

Today Will Soon Be Tomorrow

by Glenn I. Teves, County Extension Agent, UH CTAHR Cooperative Extension Service –
Molokai <tevesg@ctahr.hawaii.edu>

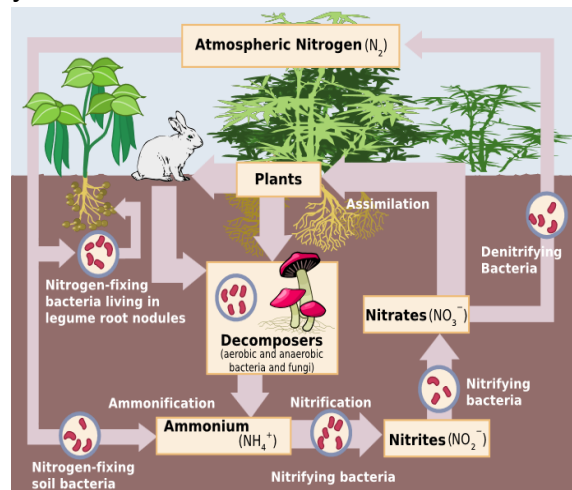
There's been a major change in our farming systems brought on by the petroleum crisis, global chaos, and also the way we perceive things. Everything is global, and Hawaii is a speck on a fly on the back of an elephant. The cost of farm inputs has shot through the roof, and there's less room for error in our management system. In such a situation, we need to look at ways of farming smarter and more sustainably, starting with our model of farming and also our farm inputs. We also need to take a more 'whole farm' approach to farming.

What's the difference between high-input and low-input farming? It's the speed at which things happen and is dependent on the quality and quantity of fuel. Just like fire, we need certain elements to make it happen. Without sufficient amounts of each key element, it would just be smoke. I call this the metabolic rate of farming. High input farming requires a lot of fuel, fertilizer, water, and high yielding varieties, and there's always a chance we might run out of fuel.

In a low input system, we grow things slow and sure, and the plants have a certain comfort level in growing, but there may be tradeoffs such as lower yields that might be compensated by higher prices for products sold. We try to enhance the natural systems, such as creating high quality compost. If the system is too hot or accelerated, it can crash if we run out of fuel.

Like a puzzle, all the pieces have to fit. The key is to take the crop to the finish line without stressing the system. The health of the plant at harvest will affect the post-harvest and shelf-life conditions of our finished product and its shelf life.

These systems may also require different varieties of seeds, including those created and adapted to the metabolic rate of the system. Seed varieties have to fit into the system, and are related to the conditions imposed on the seed when developing and selecting it. Priorities differ in different climates, and in Hawaii may require a late-maturing, disease-resistant cultivar with a large root system, enabling it to scavenge from a large soil area. Again, the system needs to be customized so each component part fits well.



The bottom line is we will need to decide what kind of farming system we will embrace. For some, the act of farming and growing food is considered sacred and is related to our ancestors, our culture, and our future survival, while for others it's a vocation that must yield a return on investment; it's all about economics. Most of us are somewhere in the middle. We have to get out of it more than we put in, otherwise we won't be able to survive as farmers!

The End Game

Farming has different goals for many. One is to grow healthy food, while for others it's to provide economic security, and also food security. For some, it's about everyone linking up to barter, share the abundance, and also store food for tomorrow, because when it comes to catastrophes heading our way in the middle of the Pacific, it's not a matter of IF, but WHEN. Charity begins at home, so we need to look at ways of feeding our community first, and move forward in creating our unique marketing system. The present system of marketing through wholesalers has something to be desired, so finding ways of selling directly to the end user is the goal. With the internet and social media, this is possible. The mathematics change drastically when you develop systems to reap a larger piece of the profits.

The problem is that many conventional farms only look at economics without considering the other bottom lines, the quadruple bottom line: ***Profit, Planet, People, Purpose***. These four mantras are becoming equally important in the new millennium as our responsibility to society, the environment, and a higher calling is brought to the forefront.



There's Gotta Be Another Way

There are models emerging that incorporate a lot of the community into a farm business. One such example is High Mowing Seeds, an organic seed company in Vermont. With a short growing season, there's a lot of work to be done in the summer with long days, and with the sun setting after 9 pm. Then, winter drastically changes how they operate business. During these very frigid winters with short days, it's time to process and package seeds, develop the seed catalog, and get ready for spring seed sales.

