Some Field Test Results With Bio-Plant & Pro-Plant


ปุ๋ยน้ำชีวภาพ (BIOFERTILIZERS)
ไบโอ-แพลนท 99
BIO-PLANT
สูตรดิน
เพิ่มธาตุอาหาร สร้างสารกระตุ้นการเติบโต
ปรับปรุง บำรุงดิน เพิ่มผลผลิตพืช ลดการใช้ปุ๋ย
1 ลิตร
U.S.A. Technology
หัวปุ๋ยน้ำชีวภาพ
โปร-แพลนท 99
PRO-PLANT
สูตรใบ
1 ลิตร
อาหารเสริมพืช เร่งการเจริญเติบโต
บำรุงดินดี เพิ่มผลผลิต
U.S.A. Technology

General Effects on the Soil

Chemical Fertilizers Leave NPK Depositis Which Harden the Soil

- The following slide shows that about 80% of the NPK in chemical fertilizers is left unabsorbed in the soil. These NPK deposits harden the soil over time.
- By using Bio-Plant to fertilize the soil, the micro-organisms in Bio-Plant make that 80% NPK available to the roots, and the soil becomes soft (and fertile) again.

โปร - ฟาร์ม Pro-Farm (Pro-Plant)

ใช้ (Use) 1 ลิตร : 1,000 ลิตร (litres) of water

N	P	K
6	0.45	1.4

For the leaves — ไนโตรเจน (Nitrogen)

For the flowers — ฟอสฟอรัส (Phosphorus)

For the fruit — โปรแทสเซียม (Photassium)

N : P : K

15 : 15 : 15

When mixed with water, the following percentage remains:

30% : 5% : 7%

4.5% : 0.75% : 1.05%

The roots only absorb about 20% of this.

0.9 : 0.15 : 0.21

80% is lost unabsorbed in the soil.

ดูดซึม ใบ , ดอก , ผล

ใบ :-Chlorophyll สังเคราะห์แสง

CO_2 + H_2O

$C_6 H_{12} O_6$

Sugar

Humus (ซากพืช,ซากสัตว์)

Soil (ดิน)

Soil Preparation
Dose
Mix 1 litre of Bio-Farm (or Bio-Plant) with 5 MT of organic matter and leave for 2 weeks before planting the crop.

Bio-chemical Farming
Mix 330 cc of Bio-Farm (or Bio-Plant) with a 50 kgs bag of urea or NPK. Then you can use the 50 kgs bag over twice the usual area.

Benefits
The micro-organisms sweep up the 80% of the NPK that is left unabsorbed in the soil and make it available to the roots; fix extra Nitrogen from the air; and strengthen the plant's immune system very significantly. The soil becomes crumbly, fertile and alive again.

The Micro-organisms Make the Soil Crumbly, Soft, and Rich

Left: Chemically Depleted Soil
Right: Nutrient-Rich Organic Soil


Dry
Dead
Sterile
Wet
Alive
1 billion bacteria
per teaspoon


Soil Rich in Micro-organisms

Countries Where Used and Tested

Main Countries of Operation Thailand and Vietnam

- Farmers have used the bio-fertilizers for about 20 years in Thailand and Vietnam where their use is very widespread.
- Because of the level of sales and their popularity with distributors and farmers, and in Vietnam also with the government, there are 4 brands of the same bio-fertilizers in use.
- Data is no longer kept in these countries because so many farmers use the bio-fertilizers nowadays. The fact that sales are growing continuously attests to their efficacy.

Countries With Field Tests

- Field test results have been carried out in the last few years in Azerbaijan, Bangladesh, Borneo, China, India, Indonesia, Malaysia, Mauritius, Nepal, Pakistan, and in the Philippines.
- In Africa: Benin, Cameroon, Ghana, Guinea Conakry, Liberia, Malawi, Namibia, Nigeria, Rwanda, and South Africa.

Rice, Maize, Cucumber Tests in Nigeria

100% Organic Farming Rice Field Test in Taraba State – Pro-Plant Used Only

- In this field test on rice, the farmers did not prepare the soil with Bio-Plant and organic matter, and only sprayed Pro-Plant on the rice.
- Nevertheless, the farmers said that their crop yield was more than they ever got with Urea and NPK.
- No empty seed shells.
- Also, their costs were very much lower because they only needed one litre of Pro-Plant per hectare.

Bio-chemical Farming Maize Field Test in Karfe Town, Suleja, Niger State, Nigeria

- The maize seeds were soaked in Bio-Plant and water for 12 hours before planting.
- The soil, which was in poor condition owing to years of chemical farming, was prepared with a bio-chemical mixture of Urea and Bio-Plant.
- Bio-Plant was mixed with NPK and this bio-chemical mixture was sprinkled around the maize plants during the crop. Pro-Plant was sprayed regularly on the maize.
- The farmers almost doubled their yield. Normally, they only produced 30-40 bags of maize per hectare, but this test produced 60 bags per hectare.
- Normally, the farmers have problems with insects during their maize crops, but this time there were no problems with insect pests at all. No chemical sprays were used.

Bio-chemical Farming Maize Field Test in Karfe Town, Suleja, Niger State, Nigeria

Maize Test in Chanchaga Village, Niger State, Dry Season, 2015/2016

- Bio-Plant and Pro-Plant were tested on maize using different farmers to evaluate their impact compared to inorganic NPK fertilizer.
- Results obtained revealed that plots treated with Pro-Plant combined with Bio-Plant had significantly higher yields.
- In all the treatments where Pro-Plant was used either alone or combined with NPK or Bio-Plant, an appreciable yield increase was obtained.

