



Making On-Farm Pig Feed: Farm-Generated Formulas vs. Commercial Feeds

by Patrick Trail¹, Boonsong Thansrithong¹, & Sombat Chalermliamthong¹
¹ECHO Asia Small Farm Resource Center, Chiang Mai, Thailand



Figure 1: 'Fermented Banana-Based Feeds' are made weekly here at the ECHO Asia Farm. ECHO Asia's Agricultural Specialist, Chai, shows us the materials needed to make the banana stem base.

[Editor's Note: Based on feedback from the network, we would like to provide and promote further discussion on each article published. For additional questions, comments, or suggestions on this topic we invite you join to our ECHOcommunity 'Conversations Forum' where we have opened a new conversation topic called 'Making On-Farm Feeds - Asia Note #42 Discussion']

Introduction to Fermented Banana-Stem Feeds

The integration of livestock on the smallholder farm is often a key component to the long-term sustainability of the farm, specifically by means of critical nutrient cycling. Livestock play a unique and critical role on the farm, transforming plant and waste materials into important sources of energy, either for consumption on the farm, or for sale beyond it. As omnivores, pigs are one of the most efficient converters of on-farm 'waste', transforming materials unsuited for human consumption, into meat, manure, and income.

On the ECHO Asia Farm we seek to create our own 'Farm-Generated Feeds' for the purpose of leveraging the materials we have available to us, while bringing down our costs of livestock production. In addition to the meat and income produced through our cows, pigs, chickens, and fish, we also value them for their

manure, which we compost and use in crop production among other things.

To make on-farm feeds we recommend utilizing locally available resources (on the farm or within the vicinity), with special attention to materials that could be considered 'waste products' or 'under-valued'. At the ECHO Asia farm we use for our base ingredient our most readily abundant material, the banana tree. For the remainder of this article we will focus on the production and benefits of banana-based pig feeds, produced primarily from the stem of the banana tree. These stems are fermented to break down and increase digestibility and are subsequently mixed with various other low-cost raw materials that are locally available, including rice bran, corn meal, and fish meal, etc... (see Table 1.) This is not a new technique, having long been adopted on many smallholders farms in this region, but does have room for improvement

Featured in this AN

- 1 Making On-Farm Pig Feed: Farm-Generated Formulas vs. Commercial Feeds
- 5 Integrated Pest Management on the Island of Bali
- 7 Coffee Drying 'Bunk-Beds' for Vegetable Production
- 8 Recent Asia Note Links
- 9 ECHO Asia Upcoming Events
- 10 ECHO Asia Covid-19 Response
- 10 Words of Gratitude & Solidarity from the ECHO Asia Director
- 11 Call for Articles & Insights

The ECHO Asia Impact Center operates under ECHO, a non-profit Christian organization that helps you help the poor to produce food in the developing world.

ECHO Asia Impact Center
PO Box 64
Chiang Mai 50000 Thailand
echoasia@echocommunity.org
www.ECHOcommunity.org

How we make our On-Farm Feeds at ECHO Asia

1. Selecting the Banana Stem

Not all banana stems are equal in terms of nutritive value. We recommend harvesting younger stems for making feed when possible (Figure 2). At this stage of growth, stems have not yet diverted their energy and nutrition into fruit production, and remain tender and digestible. We plant the 'namwaa' (กล้วยน้ำว้า) banana variety (*Musa sapientum* L) for our feed purposes.

2. Chopping

Leaves are cut off from the stem (used for goats and cattle) and only the stem is utilized for pig feed. Using a chopping machine, stems are fed through to produce chopped pieces anywhere from 2-5cm in length (Figure 3.1). The smaller the piece, the more easily they will ferment and breakdown. This is helpful for pigs which are monogastric animals (single stomach), unlike ruminant animals like cows (multi-stomach), that are more efficient in breaking down plant fibers.



Figure 2: Banana stems that have not yet fruited are ideal for making feed. Once fruited, stems become tough, difficult to digest, and nutritive content is lower.

3. Fermentation

We employ a short fermentation; whereby chopped banana stems are fermented only 3-4 days (Figure 3.2). Molasses and mineral salt are mixed with chopped banana stems then packed and sealed into an airtight bin and left to ferment. Without fermentation, banana stems may not have much nutritional value, but this process can introduce beneficial micro-organism populations that become a bypass protein source for the pigs (more research needed here).