To help answer questions about what seed to buy, High Mowing Seeds hires farmers from the area to serve as seed resources. When you phone in to inquire about the best adapted seed variety for your area, an experienced farmer answers the phone, and not some call center worker who knows nothing about farming. You're also feeding the

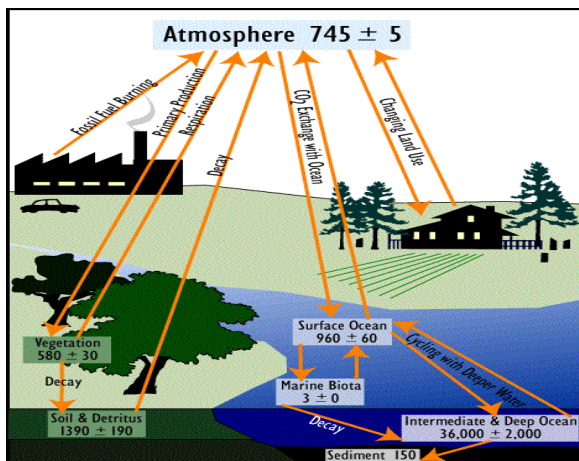
money back into your community. These kinds of community-based models help to create non-farm jobs around agriculture, adding value and impact to the community from an agricultural economy.

Bringing It Home

Back to fuel for our farms, where are the key ingredients for your compost coming from? The answers are many, including your homestead if you cut down invasive trees and grind them up. What about the land-fill I call Pu’u Opala? A new fledgling homesteader’s cooperative, Makakuoha Cooperative has started and is composed of our beginning farmers. They want to help themselves move forward, and can see gold in those piles and piles and piles of green waste at the land fill.

Through a strategic planning process, it was the early adopters in our beginning farmer program who saw this as a priority in moving agriculture forward in Hoolehua. Through the efforts of key people at the Kohala Center and USDA in helping put the cooperative together and investing in them, the co-op now has two USDA grants to help them move forward. The first is a grant to buy a large truck and trailer to haul the green waste from the land fill to the homesteads. They also have a training grant to help the cooperative function better, and also train them in new technology, including Korean Farming Systems to manufacturer high quality compost.

Kudos to our former Hawaiian Homes Extension Agent, Jennifer Hawkins for helping get the farmers focused and moving them forward. A special mahalo goes out to those farmers who have put an extra effort into creating a clear vision for our homesteads, including food security and family stability through these monumental efforts. It truly takes a village to create a preferred, sustainable future and how better to do it than to have a lot of fuel to grow healthy food. If you’re interested, contact Tubs Kalipi, Tony and Kapua Lauifi, or John Freeman for more information. This is about working together for a common purpose that benefits all of us. *“All of us is better than one of us”*



MEGA-trends and MICRO-trends

There are trends that affect how we think, what we embrace, and how we respond to things. Some of these relate to our values and beliefs, but some are out of necessity due to MEGA changes around us. Some are MEGATRENDS affecting us globally, while others are more local and isolated in nature. The depletion of petroleum resources is a MEGATREND, and has a rippling effect on almost everything we do. Another

MEGATREND is access to information and the need to communicate with others. The need to recycle, and look at ways to be 'sustainable' is also a MEGATREND. Resource management is related to the need to survive on this isolated outpost in the middle of the Pacific, preserve for tomorrow everything we need to sustain ourselves for generations to come, and leave this place in a better condition than how we found it.

The word '*SUSTAINABLE*' is so overused that we lose its true meaning. Many companies use this term as a marketing tool to describe themselves when they're far from it. If we're really sustainable, we don't have to tell people that we are; they can tell by our actions. For some, it's a path, while for others it's a destination, something we work toward. Sustaining means maintaining and preserving resources so we have sufficient stocks for the next generation. It relates to many things, such as water for crops and survival, crops and animals for food and fuel, and fish from the ocean to eat.

This is an ethic or a value, and the way we think, and is the opposite of waste. One Hawaiian word I used to hear a lot when growing up was '*poho*' or waste, and it was usually associated with not eating all our food or even throwing something away that we still could use. We do a lot of both today. 'Waste-not, want-not' is an ethic our grandparents embraced because they had little, and worked hard to survive and make ends meet. I think of the first homesteaders when I think of this concept. One solution is to change the way we think, the way we live, and the way we farm, and this starts by understanding basic biological systems we operate under, including the nitrogen and carbon cycle, both on the last page, and figure out how we can use it to our advantage.

RISK MANAGEMENT

There's risk in everything we do. We can cross the road and get run over by a car. We can go hunting, slip on a rock, and crack our head open. We can engage in risky behavior, such as selling or using drugs, and end up in jail. We can eat lots of chicken katsu and end up with clogged arteries, or eat candy and drink lots of soda with high fructose sugar and end up with diabetes. The list goes on and on. Insurance companies, and also the stock market are two examples of industries that capitalize on our risks. We can purchase stock based on risk; the higher the risk, the higher the potential dividends, but there's always the chance of losing it all. More recently, some companies have been involved in market manipulation and insider trading, but there's risk as well such as hefty fines for breaking the law.

