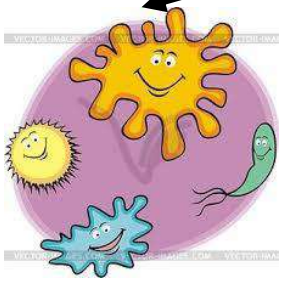

IBG®
(473365-H)
IBG Bio Fertilizer Series
Sustainable Agriculture through
Innovative Biotechnology

What is inside the natural soil?



Beneficial microbes.

Fungi, actinomycete, small insect.

Organic matter.

Macro and micro minerals.

Water.

What is inside the natural soil?

1. Microbe.
   - Decompose organic matter.
   - Nutrient recycle.
   - Humus formation.
   - Nitrogen fixing.
   - Promote plant’s growth.

2. Organic matter.
   - As a source of nutrient pool for plant.
   - As a source food for bacteria.
   - Recover soil nutrient.

What is inside the natural soil?

3. Macro and micro nutrient.
   - Carbon, Hydrogen, Oxygen
   - Nitrogen
   - Phosphorus
   - Potassium
   - Calcium
   - Magnesium
   - Sulphur
   - Manganese
   - Copper
   - Zinc
   - Molybdenum
   - Boron
   - Chlorine
   - Iron

Important for plant growth, food formation, etc.

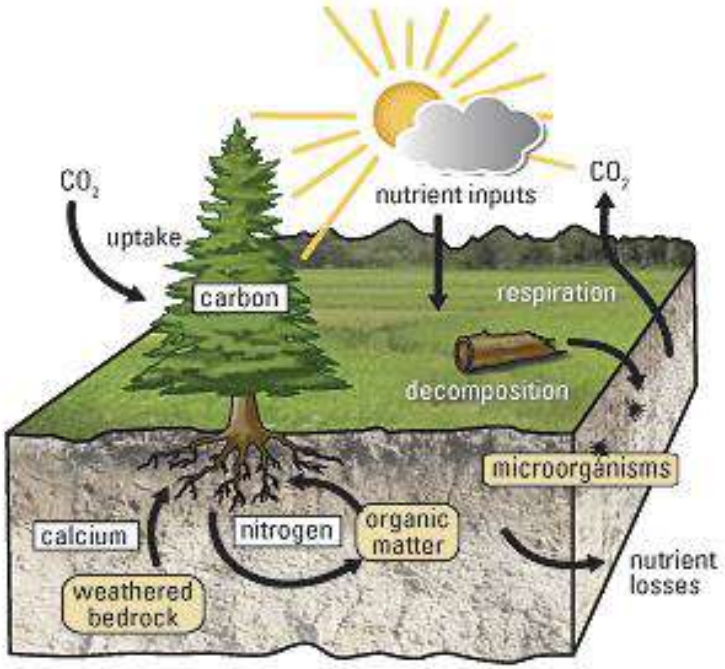
Why soil protection is important?

- Soil – provide moisture, nutrients, air and protection to the plant.
- Plant – Provide food and shelter to human.
- Human – but human provide non other than chemical fertilizer hence jeopardizing the soil health.

Why soil protection is important?

- When the soil was damaged due to acidification, its immune system will be weaken. An unhealthy soil will not produce a vibrant plant as the plant will suffered from a lot of disease. Hence the plant will not provide quality food to human. Therefore, soil recovery and human's quality life is important.

Virgin forest stage.



Plantation clearing stage.

The importance of chemical fertilizer.

- Soils contain natural reserves of plant nutrients, but these reserves are largely in forms unavailable to plants, and only a minor portion is released each year through biological activity or chemical processes. This release is too slow to compensate for the removal of nutrients by agricultural production and to meet crop requirements. The plant require 16 nutrients in order to grow well, this causing mass nutrient removal from the soil from which the nutrient has to be replenish for the plant to survive.

Chemical fertilizer and soil health.

- Therefore, chemical fertilizers are designed to supplement the nutrients already present in the soil. The use of chemical fertilizer, organic fertilizer or biofertilizer has its advantages and disadvantages in the context of nutrient supply, crop growth and environmental quality.

