RTC-TH Jun 2013 Update2

Community-based environmental education for the self-sufficiency and sustainability of small rural family farms

ชุมชนตามสิ่งแวดล้อมศึกษาเพื่อการพึ่งตัวเองและยั่งยืนชนบทขนาดเล็กครอบครัวฟาร์ม

You may post questions / comments to the Discussion area of our website

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Planting Our Rice Crop

Mom winnowing rice seeds before soaking.

The winnowed seeds before they are soaked.

In all previous years, we planted only wet paddy rice. Last year we planted both wet paddy rice and dry upland rice. We hope to reproduce our successful mixed rice cropping of last year. [Note: We do not participate in the government program paying above market prices for rice. We are not commercial farmers neither in normal times nor in times of "economic stimulus". We firmly hold to the belief "there is no such thing as a free lunch".]

Preparation begins with winnowing the seed stock. In contrast to the mega-agro industrial commercial farms, most work on small rural family farms is manual.

Seed sources include seed we save from a previous harvest, seed exchanged with other local farms, and some seed purchased from the government. If necessary, we can always buy seed from commercial sources. The family plants, grows, and eats traditional northern Thai

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sticky rice. We barter or buy other kinds of rice (hulled or unhulled) from friends, neighbors or in local markets.

We soak the bags of winnowed seed overnight. This helps speed the germination process. We drain the bags before taking them to the farm. Planting begins the next day after soaking.

Winnowed seeds soak overnight

The soaked seeds are drained for the trip to the farm.

Our S.O.S. (Save Our Soil) program advocates no till / low till farming. We tend to practice what we teach. We did not plow the large field for our dry land rice planting. Stubble from last year's dry land rice harvest remained in the field. The field lay fallow during the dry season. This lets the soil to rest and makes more organic material available for the soil in the new planting season.

Some workers use dibble sticks (bamboo cut on the farm and sharpened). They poke a shallow hole 3-5 cm in the soil. Other workers follow closely behind and drop a few rice seeds. It took eight workers two days to plant the field.

The weather cooperated nicely. Throughout the evening and night after planting, a gentle steady rain fell most of the night. The miracle of growth revealed itself almost immediately (as well as weeding), just two days after planting.

We also planted the seedbed for the wet paddy rice. We put one of the larger paddies to use for this purpose. The paddy is flooded using water from the East fishpond. After soaking the paddy, the mud is easily worked and smoothed to prepare the bed. All the work is done manually.

Once the rice seeds are planted, we apply a fine mulch of rice hulls to help retain soil moisture for seedling growth. Our seedbed should produce more seedlings than we need. This will assure us of an adequate supply to transplant in our paddies. We sell the surplus seedlings to other farmers and recoup part of our costs.

Excess water is drained to our adjacent paddies. We will be adding some mulch, compost, and spraying EM bacteria on these paddies in the next few weeks. These are the initial steps to preparing them for plowing and smoothing. We hire a tractor to do that work.

We plan on plowing the paddies in the next several weeks. They should be transplanted by the second half of July. Then, depending on the conditions through the growing season, harvesting might take place in late October or early November. Of course, a lot can happen between now and then. Growing rice is a good food source for many other critters in and around the farm. With any luck, they will leave enough for us to harvest and meet our family's needs.

Basic Nutrient Needs of Fish

An anonymous reader submitted the following information to us. The source was not identified. We present it here under the educational fair use clause in case the material comes from a copyrighted source. We cannot vouch for the accuracy of the information presented. However, it is interesting to see the inter-relationships between the nutrients and functions and multiple roles some source materials play in the overall development and health of fish.

If, for the moment, we accept the information as valid, consider the implications of intensive fish farming on the environment relative to the food sources required. Some sources are commercially viable fish: salmon, cod, halibut, shrimp, lobster, and snapper. Some reports indicate ~2 kg of feed fish to make 1 kg of farm-produced fish (it varies by species of farm fish). Clearly, this is not sustainable.

Our fishponds are stocked with tilapia and two varieties of Thai catfish. They are largely feed an herbivores diet. Non-vegetable feed comes from kitchen scraps, fishpond organisms (e.g. insects, insect eggs / larvae, shrimp, crabs, smaller fish, etc.). Pest insects from the Integrated Pest Management (IPM) program supplement our fish feed (e.g. grasshoppers, crickets, and termites).

Catfish feeding on termites found on our farm. We use some commercial feed to supplement these natural foods.

We minimize the use of commercial feed. The guiding principles are the King's Theory of the Sufficiency Economy and our idea of minimizing off-farm expenses. The web of cost factors the determine retail costs for goods in our rural area is large and complex. They are beyond our control. However, we can control what we buy. Minimizing off-farm expenses greatly enhances our ability to manage our budget. This reduces our risk of being victims of out of control price increases.

