

AGRICULTURAL  
EXPERIMENT  
STATION  
COLLEGE OF MICRONESIA-FSM  
YAP CAMPUS  
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# AgKnowledge

Quarterly Newsletter

## Focus on Small Farms

*Diversified small farms have important risk-minimizing effects that lead to strengthened food security and resilience.*

*Read more ...*

## Small Farms Cool the Climate, Ensure Food Security

The threat of global climate change has caused concern as crop growth could be severely affected by changes in key climatic variables such as rainfall and temperature, and agricultural production and food security could be affected both globally and locally. Micronesian islands are already being affected by these phenomena. Poor farmers in this region are more vulnerable to these impacts of climate change because of their geographic exposure, low incomes, and greater reliance on agriculture as well as limited capacity to seek alternative livelihoods.

cultural systems can be part of the solution by contributing to climate change adaptation, mitigation, through carbon conservation, sequestration and substitution, and establishing ecologically designed agricultural systems that can provide a buffer against extreme events. The high degree of biodiversity in the traditional farming systems, especially the plant diversity in the form of polycultures or agroforestry systems is more adaptable to weather events, climate variability and change and resistant to adverse effects of pests and diseases.

contribute directly to climate change through emission of major greenhouse gases, small farms induce an opposite effect by increasing the sequestration of carbon in soils. Small farmers usually treat their soils with organic compost materials which absorb and sequester carbon better than soils that are farmed with conventional (inorganic) fertilizers. Additionally, small farms use significantly less fossil fuel in comparison to conventional agriculture mainly due to reduction of chemical fertilizer and pesticide use. Small farmers who live in rural settings are linked to local markets.

Small farms and traditional agri-

Unlike large scale farms who

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## Youth and Farming: Glimpses of Hope



**Gilfith Youth Club members in action**

Increasing the participation of youth in agriculture is an important means of improving food security, livelihoods and employment in the Pacific. As elsewhere, young people in the Pacific struggle to find formal employment when they leave the education system. Farming has all too often been regarded as a fall back option – something to do if one does not find anything else. Recently, Secretariat of the Pacific Community in collaboration with the Pacific Agriculture and Forestry Policy Network published the Pacific Youth in Agriculture Strategy report. The purpose of this strategy is to recommend actions and initiatives that all stakeholders can pursue to encourage the active engagement of youth in agriculture across the region.

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# Youth Training Programs



**Farmer-Connect Program**



**Soil Training for College Students by Dr. Bob Gavenda**

*Youth and Farming... contd.*

Agriculture will be sustainable if it can attract future generations of young farmers. However, the overwhelming tendency of young people is to move out of farming in search of a more comfortable life and better income. If the present rate of out-migration continues from Micronesian islands, decades of farming as livelihood will cease to exist. We need to trigger the imagination of younger generations to collectively take up agriculture as a profession. It needs collective efforts of people from all walks of life.

Since December 2010, Yap Agricultural Experiment Station has provided outreach and technical assistance to members of Gilfith Youth Club in Yap in small farm activities. Under farmer-connect extension education approach, members so far received basic training in seedling production, field preparation, transplanting, watering schedule, weeding, mixing and rotation of crops, basic soil properties, compost/manure/fertilizer application, pest control strategies, harvesting and marketing.



## **Did You Know?**

A study conducted in the United States shows that eighty cents of each dollar spent for food goes for processing, transportation, packaging, advertising, and other marketing services. Another ten cents goes to cover the costs of purchased inputs – fertilizers, pesticides, fuel, etc. Conventional farmers currently get only about ten cents of each food dollar, on average, for their contribution to the production process. Small farmers, on the other hand, can capture a larger share of the consumers' food dollar by performing some, and bypassing others, of marketing services. By tailoring the production to consumer niche markets and selling more directly to consumers, small farmers have the opportunity to make more profits without becoming big farmers.

**Small plots are worth big food**





**From page 1....**

Accordingly, they avoid energy wasted and the gas emissions associated with transporting food hundreds of miles.

A small farm could be generally managed and worked by one household. The size of farms, however, varies with the ecological, social, and economic conditions within which farmers work. Small farming systems are adapted to a range of ecosystems and microclimates, and small-scale farmers work with a wide diversity of production systems, traditional knowledge, exchange systems, and cultures and often contribute to extended networks both within and outside their community. Small farms are not only productive and efficient but they address issues associated with ensuring access to food. Diversified small farms have important risk-minimizing effects that lead to strengthened food security and resilience. Smallholder farmers who produce a variety of crops can continually harvest

food both for the family's own consumption and potentially for income generation at the market.

The food security of our island nation rests in the hands of small scale farmers who have developed relationship with local environment, local markets and local customers. During a crisis, people can rely on local farmers for their very survival. Towards this end we need more small scale farmers who know how to work with nature to produce more without relying on commercial inputs and who have developed direct relationships with their neighbors and their customers – who have created value, as well as reduced costs by marketing directly to local customers. We need even more farmers who care about the land, care about the people, and care about their nation.