Pros and cons of chemical fertilizer.

Initial use.

Pros.

- Crops grows fast and big.
- Adequate nutrient.
- Support plant growth.
- Increase harvest yields.

Pros and cons of chemical fertilizer.

Cons.

- Toxicity and pollution.
- Results in depleted soil, and results in acidity.
- Interfere with natural soil ecology.

Prolong use.

Damaged soil vs healthy soil.

Type of fertilizer.

Chemical fertilizer.

Medicine.

Effect fast, but a lot of disadvantages.

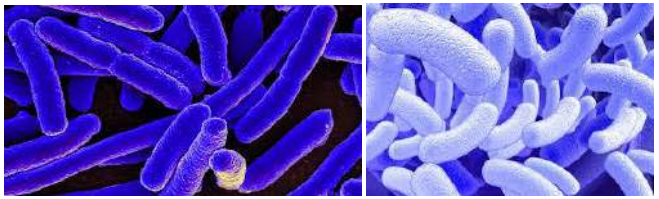
- Prolonged use of chemical fertilizer = Prolonged use of medicine = Although is fast and efficient but a lot of disadvantages.

Type of fertilizer.

Organic elements.

Traditional Medicine.

Effect slow, no disadvantages.



Microbes.

Health supplements.

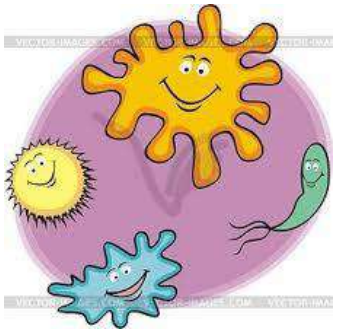
Relatively safe and reliable, long-term use is able repair and protect the soil.

What is IBG biofertilizer

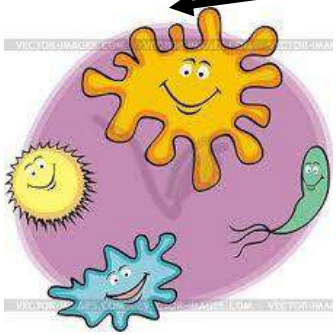
The best solution for soil recovery

Organic elements.

Microbes.



What is inside the IBG bio fertilizer?



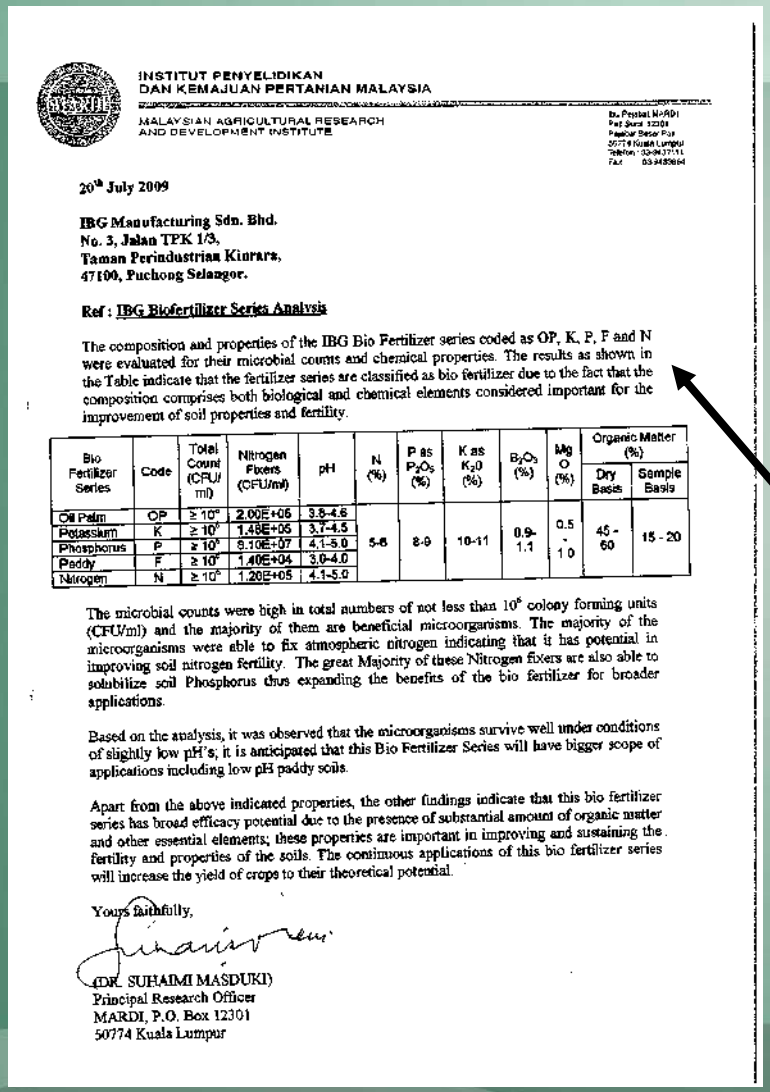
Beneficial microbes of no less than 10^7 cfu/ml.

