



Rural Training Center-Thailand (RTC-TH)

SUMMER FARM UPDATE 1

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Community-based Environmental Education for the Self-Sufficiency and Sustainability of Small Rural Family Farms

The Summer Rains Arrive

The coming of summer marks the end of the hot season and the beginning of the rainy season. Rain began falling in early June. The Thai Meteorology Department cautioned people not to think the rainy season was starting early. They were anticipating a shorter but more intense rainy season. Usually, the peak of the monsoon season is in August to October.

But with the summer rains, the water levels in our three fish ponds are rising. Pond #2 is the original pond on the farm. It is fed by groundwater seepage and is the best pond in terms of maintaining its water level through the dry season. Pond #1 is also fed by seepage, but has a much smaller drainage basin feeding it. This pond got quite low in the dry season, as did pond #3.

Pond #1 can drain into pond #2. At this time, water cannot flow from #2 to #3. Both #2 and #3 can drain to the rice paddies. Future plans call for portable siphons for flexibility in transferring water between the ponds. This may be especially important in times of very heavy rainfall with the normal pond drains cannot handle rapidly rising water levels. If the pond berms are over topped, they would fail. This would be devastating to the rice paddies and to the water storage capacity of our farm. Future plans also call for increasing water storage capacity for the farm either in ponds, tanks, or the soil. ☺



Pond #1: The smallest pond near the farm house; ½ full.



Pond #2: The first pond built on the farm; nearly full.



Pond #3: Newest fish pond; about half full.



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Initially started as a commercial farm activity, we hope to regroup the pigs and implement a more sustainable approach. Pig feed is a big expense item we need to try to reduce.



The cows are on a sustainable path. They were acquired originally to generate manure for the orchards and meat for the family with a possibility of selling any surpluses.



The fish were to feed the family with an occasional annual "pay to catch" event to raise some cash. After the flood in Sep 2006, some commercial sales were done to help meet local food demand. Nutrient rich water and mud from the ponds drain to and fertilize the rice paddies.

Animal Feed Concerns

For our farm to be truly self-sufficient, off farm inputs (e.g. purchasing of animal feed) need to be eliminated or greatly reduced. This may not be 100% possible, but we need to try. If off farm inputs are necessary, we prefer bartering before buying in order to minimize the need for cash. And we would prefer to barter with other farmers who are also striving for self-sufficiency and sustainability. However, some cash income is needed for emergency situations. So lines of revenue generation need to be pursued.

We will be conducting a detailed study of the feed requirements for the farm's livestock (e.g. pigs, cows, chickens, ducks, and fish). The goal is to find links in the nutrient / waste cycles for the entire farm to fully utilize farm resources before going off the farm for animal feed.

Pi Oi, our farm manager, is trying a method of raising fly maggots as fish food. We haven't seen the detailed procedure, but this greatly reduced the cost of fish food purchases. Another possibility is to modify the process to trap the flies and use them to feed fish, chickens, and frogs. This also connects to the non-toxic pest controls on the farm. ☺



The chickens and eggs are subsistence food...and they play a role in the non-toxic pest control of grasshoppers on the farm. They range freely on the farm eating insects and fertilizing the soil with their droppings. Left over rice and vegetables supplement their diet.





"Physic nut" or "Black Soap" (Jatropha Curcas).

Black Soap Planted

In early summer 2007, we planted about 1,300 "Black Soap" (*Jatropha Curcas*) plants on a separate parcel nearby the farm. This is the start of a renewable energy source and our quest for energy independence. These plants should begin producing seeds in about 8 months or so.

The seeds are about a 35% oil content. Squeeze the oil from the seeds and you can use it to run a slow speed Lister-type diesel engine. No additional processing is necessary. Increased efficiency is obtained if the oil is heated to make it flow easier.

Some added benefits:

- The plants have a life span of about 40-50 years.
- This fuel is a significantly cleaner burning diesel engine fuel.
- The plant requires little water and thrives in poor quality soil.
- Proper pruning increases yield.
- Older direct injection diesel pick up trucks can use a mixture of SVO and petroleum diesel fuel.
- All processing of the oil seeds can be done manually without other energy consumption.
- Seed residue can be composted or burned as an alternative fuel. ☺



The seeds have an incredible 35%+ oil content.



Squeeze some oil from a seed and light it. It burns!



*A slow speed (~600 rpm) Lister-type cold start diesel engine can run on PPO / SVO (pure plant oil / straight vegetable oil) fuel made from Physic nut (*Jatropha Curcas*).*

Engines like this in rural villages of India ran for 40 years, 24/7 with no breakdowns. This could be a viable approach to relative energy independence on our farm.





"Dragon fruit" (*Hylocereus undatus*)



Depending on conditions, 3 crops / year are possible.



Our large Dragon fruit: 2 fruits weigh about 3 kilograms.

Dragon Fruit Galore

We planted the first Dragon fruit (*Hylocereus undatus*) in the garden about 2004. Now, 3 years later, we are having a great harvest.

Here is an example of "growing what you eat, and eating what you grow." We got this plant because we liked to eat the fruit. After planting it in the garden, other people in the village got curious as to what it was. When the first fruit appeared, curiosity peaked. People tasted it and liked it.

We sold some cuttings to others. We are not in the nursery business. But these small sales generated some extra cash.

As we planted more Dragon fruit on the farm, the productivity increased. This year, in the last month, we had more Dragon fruit than we could eat (about 50 kg in the past few weeks). Well, you can only eat so many Dragon fruit. So, naturally, we sold the surplus at about 100 THB / 3 kg. The size and weight of the fruit is such that about 2 fruits are about 3 kilograms (more than 6 lbs)!

The main point is that we are not in the Dragon fruit business. This is an informal activity that occurred only because there was a surplus. Any cash generated by selling Dragon fruit is a pure bonus for us. There is no pressure to sell for profit or to become rich. We grow this fruit because we like to eat and enjoy it. ☺



Small black seeds and sweet pulp fill the Dragon fruit.

