



RTC-TH Oct Update

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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

IPM: Companion Planting for Beneficials (General)



A long-standing concern among sustainable farmers is the reduction or elimination of synthetic agricultural pesticides. Integrated Pest Management (IPM) is an approach seeking a better balance between the need to increase agricultural production while being good environmental stewards. Companion planting to attract beneficial insects (e.g. pollinators and insects that prey on crop insect pests) is not new. Many previous generations of farmers (indigenous or migrant settlers) living closer to nature carefully observed insect / plant interactions and practiced companion planting.



Anise (*Pimpinella anisum*)



Basil (*Ocimum basilicum*)

Traditional farming and gardening is typically done in rows. Each row tends to be planted with only 1 crop type. Companion planting usually involves mixing plants in a mutually beneficial way to boost crop production, overall plant health, and to control and minimize damage by insect pests.

Companion planting can improve soil conditions which affect overall plant health and resistance to disease and insect infestation. Protecting pollinators is also a high

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Priority for sustainable agriculture. The dramatic decline in pollinators is often attributed to extensive use of expensive synthetic chemical pesticides. These do not readily break-down and contaminate the soil, water, farmers and farm workers, and the food we grow to eat.

Here is a brief table of some plants and the beneficial insects they attract. “Good” insects pollinate crops and / or eat insects that are crop pests.

<i>Some Plants & the Beneficials They Attract</i>	
Anise	Attracts beneficial insects and repels pests
Basil	Attracts butterflies & beneficial insects
Borage	Attracts Bees
Caraway	Attracts beneficial insects
Catnip	Attracts birds & bees for pollination
Coriander	Attracts beneficial insects
Dill	Attracts Bees
Horehound	Attracts Bees
Hyssop	Attracts Bees, Butterflies,
Mint	Attracts beneficial insects
Plumbago	Attracts Bees & Butterflies
Sage	Attracts Bees
Salvia	Attracts Bees & Butterflies
Sweet William	Attracts Bees & Butterflies

While some may debate the practicality of using these methods for large agri-business farms, it is quite easy to do for a family garden (especially for those using bio-intensive gardening in small areas). For example, if practicing “Square Foot Gardening”, beneficial companion plants can be used as border treatments or put into containers and positioned in and around the garden plots.

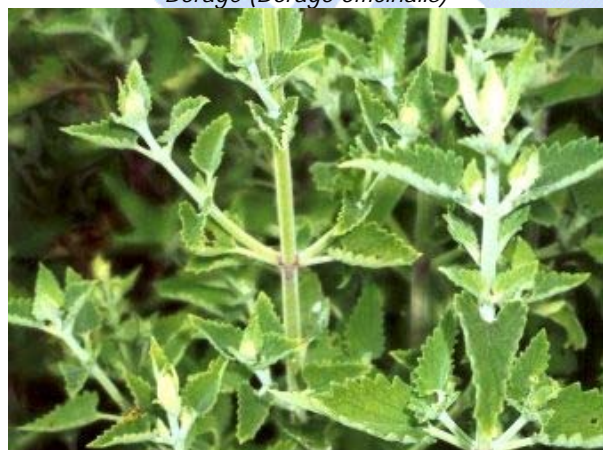
The essential nature of a family garden (growing what you eat; eating what you grow) results in a biodiverse environment.



Borage (Borago officinalis)



Caraway (Carum carvi)



Catnip (Nepeta cataria)



Coriander (Coriandrum sativum)



Dill (Anethum graveolens)



Horehound (Marrubium vulgare)



Hyssop (hyssopos officinalis)



Mint (Spearmint (Mentha spicata))



Plumbago (Plumbago indica)



Sage (Salvia officinalis)



Salvia (Salvia officinalis)



Sweet William (Dianthus barbatus)



Butterflies are pollinators and good environmental quality indicators on a farm.

Butterflies are pollinators and good environmental indicators. They are very sensitive to pesticides. They are among the first beneficial insects to be killed when farmers use pesticides on the farm. Some studies show for every target insect pest species killed, 10 beneficial species die. The loss of beneficial insects can be devastating for farming.

The lack of pollinators has reduced crop yields in many areas. Many wasp species are carnivorous and prey on various species of crop insect pests. Insect



We see butterflies as beautiful garden guardians.



Wasps hunt and eat many crop pests.



Companion planting helps protect pollinators.

infestations may occur more often and be of longer duration if unchecked. Many insect pests develop resistance to synthetic chemical pesticides. This is often met with increasing the toxicity of the next "improved" version of the pesticide. Residues contaminate the soil, get into the water supply system and eventually make their way into the food we eat. Rural Thai farm workers and farm families are often exposed to dangerous levels of these toxic substances.