Aloe vera, seaweed extract, humic acid, amino acid, fish emulsify.

- Biofertilizer in the market has to contain minimum 10 million cfu/g bacteria in order to be classified as biofertilizer. With our technology, IBG biofertilizer has attain 100 million cfu/g of bacteria

- Moreover, microbes cannot survive alone without organic matter. It has to be complemented with organic matter and macro and micro nutrient in order to efficiently recover the soil.

- These three combination is equal to what is originally inside the soil. IBG biofertilizer is able to provide a holistic element for the plant to grow and absorb better.



INSTITUT PENYELIDIKAN
DAN KEMAJUAN PERTANIAN MALAYSIA

MALAYSIAN AGRICULTURAL RESEARCH
AND DEVELOPMENT INSTITUTE

Ibu Pejabat MARDI
Peti Surat 12301
Pejabat Besar Pos
50774 Kuala Lumpur
Telefon : 03-89437711
Faks : 03-89436864

20th July 2009

IBG Manufacturing Sdn. Bhd.
No. 3, Jalan TPK 1/3,
Taman Perindustrian Kinrara,
47100, Puchong Selangor.

Ref : IBG Biofertilizer Series Analysis

The composition and properties of the IBG Bio Fertilizer series coded as OP, K, P, F and N were evaluated for their microbial counts and chemical properties. The results as shown in the Table indicate that the fertilizer series are classified as bio fertilizer due to the fact that the composition comprises both biological and chemical elements considered important for the improvement of soil properties and fertility.

Bio Fertilizer Series	Code	Total Count (CFU/ ml)	Nitrogen Fixers (CFU/ml)	pH	N (%)	P as P_2O_5 (%)	K as K_2O (%)	B_2O_3 (%)	Mg O (%)	Organic Matter (%)	
										Dry Basis	Sample Basis
Oil Palm	OP	$\geq 10^6$	2.00E+06	3.8-4.6	5-6	8-9	10-11	0.9-1.1	0.5 - 1.0	45 - 60	15 - 20
Potassium	K	$\geq 10^6$	1.48E+05	3.7-4.5							
Phosphorus	P	$\geq 10^6$	8.10E+07	4.1-5.0							
Paddy	F	$\geq 10^6$	1.40E+04	3.0-4.0							
Nitrogen	N	$\geq 10^6$	1.20E+05	4.1-5.0							

The microbial counts were high in total numbers of not less than 10^6 colony forming units (CFU/ml) and the majority of them are beneficial microorganisms. The majority of the microorganisms were able to fix atmospheric nitrogen indicating that it has potential in improving soil nitrogen fertility. The great Majority of these Nitrogen fixers are also able to solubilize soil Phosphorus thus expanding the benefits of the bio fertilizer for broader applications.

Based on the analysis, it was observed that the microorganisms survive well under conditions of slightly low pH's, it is anticipated that this Bio Fertilizer Series will have bigger scope of applications including low pH paddy soils.

Apart from the above indicated properties, the other findings indicate that this bio fertilizer series has broad efficacy potential due to the presence of substantial amount of organic matter and other essential elements; these properties are important in improving and sustaining the fertility and properties of the soils. The continuous applications of this bio fertilizer series will increase the yield of crops to their theoretical potential.