4. Bulking Up with Other Ingredients

Fermented banana stems alone hold low nutritional value and must be mixed with other higher quality ingredients for a proper feed ration (Figure 3.3). Testing of our fermented banana stems resulted in a 6% crude protein content. Table 1 summarizes the ingredients we mix. Note: these ingredients are the resources most available and affordable to us based on the location of our farm and may not be ideal in other locales.

Research Trials: On-Farm Feed vs. Commercial Feed

For several months, the ECHO Asia Farm has been trialing our fermented banana stem feeds with our local black pigs to see how they compare to commercial feeds in a small production system. The objective was to assess the overall price of producing our own feeds while maintaining comparable weight gains of pigs fed with commercial feed. One group of pigs was fed commercial feed, while

the other group was fed the On-Farm Feed mix; all six pigs belonged to the same litter and were split evenly according to initial weight and gender. Pigs were weighed every 2 weeks.

Table 1 is a summary of our Farm-Generated Feed rations based on three different protein

“It is important to note that banana stems were assigned a value (despite being free on our farm), in order to account for the labor involved in their production. It is important to account for, and value, the added labor of any smallholder farmer that might adopt these practices.”

targets for different growth stages. The goal was to produce a feed from on-farm and locally available materials that might compare to a commercial feed in terms

of nutritional composition and overall cost. Fermented banana stems were used as the base ingredient while other materials were either harvested from the farm or purchased locally.

It is important to note that banana stems were assigned a value (despite being free on our farm), in order to account for the labor involved in their production. It is important to account for, and value, the added labor of any smallholder farmer that might adopt these practices.

The cost of making on-farm feeds with the above formulas were much cheaper to produce per kilogram (Table 2) when compared to purchased commercial feeds. However, due to the high moisture content of the fermented banana stem portion of the feeds, it was necessary to feed roughly 50% more of the On-Farm Feeds in order to retain comparable dry matter contents with that of the commercial feeds (Table 3). Note: moisture content of the fermented banana stems alone was roughly 90%, but the complete ration averaged closer to 50% moisture



Figure 3: (Left). Freshly chopped banana stems (the smaller the better), (Center) chopped banana stems after 3-4 days of anaerobic fermentation with mineral salt and molasses, (Right) fermented banana stems mixed with other high quality ingredients and ready for feeding.

Table 1: Summary table of banana based on-farm feed. Formulas below are for a 100 kg batch of feed and are protein target-based by growth stage of pigs.

Feed Source	Amount (kg)	Protein (%)	Protein (Total)	Cost per Kg (Baht)	Total Cost
20% Protein Feed – Fed to Pigs Weighing 10-30 kg					
Fermented Banana Stem	40	6	2.4	3	120
Rice Bran	12	12	1.44	10	120
Corn Meal	15	9	1.35	7	105
Fish Meal	10	60	6	40	400
Soy Meal	22	40	8.8	15	330
Premix	1	0	0	35	35
Total	100	19.99			1110
18% Protein Feed – Fed to Pigs Weighing 30-60 kg					
Fermented Banana Stem	45	6	2.7	3	135
Rice Bran	12	12	1.44	10	120
Corn Meal	12	9	1.08	7	84
Fish Meal	15	60	3	40	200
Soy Meal	25	40	10	15	375
Premix	1	0	0	35	35
Total	100	18.22			949
16% Protein Feed – Fed to Pigs Weighing 60+ kg					
Fermented Banana Stem	55	6	3.3	3	165
Rice Bran	10	12	1.2	10	100
Corn Meal	10	9	0.9	7	70
Fish Meal	6	60	3.6	40	240
Soy Meal	18	40	7.2	15	270
Premix	1	0	0	35	35
Total	100	16.20			880

Table 2: Cost comparison of On-Farm Feed formulas compared to commercial feed, based on decreasing protein contents.

Feed Type	On-Farm Feed		Commercial Feed	
	Cost/kg	Cost/pig per daily ration	Cost/kg	Cost/pig per daily ration
20% Protein	11.10	17.25	18.00	18.00
18% Protein	9.49	21.35	15.50	23.25
16% Protein	8.80	26.40	14.00	28.00

content once banana stems were mixed with other ingredients.