Even in agriculture, there are many types of risk, including health and financial risks. We are constantly answering risk-related question when making key decisions. Should we invest in farming, or buy a house or a car instead? Which one will give us the best return on our investment? Should we develop a production model that will pay large dividends, but require expensive inputs such as specialized machinery, pesticides, and

maybe GMO's or should we develop an organic model that's more labor intensive, requires more knowledge of the system, and is a long term investment in soil building, but is more sustainable in the long run and kinder to us and the environment? These are the kinds of risks each farmer or future farmer will need to assess.

A Legacy of Risk

Some of my family has been involved in farming in Hawaii for a thousand years, while some ohana have been involved for less than 200 years. My Irish great-grandfather, Charles Hall was one of the first coffee growers in Hawaii, farming in Hokukano, near Kainaliu, Kona in the 1830's. He took a risk and planted fifty acres of coffee, and he dealt with the same problems coffee farmers face today. He couldn't find enough people to harvest the beans! He also managed the Humuula Sheep Station in the middle of nowhere on the slopes of Maunakea, and along with Ashford Spencer created an isolated community of two families.

From another unrelated family line with the same surname, my English great-grandmother Emma Rickard Hall's brother William Rickard constructed the first sugar plantation on the Hamakua Coast, Honoka'a Sugar. Along with their uncle, who was an engineer, they created the infrastructure for sugar production where none existed, including Haina Landing, a life-line to the outside world where sugar was shipped out.

William Rickard was a staunch supporter of Queen Liliuokalani, and couldn't accept the idea of outsiders taking over Hawaii. When the Queen was overthrown, he gave lots of money and support to an armed rebellion led by Robert Wilcox to reinstate her. He took a risk and it landed him in prison for five years, along with Prince Jonah Kuhio Kalaniana'ole, who was also working to fight the overthrow, but only served one year in prison. Uncle Willy was despised by the other sugar growers for his actions and paid the price since they controlled the legal system.

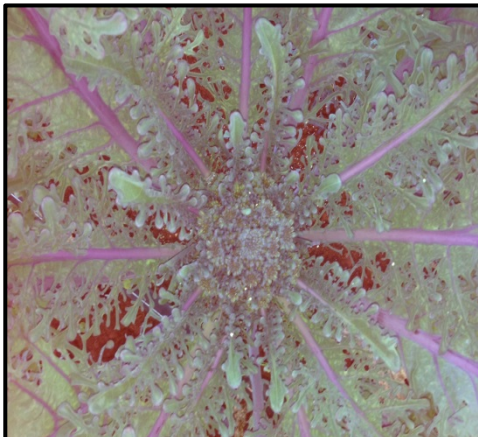
Farming is in my blood. Today, I'm involved in agriculture, but not to the extent of my ancestors, considered giants in agriculture of old Hawaii. I don't think I take large risks like them either, although I do stick out my neck sometimes in advocating for what I consider to be the right. Being raised in a ranching family has taught me the work ethic, and that farming comes first because the animals have to eat every day, just like you. First things first! How much risk are we willing to take in order to create a great future for us and our family? When we're young and reckless, we take more risks. My Dad used to tell us when we do crazy things, "All guts, no brains!" Overall, as we age our aversion to risk decreases.

Risky and Juicy

Juicing is a nutritional trend in Hawaii and in many other places. Juicing kale, lettuce, spinach, and other greens, mixed with fruit juices give those partakers a jolt of energy and a feeling of well-being, but there are risks around us that we cannot readily see. Some are microscopic, and others are not well understood. This is one of them.

The Rat Lungworm has been discussed a lot lately, and Hawaii is the world hotspot for this major health risk. Many can't explain why; it could be the weather, or the recent arrival of a new slug that looks like a snail without a shell, or even a growing population of rats, or it could be a convergence of all three. The wetter parts of the Big Island are hot spots for this disease, especially Hilo and Puna. Like a football game with a well-executed play, the rat passes the disease to a slug by sliding on and eating the rat feces. The slug then slides into someone's garden, and onto some veggie greens, especially something that's eaten raw.