Yours faithfully,

(DR. SUHAIMI MASDUKI)
Principal Research Officer
MARDI, P.O. Box 12301
50774 Kuala Lumpur

The results as shown in the Table indicate that the fertilizer series are classified as bio fertilizer due to the fact that the composition comprises both biological and chemical elements considered important for the improvement of soil properties and fertility.

Total plate count: 10^7 cfu/g

TEST REPORT

Lab Number : IBG-QC-254/16
Date received : 11th Oct 2016
Date tested : 11th -13th Oct 2016
Date reported : 14th Oct 2016

Page 1 of 1

Customer: Production Department
IBG Manufacturing Sdn Bhd
No. 3, Jalan TPP 3,
Taman Perindustrian Putra,
47130 Puchong.

Sample description : One sample of Liquid Biofertilizer,
Sample marking : OP 11/10/16 MAS-F002-1610-04

Test parameter	Method	Unit	Results
Total plate count, PCA @ 37°C for 48 hours	In House Method, TM-IBG-03-001, based on AS 1766.1.3, 1991	cfu/g	6.35×10^7
pH @ 28.6-29.1°C	In House Method, TM-IBG-02-004, based on pH meter	-	4.28
Nitrogen (as N)	In House Method, TM-IBG-02-011, based on Determination of Nitrogen Content in Fertilizers Containing Nitrate, Bioch Nitrogen Information No. 7, 1994	% w/w	7.36
Phosphorus (as P_2O_5)	MS 417: Part 4: 1994	% w/w	8.79
Potassium (as K_2O)	In House Method, TM-IBG-02-007, based on AOAC 978.02:2006 Milestone Application Note DG-FO-54	% w/w	9.85
Boron, acid soluble (as B_2O_3)	AOAC 982.01, 2005	% w/w	0.97
Magnesium (as MgO)	In House Method, TM-IBG-02-008, based on AOAC 985.09 2005 & Milestone Application Note DG-FO-54	% w/w	0.92

Dr. LINDA KEE YAN YIAN
Chief Technical Officer
BSc (Hons), MSc, PhD, FMIC
(KM No.: F/0100/1958/89/02/13)

The above analysis is based solely on the sample(s) submitted by the customer.
The report shall not be reproduced except in full, without the written approval of the laboratory.

TEST REPORT

Lab Number : IBG-QC-256/16
Date received : 25th Oct 2016
Date tested : 25th Oct – 7th Nov 2016
Date reported : 8th Nov 2016

Page 1 of 1

Customer: Production Department
IBG Manufacturing Sdn Bhd
No. 3, Jalan TPP 3,
Taman Perindustrian Putra,
47130 Puchong.

Sample description : One sample of Liquid Biofertilizer,
Sample marking : OP 25/10/16 MAS-F002-1610-09

Test parameter	Method	Unit	Results
Total plate count, PCA @ 37°C for 48 hours	In House Method, TM-IBG-03-001, based on AS 1766.1.3, 1991	cfu/g	9.60×10^7
pH @ 24.2°C	In House Method, TM-IBG-02-004, based on pH meter	-	4.03
Nitrogen (as N)	In House Method, TM-IBG-02-011, based on Determination of Nitrogen Content in Fertilizers Containing Nitrate, Bioch Nitrogen Information No. 7, 1994	% w/w	7.21
Phosphorus (as P_2O_5)	MS 417: Part 4: 1994	% w/w	9.05
Potassium (as K_2O)	In House Method, TM-IBG-02-007, based on AOAC 978.02:2006 Milestone Application Note DG-FO-54	% w/w	9.55
Boron, acid soluble (as B_2O_3)	AOAC 982.01, 2005	% w/w	1.01
Magnesium (as MgO)	In House Method, TM-IBG-02-008, based on AOAC 985.09 2005 & Milestone Application Note DG-FO-54	% w/w	0.93

Dr. LINDA KEE YAN YIAN
Chief Technical Officer
BSc (Hons), MSc, PhD, FMIC
(KM No.: F/0100/1958/89/02/13)

