



Rural Training Center-Thailand

2009 Dec RTC-TH Update

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www.neighborhoodlink.com/org/rtcth

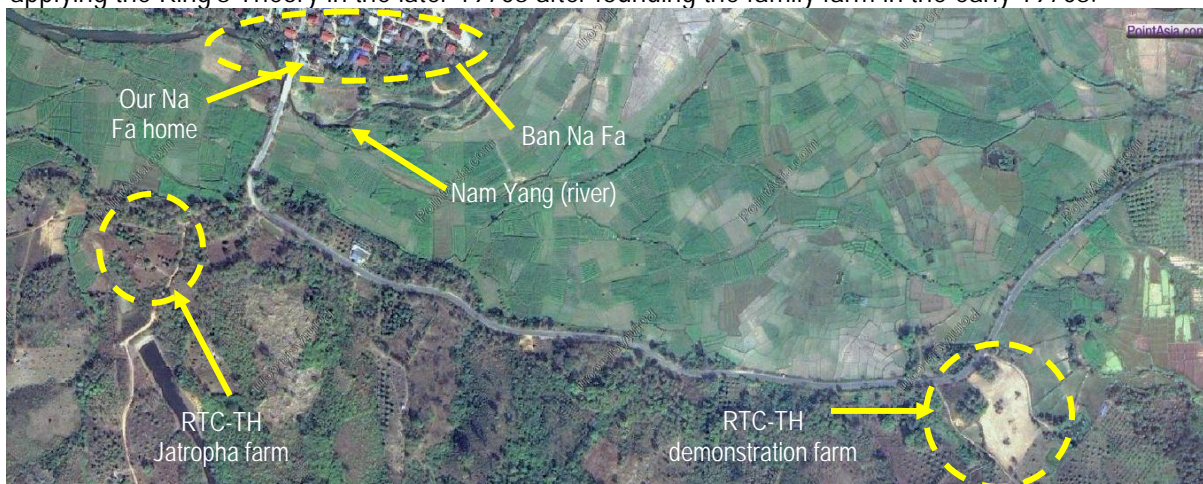
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Community-based environmental education for the self-sufficiency and sustainability of small rural family farms

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

Our Farm Named Top in District (Some Say It's "Fishy" and Suspect "Fowl" Play)

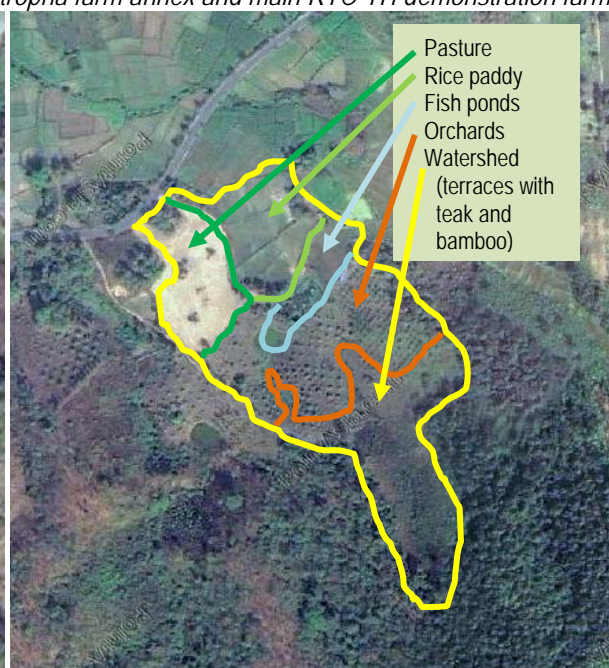
Once again, we are recognized in the District as a farm successfully applying the King's "Self-sufficiency Economic Theory" (<http://thailand.prd.go.th/ebook/king/intro.html>). Saifon's father began applying the King's Theory in the later 1970s after founding the family farm in the early 1970s.



Relative positions of our home in Ban Na Fa to the Jatropa farm annex and main RTC-TH demonstration farm.



Our Jatropa farm is a small ~2 rai parcel (~0.8 acres) and is ~ 200 m off the paved road going to the farm.



The main demonstration farm is ~ 28 rai (~11 acres) and is down slope from a protected forest watershed.

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

Tang Suttisan read the King's theory and used it on his farm. He was the first in the area to make a fish pond on his farm. The King set guidelines for the land use ratios for small rural family farms. The guideless were not hard and fast rules. The King specifically said that farmers needed to judiciously apply the guidelines to the individual prevailing conditions on their farm and in their community.



Together with his wife Umporn, they cleared unclaimed land to start the rice paddies, fish ponds and orchards.

There was no direct access to irrigation water. So fish ponds are essential for our farm water supply. They are fed by ground water seepage year round and by surface runoff in the rainy season. Careful study of the terrain and natural water flow is the best way to work with nature to optimize the farm's water supply. Recently, we implemented rainwater harvesting and water storage tanks to add to our water resources. This past year, we also added 2 holding ponds on our farm gullies to help increase ground water recharging of our shallow water wells. Our soil management plans enhance soil moisture retention using terracing, swales, mulching, and composting.



