

Report for the Minister of Agriculture of French Polynesia

I had great pleasure in visiting with the Minister of Agriculture of French Polynesia on Friday the 17th of October 2003. We spoke about current agricultural practices on Tahiti and potential changes that will improve the viability and sustainability of farming in Tahiti.

Farming on Tahiti has a very long tradition dating back to the arrival of the first occupants. Plentiful rainfall and nutrient rich soil blesses Tahiti, making cultivation of crops relatively easy. In more recent times, the traditional farming practices of returning plant wastes to the soil have been replaced with heavy chemical fertilizer use. These chemicals typically acidify the soil and only add selected nutrients in a very soluble form. Since Tahiti has a high rainfall the soluble nutrients are washed from the soil profile fairly rapidly. These chemicals eventually arrive in the streams and are released out into the ocean to the possible detriment of the ocean environment surrounding Tahiti. As these practices continue, the once rich soil will become gradually more acid, making it more difficult for plants to remove nutrients from the soil. This will lead to farmers needing to supply ever increasing amounts of soluble chemical fertilizer which increases the cycle of damaging the soil more.

Another possible effect of continued chemical fertilizer use is damage to the coral reef surrounding much of the island. For example Australia has just legislated to stop chemical fertilizer use along the Queensland coast, because of the damaging effects it has on the Great Barrier Reef.

Thanks to the assistance of Kalani Teixeira I visited with about 30 farmers in the Taravoe and surrounding districts. Each farmer showed me their crops, soil, farming practices and often their soil analysis. It became quite apparent that many of the soil tests pointed to the same problem. The common features obvious from the soil tests done in late 2002 are - low soil pH indicating acidic soil, low calcium (Ca), and high iron (Fe). Phosphorus (P) levels are high but mostly unavailable to the plants because the elevated iron concentrations are locking up the phosphorus in the soil. Nitrogen (N) is also generally low.

Older soil tests showed less acidity. Soil pH reduces as the soil tests become more recent. This increasing soil acidity is a major problem for farmers. Some soil tests on areas with minimal chemical fertiliser use showed a healthy soil of pH 6 – 6.5. Most soil tests revealed a pH between - 5.1 to 5.6, which is very acidic.

Though individual differences in soil test results reflected the experience of different farming regimes, there are certain trends and similarities between all the soils examined. The most obvious of the associated factors is that the majority of the soils on Tahiti have been formed from the same type of volcanic Basalt. Basalt has a high proportion of iron and the Alkaline Olivine Basalt common to Tahiti adds magnesium (Mg) to the soils. The soil tests often show a lack of calcium and too much magnesium relative to the calcium (calcium to magnesium ratio).

Generally the farming soils of Tahiti are rich with good structure, but they are low in calcium, high in iron, with phosphorus bound up. The soils are becoming more acidic and less productive because of the farming methods. These farming methods are therefore unsustainable.

I saw many examples of very excessive use of chemical fertilizer. This practice wastes money, resources, acidifies the soil and pollutes the environment. Many farmers also use excess pesticides and weedicides. Many of these chemicals have specific withholding periods that are ignored by many farmers. Several of the chemicals used in Tahiti are banned in many countries, including France.

The soil problems on Tahiti are relatively easy to repair because the soil has good natural fertility with a good structure. High rainfall tends to make soils respond quickly to new farming regimes as well. Here are a few simple and inexpensive recommendations that will make French Polynesian farming practices more sustainable, and less dangerous to the farmer, the consumer and the environment. These changes will eventually save the farmer money, because the nutrients that are trapped in the soil and are presently unavailable to crops will be freed up. The soil will become more productive and require less fertilizing.

Recommendations

1. The farmers should add calcium to their soils. This is a very effective and inexpensive method of reducing soil acidity and freeing up the bound phosphorous. Calcium can be added as lime or crushed limestone – both are cheap farm inputs.
2. The farmers should use less high analysis chemical fertilizers and use fertilizers that are more friendly to the soil's, the farmer's and the community's health. This approach is more sustainable in the long run.
A new fertilizer has just entered Tahiti from Australia called Alroc Mineral Fertiliser. Alroc is a very innovative fertilizer that supplies all the major nutrients including trace minerals, it neutralises acidity and is very gentle on the soil. Alroc is sustainable because it is harmless to the farmer and the environment.
3. Remove farm chemicals banned in France from French Polynesia.
4. Educate farmers to reduce pesticide, weedicide and fungicide treatments to the concentrations mentioned on the labels of these products. This will reduce their use to a minimum in concentration and frequency.
5. Prohibit the sale of farm produce before the withholding period has expired for pesticides, insecticides and fungicides.
6. Allow farmers who are moving to more sustainable farming technologies to receive the same import incentives available to conventional farmers. For example the equipment required for a softer effect on the soil has higher import duties. This may be simply because the agricultural schedules have not been updated to include these newer types of farm equipment.

7. Use cover crops between permanent plantings – like oranges, noni and other fruit trees. Cover crops can be selected to protect the soil from erosion during rainfall events and to provide shade from the strong sun. Cover crops can be chosen to increase nutrients and be slashed to add organic matter to the soil. Cover crops tend not to harbour pest insects and diseases if they are kept short by slashing.
8. Educate farmers and department of agriculture personnel in more sustainable farming practices. French sustainable and organic farming organizations may be helpful.

http://www.organiceurope.net/country_reports/france/default.asp*organisations

http://www.excite.fr/directory/Science/Agriculture/Sustainable_Agriculture

<http://Inweb18.worldbank.org/ESSD/ardext.nsf/26ByDocName/FranceFerti->

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Hawaiian and Australian farming groups may also be helpful as they have a similar climate (Tropical north Queensland Australia) and are closer.

www.hawaiiorganicfarmers.org , www.bfa.com.au , S.A.F.E. – Sustainable Agriculture and Food Enterprises, www.mineralfertiliser.com.au