Conclusion of the Maize Test in Chanchaga Village, Niger State

"Any treatment that involves Pro-Plant is therefore highly recommended to maize farmers."

The Director

Farm Input Support Services Department.

Federal Ministry of Agriculture and Rural Development.

100% Organic Farming Cucumber Field Test in Akwai, Ibom State

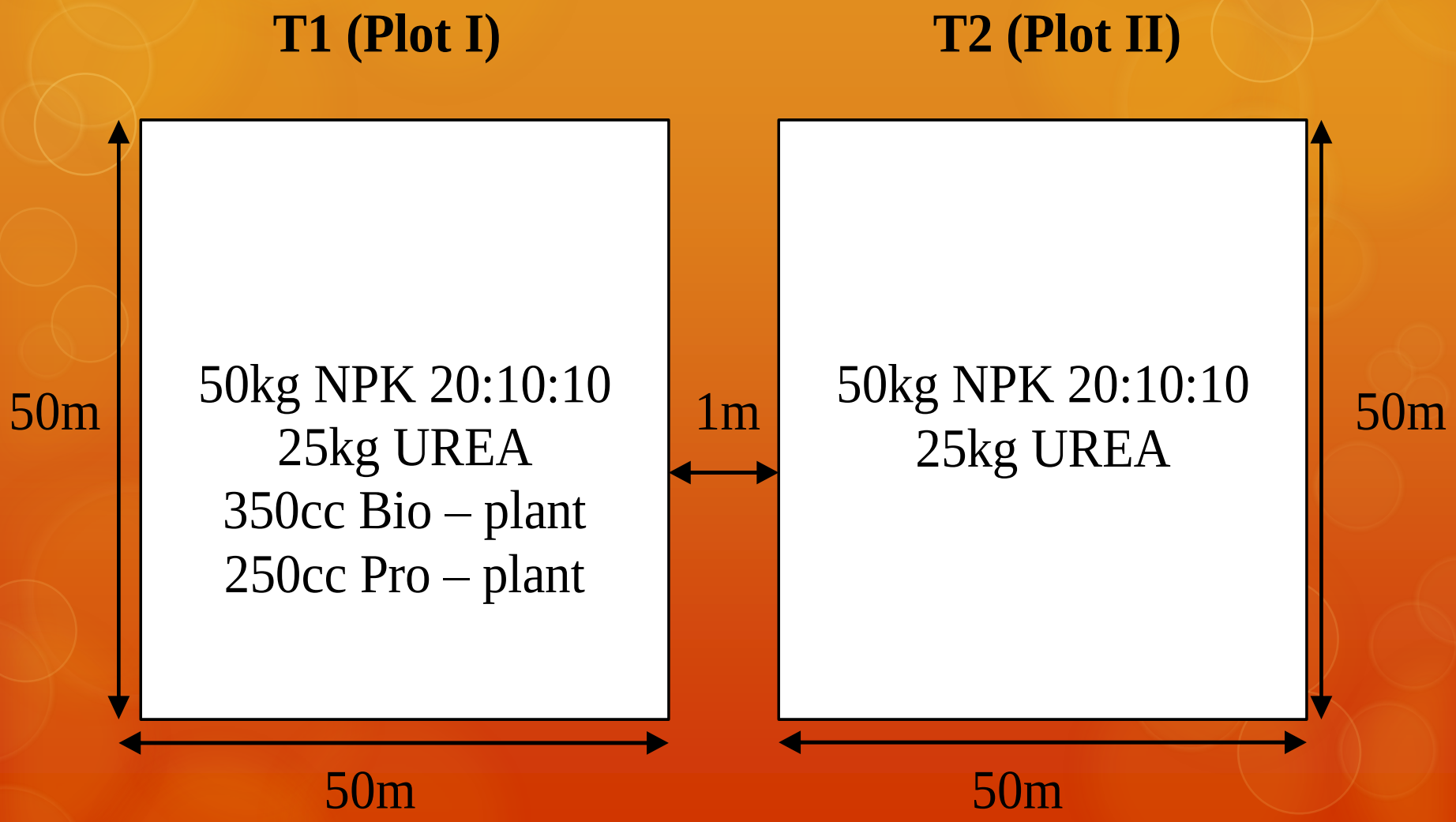
- The soil, which was in poor condition before the test, was prepared with Bio-Plant mixed with organic matter.
- The seeds were soaked in Bio-Plant and water.
- Pro-Plant was sprayed regularly on the plants. No chemical sprays were used.
- The farmers said that the cucumbers were larger than those grown with chemicals; they tasted better; they looked fresher; and the quality was better.

Bio-chemical Farming Rice Dry Season Field Test in Jamaare, Bauchi State

- The rice seeds were soaked in Bio-Plant and water for 18 hours before planting.
- The soil was in poor condition. It was prepared with a bio-chemical mixture of Urea and Bio-Plant.
- Bio-Plant was mixed with NPK.
- Pro-Plant was sprayed regularly on the rice plants during the crop.
- No chemical sprays used.
- The farmers normally only produced 50 bags of rice per hectare, but this test produced 80 bags per hectare, which is a 60% increase.