Care must be taken with companion planting. Some of these plants can be invasive. Planting them in containers and placing them in and around the garden is an alternative giving you better control. Consult companion plant guides to find favorable combinations with the food crops you will be planting to get optimum results. 🌍

A Little Bit of Hawaii in Thailand

We are trying to implement the King's Theory and a sustainable life-style on our Thai farm. But the roots of this effort go farther back in time. In what seems to be an amazing "coincidence" of life, Greg grew up in Hawaii. And the roots of many of the concepts and principles for the RTC-TH and community-based education go back to Hawaii.

Majoring in Geography was more or less "accidental" for Greg. It was not a goal set from earlier education; Not like some people who aspired to a particular discipline or profession. So the convergence of Geography, Hawaiian culture, the concern for the environment, the RTC-TH and sustainability is rather "miraculous mix" that just "happened."

Historically, Hawaiian people, like many indigenous peoples, lived close to nature. Their lives and survival depended on maintaining a "sustainable and balanced" relationship to their surroundings. This can be exemplified by Ahupua'a, the traditional Hawaiian land division system from about 600 years ago. At the heart of the system is sustainability directly linked to the environment, resources, and the people. It is very consistent with the dynamic balance of Yin-Yang.

If you think of an island as a "life boat" in the middle of the ocean, you can readily see that the limited resources onboard need to be managed carefully for your long-term survival or sustainability. In an overly simplistic explanation, Hawaiians divided an island into pie shaped wedges going from the mountains to the sea. Thus, each ahupua'a got slices of the island's ecosystems: mountain, forest, stream, foothills, coastal plain, coast, and reef. The people living on the ahupua'a had to manage the use of the resources for their long-range survival or risk perishing.

The RTC-TH demo farm has a similar layout. The protected forest land above the farm is the watershed. The rice paddies are the lowest point on our farm. With no stream or irrigation ditch to supply water, the ground water seeping downhill from the forested watershed is critical to the long-term viability of the farm. Like the Hawaiian ahupua'a, our farm is a vertically integrated slice of the local ecosystem.



*The Ahupua'a from the mountain to the sea.
(Image from the Internet: education fair use clause.)*



The RTC-TH demo farm: mountain/forest to paddies.



One of the 3 fish ponds on our farm.

Unlike Hawaii which has mountain rains generated by the fairly constant Trade winds, northern Thailand get the summer SW monsoon rains as its main source of rainfall. The warm, wet rainy season is about May to Oct. Without water in the dry season, many farmers cannot produce crops and their land may be idle from Nov to May. In our area, it is only possible for one crop of paddy rice each year.



A typical monsoonal trough over SE Asia

The ancient Hawaiians had local chiefs and a “kapu” system to manage the ahupua’a and to assure sustainability. For an individual Thai farm, it becomes the responsibility of the farm family. The RTC-TH has two inter-related programs to help empower people to become better environmental steward.

FARMS (Family Administered Resource Management System) and GRASS (Getting Realistic ASsessment Statistics). As with most good science, keeping detailed records and measurements is the basis for making good analytical decisions. The idea is to use the REEEPP (Rural Environmental Education Enhancement Pilot Program) at Ban Na Fa Elementary School to train students apply their math and science lessons to systematically keep records of the family farm. The hope is to groom the next generation of Thai farmers to be more aware of using math and science to more effectively manage their family farms. This would help get on the path toward a sustainable farm.

It all starts with the soil and water. Without these basic components, it is hard to imagine how a farm can exist. With a distinct dry season from Nov to Apr, water supply and retention are big considerations. The Thai King’s advice was to build a fish pond to hold sufficient water to assure being able to grow the annual rice supply for a family. Fish supplies animal protein for the family diet. If there is a surplus and local market conditions are right, selling surplus fish can augment the family’s income.

Although thundershowers bring rain in the hot, dry season, they are erratic and unreliable in providing adequate rainfall.

For farmers without adequate water in the dry season, their land is idle. They try to find other work to earn income. For the family members remaining at home, drip irrigation of a family garden could supply food to help feed fewer mouths. Rain water harvesting could provide sufficient water to drip irrigate family gardens at low cost.



Life After Empty: New Uses for Discards (cont'd)

Here are more examples of re-using materials that might routinely be tossed out as trash. In order to truly “save” money, for each item re-used, the cash required to buy a typical item (e.g. an SD memory card case) is put into a “piggy bank” and ultimately deposited in the bank. Although some of these ideas seem to be only “pennies” of savings, all those pennies do add up. If you doubt this, consider why banks and credit card companies will bill you for \$19.02 rather than just rounding it down to an even \$19.00?