Nutrient	Known Function	Sources
Protein (amino acids)	Growth, weight gain, energy, body tissue, enzymes, feed conversion, reproduction, gonadal development	Krill, rotifers, earthworms, scallops, salmon, lobster, mysis, mosquito larvae, porphya sp., palmaria palmate and ulva seaweed
Vitamin A	Regernation of rhodopsin, cell growth, bone and tooth development, appetite, mucus, reproduction, antibodies	Clams, earthworms, lobster, daphnia, spinach, sweet potatoes, kale, winter squash, romaine, alaria and laver seaweed
Vitamin B1	Metabolism, muscle tissue, nerve function, mucus membranes, carbohydrate processing, growth, fin development, fertility	Romaine, asparagus, mushrooms, peas, chives, garlic, seaweed, green bears, brussel sprouts, bok choy, earthworms
Vitamin B2	Growth, appetite, finnage, control of enzymes and proteins, red blood cell integrity, nutrient bioavailability	Broccoli, spinach, chondrus crispus seaweed, asparagus, leafy greens, dandelion greens, broccoli, bok choy, eggs
Vitamin B3	Growth, fin development, appetite, food breakdown of proteins, coenzyme	Seaweed, asparagus, squash, peas, romaine, salmon, halibut, shrimp, cod
Vitamin B5	Hormone production, metabolism, fin development, gill function	Mushrooms, broccoli, seaweed, winter squash, cauliflower, turnip greens, eggs
Vitamin B6	Growth, fin development, enzymes, protein metabolism, nerve function, reproduction	Spirulina, spinach, bell peppers, garlic, turnip greens, bok choy, duckweed, cod, salmon, snapper, halibut

Nutrient	Known Function	Sources
Vitamin B12	Hypochromic microcytic anemia	Spirulina, snapper, salmon, scallops, shrimp, halibut, earthworms, eggs
Biotin	Energy, muscle function, nervous system, intestinal bacteria	Swiss chard, romaine, carrots, onions, cauliflower, egg yolks, halibut
Vitamin C	Growth, iron absorption, fin, bone, tooth development, immunity, healing, digestion, stress tolerance	Chickweed, spirulina, bell peppers, cauliflower, parsley, kale, broccoli, brussel sprout, bok choy, green beans, oysters, squid, salmon, cod, shrimp
Vitamin D3	Growth, facilitates calcium and phosphorous use	Salmon, shrimp, cod, herring, trout, fish liver, eggs
Vitamin E	Cells, cellular enzymes, antioxidant, lipid / huta protection, development of sex organs, stimulates the creation of reproductive hormones, immune mechanisms	Spinach, leafy greens, kale, bell peppers, seaweed, broccoli, earthworms
Vitamin K	Blood formation, blood clotting	Kale, seaweed, leafy greens, brussel sprouts, broccoli, egg yolk, sauerdraut
Vitamin M	Blood formation, metabolism	Asparagus, romaine, laminaria seaweed, broccoli, leafy greens, peas
Choline	Plays a lipogrophic role, growth, fat production / metabolism, coloration	Shiitake mushrooms, green pepper, cauliflower, seaweed, egg yolk, sauerkraut
Oxygenated carotenoids	Immunity, antioxidant, metabolism, fin generation, coloration	Krill, cyclop-eeze, salmon and roe, shrimp, crawfish, decap, brine shrimp eggs, seaweed, dark leafy greens, sweet potatoes, carrots, marigold petals, paprika
Phosphorus	Growth, fin development, metabolic functions, bone mineralization, scales, feeding efficiency, mineral uptake, nerve function, energy, fertility, egg formation.	Seaweed, krill, bok choy, earthworms
Magnesium	Weight gain, bone development / strength, muscle contraction, enzymatic reactions, metabolism, respiratory adaption, osmoregulation	Water supply, kelp and aleria seaweed, basil
Calcium	Bone, scales, fin and teeth development / strength, muscle and nerve function, equilibrium, cellular metabolism, blood clotting, enzyme activation, hormonal secretion regulation	Water supply, ocean perch, blue crab, rainbow trout, shrimp, lobster, basil, thyme, alaria seaweed, plaster blocks
Sodium, Potassium, Chlorine	Electrolytes	Water supply, clams, salmon, scallops, krill, cod, lobster, broccoli, mushrooms, sweet potato, bak choy, seaweed, tumeric
Iron, Iodine, Copper, Manganese, Zinc, Cobalt, Selenium	Growth, weight gain, cartilage and bone development / strength, metabolism, enzymes, sexual development and function, egg development / hatch rate, prevention of hypochromic micocytic anemia, recovery from parasites.	If feeding a well-rounded diet, there is little concern about trace elements. Some elements, such as copper, are better tolerated through diet and often the dietrary forms are more efficiently absorbed (i.e. zinc). Trace element toxicity is a real issue in captivity, usually as a result of both environmental and dietary supplementation.

