



Rural Training Center-Thailand

# 2011 RTC-TH Mar Update

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[www.neighborhoodlink.com/org/rtcth](http://www.neighborhoodlink.com/org/rtcth)

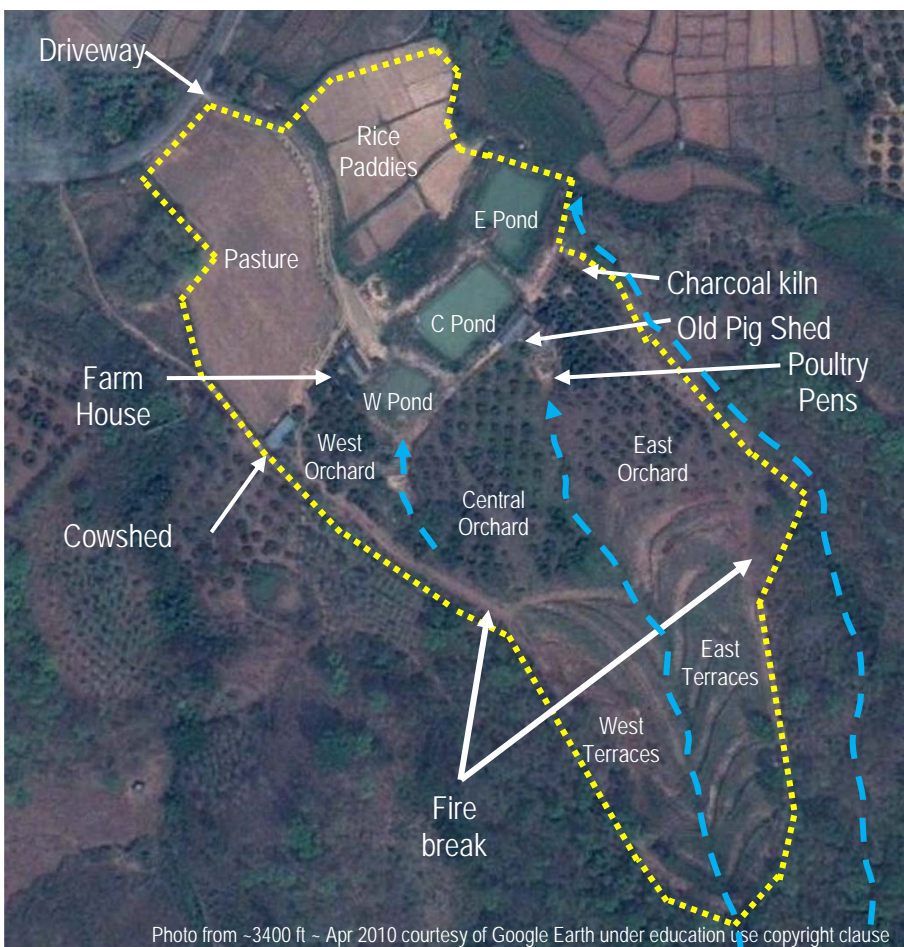
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Community-based environmental education for the self-sufficiency and sustainability of small rural family farms

ชุมชนตามสิ่งแวดล้อมศึกษาเพื่อการพึ่งตัวเองและยั่งยืนบนพืชนานาถนอมขนาดเล็กครอบครัวฟาร์ม

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

## Aerial View of the Farm



*Approximate farm boundary in yellow dashed line. The farm terrain can be seen as 3 steps going up from the paved road (top left corner of the photo).*

### Lower Section

- Pasture
- Rice paddies

### Middle Section

- East fish pond
- East Orchard
- East gully
- Central fish pond
- Central Orchard
- West fish pond
- West Orchard
- West gully