Breath mint case to hold digital camera SD card



Empty tuna can with lid to hold candles and matches



Empty creamer box holds CD slip covers



Plastic strapping used to make velcro tie-down straps



Empty bulk CD container as microphone stand (along with a mini-binder clip, rubber band, large diameter drinking straw and salvaged microphone).

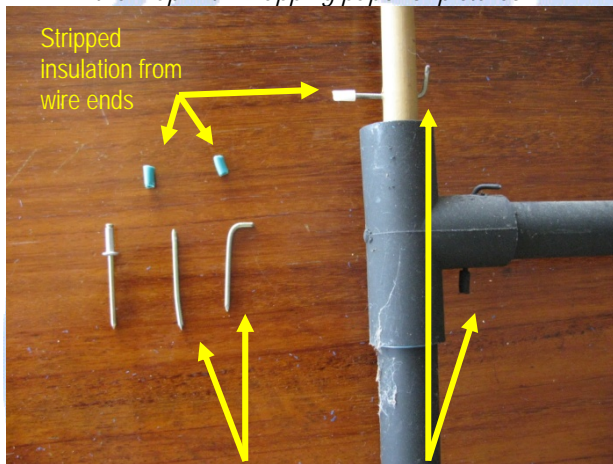




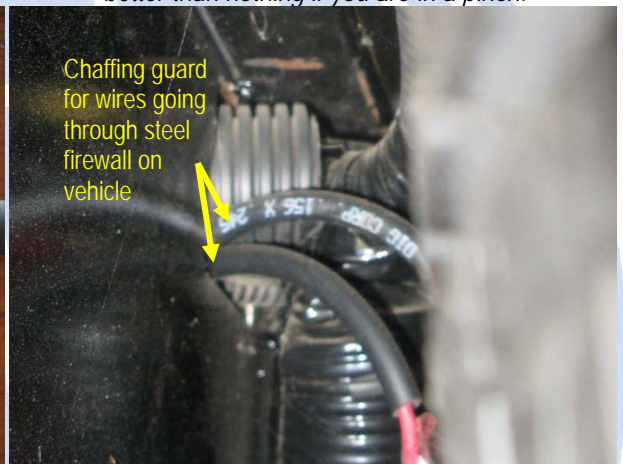
Empty toilet tissue roll = electric cord organizer. If these "plain wrapper" versions don't turn you on, dress them up with wrapping paper or pictures.



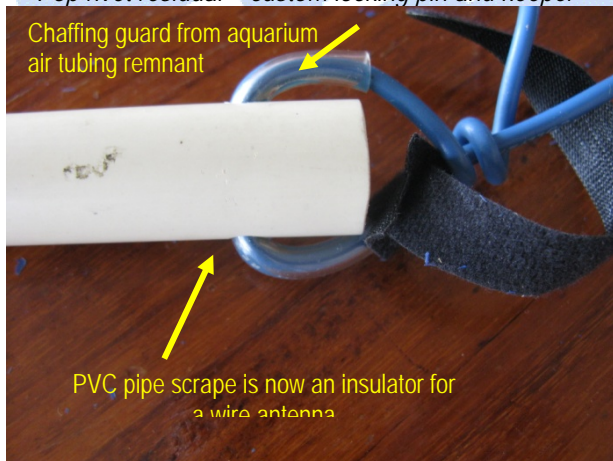
Discarded CD = last ditch signal mirror alternative. OK, a CD surface will never be "mirror" quality, but it is better than nothing if you are in a pinch.



Pop rivet residual = custom locking pin and keeper



Drip irrigation tube remnants = wire chaffing guard



PVC pipe scraps = antenna insulators



Parachute harness D-ring = tie-down point on Sam

"Waste not, want not" are the guiding words. What many people so readily toss out as trash can have many practical and useful purposes. Living in a small rural town/village is quite different from having a Home Depot or Lowe's nearby. It's a several hour drive to get to the next province to try to find a large, well stocked hardware store. And with no 99¢ store nearby, it isn't so easy to find neat cheap stuff for our needs. It pays to think two or three times before tossing things in the trash.



The metal "hangers" from old hanging files were combined with scraps from damaged fishing net to make stowage "bins" in Sam. The metal strips were used to secure the bottom edge of the netting to the metal ribs in Sam.