Maize Tests in Gombe State, Nigeria

Maize Field Tests Conducted in 2011 in Gombe State, Nigeria



Summary of the Results

- The trials were held at the two different locations. Each test showed distinctive differences between Plot I and Plot 2 in terms of plant height, stem size and corn ear size.
- Apart from these, Plot 1 in which the organic liquid was applied mixed with conventional fertilizer, had cobs (com ear) maturing/drying with the stem and leaves still green, while Plot 2 had shorter plants, smaller cobs with the plant and cob drying at the same time.


Chemical Maize
Bio-chemical Maize with Bio-Plant, and Pro-Plant sprayed on the leaves.


A Mature Cob in Plot I With the Stem and
Leaves Still Green

Field Test Yield Results

Location	Treatment	Yield/Plot (Kg)	Yield/Hectare (Kg)
Pokata	T1 (Bio-chemical)	750	3,000
	T2 (Chemical)	325	1,300
Posulte	T1 (Bio-chemical)	500	2,000
	T2 (Chemical)	350	1,400

Group Photograph of the Farmers After Observing the Very Good Results

Comments

- The yield increased 2X and 3X above the chemical Control areas.
- The farmers were very happy with the results.
- These very good results were achieved in bio-chemical farming without any soil preparation as the tests started late in the maize season. In spite of this, the impact was so apparent.
- Pro-Plant also had an insecticidal effect on weevils, grasshoppers, and even aphids, which impressed the farmers in the area.

Malawi
3-Year Field Tests on Maize

Effect on Maize in Malawi

2009-2012 Report

Evaluation of Bio-Plant and Pro-Plant Fertilizers for Soil Fertility Improvement and Maize Grain Yield Production.

Soil Fertility and Plant Nutrition Section and Plant Pathology Section, Bvumbwe Agricultural Research Station, Malawi

Bio-chemical Farming Produced the Best Yields in Bembeke and Bvumbwe

Appearance and Healthiness

- Field tests on maize in soil with a high level of Manganese and Iron showed much better growth in terms of yield, colour, and healthiness than what chemical fertilizers achieved.
- The bio-fertilizer maize was free of any signs of soil toxicity or disease.

Bio-chemical Farming Produced the Best Yields in Bembeke and Bvumbwe

Soil Test Results

- The results indicated that there were significant differences between 100% organic and bio-chemical farming.
- The pH, organic matter, and Nitrogen were higher in the 100% organic test than in the bio-chemical test, while for Phosphorus it was higher in bio-chemical than in 100% organic treatments. The values were higher in treatments treated with Bio-Plant and Pro-Plant than the control.
- The results suggest that Bio-Plant and Pro-Plant enhanced the availability of nutrients to the maize.

Bio-chemical Farming Produced the Best Yields in Bembeke and Bvumbwe

- The grain yields were higher in all of the treatments using Bio-Plant and Pro-Plant compared to the chemical control at both sites at Bembeke and Bvumbwe

Bio-chemical Farming Produced the Best Yields in Bembeke and Bvumbwe

- The increase over chemical fertilizer plot was 10%-40%, and 60%-90% over the no fertilizer treatment plot, depending on the site, the season, and the treatment of Bio-Plant and Pro-Plant fertilizers.

Bio-chemical Farming Produced the Best Yields in Bembeke and Bvumbwe

- The combined use of chemical fertilizer and Bio-Plant in bio-chemical farming (330 cc per 50 kgs bag) gave the highest maize grain yields of 5,514 kg/ha at Bvumbwe and 4,883 kg/ha at Bembeke.

Effect on Maize in Bembeke
Maize Grain Yield Results

- The use of 300 cc Bio-Plant plus 300 cc Pro-Plant in 420 litres of water mixed with 3000 kg. organic material per hectare in 100% organic farming and the use of 990 cc Bio-Plant + 150 kg (100 kg 23:21:0+4S; 50 kg Urea) fertilizer gave the optimum maize grain yield production at Bembeke.

Effect on Maize in Bvumbwe
Maize Grain Yield Results

- The use of 660 cc Bio-Plant plus 100 kg (67 kg 23:21:0+4S; 33 kg Urea) fertilizer in bio-chemical farming and the use of 300 cc Bio-Plant plus 300 cc Pro-Plant in 420 litres of water mixed with 3,000 kg organic material per hectare in 100% organic farming gave the optimum maize grain yield production at Bvumbwe.

Effect on Maize in Malawi
Soil Nutrients

- The bio-fertilizers further increased the availability of soil macro nutrients (such as P and K) and micro nutrients (such as Mg, Zn, etc.), increased their uptake, and improved the efficiency of their use by the maize plants as compared to the treatment where 300 kg/ha of chemical fertilizer alone were applied.

Effect on Maize in Malawi
Nitrogen

- Bio-Plant and Pro-Plant microbes provided the plants with an abundance of Nitrogen – by fixing it from the air and by making Nitrogen in the soil available to the crops for uptake.

Effect on Maize in Malawi
Conclusion

- Bio-Plant and Pro-Plant bio-fertilizers significantly improved soil fertility, and made available more soil nutrients, such as N, P, K, etc.
- Bio-Plant and Pro-Plant bio-fertilizers significantly increased maize grain yields and were more effective than chemical fertilizers.