### Upper Section

- West Terraces
- East Terraces
- Central gully

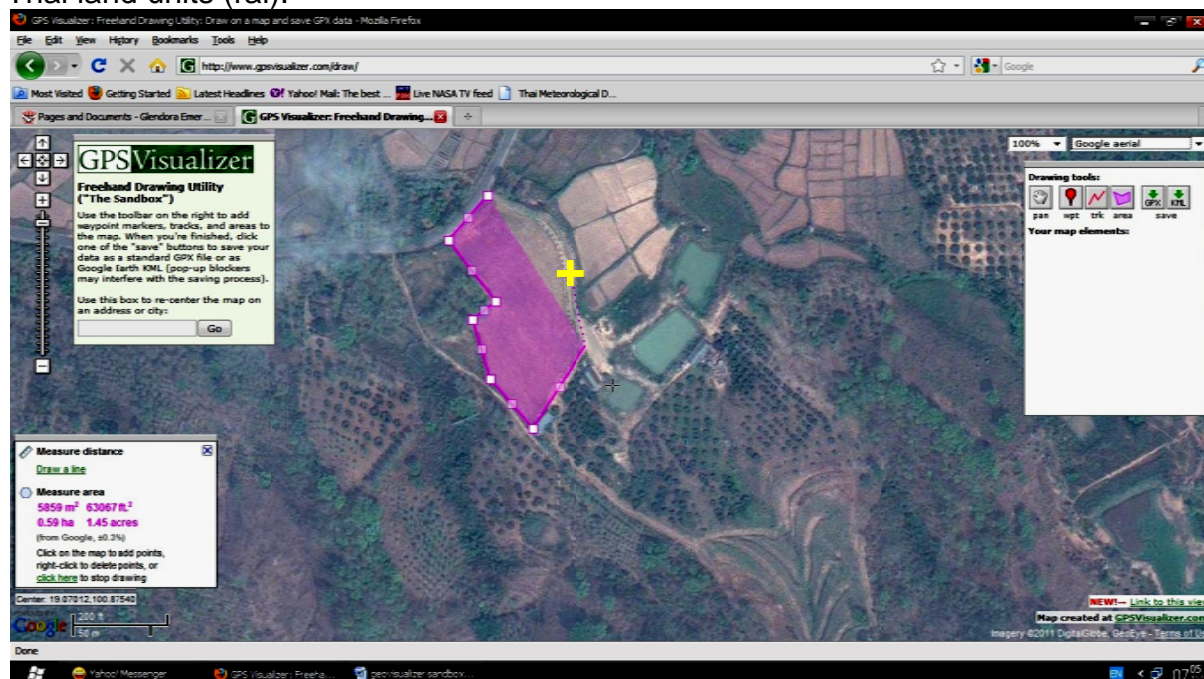
Photo from ~3400 ft ~ Apr 2010 courtesy of Google Earth under education use copyright clause

The farm was started in the second half of the 70's by Saifon's parents. They tried to follow the King's Theory. The farm was the first to have a fish pond in our area. Our landuse ratios are quite different, but the sustainable and self-sufficiency practices are consistent with the King's Theory.

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We used the <http://www.gpsvisualizer.com/draw/> (it's free) to get aerial views of the farm and make measurements of distances and areas (with about +/-3% estimated errors. This is acceptable to us for rapid recon estimates.). The photos are dated April 19, 2010. These were more recent than previous images we got from Google Earth and Google Map. While these measurements can be made on the ground, it is easier and faster using the "Sandbox" function in GPSVisualizer.

The screenshot below shows the pasture area measurement in progress. You simply move and click the cursor around the perimeter of the pasture. Upon the final click enclosing the area, the final estimated area is shown in the box at the lower left of the screen in square meters, square feet, hectares, and acres. We then use another online measurement conversion program to get the area measurement in Traditional Thai land units (rai).



*This is a screenshot of estimating the area of the pasture on our farm.*

The King's Theory initially suggests a 30:30:30:10 proportion of land use (rice, fish ponds, fruit/trees, buildings/roads). However, the King also said these guidelines must be adapted to the local conditions and circumstances of each farm. Using GPSVisualizer to quickly estimate the areas of the different land uses on our farm gave us these results (see table on the right).

Land Use	Rai	Acres	% of farm
Rice paddy	2.88	1.14	10%
Fish Ponds/ponds	2.84	1.12	10%
Fruits/Trees	15.89	6.28	57%
Buildings/roads	2.07	0.82	7%
Other (pasture)	4.32	1.70	15%
Total	28	11.06	~100%

*The total area of the farm is 28 rai / 11.06 acres (according to land documents held in the family).*

Our statistics don't match the King's guidelines. We consider the orchards and trees as critical to the watershed that supplies the ponds. The ponds are a major water supply resource needed to grow our rice. This is an example of the inherent wisdom of the King's Theory. Apply the guidelines, but adapt them to conditions and circumstances of your farm. 🌐



