7. Crop Rotation

Proper crop rotation is *Fundamental #1*. It will beat the disease and pest cycle while promoting nutrient cycling. This is a forgotten age-old method to assure the health of future crops. It is of the utmost importance to minimize nutrient loss for long-range success.

When the same plant is continually grown in the same place, then the same nutrients are required. This will exhaust certain nutrients, depending on the crop. When different crops are grown in rotation, the nutrients, such as trace elements, will not be as quickly

depleted. Deep-rooted plants will bring up more elements from deeper layers of sub-soil. When used as green fertilizer or compost they will return trace minerals and nutrients to the topsoil for future plantings of shallower feeders.

Even a grass pasture will improve when it is in rotation with a legume like alfalfa, mungo beans, perennial peanuts or clover.

The old farmers remember this. During our training seminars the lolas and kuyas (older guys) admit that in Mindanao or Luzon their father used to grow peanuts or beans when they were between rice crops. It's common knowledge for most farmers, but they don't understand the full benefits of the concept and are no longer told to practice this principle. When people understand *why*, they are more likely to implement the method and realize the benefit from the effects of this fundamental.

Crop rotation also breaks the disease cycle when a different crop is planted. Many diseases are not able to find a new host plant when the rotation utilizes a different family each time. Do not follow rice with corn, as both are in the grass family and can have some of the same disease problems.

We interrupt destructive insect cycles with crop rotation too. For example, up in the rainforest, the shifting cultivators will use a cleared area for only 2 years. The first planting of maize is spectacular, so they plant it again. As they deplete the nutrients they get lower yields. They also develop a large number of pests. The first crop will not have any stem borer damage. These pests will lay eggs that feed on the next batch of maize. By the third or fourth continual cropping, they have a plague of biblical proportions. When a different crop is planted each rotation, then the insect pests are not able to find a new host plant in that area. They may hatch in great numbers, but they don't survive in significant populations on the journey to the next host.

We just have to be smarter than insects. Change their diet and they starve to death or die off in the process of relocating. In natural farming, we don't have to battle fiercely and kill off the undesirables directly; we exclude them biologically by changing their habitat or feedstock. It was our all-knowing Creator who made us smart, but greedy techniques are ruining us. In our efforts to produce more for less, we are growing dependent on chemicals that reduce the overall quality of our produce and pollute our bodies at the same time. The insects keep coming back. They build immunities to the palliatives we use. Rotation works best with a different family each time. Do not follow tomatoes with potatos, as both are in the same family and have many of the same pest problems. Below is a list of some of the families we are aware of.

Our vegetative strips have a wide variety of crops in rotation to prevent the build up of both pests and diseases.

Cauliflower is a real challenge to grow in the tropics, but with specialized netting and shading, it does surprisingly well.

FAMILIES of COMMON CROPS for ROTATION

Grass family (Gramineae):

Rice (palay), corn, sugar cane, oats, wheat, and other cereal crops.

Cabbage family (Cruciferae):

Bok choy, pechay and other Asian greens, broccoli, Brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard, radish, turnip.

Legume family (Leguminosae):

All beans, pulses and peas (sitaw, mung bean), peanuts, cover crops such as kudzo, perennial peanut (mani-mani), alfalfa, clovers, and vetch. Perennials Legume Shrubs - rensonii, flemingia.

Trees- Kakawati (Madre de cacao), Ipil-Ipil, fire tree.

Allium family (Alliaceae):

Garlic, leeks, onion, shallots

Daisy family (Compositae):

Chamomile, chicory, dandelion, endive, globe artichoke, Jerusalem artichoke, lettuce, salsify, sunflowers

Carrot or Parsley family (Umbelliferae):

Carrots, celery, celeriac, coriander, caraway, dill, fennel, parsley, parsnips

Beet family (Chenopodiaceae):

Beet, spinach, Swiss chard, lamb's quarters

Gourd family (Cucurbitaceae):

Cantaloupe, cucumber, gourd, kalabasa, honeydew, luffa, pumpkin, squash, watermelon

Potato family (Solanaceae):

Potatoes, Tomatoes, Aubergines and Peppers

Kalabasa is a favorite sweet pumpkin squash that grows well over the perennial peanut.

Sweet corn grown organically and freshly picked is one of the rewards of all our hard work. I eat it raw out in the field as a snack.

Sweet basil is a favorite herb for the restaurants. We enjoy using it in our fresh pesto for pasta dishes and bread.

Various nitrogen-fixing bacteria live on the roots of plants. These bacteria then increase fertility with free atmospheric nitrogen that builds up the soil economically.