When incorporating this table for the monthly update report, some friends who reviewed the draft commented on the notations in the Sources column. It read like a shopping list for a health food advocate. "Who would buy these items to feed to their fish?" asked one. Another said, "To heck with the fish, I think I want to eat from this menu instead!" If it is true that you are what you eat, then feeding fish on this diet will certainly seem to boost the food value of the fish.

It does give us food for thought. If we planted our gardens to produce many of the vegetables on the list, we could eat the "good" stuff and feed the fish the rest.

Along the Road to Our Farm

It is planting season. Here are some common scenes along the road to our farm. The rainy season bring out the green in the landscape. The smell of fresh rain accompanies the sound of swift running water in the Nam Yang. The mechanical chug-chug pulsing of the tractor engines reverberate across the fields. A gentle breeze disperses the smoke plumes and sweeps them aside in an effort to clear the air.

How many people can fit in the back of a pick-up?

You can see the original organic water buffalo and the inorganic "iron buffalo".

Newer larger tractors are becoming more common.

A neighbor's rice seedbed and scarecrow.

Farmers with more water can transplant rice earlier.

Organic Thai windshield sun screen

RTC-TH & GERC Field Day

Photos courtesy of GERC photographer Les (KJ6WFW)

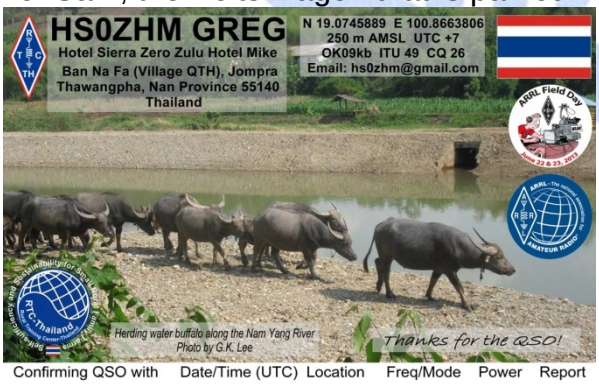
Dennis KI6NQG at his EchoLink® field radio station

Saturday 22 June 2013 found members of GERC (Glendora Emergency Response Communications) setting up shade awnings, antennas, and radios in Horse Thief Canyon Park. The ARRL Field Day was about to begin. Once again, the RTC-TH was prepared to support the GERC EchoLink® demonstration.

Dennis (KI6NQG) was the primary Control operator for the EchoLink® station assisted by Tom (KI6YCC) and Mark (N7YLA). Greg (HS0ZHM via the RTC-TH EchoLink® station in Ban Na Fa) spoke with 19 people. There were 4 international stations from 3 countries on 3 continents: Australia, Brazil, and Thailand. Seven US stations from 4 states (CA, IN, NY, and OR) checked in.

Mark (N7YLA) reported a record turnout at the GERC field day site: 26 hams and 23 non-hams. In addition to the EchoLink® station, GERC set up HF radios and antennas operating at 6, 15, 20, and 40 meters.

We made up QSL cards for GERC to issue to visitors talking with us on EchoLink®. The water buffalo are walking along the riverbank just outside the window of our carport station. The second card shows Greg HS0ZHM operating out of Sam, the Volts-wagon that is parked in the new carport in Ban Na Fa.



RTC-TH & POARC Field Day

The Port Orford Amateur Radio Club (POARC) on the southwest Oregon coast held their Field Day overlooking the beach. We supported their effort by creating a Field Day QSL card for the club. Jimmy KE7FXM and Aaron KG7CRD used EchoLink® to connected to the GERC gateway and spoke with us at our Ban Na Fa station.

Aaron is the 13 year old son of KF7MWX. It was good to hear him active on Field Day. The POARC hams share friendship and fun in the fog (or whatever weather is available). The proof is shown in the photo to the right: a local visitor horsing around with Gordon (KB5GP) and his radios.

Port Orford's claim to fame is being the only dolly boat harbor on the coast.

The fishing boats are hoisted out of the water and are docked on dry land on dollies (wheeled cradles). In the past, a Coast Guard life boat station served this part of the coast. At one time these stations were the only hope for distressed ships in the vicinity. The Coast Guard station is now a museum and cultural heritage resource for the community. Port Orford is in the southwest corner of the state just above the California border.