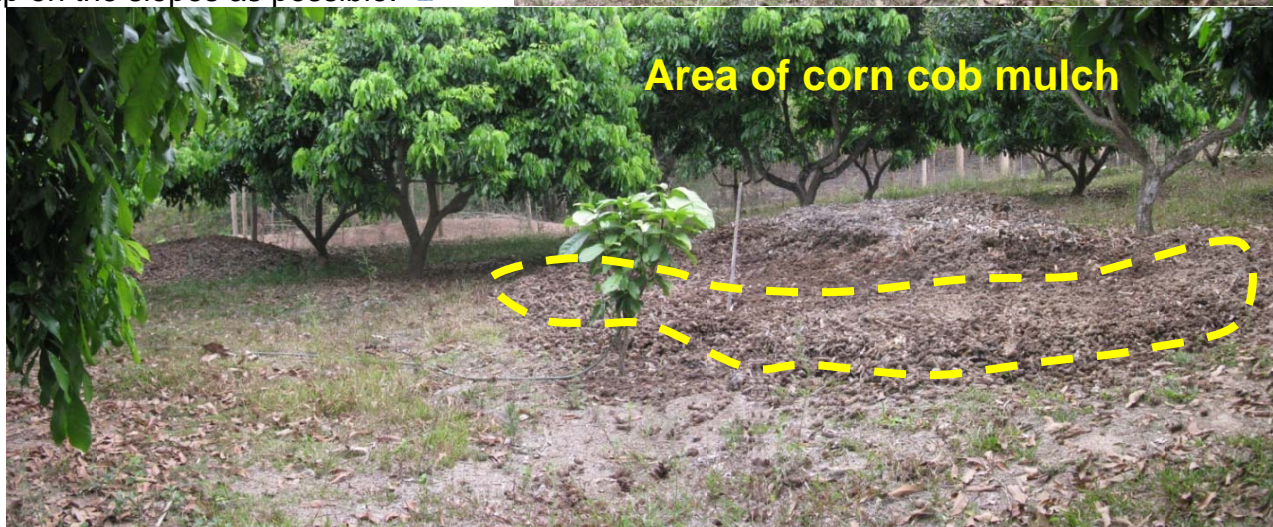
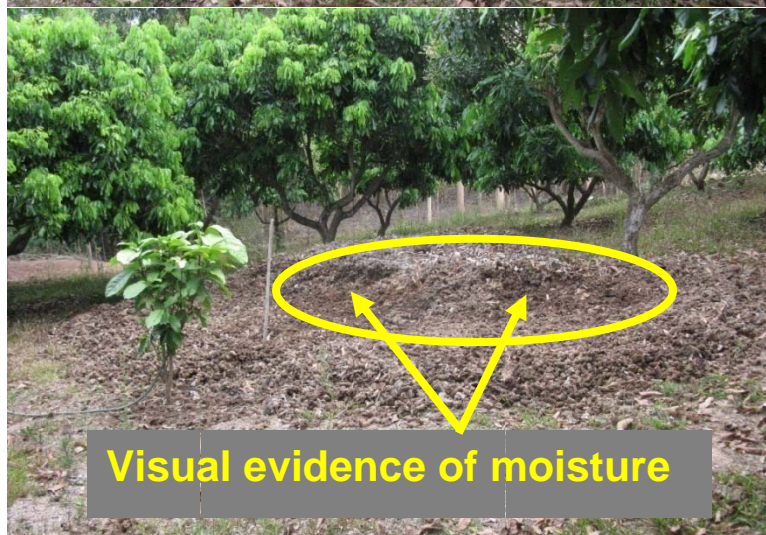
## Corn Cob Mulch

In an effort to reduce grass / weed cutting labor costs, we are trying a thick (15-20 cm / 6-8 in) layer of corn cob mulch in the East longan orchard.

Corn cobs are considered “useless” waste by many farmers. We see heaps of them left by the wayside or burnt. We are hoping to get more corn cobs to use to mulch the orchards and slopes to reduce weeds. The anticipated savings would help offset inflation bite in our budget.

At the same time, the mulch will improve soil moisture retention. The top photo shows a pile of corn cobs in the orchard. The darker color (in the yellow circle of the second photo) is due to moisture held in by the mulch.

We are expecting the added moisture will help increase soil organisms and beneficial soil processes in the orchard. As we get more corn cobs, test plots will be set up on the terraces. We want to hold the moisture as high up on the slopes as possible. 🌐



*A small trial patch was done to estimate the time required for the task.*



## ***March Blossoms, Branches and Buds***



*March blossoms along Hwy 101 medial strip in front of our Thawangpha location lasts only a couple of weeks.*

The cool, crisp and sometimes foggy March mornings give way to bright blossoms warmed by clear skies and bright sunlight. The dry season brings heat and flowers. The drive to the farm takes us past a dazzling brilliant yellow display of Golden Tree (*Tabebuia chrysantha* spp.) blossoms.