We like to characterize our farm by its diversity of terrain, land use, water resources, plants, animals, energy resources, environmental and cultural sustainable practices that balance our life style with local ecology.

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Our ongoing efforts using the farm as a demonstration for the self-sufficiency and sustainability of small rural family farms continue the legacy of Tang Suttisan. Being recognized as the best farm in the District is a testament to his application of the King's Theory. For us, diversity is an important factor in attaining and maintaining an ecological balance on the farm. 🌱

Diverse Terrain and Land Use

The terrain affects the farm land usage. Our farm land ranges from low and flat to high and steep. The rice paddies are the lowest and flattest land with the fish pond areas a close second. The pasture area is nearly flat but has a distinct slope to it. The area of the farm house and orchards are gentle to moderately sloping land. Short term seasonal crops are planted in these sections.

The terraces are cut into the steepest sloping land on the farm. This is where we do long term plantings of bamboo and teak. (which are also planted along boundaries with plants for pollinators).



Flat or gently sloping land for pasture.



Low flat land for wet rice paddies and fish ponds and gentle to moderate slopes for orchards.



Gentle to moderate slopes for orchards



Terraces of steeply sloping land

Diverse Water Resources

From the early days of the farm (circa late 1970s), the farm was noted for being the first one in the area to have a fish pond following the King's Self-sufficiency Theory. Our current water storage capacity is ~880,180 L / 232,536 gal (~3,7180 L / 9,821 gal in tanks, ~843,000 L / 222,715 gal in ponds).



Ground water recharge and soil moisture retention via terraced slopes, planted flow paths, water holding ponds.



One of 3 large fish ponds on our farm. We increased the depth of 2 ponds to 4 m doubling their storage capacity.



Five of the 9 water tanks on the farm. Except for the 2 original tanks (left photo), the other 7 tanks are part of the rain water harvesting system on all 3 larger farm buildings.



Three shallow ground water wells provide water to the farmhouse and garden beds.

Water supply is still a concern, especially in light of climate change trends that indicate longer and drier times are coming. Our long range plans include the option to drill a deep well and we are investigating possible solution alternatives to more effectively manage the waste water on the farm. 🌍

Diverse Plantings and Gardening Methods

In past updates we reported on the wide variety of edible plants we have on the farm. Our guideline is to “grow what we eat and to eat what we grow.” Self-sufficiency and sustainability are the goals. We are not commercial farmers seeking to make huge profits. Our basic financial goal is to break even and to earn some cash for reserves. This should be easier to attain.

Most fresh vegetables and fruits on our table come from the farm. The maximum distance from garden to table is about 1.1 km. Since the creation of the farm, no synthetic agricultural chemicals have been used. 🌱



We have conventional surface garden beds.



Aerial or hanging gardens keep pumpkins, cucumbers, squash and other vegetables off the ground.



Garden beds in take advantage of compost pit residues and higher soil moisture in the dry season,



Raised garden beds along an access road.



Container gardening for plants with special soil needs.



← Bamboo and teak planted on the terraces to meet long term needs for fuel and construction materials and potential extra cash income. Typically bamboo is harvested and sold once a year. Teak attains a salable size 10 years after planting. We consider these plantings as watershed protection, soil erosion control, soil moisture retention enhancement, and a long term potential cash reserve account.

Planting Panoramas



We used to have some cows, but now we rent the pasture (for cash and manure) to a friend who raises horses.



The fish ponds provide us with an edible water morning glory as a table vegetable as well as fish, shrimp, eels, and other edible aquatic foods..



The rice paddies provide our annual family rice supply. This is a traditional Thai measure of farm success.



We have 3 orchard areas: one for family consumption and 2 producing surpluses for sale.



Teak, planted on the terrace to improve our watershed, and as a long term investment also reduces farm labor needed to maintain the terraces.

Some of Our Diverse Plants and Their Uses

(See the 2008 Fall Winter Update report 4, page 6 on the website for photos of some of the fruits on our farm.)