New Self-Service Gas Pumps

New coin operated self-service fuel pumps, Ban Na Fa

We first saw these self-service, coin operated fuel pumps in Thawangpha a few years ago. Now, the technology is spreading to the rural villages. In Ban Na Fa, the brightly colored pumps are right on the side of the main paved road. The key advantage we see is the 24-hour availability to purchase fuel. In the past, fuel was only available during store hours (which depended on the owner's preference). Once the village stores closed, the only option to buy fuel was the larger oil company stations on the main highway. They often closed about 8 pm each evening.

Regulations and fuel handling safety in rural Thailand is minimal. We have seen folks buying, transporting, and storing gasoline in just about any kind of empty metal, plastic or glass container. Many have make shift covers ranging from a piece of plastic bag held in place with a rubber band to a wooden plug wrapped in plastic. Once we saw a person with their motorcycle stopped along the road. They apparently ran out of gas. They may have walked to a nearby village, got some gasoline, and were pouring gas from an glass soda bottle into their motorcycle gas tank.

Old manual gas pumps on steel barrels in Ban Kong

Co-existence in Ban Ton

Apparently there is no standard color scheme for the pumps. In the top photo, the red pump is for 91 octane gasoline (called benzene here) and the yellow pump dispenses diesel fuel. In the lower photo, the red pump has 95 octane and the blue pump is for diesel. On the other hand, the labels on the pumps seem more consistent. The elongated orange label is for gasoline. The blue rectangle is the label for diesel.

Any empty container could be used to store fuel. In that case, the labels can be dangerously misleading.

Rainy Days

The cross channel berm lasted ~6 weeks. Then, one night 75mm / 3 in of rain fell. Water levels in the Nam Yang rose about 0.5 m, and over night the flowing water took its toll. Amazingly, the muddy water cleared in only one day after the rains. The change in water color is apparent in the photos below taken one day apart.

Butterflies: Eco-quality Indicators

They are the delicate angels of our farm. Butterflies are the fragile flighty guardians of our gardens. They come and go freely on the farm. The pollinate some of our fruit trees and a wide variety of flowers.

Butterflies are free eco-quality indicators. They are generally sensitive to bio-cides. Their presence and diversity assure us our farm continues to be low in toxins. We photograph them whenever we see them.

We have an ongoing effort to increase native plants on the farm to attract and sustain local pollinators. It is all part of our overall attempt to minimize the ecological footprint of the farm. This is consistent with the belief that local plants and pollinators optimally evolved to local environmental conditions. They are well-suited to one another.

For example, one variety of local Thai stingless bee lives in the forest adjacent to our farm. They are the main pollinator of our Longan orchards. When the Longan are not in season, the stingless bees forage in their native forest. The domesticated European honeybee is an imported pollinator. When the fields are in season, these bees find enough food to thrive. However, in the off-season, the farmer must feed them. Poor rural Thai farmers consider the European honeybee the “rich man’s bee”. Obviously, we prefer our naturally free forest pollinators.

MEWS Remembered at GAREC 2013

The GAREC 2013 (Global Amateur Radio Emergency Communications) conference was getting underway in Zurich, Switzerland. ____ Km away, the SW monsoon arrived a month early. Three times the normal rain fell on Northern India. Uttarakhand State was particularly hard hit. The heavy rains and flooding destroyed more than 1,000 bridges. Landslides and erosion damaged roads. Many towns and villages were cut off in the mountainous region. Forty-five choppers were

were deployed to evacuate displaced people and tourists. Many were on pilgrimage to four major temples in Uttarakhand State.

In the vicinity of Gurakund, two rescue helicopters crashed in separate incidents. A military Mi-17 crashed killing all 20 persons onboard. A civilian chopper assisting in rescue work crashed, seriously injuring the pilot. Weather conditions may have contributed to the crashes; it was rainy and foggy at the time of the crashes.

Johnny Tan (9M8DB) was in Zurich. He attended MyGAREC 2012 and saw the MEWS presentation. He emailed Greg (HS0ZHM) requesting a statement regarding the relevance of MEWS training to the helicopter crashes in India. He would attempt to relay the statement to GAREC 2013 organizers to keep MEWS in the minds of delegates. Greg researched the situation. Six hours of intense work resulted in an illustrated presentation. He sent the presentation to Johnny. He relayed it to the conference organizers and the Indian delegates. This is another example of the RTC-TH slogan "It is better to network than to not work."

As with all RTC-TH educational materials, the presentation is available at www.neighborhoodlink.com/rtc-th_Tech/pages for individual, educational, and non-commercial use.