*A worker heading to get tools from the truck.*



But there's a lot of work being done by utility crews to clear branches from the power and phone lines along the road out to the village. Some of the key contrast to the US: trucks and crews equipped with bamboo ladders and poles, a paucity of tools, a lack of uniforms, safety equipment with a healthy dose of very OSHA-defying work methods. Parking along a narrow 2-lane road, there's no safety cones or warning signs, no flagman or traffic control. This won't play in Peoria!

I watched this 4 person crew in action for about 15 minutes. They work in 2 teams of 2 men; one cutter, one puller. The only cutting tool they had was a large knife. The puller uses a long bamboo pole with a hook on the end. The hook is another bamboo branch tied to the pole. The worker snags the upper part of the branch to be cut.





With an eye on the prize, this team gets into position. It's hard to see, but the road drops off sharply to a stream 3m / 10 ft below the road level. The man in the red shirt nimbly balances on previously cut branches that lay on lower lying shrubs and stumps. One slip and he can have a mean fall through branches, shrubs, and sharpened stumps into muddy water below. The puller is getting into position to grab the upper branches to keep them from falling into the utility lines and his co-worker.



To reach farther out over the steep slope, they use a bamboo ladder. They try to entangle one end in the branches and stumps. After some pushing, twisting, and shaking, they have a wobbly "stand" from which to start the next cutting task.



With the ladder "secured", the work proceeded. The tree is snagged and pulled over and the cutting began.

I was wondering how many other "bio-hazards" (e.g. bees, wasps, ants, snakes, spiders, and other creepy crawly, biting, stinging critters) they must encounter in this work.

This job requires fancy foot work and good balance. The work surface is highly variable. Here the shoulder of the road is uneven and steep. The cutter was balancing on fallen branches. Each step was a rather springy bounce. With very little to grasp, he had to swing and chop at the tree (some were as thick as his thigh, though many were only as thick as his arm). As the tree comes down, the puller tries to have it fall clear of the cutter. I noticed this team would switch jobs every so many minutes.



On the farm, pomegranate (*Punica granatum*), longan (*Euphoria longana*), and mango (*Mangifera indica* spp.) trees are budding and flowering giving us hopes of tasty fresh fruit for our table in the next few months. 🌐



*A pomegranate tree near the middle fish pond.*



*Longan trees blossoming in the East Orchard.*



*Recent strong winds knocked off many mango blossoms, but our young trees are still bearing fruit.*





## ***The Dry Season is the Season for Drying***



*Peanuts spread on a tarp in the yard for drying.*

Farmers, big and small, set their crops outdoors in the sun to dry them. It's a common site in villages, along roadsides, in the fields, and at larger transport centers in the area.

Come along with us to take in the local sites of produce drying in the area. Depending on the crop and the wind direction, you can pretty much let your nose lead the way. 🌐



*One family's annual chili supply drying in the driveway.*



*Shredded tobacco on bamboo drying racks.*



*Unlike granaries in the US, corn is sun dried in Thailand. This is a big corn depot in Ban Mae.*



*A huge chili drying area in Ban Mae area across the road from the corn drying facility.*



## ***Sparky Windshield Surveys: Water Views***

Sparky, “the Batt-mobile” was intended as an RTC-TH alternative energy and emergency communications demonstration vehicle. Conducting “windshield” surveys in a good way to conduct demonstrations in the community and gather data.

A big concern in the dry season is water. So we took Sparky on a run to the farm to get a photo record of the water levels in the fish ponds for March. And we also drove to various reservoirs to photograph the water levels along the way from Thawangpha to the farm. 🌐



*Sparky, “the Batt-mobile” the RTC-TH all electric vehicle.*



*The East fish pond.*



*The Middle fish pond.*



*The West fish pond.*



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*The Nam Yang's low flow reduced to less than 1/5 of its bed width. (Taken at the Na Fa bridge.)*



*Nam Yang spillway from the Hwy 1080 bridge, south of the Thawangpha Hospital (~6.2km/3.9mi from Na Fa bridge).*