Empty snack containers = soil field survey equipment



Old CD, pill bottle = water tank gauge

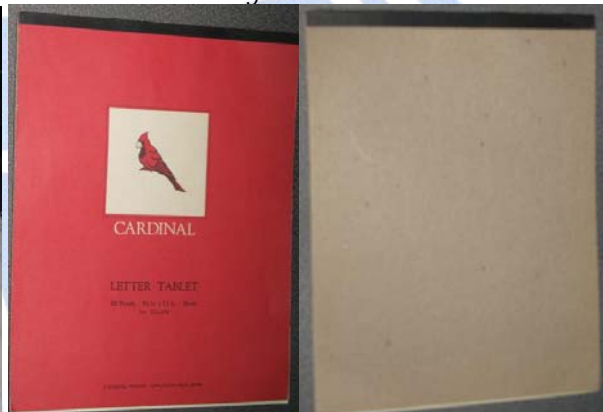
We hope these examples will stimulate you to think more than twice before discarding any empty container or plastic packaging. Any time you make an item via "re-use", you need to save the cash that you would have spent to buy that item. By literally putting the money aside, you really do see the financial savings for your efforts. This is one way to empower small rural farm families to build up their savings.



Discarded blister pack + report cover binding = see through label tab antenna switch status display board



Empty UHT drink box made into cash drawer coin organizer



"Free" mouse pad from the cardboard back of a writing tablet. The texture of the cardboard surface is ideal for an optical mouse's technology.



Fruit protector net used as a protective cushion for radio batteries and other delicate field equipment.



When it comes to making use of discarded items, let your imagination be your guide. There's not much to lose. If an idea doesn't work out as you thought, you haven't lost much at all. Think about it, the material was going into the trash anyway. But if an item can be used, it could save you some money. And after a while, all those pennies add up. Just remember to actually save the money. 🌐

RTC-TH EmComm Supports GERC JOTA



Greg (HS0ZHM) at his EchoLink® station #520300 in Nan Province, Thailand



Dennis (KI6NQG) in charge of the GERC JOTA EchoLink® station in Covina, CA

On Saturday, 15 Oct 2011, GERC (Glendora Emergency Response Communications; using the special event call sign K6U (Kilo 6 Uniform) collaborated with Scout leaders Jim (KG6TQT), Frank (KG6TQV), and Dennis (KI6NQG) and the Valle Del Sol District, San Gabriel Valley Council of the Boy Scouts of America to conduct a Radio Merit Badge course and participate in JOTA 2011 (Jamboree On The Air). JOTA is an annual international event giving scouts world-wide the opportunity to make radio contact with scouts and other people in countries around the world.

Jim (KG6TQT) took the GERC lead in organizing the event and provided lunch for any and all participating GERC hams. Mark (N7YLA) and his son Donny (KF6HZX) provided key GERC logistical support in getting the bulk of the GERC field equipment



The GERC EchoLink® field radio link station.



Dennis (KI6NQG) and Mark (N7YLA) on EchoLink®



Dennis (KI6NQG) monitoring a scout's first contact



A scout makes contact while others listen in.

to the JOTA site where they were joined by other GERC hams that helped setting up the tents and equipment. There are hours of preparation and follow up to these community service events that go unseen by the attending general public.

E-mail excerpts from Dennis (KI6NQG) to Greg (HSØZHM): "What can I say, you are amazing. You pulled an all-nighter and made it look easy. I really enjoyed listening to your contacts with the boys. You should have seen their faces light up when they heard where you were half way around the world. You have the ability to engage all ages. I was worried about

some of the really young ones but even they seemed to make a connection with you.

I had a world map from the Yeasu booth at HamCon by my station. It was fun to see the scouts and sometimes their parents trying to find Thailand. Us Vietnam aged people knew exactly where it was. I am sure you would agree that the world needs more geography teachers. They were all impressed by how far away it was. Most of the adults had heard about the flooding and made some comments when the rain on your end started coming through as a kind of thundering echo sound."



Scouts, parents, and visitors all have a chance to experience the wonder of Echolink®



Children as young as 7 years old participated.

RTC-TH EmComm station is a GERC Auxiliary International station to support international radio communications demonstrations as a community service. 🌐



This year Mark (N7YLA) rigged all the GERC radios used for JOTA with two headsets. This allowed the scout making the contact and a visitor to listen in.

The RTC-TH supports the GERC EchoLink® demonstrations as an easy low-cost alternative for new hams to begin making international contacts. Most young scouts are computer savvy and already have computers and internet connections at home. They can use their Radio Merit badge as a stepping stone to getting their amateur radio license. The license gives them access to download the free Echolink® program. Using this basic set up give them a chance to gain more operating experience while they save up to buy their first radio.

But if EchoLink® works fine this way, why spend more money to buy a radio? The key for EchoLink® to work is the internet. If a disaster strikes, and the internet is down, EchoLink® is not possible. Unless of course, you have a radio capable of reaching another radio equipped EchoLink® station connected to the internet outside the disaster area. Such as in Japan during the recent earthquake and tsunami that struck the NE coast of Honshu. The