Feed formulas were adjusted depending on growth-stage of the pigs, providing a higher protein feed as pigs were younger and faster growing, and lowered as pigs grew older. Table 3 summarizes the rates of feed provided to pigs at each stage, with rations increasing as pig grew older and protein contents were lowered.

Results from ECHO Asia Feeding Trials

Results from these trials showed that pigs raised on commercial feed will take approximately 147 days to reach market weight (70kg target) and will consume approximately 105 kg of feed (beginning when piglets are 9 weeks old). We calculated that the cost of feeding over this period to be 1733 THB per pig (see Table 4). Pigs raised on the farm-generated feeds gained weight more slowly (only

reaching market weight after 159 days) and therefore consumed roughly 2 weeks more worth of feed, for an overall total of 189kg of feed per pig.

Although on-farm feeds were cheaper to produce per kilogram, these had to be fed at a higher rate (both daily and over the life of the pig), and therefore resulted in a higher overall cost to the producer, in this case 1930 THB. These results are a good reminder that not all feeds are created equal, and considerations need to be made based on nutritional value and not volume alone when comparing farm feeds to commercial feeds.

Feed Conversion Ratios

A Feed Conversion Ratio (FCR) is a method typically used to define how efficient an animal is at converting feed into body weight. For example, a cow might require 8 kg of feed to put on 1 kg of body weight, while a fish may only need 1.5 kg of feed to put on 1 kg of body weight. This ratio can also be used to determine the efficiency of a feed, when used across the same animal type, as was the case in our pig feeding trials.

Using the data collected during these trials we were able to estimate an average FCR of 2.7 for our commercial feeds, and an average FCR of 4.3 for the on-farm feed (Table 4). This highlights the fact that not all feeds are created equal and that the on-farm feeds, with a lower conversion ratio, must be fed in larger amounts in order to compare. Going forward the goal will be to improve the FCR of our on-farm feeds through the inclusion/substitution of other high quality ingredients.

Recommendations

These results indicate at first glance that commercial feeds are the superior option and that there will be a higher cost to farmers producing feeds on the farm, but we feel this farm-generated feed approach can be of great value to farmers living in remote areas where commercial feeds may be more difficult to obtain. There are also significant cost savings opportunities as additional ingredients can be identified and substituted for the purchased ingredients listed above.

There is significant potential for pig producers to begin substituting the ingredients listed with materials and resources located on the farm, thereby lowering costs. This is especially true for farmers already producing some of the ingredients listed, such as the rice bran, corn meal, and even fish waste. If any, or multiple, of these ingredients can be produced on farm

Table 3: Summary feed schedule for On-Farm Feeds and Commercial Feed for the ECHO Asia Farm research trials..

Pig Weight (kg)	% Protein	Feeding Time	On-Farm Feed		Commercial Feed	
			Kg per Pig/ per day	Kg per Pig/ per feed time	Kg per Pig/ per day	Kg per Pig/ per feed time
10 - 30	20	Morning	1.5	0.75	1	0.5
		Evening		0.75		0.5
30 - 60	18	Morning	2.25	1.125	1.5	0.75
		Evening		1.125		0.75
60 - 90	16	Morning	3	1.5	2	1.5
		Evening		1.5		1.5

Table 4: Cost analysis summary of pigs fed On-Farm Feeds and Commercial Feeds, starting at age 9 weeks and ending at a 70kg 'market weight'.

Cost to Raise Pigs to Market Weight (at 70kg)		
	On-Farm Feed	Commercial Feed
Days to Reach Market Weight	159	147
Total Amount of Feed (starting after 9 weeks)	189 kg	105 kg
Feed Conversion Ratio (FCR)	4.3	2.7
Total Cost of Feed (Thai Baht)	1,930 THB	1,733 THB

at a lower cost than to purchase it, the overall savings can surpass a commercial feeding strategy and become more profitable.

Perhaps one of the largest possible areas for profit increase would be the potential of marketing pigs fed with on-farm feeds as 'organic' or 'natural'. Assuming demand for such meat, there lies significant potential in increased profit margins should the production or certification requirements be met!