T. 1 – Control: No fertilizer applied

T. 3 - ½ Rate Bio Plant + Pro-Plant + Manure

T. 2 – Full Rate of Chemical Fertilizers only

T. 6 - Bio Plant + Pro Plant + ½ Rate Chemical Fertilizers

Some Field Tests in Other Countries

Examples of Efficacy in Field Use

Benin

- ***Carrots:*** In bio-chemical farming the yield of carrots was about 35% higher with costs down by about 35%.
- ***Various Crops:*** Many bio-chemical farming and 100% organic farming field tests were held in Benin from 2007 - 2009. Once we were able to get the farmers to the follow the guidelines properly, such as by preparing the soil with organic matter mixed with Bio-Plant, and spraying the crops every 10 days or 14 days according to the guidelines, the results were always better than what they had experienced in their chemical farming with regards to yield and costs.

Examples of Efficacy in Field Use

Benin

The Benin National Institute for Agricultural Research, 14th December 2005

- "A bottle of Pro-Plant and another of the bio-fertilizer Bio-Plant have been used in field tests in the production of maize. The results were spectacular. The land treated with the two products produced three (3) tonnes per hectare of the maize variety DMR. This output was achieved on soil of average fertility on which 200 kg of NPK fertilizer is used."

Examples of Efficacy in Field Use

Cameroon

- ***Tomatoes:*** Bio-chemical farming tests on tomatoes (2012) reduced the farmers' costs by around 70%.
- There was no disease in the crop unlike in the local farmers' chemical tomato crops.
- The tomatoes were larger.
- There were more tomatoes than when the farmers farmed chemically.
- ***Other Vegetables:*** Tests on potatoes and vegetables carried out in 2013 by the University of Cameroon produced very good results in terms of yield, improvement of the soil, and cost savings.

Examples of Efficacy in Field Use

China

- ***Tobacco:*** Field tests on tobacco in Yunnan province, China, showed a 35% increase in yield in 100% organic farming compared to chemical fertilizers, with much lower costs. The leaves were larger, longer, and fresher-looking. The soil was prepared well.
- ***Rice:*** Field tests on rice in Harbin, north China, showed a 50% increase in yield in 100% organic farming compared to chemical fertilizers, along with much lower costs. The soil was prepared well.

Examples of Efficacy in Field Use

Indonesia

- ***Rice:*** The results of government field tests on rice in Indonesia came out as "excellent" (around 35% higher) in 100% organic farming compared to chemical fertilizers.
- The quality of the rice was superior to rice grown with Urea & NPK and all of the other organic fertilizers tested, and the production cost was significantly lower compared to chemical fertilizer.
- The import license was issued as a result of these tests.

Examples of Efficacy in Field Use

Indonesia

The following photographs show the beneficial effects of NPK mixed with Bio-Plant in bio-chemical farming with Pro-Plant sprayed on the leaves. The costs dropped by around 40% in addition to the best yield in these tests.

Farming with NPK + Pro-Plant only and Pro-Plant only would not normally be carried out as Bio-Plant provides the microbial life that makes the nutrients already in the soil plus those in the NPK and Pro-Plant available to the roots in an effective way.

The use of Bio-Plant only showed it was effective. Bio-Plant makes available to the roots all of the mineral deposits left unabsorbed by chemical fertilizers. The costs are much lower than in chemical farming.

Rice Field Test in Indonesia
NPK Only

Rice Field Test in Indonesia
NPK, Bio-Plant, and Pro-Plant

Rice Field Test in Indonesia
NPK, Bio-Plant, and Pro-Plant

Rice Field Test in Indonesia
NPK and Pro-Plant

Rice Field Test in Indonesia
NPK and Bio-Plant

Rice Field Test in Indonesia
Bio-Plant Only

Rice Field Test in Indonesia
Bio-Plant Only

Rice Field Test in Indonesia
Pro-Plant Only

Completion of the Rice Field Tests in Indonesia

Completion of the Rice Field Tests in Indonesia

Vegetable Pot Tests in Indonesia

Vegetable Pot Tests in Indonesia

Vegetable Pot Tests in Indonesia

Vegetable Pot Tests in Indonesia

Vegetable Pot Tests in Indonesia

Examples of Efficacy in Field Use

Mauritius

- ***Green Beans:*** Field tests on ***green beans*** in Mauritius showed a 30% increase in yield in 100% organic farming compared to chemical fertilizers, with much lower costs.

Examples of Efficacy in Field Use

Myanmar

- ***Various Crops:*** Many field tests have been carried out with very good results.
- ***Cabbages 1:*** In one 100% organic farming test carried out with cabbages in soil that had a toxic level of Manganese, the Control crop grew poorly and had a lot of brown leaves while the bio-fertilizer crop was very green and the growth was far superior.
- ***Cabbages 2:*** In another 100% farming test on cabbages in the West Bago region 200 cabbages weighed the same as 400 cabbages grown with chemicals. The details are below.

Cabbage Test Area (8 acres) Using Bio-Plant and Pro-Plant in 100% Organic Farming

1. Soil preparation: 25 kgs local organic fertilizer + 125 cc of Bio-Plant mixed and applied to each acre.
2. Then 62.5 cc of Pro-Plant was sprayed on the leaves mixed with 62.5 gallons of water per acre.
3. Total cost of using the bio-fertilizers:
   a. Organic fertilizer + Bio-Plant: 9,000 Kyats = US$9 / acre x 8 acres.
   b. For 8 acres: 72,000 Kyats = US$72 / 8 acres.
   c. Pro-Plant sprayed: 32,000 Kyats = US$32 / 8 acres.
   d. Total cost (8 acres): 72,000 + 32,000 = 104,000 Kyats = US$104.
   e. One cabbage weighed 4.8 kilos.
   f. There was no need to use pesticides.