Bamboo	Food (bamboo shoots), leaves for food wrappers, stems for cooking container, stem for construction, residues for compost; surplus for cash income.
Banana	Food, animal feed (fruit, stems), leaves for food wrappers, residues for compost
Breadfruit	Food, residues for compost
Chili peppers	Food, seeds and dried chilis ground up for organic pest control
Cilantro	Food, residues for compost
Cucumber	Food, peels for organic pest control, residues for compost
Dragon fruit	Food, residues for compost surplus for cash income
Garlic	Food, residues for compost
Giant passion fruit	Food, juice, residues for compost
Guava	Food, juice, residue for compost
Jatropha curcas	Biofuel, lamp oil, organic pesticide and mosquito repellent, mulch, compost; living livestock fence; shade plant for intercropping
Jujubee	Food, residues for compost
King grass	Soil erosion control, leaves for mulch
Lettuce	Food, trimmings and residues for animal feed and compost
Lemon	Food, organic hand cleaner, residues for compost
Lemon grass	Food, organic mosquito repellent, leaves for mulch, residues for compost
Longan (white and pink)	Food, residues for compost, cash income, pruned limbs as firewood and charcoal
Mango	Food, pruned limbs for furniture, firewood, and charcoal
Neem	Food, surplus for cash income, organic pesticide, pruned limbs for firewood and charcoal
Nga (rambutan)	Food, residues for compost
Okinawa sweet potato	Food, residues for animal feed and compost
Papaya	Food, residues for compost
Potatoes	Food, residues for animal feed and compost
Pumpkin	Food, residues for animal feed and compost
Rice	Food, residues for animal feed and compost
Sesame	Food
Shallots	Food, residues for compost
Sweet potatoes	Food, residues for animal feed and compost
Som O (pomelo)	Food, residues for compost, trimmed limbs for firewood and charcoal
Squash	Food, residues for animal feed and compost
Teak	Construction, cash income
Thai egg plant	Food, residues for compost
Water morning glory	Food, fish food, residues for compost
Wood apple	Food, surplus for cash income, residues for animal feed and compost
Various Thai plants and herbs	Food, residues for compost
<i>Some On-farm Natural Workers</i>	
Ants	Pollinator, decomposer (eggs from a large red ant are a northern Thai delicacy)
Butterflies	Pollinator, toxic chemical indicator (photos in 2008 Winter Update 1)
Crickets	Food (a northern Thai delicacy), fish and poultry food (See 2008 Winter Update 3)
Dragon flies	Mosquito predator, (larvae are a northern Thai delicacy) (See 2008 Winter Update 2)
Fish	Food, mosquito larva predator
Flies	Pollinator; maggots for fish and poultry food (See 2008 Winter Update 3)
Grasshoppers	Food (a northern Thai delicacy), fish and poultry feed
Hover flies	Pollinator and insect pest predator
Stingless bees	Pollinator, honey maker, glue maker (See 2008 Fall Update 1)
Termites	Stump removers, fish and poultry food (See 2008 Winter Update 3)
Worms	Soil quality indicator, soil tillers, decomposer, duck, goose, turkey food, fish food

Diverse Animal Husbandry



Fish ponds give us water, fish, snails, eels, and edible insects and larvae (local Thai delicacies).

The original fish pond was joined by 2 more. So fish are a key source of our animal protein. This past year we added another species of local Thai catfish (that can tolerate deeper water and harsher conditions in the dry season) to the mix of Tilapia and catfish in our ponds. Eels, snails, and Thai delicacies of edible insects and larvae also come from the ponds.

We shifted away from cows and pigs and added geese, ducks, and turkeys to our protein mix with their meat and eggs. (Chickens are coming soon.) They also work in our natural pest control program eating slugs, snails, and grasshoppers. Their manure enhances our composting efforts.



Nutrient rich water from these 2 large fish ponds gravity flows to our rice paddies in the background.



An overview showing the relative positions of pasture, paddies, fish ponds, orchards, and fowl compounds.



The "fowl" compounds: Duck Development (left), Goose Garage (right), and Turkey Tract (white roof in back).





Mom feeding a different variety of local Thai catfish in the smallest of our 3 fish ponds.



Tilapia seem to thrive after escaping a "fish out" effort during the great dig out of the fish pond.



Freshwater snails are in the fish ponds.



Freshwater eels are in the ponds and paddies.



Freshwater shrimp are in the ponds and paddies



Tilapia for food and surpluses are sold for cash.



Catfish are a Thai favorite and earn us some cash.

Our fish ponds provide water storage as well as providing fish, shrimp, eels, snails, and water morning glory (as a cooked vegetable dish).

The ponds are also recreation for fishing, swimming, and a cool relaxing place to sit and rest in the saladang (pavilion).

In Buddhist tradition, water is a spiritually purifying element. Sitting in the saladang, looking at the farm is a good way to remember Saifon's dad (who passed away in 1996). Following the King's Theory is a fitting tribute to him and the farm her parents began about 30 years ago. 🌍

Diverse Energy Resources

Energy is critical to life and farm operations. Our efforts focus on effective use of farm fuel resources and exploring self-sufficient and sustainable alternatives. On our farm we have wood/bamboo, a small solar PV panel from a Thai government program, electricity, and are growing *Jatropha curcas* to use as a diesel fuel replacement in a generator set up to make our own electricity in the future. We also have plans for passive solar cooking, water heating, and water purification. 🌍



About 50% of the people on Earth burn wood to cook and boil water. We use tree prunings for firewood.



We installed a charcoal kiln to handle larger pruned limbs. Charcoal makes more heat than burning wood.



A few years ago we got a demonstration solar panel through a Thai government program.



We installed a 220 VAC line from the power grid, but in the future hope to get off the grid.



Jatropha curcas, our biofuel of choice to replace diesel.



"Sparky" our new all electric vehicle.