We acknowledge the location of our ECHO Asia Farm being on the outskirts of a major urban center, with ready access to products

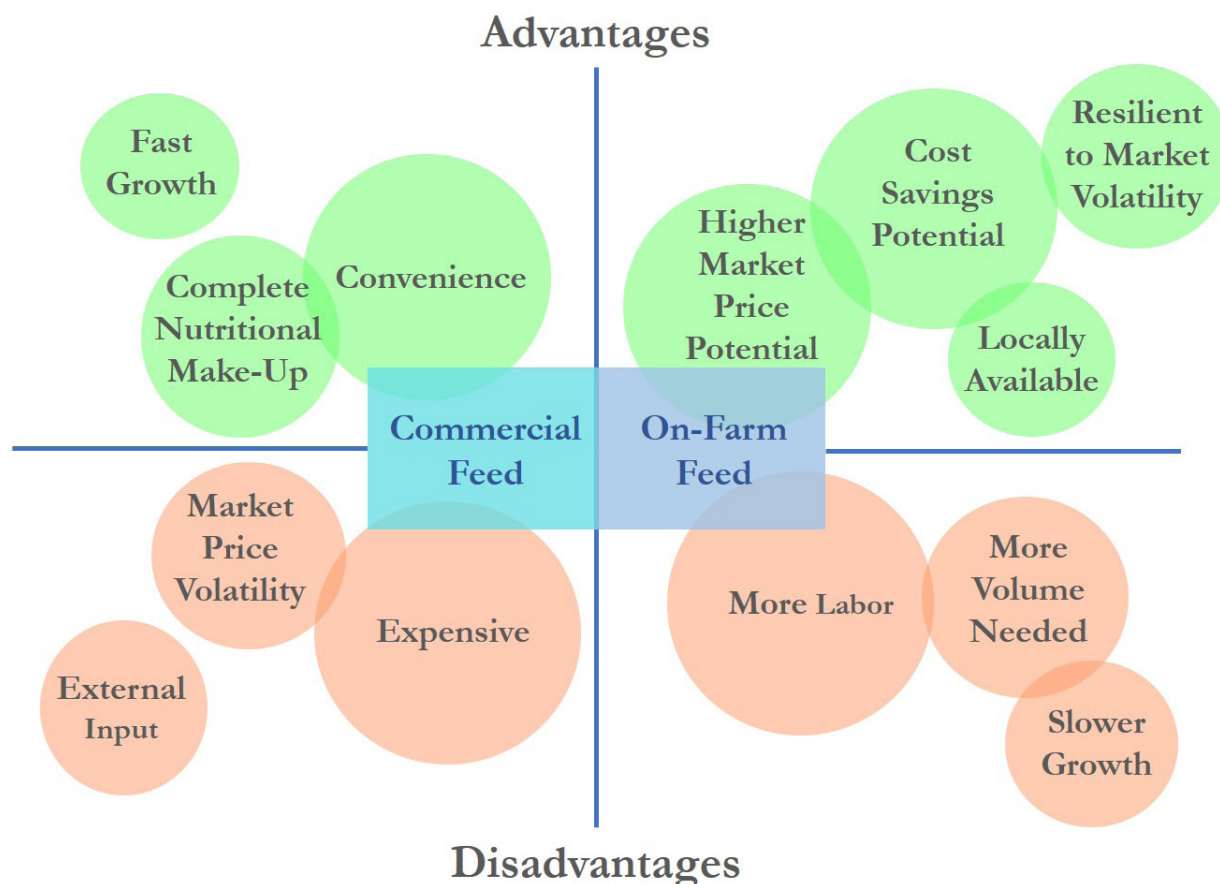


Figure 4: A summary of some of the advantages and disadvantages of adopting On-Farm Feeds as feeding strategy on the smallholder farm.

such as rice bran and fish meal and understand that small upland farmers may not easily obtain these ingredients. The formulas used on the ECHO Asia Farm are NOT prescriptive and should only be used as one example of an on-farm feed formula. We encourage you to seek out the unique resources available to you in your locale, and to experiment with what materials you can acquire. If one of the above listed materials is not available, or is too expensive, it can be substituted for another material of similar nutritional value. Numerous other high-protein options exist including, copra meal, soy meal, insect meal, bone meal, azolla (*Azolla caroliniana*), moringa (*Moringa oleifera*), fish amino acids (FAA), and more.