Control Area (8 acres) Using Chemical Fertilizer

a. Charcoal: 10,000 Kyats / acre = US$10
b. Cow dung: 20,000 Kyats / acre = US$20
c. Carbofuran pesticide on soil: 15,000 Kyats / acre = US$15
d. Chemical fertilizer (10 bags): 60,000 Kyats acre = US$60
e. Urea 46% (2 bags): 40,000 Kyats / acre = US$40
f. Pesticide sprayed: 30,000 Kyats / acre = US$30
g. Total cost for acre: 175,000 Kyats / acre = US$175
h. Total cost for 8 acres: 1,400,000 Kyats / 8 acres = US$1,400
i. One cabbage weighed 2.4 kilos.

Myanmar

Cabbage Test Area (8 acres) Using Bio-Plant and Pro-Plant in 100% Organic Farming

Dear Peter,
Please, study below of photo that is Japanese (but they are not Japanese I'm sorry this is my mistake) test plant in west Bago region.
But they are left from Myanmar .I, m recollect from that area leader of farmer.

Mn toxicity Bio-Plant & Pro-plant before applies. Bean farm.

Bean farm after applying Bio-Plant and Pro-Plant

Right farm are not apply Bio-Plant & Pro-Plant, Left side farm are apply of Bio-plant & Pro-plant when the soil prepare in used Bio-plant & Pro-plant and every 10days so not effect diseases in this farm.
Bio-Plant one litter mix organic fertilizer 50kgs 3bags and Urea46% 8 Kg.
Every 10 days sprays Pro-plant.

Best Regards,

Digitally signed by Min Soe,U
DN: cn=Min Soe,U, o=queensland, ou=Queensland fertilizer, email=queenslandmyanmar@gmail.com, c=cn
Date: 2010.02.13 20:49:37 +06'30'

Min Soe









Myanmar

Tests carried out on various vegetable crops. Bio-Plant and Pro-Plant were used in 100% Organic Farming to great effect.

Examples of Efficacy in Field Use

Nepal

- ***Rice:*** In 100% organic farming field tests with rice showed an increase in yield of about 30%. The soil was prepared with Bio-Plant and organic matter.

Philippines

- ***Rice:*** 100% organic farming field tests on rice showed a 30% and 85% increase in yield.
- In the second of the tests the farmers prepared the soil more effectively.

Examples of Efficacy in Field Use

Rwanda

Flowers: Tests on roses resulted in fresher-looking stronger-smelling roses. The rose bushes grew more densely, and some of the stems appeared much thicker than the rest of the stems in the control area. The height of the plants had increased as well.

- The colours tended to be brighter and there was more of a shine on the leave than with the chemical flowers.
- Increased bloom set and size of flowers.
- The overall quality of the flowers was better than with chemical fertilizers and sprays.
- The flowers stayed fresher longer after being picked. The costs are much lower.

Examples of Efficacy in Field Use

Pakistan

Flowers:

A farmer who had a rose business tried out the bio-fertilizers and reported a 100% increase in yield on an area of half an acre. The farmer said that he had never obtained so many flowers before. Also, they had a better scent than flowers he grew with chemical fertilizers.

Examples of Efficacy in Field Use

Vietnam

- ***Sugarcane***
- Over the last few years the farmers have increased their yield significantly compared to when they used chemical fertilizers.
- Many sugar factories only want to buy 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.









Myanmar

Tests have been carried out on various vegetable crops using Bio-Plant and Pro-Plant in 100% Organic Farming. The usual results mentioned above were obtained.

Examples of Efficacy in Field Use

Vietnam

- ***Sugarcane***
- The yield of sugarcane crops grown in wet rice fields has increased by 40% - 50%.
- On normal land farmers have increased their usual yield of 50 tonnes per hectare to at least 70 tonnes.
- When flooded with water the sugarcane yield has increased up to 100 tonnes per hectare.
- Where farmers use an irrigation system the yield has increased up to 120 tonnes.
- They have reduced their costs by 30% - 35% compared to chemical fertilizers.

Examples of Efficacy in Field Use

Vietnam

- ***Sugarcane***
- Some sugarcane factories mix Bio-Plant and water with the bagasse waste of sugarcane (1 litre mixed with 1,000 litres of water per 5 MT), and the farmers increase their productivity 5% - 10% by using it to prepare the soil instead of urea. The bagasse waste makes excellent cheap fertilizer.
- Farmers who mix Bio-Plant with chemical fertilizer halve the amount of chemical fertilizer they use.

Bio-organic Fertilizer Produced From the Waste of Bio-fertilizer Sugarcane

Examples of Efficacy in Field Use

Vietnam

- ***Sugarcane Tests***
- There was a significant effect on the growth parameter:
  - number of internodes per cane
  - internodal length
  - tops weight
  - trash weight
  - sucrose contents
  - yield components (number of millable canes, cane length, cane diameter, weight per stripped cane and stripped cane yield).