Fossil fuels are non-renewable, and thus, eventually will be depleted. Agricultural

resources, on the other hand, are regenerative and renewable – if they are nurtured, cared for, and conserved. For long term food security, we need to ensure the sustainability of food and small scale farming systems. Small farms are multifunctional – more productive, more efficient, and contribute to the economic development of the community.

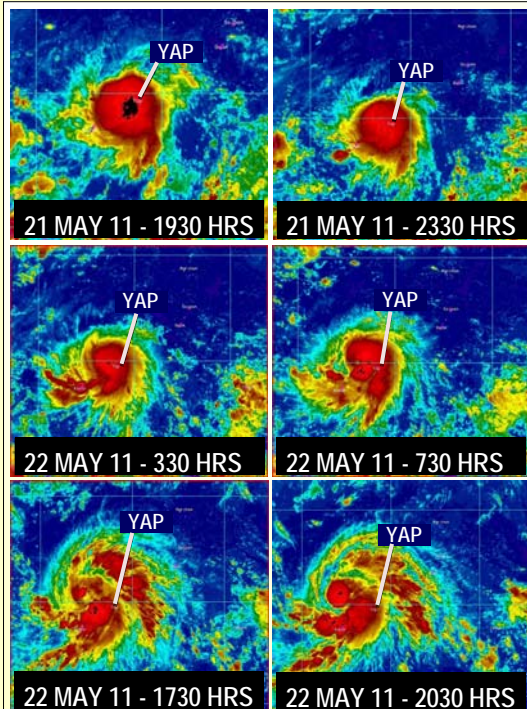
'Small Farms' is one of the thrust areas of Yap Agricultural Experiment Station's extension activities. Participate, engage, contribute and benefit from our research and extension programs.

*“Small farms are multi-functional — more productive, more efficient, and contribute to the economic development of the community”*

## Aftermath of Tropical Storm Songda

Though biodiverse small farms are more climate resilient than monocropping systems, certain factors such as strong winds can disturb the natural equilibrium. Last month, tropical storm Songda created widespread destruction on traditional farming systems in Yap. Although the eye of the storm veered around Yap, wind force of over 60 mph brought down banana trees and many cultivated crops. Agroforestry interventions, because of their ability to pro-

vide economic and environmental benefits, are the best “no regrets” measures in making communities adapt and become resilient to the impacts of this type of climate change effects. The important elements of agroforestry systems that can play a significant role in the adaptation to climate change include changes in the microclimate, protection through provision of permanent cover, opportunities for diversification of the agricultural systems, improving efficiency of use of soil, water and climatic resources, contribution to soil fertility improvement, reducing carbon emissions and increasing sequestration.



Colored Infra-Red imagery of Yap Sector showing the position of tropical storm Songda on 21 and 22 May 2011 (left); Damaged tomato garden (below)



Picture Courtesy: Japanese Multifunctional Transport Satellite 2 (MTSAT-2) Program



## Add Colors To Your Health

Fruits and vegetables come in terrific colors and they are great sources of many vitamins, minerals and other natural substances that may help protect you from chronic diseases.

To get a healthy variety, think color. Eating fruits and vegetables of different colors gives your body a wide range of valuable nutrients, like fiber, folate, potassium, and vitamins A and C. Some

examples include green spinach, orange sweet potatoes, yellow-orange banana, black beans, yellow corn, purple plums, red watermelon, and white onions. For more variety, try new fruits and vegetables regularly.

**Swiss chard (Rainbow chard)** - Recently, Yap Agricultural Experiment Station carried out nursery trials on rainbow chard with excellent results. Transplants were ready for harvest within 4 to 5 weeks. Swiss chard is a good source of Thiamin, Folate and Zinc, and a very good source of Dietary Fiber, Vitamin A, Vitamin C, Vitamin E (Alpha Tocopherol), Vitamin K, Riboflavin, Vitamin B6, Calcium, Iron, Magnesium, Phosphorus, Potassium, Copper and Manganese.

The amazing variety of phytonutrients in chard is quickly recognizable in its vibrant colors, including the rich, dark greens in its leaves and the rainbow of reds, purples, and yellows in its stalks and veins (pictures, below). Virtually all of these phytonutrients provide antioxidant benefits, anti-inflammatory benefits, or both. In addition, many provide health benefits that are more specific and of special important to particular body systems. Best researched in this area are phytonutrient benefits provided by chard for our body's blood sugar-regulating system.

Seeds of rainbow chard are available from Johnny's Selected Seeds ([www.Johnnyseeds.com](http://www.Johnnyseeds.com)).



Swiss chard growing inside wooden grower



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