Keep in mind also that a transition from commercial feeds to on-farm feeds may not be feasible, and a hybrid system may work best for your production system. It is not

uncommon to employ both strategies simultaneously and to supplement either feed with the other. A 50-50 split between commercial feed and on-farm feed, or any combination of the two is a good option to consider in the beginning. However, adopting a stricter farm-generated feed strategy may provide additional options that may not have existed before, and marketing pigs to new markets as 'organic' or 'natural' may have potential to fetch a higher price.

The illustration on the previous page (Figure 4) summarizes more simply some of the advantages and disadvantages of both feeding strategies:

More Information Coming Your Way!

At the time of writing this article, the team at the ECHO Asia Farm have already begun

another round of pig feed research to determine the cost-benefits of varying amounts of daily on-farm feeds.

Stayed tuned for updates! We plan to continue testing our on-farm feeds, to improve their nutritional make-up, cost, and practicality to smallholder farmers in Asia.

Additional Resources

Mikkelson, O. 2019. Integrating Hogs into the Smallholder Farm and the Creation of Hog Feed. In: *Animal Integration & Feeding Strategies on the Tropical Smallholder Farm*. pp. 41-55. ECHO Asia Impact Center, Chiang Mai, Thailand



ECHOes from the Network: Integrated Pest Management on the Island of Bali

by Julianto 'Gondes' Samosir
World Relief Indonesia, Bali, Indonesia



Figure 1: Sugar Cane White Grub beetle (*Lepidiota stigma*); mature (left) and larvae (right).

[Editor's Note: In response to devastating infestations of the 'Sugarcane White Grub', staff at World Relief Indonesia began implementing field trials in 2017 to find appropriate methods for combatting this pest. In November of 2017, ECHO staff traveled to Bali to support these efforts, resulting in an Integrated Pest Management Plan designed together by both teams. Below are some highlights of the practices that have since been implemented and have found success among local farmers.]

Infestation of the Sugarcane White Grub

On the island of Bali we have had recent challenges with the Sugarcane White Grub (*Lepidiota stigma*) consuming many different crops and frustrating local farmers. In Bali (and Sumatra) we call this pest 'gayes', in Javanese it is known as 'urèt'. In our region, it is a major pest in dryland cropping areas, with the grubs consuming the roots of sugar cane, maize, sorghum, cassava, banana, and other crops. Gayes has always been around, but only in recent years has it become a major pest problem, quickly getting out of control.

It has been so bad that some farmers have given up on their fields completely and have abandoned them to grow in other areas. One reason the population has exploded is that back in the olden days people liked to pick and eat the grubs for food, but now the younger generation is not interested.

Our team at World Relief decided to adopt non-chemical control methods to manage the *gayes*, so we have implemented an Integrated Pest Management approach. We are using a set of different approaches to reduce pest numbers and regain fields that have been abandoned. We are focusing on small

plots, using raised beds and intensive vegetable production.

Stages Carried Out by World Relief to Overcome the Problem:

Phase 1: Soil Management

1. Tillage

Every area that has been infested with the pest is cultivated by way of loosening the existing soil, using agricultural equipment or machinery.

2. Hand Picking the Gayes Grub

In the process of tilling the soil each time, we manually remove any grubs that we can see. The results of the collection of larvae can be food for chickens, ducks and other types of livestock that can benefit from consuming the grub.

3. Using a Chicken Tractor

During the process of tilling the soil we release a number of chickens to participate in the feasting. Chickens will eat large larvae and even eggs in the soil. This is done so that in the process of manually retrieving visible larvae we also ensure that the larvae eggs are eaten by chickens in the ground.

4. Solarizing

Tilling the land also exposes the *gayes* grub to the sun which can kill or weaken any remaining *gayes* pests.



Figure 2: Intensive vegetable production on previously infested land, using raised beds with plastic mulch.



Figure 4: Making natural pesticides from materials found on the farm or in the local community.

Phase 2: Soil Management

In the second phase of soil management we mix cow manure into the soil. We learned that the *gayes* pest likes soil with high amounts of organic matter, so for this reason we wait to have completed the steps in phase 1 before adding manure or compost. We are assuming that the first stage was successful in lowering the numbers of the pest. Even though we know that the *gayes* pest likes organic matter, we do not want to use synthetic fertilizers, so this is why we have to use an integrated approach.