Examples of Efficacy in Field Use

Vietnam

- ***Sugarcane Tests***
- There was a significant effect on the yield components:
  - number of millable canes
  - cane length
  - cane diameter
  - weight per stripped cane
  - stripped cane yield

Effects on Crops in Various Tests

The Bio-fertilizers Restore the Soil
Observed in Many Countries

- Because of the many different types of micro-organisms in Bio-Plant, and the nutrients in Pro-Plant the bio-fertilizers regenerate the soil, even sandy soil.
  - The micro-organisms enable plants to absorb the chemicals left by chemical fertilizers.
- The soil regeneration was very noticeable over 2 years of field tests in Benin where the soil tends to be very hard and weak owing to over-use of chemicals. Many farmers testified to the soil fertility-regenerating effect.
  - The soil became darker, richer, and the hardness of chemical soil became crumbly. These are the typical effects everywhere though.

Effect on the Growth Rate of Trees

- The bio-fertilizers accelerate the growth of trees.
  - Rubber tree saplings in Thailand and Vietnam grow about 20% faster, and they can therefore be transplanted a month sooner.
  - Young fruit trees also grow faster than trees grown with chemical fertilizer when both Bio-Plant is used in the soil preparation and Pro-Plant is sprayed on the leaves.

Effect on the Growth Rate of Trees

- The trees have more roots, the roots are longer, there are more shoots, more leaves, and the leaves have a larger surface area.
  - This is because of the greater amount of nutrients provided by the action of the micro-organisms in Bio-Plant; the Nitrogen-fixing micro-organisms; and the nutrients provided when the leaves are sprayed.
- Leaf analysis shows greater amounts of manganese, zinc, phosphate, iron, and chlorophyll.

Effect on the Flowering of Trees

- Fruit trees have more inflorescences and more flowers per inflorescence.
  - An inflorescence is the complete flower head of a plant including stems, stalks, bracts, and flowers.
  - The improvement in flowering measures results from the stimulation effect of the extra and abundant nutrients on the photosynthesis process. This reflects positively in the increased vegetative growth and flowering characteristics.

Effect on the Flowering of Tomatoes and Orange Trees

- Tomato plants have more flowers and therefore more fruit. *(e.g. tests in Cameroon 2012, 2013.)*
- Fewer flowers fall off, so more flowers turn into tomatoes.
- The bio-fertilizers also increase the number of flowers on fruit trees.
  - Orange trees in North Thailand produce more oranges as a result. *(e.g. See the video scripts of interviews with Thai farmers at http://www.artemisthai.com/description_info.php?descriptionid=27 . Videos 2.6, 2,7, 2.9)*

Effect on Fruit Trees

- Fruit trees produce more fruit, the fruit is larger, crispier, tastier, sweeter, and the Vitamin C level is higher by about 20%.
- Mangoes grow large and become very sweet. The taste of chemical mangoes pales in comparison.
- It is noticeable that more leaves appear; that there are many more flowers and more flowers turn into fruit than on trees grown with chemical fertilizers; and that the trees do not experience the diseases of trees grown and sprayed with chemicals.
- The fruit trees are full of fruit.

The Effect of the Bio-fertilizers on Orange Trees in Thailand

Effect on Seeds

- Rice farmers in Thailand and Vietnam commonly soak their seeds in Bio-Plant and Pro-Plant (20 cc of each in 20 litres of water) for 24 hours before planting in order to increase their crop yield by about 5%.
- Maize farmers often soak the seeds and dip them in a mixture of the bio-fertilizers before planting.
  - The seeds absorb the micro-organisms and nutrients. The micro-organisms strengthen the immune system and the plants are not affected by disease.
- The seeds are fuller and are sold as mother seeds for a higher price in Thailand and Vietnam.

Effects on Rice

- Unlike chemical rice, which is tall and has many green leaves, rice grown with the bio-fertilizers is yellowish-green, shorter, and has fewer leaves.
- The stems are stronger, so the rice plants do not lean over like chemical rice.
- If you pull up a rice plant, you will see about 20% more roots than on a chemical rice plant.
- The roots are stronger and longer.
- The rice heads contain much more grain.
- The rice seeds do not tend to fall off during harvesting.
- The soil is softer and more fertile, and has a lot of worms and insect life.

Effect on Rice

- There is no problem with the usual rice diseases, such as white spot and rust, because the micro-organisms develop in the rice plants a strong immune system.
- The quality of the rice is such that the seed becomes in demand as mother seeds.
- The taste of the rice is sweeter and has a more flavoursome smell when you cook it.
- Agents in Vietnam comment each season that there are more villages wanting to change from chemicals to Bio-Plant and Pro-Plant in the following season. This is reflected in the sales.

Effect on Rice

- Different 100% organic farming field tests on rice in the Philippines on rice have shown a 30% and 85% increase in yield. In the second of the tests the farmers prepared the soil according to the guidelines more effectively.
- The production costs were reported to be significantly lower, but we do not know by how much.


Effect on 100% Organic Rice Grown
With the Bio-fertilizers in Thailand


Effect on 100% Organic Rice Grown
With the Bio-fertilizers in Thailand


Effect on 100% Organic Rice Grown
With the Bio-fertilizers in Thailand

Effect on 100% Organic Rice Grown With the Bio-fertilizers in Thailand

Effect on 100% Organic Rice Grown With the Bio-fertilizers in Thailand

Effect on 100% Organic Rice Grown With the Bio-fertilizers in Myanmar

100% Organic Rice Grown With the Bio-fertilizers in Myanmar

Video on the Benefits for Rice and How to Grow Rice With the Bio-fertilizers

Video 6: The Benefits for Farmers in Different Countries Resulting From Using Bio-Plant and Pro-Plant

- This can be viewed on the company website at: http://www.youtube.com/watch?v=Y6fhlXlSbEM

Rice Tests in Sierra Leone

Grown With Bio-fertilizers	Grown Without Bio-fertilizers

Maize Tests in Sierra Leone

Grown With Bio-fertilizers	Grown Without Bio-fertilizers

Results in Sierra Leone

Crop	Test A 100% Bio-Fertilizer		Test B Bio-Chemical Farming		Test C Normal Farming Untreated	
	Amount Planted in Kilos	Amount Harvested in Kilos	Amount Planted in Kilos	Amount Harvested in Kilos	Amount Planted	Amount Harvested
Maize	6	120	6	50	6	35

- These results were obtained even without the guidelines for soil preparation with compost made with Bio-Plant, and the frequency of spraying Pro-Plant being followed properly.