If not washed well or not inspected well, or especially juiced without cleaning well, the rat lung worm gets into a human system through a juiced slug or slime trails with the rat lung worm in it. Once in the human system, it migrates up the spinal cord into the brain. Not well designed for the human system, the rat lung worm burrows through the brain trying to find a way out, causing major damage to the brain. The human defense system starts to build guard cells to attack this intruder. The intruder finally dies, and the guard cells having completed a work well done, has nothing to do, so it turns on the brain. Right out of a sci fi movie, but unfortunately true. Pretty risky stuff and the rat lungworm has already been found in Kalae and Halawa.



Purple Peacock, a kale X broccoli cross. Entire plant is edible and forms a nice broccoli head

The Importance of Science

As I've traveled around the Big Island over the last 4-5 months supporting educational efforts in seed saving and beginning farmer programs, I see at least one common thread that appears to be lacking in many of the people I teach, and this is an understanding of the basic sciences especially as it relates to growing plants. The sciences, from seed physiology to geology to physics to botany to biology to soils to plant pathology to genetics and more all come together and are incorporated into this so-called simple act of farming.

This knowledge of the sciences is not too simple and takes a lifetime to comprehend, and we need to learn precept upon precept, building our storehouse of knowledge and understanding. I'm still learning and I'm in awe over the things I learn each day. Farming is an art as much as it is a science, but when you marry the two, miracles can

happen. If we expect to be great farmers, we need to be busily engaged in learning the sciences and how they apply to farming.

It's not good enough to read the popular press and expect to learn enough about farming. There's a lot of inaccuracies out there about farming; cause and effect sounds very straightforward, but is it really cause and effect we're seeing or are there other factors at play? When we build our storehouse of knowledge, we need to be sure we're building it from a rock solid base. If not, then everything we add to it makes it more unstable.

Living organisms have similarities in their life cycles, in the stresses they face, and the effects on them, just like us. Understanding these principles will lead us to an understanding of insects and diseases. Sometimes, we have to think like an insect or a disease. All these organisms are into self-preservation just like us. What makes them tick; what are their likes and dislikes? We need to know if we expect to deal with them and outsmart them.



Pre-1885 heirloom French lettuce 'Cracoviensis' in flower.
Stems are eaten like asparagus. Hoolehua, Winter 2013

New Farming Options

Over the last year, I've been approached by more than a couple organic seed companies to see if we would be interested in growing organic vegetable seed. Many seed companies will have winter nurseries, similar to the seed corn industry, to evaluate new varieties, and in some cases, grow seed to add another generation onto them. I feel this is something we need to investigate to see if we have what it takes to create an industry like this is Hoolehua, and in other parts of Hawaii. I will be meeting with some of these seed companies soon to better understand the industry, the steps in the process, and especially competitive advantages for us. 'You nevah know if you nevah go. '

Fruit of the Loam

I've been advocating to farmers that they need to plan their crops for today, but also plan for tomorrow, your golden years. You can work hard now, but as you get older, you will try to move from fast turnover crops to less soil-moving and more permanent crops. This would equate into perennial and permanent crops. We really don't know what crops and what varieties of crops grow well in Hoolehua because no one kept good records. What is the name of that mango or avocado? Only heaven knows so we start

from scratch, but it really doesn't matter what the name is, as long as its ono and produces consistently.

I'm bullish on avocado and continue to seek out the best of the best to see how it grows in Hoolehua. You start with the recommended varieties, then you find others that fit in between with the goal of having avocados year-round. The problem is avocados are they're very site specific; what grows in Kona won't necessarily grow well in Hoolehua. The seed might be small in Kaunakakai and get larger with more rainfall, so the only way you'll know what varieties grow well is by actually growing and evaluating them or seeing them grow down the road from your homestead.

What's funny about avocado is that they all flower at the same time in early spring. The main difference is how long they hold onto the fruit before they're mature. You have summer, autumn, winter, and spring varieties. Some flower and fruit will stay on the tree for almost a year before they mature. In this case, anything can happen. Heavy winds and rains can wipe out flowers so you end up with nothing for a year or more. Planning for down the road requires looking at the total farm, mapping out your area, having the motivation to care for them over the long haul, and pacing yourself.

We go back to basics and that means having adequate windbreaks, because you're wasting your time planting permanent crops without it. Snapped branches and blown away flowers is all you're going to have. Don't limit your options, because there are so many different crops to grow, and it's best to be an innovator instead of following the crowd. We have so many crops to choose from, including pomegranates, jaboticaba, ulu, peaches, blueberries, strawberries, rutabaga, watermelon radishes, snow peas, spinach, kale, beets, crookneck squash, canteloupes, citrus, longan, dragon fruit, jack fruit, togan, spaghetti squash, the list goes on and on. So much to talk about, so little time. Happy Holidays, and much more next time...