Cultural Controls

After going through the process of soil management, we conducted several field trials to determine which methods are most appropriate to overcome the problem of the *gayes* pest. We first used raised beds with



Figure 3: Intensive vegetable production on previously infested land, using vertical tower gardens in polybags

plastic mulch, this method is familiar in Indonesia and many farmers use this method in their agriculture already. In addition to reducing the growth of weeds in the soil, our thought is that it is very effective in heating up the soil so that it will kill the grub, or make it retreat from that area. We compared this to plots with no plastic mulch to verify.

We also experimented using vertical garden techniques, using polybags. We used soil from the plots that we had already improved with the steps mentioned above. This is also to anticipate if the plots in the field failed then we could still get agricultural produce from the vertical gardens.

Finally, we decided to focus on transplanting vegetable seedlings instead of direct seeding into the raised beds. This gives us the opportunity to care for the seedlings and give them a good start before there is any risk of encountering the *gayes* pest in the field. Roots have an opportunity to get strong first before going in the field. We did this for chilli, eggplant, bitter melon, and other vegetables.

Organic Chemical Controls: Making IMO

With farmers we made our own mixtures of IMO (Indigenous Micro-organisms) to spray on plants and also applied to the soil as liquid fertilizer. These methods are low-cost too, and can be made on the farm in large quantities. The materials needed are also easy to get in the village and learning how to make them is also easy. We sprayed our vegetable crops once every week with IMO and organic pesticides made on the farm. These sprays help with strengthening the plant, making

it stronger against pest attacks, and protects them from other pests and diseases as well.

Conclusion

Before, many farmers thought that in order to manage such a pest they could only use pesticides and synthetic chemicals. We have used many different natural approaches that have required some new learning, but together they are working, and our farmer partners are producing vegetables again on land that others had given up on. Hopefully, others can have similar success too!



ECHOes from the Network: Coffee Drying 'Bunk-Beds' for Vegetable Production

by Melanie Edwards
Behind the Leaf Coffee Farm, Pinluang, Myanmar



Figure 1: Behind the Leaf Coffee 'Bunk-Beds'. Coffee can be dried on removable racks during a portion of the year, while vegetables can be cultivated in the open beds the remaining months.

Multi-Use 'Bed Racks'

During the coffee harvest season, we find ourselves maxing out every available drying table that we have while processing our coffee. At the Behind the Leaf Coffee Processing Center, we have 122 drying tables, and for 4 months of the year we use every table we have to lay out and dry the fresh cherries. Unfortunately, there are 8 months of the year that we are not using those drying tables, and they take up significant space. Over the years we have experimented with multi-use table alternatives but have largely been unable to take advantage of the land dedicated to drying coffee.

Two years ago, we began experimenting with a 'Bunk-Bed' system whereby drying racks can be mounted or removed from an underlying garden raised bed. With this new system we now have significant area at the close of the coffee season that we can dedicate to intensive vegetable production.

At the same time, we realized that filling all of these beds with soil was quickly going to add up and cost us a lot, so we have slowly been filling our raised beds with large amounts of composted coffee cherries and hulls from our center, which we once considered 'waste' products of the coffee process.



Figure 3: Raised beds have been filled with compost made from coffee pulp 'waste', a by-product of coffee processing.



Figure 2: Raised beds constructed out compressed earth blocks, made on site.

These 'bunk-beds' could easily be built with a number of different materials, but we decided to make our own beds using compressed earth blocks and a press. Drying racks are designed for easy removal and are made of metal frames that sit freely on top of the beds. Drying racks are easily stacked and stored during the year while raised beds are being planted out with vegetables.

We are currently experimenting with mushroom production also, leaving drying racks on beds with shade cloth for a cool mushroom growing environment.



In Case You Missed it...

ASIA NOTE #41

[A Snapshot of the ECHO Asia Small Farm Resource Center & Seed Bank](#)
[Black Soldier Fly System of the Frangipani Langkawi Organic Farm](#)



ASIA NOTE #40

[State of Land in the Mekong Region - Brief](#)

[Highlighted Resources from the Asia Agriculture & Community Development Conference](#)



ASIA NOTE #39

[Backyard Vermicomposting Systems: Examples from Myanmar](#)



ASIA NOTE #38

[Refugee Camps as Microcosm: Restoration & Sustainability in an Accidental City](#)
[Low-Cost Natural Building Options for Storing Seed in Tropical Southeast Asia](#)





TRAINING IN SRI (SYSTEM OF RICE INTENSIFICATION)

Friday 31 July 2020 09:00am-17:00pm
ECHO Asia Small Farm Resource Center & Seed Bank
San Sai, Chiang Mai, Thailand

This event will include:

- Interactive demonstration of SRI innovations
- Discussions on SRI principles including how to increase yields and decrease water usage
- Introduction to ECHO Asia and Farm Tour
- Training will be conducted in Thai & English.