Maize Test in Guinea

- 4-6 cobs per plant were the norm with the bio-fertilisers.
- But the chemical control crop produced only 1-2 cobs per plant.

Maize Test in Guinea

A Maize Plant with 6 Cobs

Result of Maize Test in Zanzibar

Table 2: Effect of bio-plant and pro-plant on growth and yield parameters of maize, Kizimbani-Zanzibar, 2016

Parameter	Stage of data collection	Treatment		Improvement due to bio-plant and pro-plant fertilizers
		Control	Bio-fertilizer	
Plant height (cm)	Vegetative	132.8	218.5	85.7 (64.5%)
Culm width (cm)		2.6	4	1.4 (87.5%)
Plant height (cm)	Maturity	214.8	272.9	58.1 (27%)
Culm width (cm)		2.01	2.82	0.81 (40.3%)
Cob width (cm)		3.95	4.96	1.01 (25.6%)
Cob length (cm)		24.15	29.7	5.55 (23%)
Cob weight (g)		150.04	291.8	141.76 (94.5%)

Maize Test in Zanzibar

Effect on Millet

- Government field tests on **millet** in Namibia showed "very good growth" and a yield increase of around 30% in 100% organic farming compared to chemical fertilizers. These results occurred even with inadequate soil preparation.
- The tests were conducted over a wide geography of the country and with different patterns of rainfall.
- In all cases, Pro-Plant and Bio-Plant either proved as efficacious as chemicals alone or superior to chemicals. But of course, over time, chemicals impoverish the soil whereas the bio-fertilizers enrich the soil.

Effect on Tea Bushes

- There are qualitative and quantitive benefits when the bio-fertilizers are used on tea plantations. The following benefits are common in tea plantations in Thailand and Vietnam:
  - The yield is 20%-30% higher.
  - The leaves look fresher and shine more.
  - The tea bushes have more leaves and branches.
  - The quality and fertility of the soil is superior.
  - The quality of the tea is higher.
  - The tea has a more pleasant scent.
  - The tea has less tannin.
  - The Vitamin C level is higher.
  - Fungicides and insecticides are no longer needed.

Bio-fertilizer Tea Growing in North Thailand

Effect on Tea Bushes

- OCIRTHE, the main tea association in Rwanda carried out tea plantation tests in 2010 with very positive physical and quantitative results.
- The tea leaf colour in the test areas changed from a dark green shade to a lighter green with a distinct shine visible. The leaves were softer and looked fresher.
- This change highlighted improvement in the health of the tea plants and a reduction in the tannin content.
- A noticeable increase in the size of the tea leaves as well as evidence of more leaves per tea bush. This change co-relates to the effective increase in yield.

Organic Tea Tests in Rwanda

Effect on Tea Bushes

Bangladesh

- ***Tea Test 1:*** The test was carried out in a pretty well dead area of a tea plantation and the tea plants recovered to give a good yield. Continuous use of chemical fertilizers had caused the condition of the tea plantation to deteriorate.
- ***Tea Test 2:*** After spraying Pro-Plant on Day 1, Day 8, and Day 15 the yield was 20% higher than what chemical fertilizers achieved. The leaves grew faster, and were thicker, longer, and greener. This happened again in the next 2 picking periods. The farmer's profit margin was much higher than usual with chemical fertilizers.

Effect on Chillis

- Chillis are longer and heavier than chemical chillis, usually by 20% - 30% while the production costs are much lower both in bio-chemical farming and 100% organic farming.
- Like with all crops produced with the bio-fertilizers, the chillis keep fresh much longer – usually 1-2 weeks.

Effect on Mushrooms

- Bio-Plant is not used in growing mushrooms.
- Pro-Plant is sprayed into the plastic bags which the mushrooms grow in. The yield is 20%-30% higher than chemical mushrooms. The Pro-Plant in the bags keeps the mushrooms growing and producing more mushrooms.
- The mushrooms keep fresh much longer – usually about 2 weeks.


เห็ดนางนวล
Pleurotus salmoneostramineus
เห็ดขอนขาว
Lentinus squarrosulus
เห็ดหลินจือ
Ganoderm lucidum
เห็ดเป๋าฮื้อ
Pleurotus cyctidiosus
เห็ดตูกวาง
Lentinus strigosus


11
8


17


Flammulina velutipes
12
19

Effect on Coffee Trees

- There are many farmers in North Thailand growing coffee with the bio-fertilizers in a 100% organic manner.
- The organic coffee has more aroma, a better flavour, more body, and a fresher after-taste.
- The yield of the trees is especially good when the trees are grown from the sapling stage with Bio-Plant and Pro-Plant. Most ofl the berries turn dark at the same time.