*Expose sand and gravel bars in the Nan River looking north from the Hwy 1148 bridge at north end of Thawangpha.*



*Nan River at the Soi Su Khan Phattana bridge, south end of Thawangpha, is the finish line for local dragon boat races. (This bridge is about 3.2km/1.9 mi south and downstream of the Hwy 1148 bridge.)*



## Measuring Slope Angle with a Leveling Stick



*A leveling stick is easy to make: a straight bamboo stick, and empty water bottle, and some tape.*



*Two leveling sticks: spirit level and water bottle versions. A stick length of 0.5m makes them more portable (if 1m long = no calculation need).*



*It's also easy to use. Plain end of stick uphill; bottle end downhill. Raise bottle end until water is level. Measure from bottom edge of stick to ground in cm. Multiply the distance by 2 = % slope. In the photo, 15cm = 30% slope for the demonstration.*

Measuring slope angle is a useful skill. Slope angle is one factor affecting the rate of soil erosion by flowing water. A leveling stick is a simple, low cost, easy to make tool for the job.

If you don't have a spirit level, you can fasten an empty water bottle to one end of a bamboo stick (0.5m or 1m long) with and some string or tape to tie the bottle to the stick. Then fill the water bottle about half way. You will need a ruler or short tape measure to do the slope measurements.

To measure a slope, put the plain end of the stick on the uphill slope surface. Adjust the bottle/spirit level end of the stick until the liquid/bubble is level. Then measure the vertical distance (height) in cm from the bottom of the stick to the ground.

If the stick is 1 m long, the height (cm) is equal to the % slope. If the stick is 0.5m long, multiply the height by 2 to get the % slope. Use the guidelines in the table below concerning slopes and land use.

Slope angle measurements can be used for land use planning, soil erosion monitoring and mitigation, and laying out terraces (to name a few uses).

General Slope Descriptions		
Steep	Moderate	Gentle
33-100%	11-33%	0-11%
% Slope & Agricultural Land Use Guide		
32.5-51%	Plant trees; protect biodiversity	
24.9-32.5%	Less grazing; more trees	
12.3-24.9%	Grazing or trees	
5.2-12.3%	Strip cropping; graded banks	
1.7-5.2%	Strip cropping	
0-1.7%	Prime farmland	
Building Construction		
Over 50%	Not desirable for buildings	
30-50%	Fair to Poor for buildings	
10-30%	Good to Fair for buildings	
0-10%	Best to Good for building	

**Note:** In addition to slope angle, soil type, structure, vegetative cover, rainfall, also affect soil erosion rates.



## ***Nam Yang Rainy Season Preparation***



Photo from Google Earth; educational use clause.

*Red arrows show the banks on the "outside" curve of the river bed that show more erosion. Yellow lines show approximate recent "straightened" banks of the Nam Yang (white dashed line show banks from April 2010).*

The Nam Yang snakes its way back and forth along its channel. The snake-like winding river bed defies attempts to straighten its course year after year. Each dry season, back hoes are busy at work along the many rivers and streams in Nan. They "dress up" the banks in an effort to control erosion by building berms and straightening the river course. Water flow velocities are higher in rivers with straight alignments. Curved river channels have more erosion occurring on the outside bank of the curve. Other factors affecting stream flow velocity are water stream bed slope, volume, water depth, stream bed roughness, and the underlying rocks.

The winding stream channel results from the low slope angle of the stream bed and slow water velocity. Sediments drop out filling in the shallow stream depth. During the rainy season, higher water volume and depth increase the velocity and erodes the stream bed and banks. This cycle repeats itself year after year. 🌐



*View looking upstream from the Na Fa Bridge over the Nam Yang river.*



*The view from the Na Fa Bridge looking downstream at the Nam Yang river.*



## ***Cooking Pak Boon (Morning Glory)***

This is a very common vegetable dish that is quick and easy to make. This is the morning glory from our garden (not the water morning glory from the fish pond). After cutting and washing the morning glory, it is stir fried using a bit of cooking oil, crushed garlic, brown sugar, pork or chicken soup powder, and soy sauce (all of these to suit your taste).

Start with the garlic in oil, add the morning glory. As the vegetable cooks down in volume, mix in the seasoning. Cook to taste and serve it in a dish. 🌐



*Pak Boon (morning glory)*



*Heat the oil, stir fry the garlic.*



*Add in the morning glory.*



*After it cooks down, add seasoning to taste.*



*When you're pleased, it's ready to go!*