The cost for this training is 200 thb and includes coffee break & lunch.

For more information or to register, contact echoasia@echonet.org or go to www.echocommunity.org/events

Seeds of Hope: Covid-19 Response



“SEEDS OF HOPE” COVID-19 RESPONSE EFFORTS

Oxfam recently reported that the effects of COVID-19 could push half a billion people into poverty with over 239 million living here in East Asia and Pacific. During this unprecedented time of need, ECHO Asia seeds and information have the ability to give hope to those that are struggling to make ends meet. In response to this, ECHO Asia has distributed nearly 2,000 packets of seed, seedlings, soil, and resources to ECHO partners that have the means to share these seeds with families in Thailand and Myanmar. We plan to continue seed distribution and conduct several trainings in urban and home gardening and vegetable care in the next several weeks.

It is our hope to support you all in your efforts to support farming communities and the urban poor. As this situation continues to evolve, we encourage you to please share with us your needs and your successes so we can “echo” that out among our Asia network!

For more information contact echoasia@echonet.org or go to <https://forms.gle/aqihZQYmC23r3inw7>

Words of Gratitude & Solidarity from the ECHO Asia Director

Dear ECHO Asia network members,

It is my utmost gratitude to touch-base with you amidst this COVID-19 pandemic, and to extend my best wishes on behalf of the ECHO Asia team! I also hope that all of you are healthy and safe from the threats of the pandemic.

For the last two months, ECHO Asia adopted preventive and precautionary measures against the pandemic compelling us to suspend all our activities at the ECHO Farm. However, at this time, I am very pleased to inform you that our operations will resume normally starting 01 June 2020. We look forward to welcoming you again at our Farm through your visits, tours and trainings.

Recently, we launched an on-line evaluation survey of the Asia Notes, this publication that you are reading now. It is so amazing and heart-warming how many interesting and insightful feedback were generated by this survey. We owe you gratitude and allow me to express our sincere thanks to those who responded to this study.

As you know, ECHO Asia endeavors continuously to reach-out with our network members as exemplified by this publication, the Asia Notes. We aim to strengthen the bond or glue of this network. Along this purpose, one of the objectives we set forth this year and the years to come is to facilitate “active linkages and collaboration among members of the ECHO Asia Network.”

I enjoin you to send your ideas, suggestions or recommendations about initiatives, events or activities that would help achieve said objective.

Please feel free to send your inputs through my email: esabio@echocommunity.org

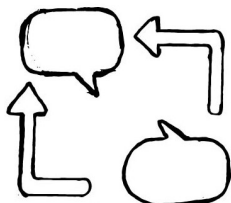
I look forward to hearing from you and wishing you all success!

Eduardo A. Sabio, Ph.D.
Director, ECHO Asia

Ways to Stay Connected... (and Contribute)



Remember that a “Development Worker” membership entitles you to 10 free trial packets of seed per year! If you would like more seed packets or larger quantities of some seeds (especially green manure/cover crops), we do have additional seed packets and bulk seeds for sale. Our [seed bank catalog is available online](#).



Please also know that besides being written in English, our [ECHO Asia Notes](#) are translated and available for free download in Thai, Khmer, Burmese, Mandarin, Bahasa Indonesia, Vietnamese, and Hindi languages. [To see past Asia Notes and translated articles go to our website](#).



If you have never joined us for an event, please consider doing so- there are several events happening in 2020 and we would love for you to join! Please go to the [events page of ECHOcommunity.org](#) to learn more.



We encourage you to share success stories, lessons learned, and insights with us to keep us abreast about what you are trying and what is working in your context. Please like our [FaceBook](#), [Instagram](#), and [YouTube](#) pages to see regular updates!



Additionally, if you have any ideas or would like to write an article for an upcoming ECHO Asia Note, we invite you to do so! Thank you for reading, and please do stay in touch!

Email us at echoasia@echocommunity.org!