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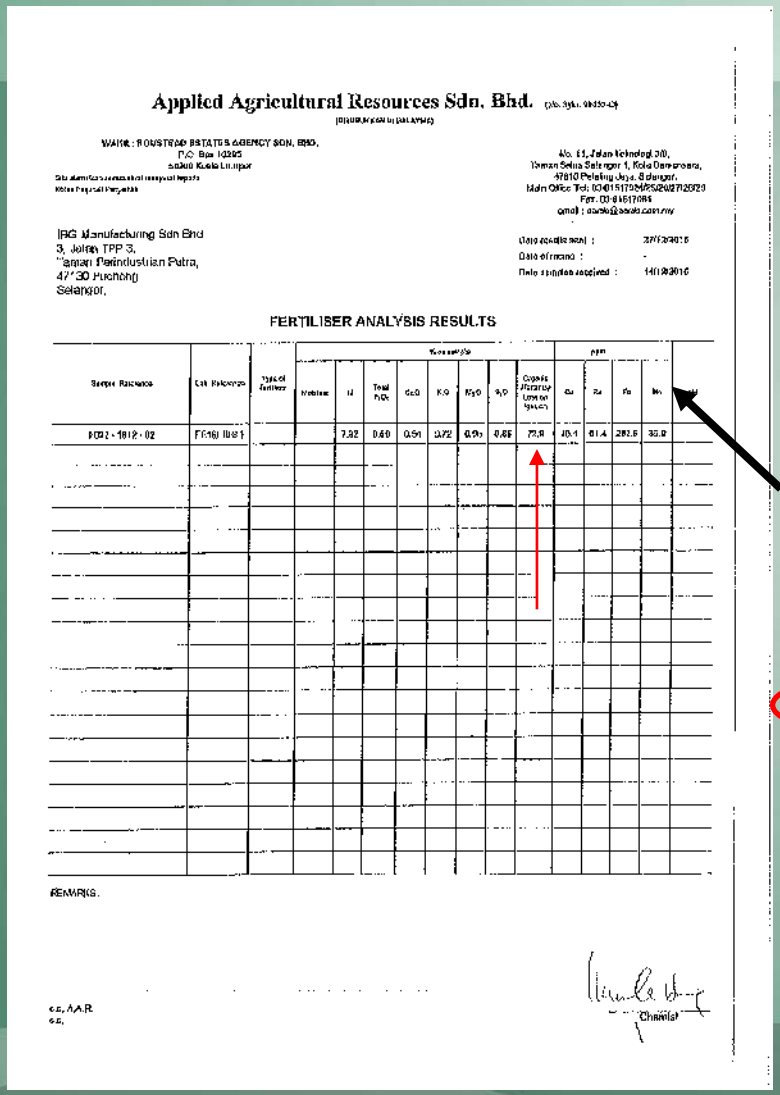


Applied Agricultural Resources Sdn. Bhd.

IBG Manufacturing Sdn Bhd
3, Jalan TPP 3,
Taman Perindustrian Putra,
47130 Puchong
Selangor.

FERTILISER ANALYSIS RESULTS

Sample Reference	Lab Reference	Type of Fertiliser	% analysis: Moisture	N	Total P_2O_5	CaO	K_2O	MgO	B_2O_3	Organic Matter / Loss on Ignition	ppm: Cu	Zn	Fe	Mn
[illegible]	FF16) [illegible]			7.82	8.69	0.54	9.72	0.96	0.86	72.9	16.4	51.4	282.8	35.9

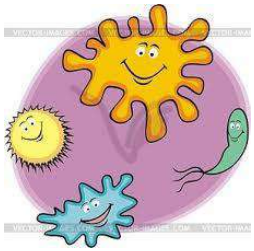
REMARKS.

c.c. AAR
c.c.

Chemist

- N – 7.82%
- P_2O_5 – 8.50%
- CaO – 0.54%
- K_2O – 9.72%
- MgO – 0.96%
- B_2O_3 – 0.86%
- Organic Matter – 72.9%
- Cu – 16.4 ppm
- Zn – 51.4 ppm
- Fe – 282.8 ppm
- Mn – 35.9 ppm

Content of IBG bio fertilizer.



