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### **Effects on Sugarcane, Maize, Bananas, Mangoes, and Pineapple**

#### **1. The Soil Food Web**

- To increase crop yields and eradicate plant disease in Kenya farmers have to restore the soil biology. When the Soil Food Web has been damaged, which is what chemical agriculture does, the beneficial soil organisms die, the Nutrient Cycle does not work properly, plants do not get enough nutrients, they get sick, the soil becomes compacted and anaerobic, disease-causing fungi take over, and pests, disease, and weeds are the result. Farmers then apply pesticides and herbicides, which make things worse. Compost made with Bio-Plant restores the soil biology while Pro-Plant provides more than the 42 nutrients recognized as being required by plants to grow abundantly and healthily. The benefits of the bio-fertilisers are a consequence of restoring the soil biology.

#### **2. Sugarcane**

- When sugarcane is grown with the bio-fertilisers there is a significant effect on the growth parameters:
  - The number of internodes per cane.
  - The inter-nodal length.
  - The tops weight.
  - The trash weight.
  - The sucrose content, which is usually around 20% higher.
  - The yield components (number of millable canes, cane length, cane diameter, weight per stripped cane and stripped cane yield).
- Sugarcane farmers increase their yield significantly compared to when they used chemicals.
- Most sugar factories in Vietnam only want to buy sugarcane from farmers who grow their sugarcane crops with Bio-Plant and Pro-Plant, principally because the sugar from the sugarcane is sweeter than chemical sugarcane - usually about 20% sweeter on analysis.
- When sugarcane (or indeed any crop) is grown with Bio-Plant and Pro-Plant, the DNA changes each year and the quality improves. Because of this, a lot of sugarcane is grown in N.E. Thailand and terminated during the crop so that it can be exported to Vietnam and planted there. There is a very strong demand for this sugarcane. Please see the photographs at <http://artemisthai.com/frontpage/we-are-also-on-the-social-networks/thailand/>
- Some sugarcane factories mix Bio-Plant with the filter cake sugarcane waste, and the farmers increase their productivity 5% - 10% by using it to prepare the soil instead of urea.

#### **3. Maize**

- Maize crops grow very well when the planting rows receive a lot of compost made with Bio-Plant and Pro-Plant is sprayed on the leaves. Some examples of the increase in yield can be found at <http://artemisthai.com/wp-content/uploads/2018/02/Maize-Tests-Results.pdf> .
- What causes the increase? In short, the compost becomes a rich and very concentrated environment for the growth and multiplication of beneficial bacteria and fungi. The soil's microbial life of bacteria, fungi, protozoa, nematodes, and micro-arthropods is restored; the maize plants receive all 42 nutrients they need at the right time and in the right quantity, and as the field tests in Guinea showed, even in the first use of the bio-fertilisers 4-6 cobs per plant were common. The results were so good that the chemical fertiliser companies and their friends in the Ministry of Agriculture got so scared that they tried to cover up the results.

#### **4. Bananas**

- The weight of bananas per tree is higher. Normally, the farmers spray Pro-Plant every month, but they say that the effects are better, if they spray Pro-Plant 2 or even 3 times per month.
- The bananas are sweeter than bananas grown with chemical fertilizer.
- The bananas look more attractive to buy and eat as the skin is shinier.
- The bananas do not have black spots on them.
- The bananas keep longer after picking as do crops generally grown with the bio-fertilisers.
- The problems with disease disappear. In the first season the farmers can halve the amount of sprays they use (or stop completely, if they wish), and in the second crop they can stop spraying chemical sprays altogether.
- The cost of growing the bananas drops significantly.
- Some banana farmers in Thailand stress the importance and benefit of preparing a lot of compost mixed with Bio-Plant and placing this around the banana trees. In the first year they often use up to 20 MT of compost and organic matter for each hectare, and they reap the benefits of doing this. In the second year they reduce the amount of organic matter they use as the soil has already become rich in micro-organisms.
- The farmers can sell the banana leaves for wrapping food because the leaves have more cutin and look fresher and shinier.
- After 3 years the farmers can sell their bananas as “100% Organic”.
- In bio-chemical farming the farmers can halve the amount of chemical fertilizer they use, and if they also prepare the soil with organic matter mixed with Bio-Plant, and spray Pro-Plant over the banana trees every month (or every 10-14 days for better effects), they will get a noticeable increase in yield.

#### **5. Mangoes**

- Apart from the higher yield, the main difference is the taste. The mangoes are very sweet and the mango flavour is much stronger than with chemical mangoes.
- Another characteristic is the number of flowers on the tree in the flowering season. The trees are covered with flowers during the flowering season, more than on conventionally grown mango trees, which do use fertilizer or which use chemicals. Spraying Pro-Plant on the trees causes fewer flowers to drop off and the trees have more mangoes as a result.
- As long as the trees are receiving regularly compost made with Bio-Plant, the soil biology will improve, and the trees will not have a problem with disease, and the immune system of the trees will become stronger and stronger.
- Farmers should place compost made with Bio-Plant around the trees every month, and spray Pro-Plant on the leaves, flowers, and fruit monthly so that the leaves get coated with fungi, which protect the trees from fungal diseases.

#### **6. Pineapple**

- Here are some comments from some pineapple growers in Thailand about their experience using the bio-fertilizers to grow pineapples:
  - The pineapple is much sweeter than pineapple grown with chemical fertilizer.
  - The pineapples are heavier.
  - When you look at the pineapples, there have more eyes (scales) around the fruit.
  - The pineapples look fresher and more attractive to eat.
  - The pineapples keep longer after harvest.
  - There are more suckers so that more pineapple plants can be planted and grown.
  - The problems with disease disappear. In the first season the farmers either halve the amount of chemicals sprayed, or they stop using them at once. But in the second crop they can stop spraying chemical sprays altogether with no disease arising.

My warmest regards,

*Peter McAlpine*



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**Artemis**  
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