Bio-fertilizer Organic Coffee Tree Saplings

Bio-fertilizer Organic Coffee Plantation

Effect on Pineapple

- The fruit is much sweeter than pineapple grown with chemical fertilizer. About 35% sweeter.
- The pineapples are heavier.
- The pineapples look fresher and more attractive to eat.
- There are more suckers and slips so that more pineapple plants can be planted and grown.
- There are more roots and the roots are longer.
- The problems with disease disappear.
- The pineapples keep longer after harvest.

Organic Pineapple Grown With Bio-fertilizer in Thailand

Effect on Tobacco

- In organic farming tests on tobacco in South China the yield increased about 35% compared to chemical tobacco.
- The tobacco leaves became larger, longer, and fresher-looking.

Effect on Bananas

- The weight of bananas per tree is higher.
- 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 don’t have black spots on them.
- The bananas keep longer after picking.
- The farmers can sell the banana leaves for wrapping food because the leaves have more Cutin and look fresher and shinier.

Effect on Bananas

- The problems with disease disappear.
  - In the first season the farmers can halve the amount of sprays they use, and in the second crop (second year) they can stop spraying chemical sprays altogether.
- The cost of growing the bananas drops significantly.
  - In bio-chemical farming the farmers can halve the amount of chemical fertilizer they use.
- Farmers can increase the yield more by preparing the soil with organic matter mixed with Bio-Plant, and spraying Pro-Plant over the banana trees every month (or every 14 days for a better effect). They will get a noticeably higher yield.

Benefits for Rubber Trees

- The growth of young trees is usually 20% - 25% faster than normal, and the saplings can be transplanted a month earlier than normal.
- Bio-Plant stops the growth of fungus when brushed onto the trees.
- The trees produce more latex than when chemicals were used in the past. The latex is softer and flows easier.
- In Vietnam most rubber plantations use the bio-fertilizers now instead of chemical products because: (1) the benefits above; (2) there is a strong demand for 100% organic latex; (3) the production costs are so much lower; (4) the government promotes their use for rubber production because of the effects and the benefits for the economy.


1 2 2007

Effect on Cotton

- A test carried out in Multan, Pakistan showed the following results:
  - The use of the bio-fertilizers in bio-chemical farming resulted in about a 20% increase in the number of bolls per plant. The soil was nutrient-deficient. With more time to prepare the soil the yield would have been higher.
  - Very few bolls fell off. Much fewer than in the chemical control area.
  - The bolls appeared earlier than in the chemical fertilizer control area.
  - The costs were about 35% lower. Both Bio-Plant and Pro-Plant were used.
  - The soil was richer and crumblier.

Effect on Cotton

Other tests in the Punjab, Pakistan showed good results:

- ***Cotton 1:*** Even without soil and seed preparation using Bio-Plant, the performance of Bio-Plant and Pro-Plant with cotton was good. At a demonstration plot at the Agriculture Research Institute the yield averaged 880 kgs per acre during the first and second pickings. Conventional chemical farming produced about 720 kgs per acre. The costs were about 40% lower even with chemical fertilizer being heavily subsidized. With proper seed and soil preparation, the difference would be greater.
- ***Cotton 2:*** At a demonstration plot of cotton at Matiari the yield was 30% higher than the conventional chemical farming yield of 750 kgs. Again, this was without seed and soil preparation with Bio-Plant.
- ***Cotton 3:*** Cotton Leaf Curl Virus had been creating devastation throughout the Punjab, but the test plot at Bhawalpur was the least affected by the virus. This was after just the first application of the bio-fertilizers. Each season the immunity will become much stronger.

Effect on Golf Course Ponds

- We chose a smelly pond in an area of farmland that was full of algae and rotting grass, and into which chemical fertilizer had seeped. It was in a worse state to what one normally finds on a golf course.
- We applied 2 litres of Bio-Plant to the pond according to the volume of water, which we calculated to be about 200 tonnes, and after about 2 weeks when we went back the pond had become much cleaner. The smell had gone and the water was clearer. The chemicals had been consumed by the micro-organisms in Bio-Plant.

Effect on Golf Course Ponds

- Bio-Plant contains beneficial micro-organisms, which clean polluted ponds.
  - The micro-organisms consume the excess chemicals and nutrients that have come from the chemical fertilizers and pesticides used on the grass.
- They also break down the decaying vegetation and other organic matter that these nutrients are derived from, while at the same time releasing oxygen back into the pond. This introduction of increased oxygen levels creates two positive effects:
  - Increased levels of oxygen in the water cause the decomposition of organic matter to occur faster, thus limiting the amount of nutrients available and creating clearer water.
  - Increased amounts of oxygen also squeeze out other gases like carbon dioxide and ammonia.

Final Comments

Summary

- This file shows a small selection of the benefits of the bio-fertilizers, and does not refer to what has been happening over the last roughly 20 years in Thailand and Vietnam of their use.
- It is very easy to use the bio-fertilizers. They are 100% natural and chemical-free. After a sale we will teach the farmers how to use them.
- The will restore the soil, which is the country's most valuable resource; revive rural communities by making agriculture an attractive proposition, especially for the youth; ensure food security; and provide new food exports and open new markets, especially for 100% organic food.

The Micro-organisms Make the Soil Crumbly, Soft, and Rich


Soil Rich in Micro-organisms

Left: Chemically Depleted Soil
Right: Nutrient-Rich Organic Soil