiency of the Wonder Bag.

From that day forward, Veronica's reliance on the Wonder Bag has grown. She finds herself cooking more elaborate meals without running out of fuel or spending hours monitoring the stove. With the time saved, she now tends her garden, creates moments with her children, and even shares her newfound skills with neighbors who have gathered to witness the magic of the Wonder Bag.

Today Veronica is a beacon of innovation and

reflects on how her life has changed. It's not just about cooking meals—it's about reclaiming time, conserving resources, and nurturing stronger community bonds.

At #ECHOEastAfrica, we identify, verify & disseminate user-friendly, wallet-friendly, and appropriate solutions that make the most of what's already available in communities.



East Africa team cooking chaya with the Wonder Bag



Extraordinary Plants: The Sapodilla

The sapodilla, Manilkara zapota, or naseberry has been described as being a "maple sugary pear." The fruit is small to medium sized, (5 to 10 cm in diameter), egg-shaped and coated with a sandy brown scurf. The tasty flesh is eaten fresh or as a dessert in shakes, fruit salads and ice

Sapodilla makes a striking addition to a landscape. It is slow growing, evergreen, and long-lived, and can reach heights of up to 40 ft with a dense spreading canopy.

This tropical fruit tree is as practical as it is beautiful. It has proven itself well-adapted to very poor soils and thrives in the saline soils of southwest Florida. It is tolerant of dry conditions and salt spray. Sturdy branch structure makes the sapodilla resilient even in hurricane winds. Pruning is not necessary. Mature trees are able to withstand temperatures as low as 26°F.

Furthermore, the sapodilla remains supremely healthy with little or no care. There are very few pest problems and disease is rare. You can purchase a Sapodilla tree or fruit (seasonally) at ECHO's Welcome and Resource Center! **(8)**

What will you do with **Unspent Retirement** Savings?

If you are like most people, you will designate family members as beneficiaries of your retirement accounts.

The problem with giving your unspent retirement savings to your family, other than your surviving spouse, is that the majority of your savings will be taxed. First, your estate may pay tax, and then your family will pay tax again at their ordinary income tax rate resulting in very little of your remaining savings actually going to your family.

A better solution is to give your family those assets that have that step-up in basis at death, such as stock and real estate. Unlike your retirement accounts, these assets may be received and sold by your family without bearing a large tax burden

If you are looking for ways to save on tax and leave more to your family and to charity, you will want to consider designating some of your retirement assets to ECHO. Since ECHO is a charitable organization, it can receive the entire asset tax-free and use it to further our mission.



If you have questions regarding your planning process contact Glenn Hornbuckle at 239-567-3343 or email ghornbuckle@echonet.org.

You can also visit our website at www.echonet. org, hover over Give, then click "Other Gifts" for other ideas of non-cash gifts that can change lives around the world.











Join the Action: North America Conference 2024

ECHO supporters and network members alike benefit from the bonding and connecting that happens at ECHO conferences.

Become a better church partner for your missionaries, learn how to pray more deeply for the global Church, come experience ECHO's amazing network first hand, and share specific agricultural techniques with your local community gardens.

Keynote sessions are held at Crowne Plaza Fort Myers Gulf Coast and ECHO North America. To see videos from past conferences or to register visit conference.echocommunity.org.

Come celebrate more than 30 years of networking and learning together at the 31st ECHO International Agriculture Conference November 12th - 14th, 2024.