Beneficial microbes - Improve absorption and decompose organic matter, no less than 10^8 cfu/ml.

Aloe vera, seaweed extract, humic acid, amino acid, fish emulsify - Improve soil organic matter content.

Application of IBG bio fertilizer.

Dosage.

Please do take note that IBG biofertilizer is applied as replacement 20 – 30% from chemical fertilizer. So your material cost does not change after using IBG biofertilizer.

70 – 80%

Chemical fertilizer.

20 – 30%

IBG bio fertilizer.

Why choose IBG bio fertilizer?

- Increase plant productivity.
- Provide an economically viable support.
- Soil health maintenance.
- Effective in helping plant to absorb nutrients.
- Reduces the dosage of chemical fertilizers.
- Reduces soil-borne root diseases of plants.
- Save on fertilizer storage capacity.

A healthy person will less likely to get any disease.

A healthy plant will less likely to get any disease.

After the soil was treated with IBG bio fertilizer, microbes can help in organic matter decomposition and soil mineralization. It release the Nitrogen and Phosphorus during decomposition and thus the N, and P fertilizer can be reduced.

rnal of Microbiology Research, ISSN: 0975-5276, Volume 1, Issue 2, 2009, pp-23-31

Biofertilizers: A novel tool for agriculture

e A.[1], Vamsi K.K.[2], Jhadav A.[3], Khairnar Y.[3] ...
Gupta M.
[1]S.V.P.M. Coll...
[2]Rai foundations
[3]Padmashree Dr. D.Y. P...
[4]V.V.P. Engi...
[5]Sindhu Maha...
[6]Dr. D. Y. Pat...

Original scientific paper

The possible role of bio-fertilizers in agriculture

...ianna Marozsán[1], Szilvia Veres[2], Éva Gajdos[2], Nór...

...stry Corporation,
...ricultural and Techn...
...hysiology, ...

RESEARCH

CHILEANJAR

EFFECTS OF BIOFERTILIZERS COMBINED WITH DIFFERENT SOIL AMENDMENTS ON POTTED RICE PLANTS

Arshad Javaid[1*]

International Journal of Agriculture: Research and Review. Vol., 2 (6), 699-704, 2012
Available online at http://www.ecisi.com
ISSN 2228-7973 ©2012 ECISI Journals

Chapter 1

Potential and Possible Uses of Bacterial and Fungal Biofertilizers

Francesco Gentili
Ari Jumpponen

BIOFERTILIZER AFFECTS YIELD AND YIELD COMPONENTS OF WHEAT

NASRIN GHADERI-DANESHMAND[1], ABDOLMAHDI BAKHSHANDEH[2] AND MOHAMMAD REZA ROSTAMI[3*]

1- Postgraduate of Ramin University of agriculture and natural resources, Ahwaz, Khouuzestan, Iran.
2- Professor of Ramin University of agriculture and natural resources, Ahwaz, Khouuzestan, Iran.
3- Postgraduate of college of agriculture and natural resources of university of Tehran, Karaj, Iran.

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ABSTRACT: In order to study effects of biological fertilizers, chemical fertilizers and bacterial growth enhancers (PGRP) on yield and yield factors of wheat (*Triticum aestivum*) and to reduce chemical fertilizers and improve soil and plant nutrition, an experiment was carried out in research field of Agriculture and Natural Resources University of Ramin, Iran in crop year of 2009-2010. The experiment was performed in split plot-factorial design arranged in a complete randomized block design with three replications. In this study, chemical factor was the base plot in three levels (Control, half of local recommended and total local recommended) and the biological fertilizer (Nitroxin and bio-phosphor) were the secondary factors with three levels (Control, 0.5 and 1 liter per hectare). Results indicate that the use of biological fertilizers lead to significant differences in grain number per spike, grain weight, biological yield and harvest index. Combined treatments of microorganisms (Aztv bacteria and Pesudomonas fluorescent) and chemical fertilizers had the greatest impact on the studied traits. Analyze of variance suggest that highest yield of grain was achieved by complete use of all three fertilizers in recommended fertilizer rate compared to control treatment. Overall, the results showed that, biological fertilizers have a significant role in improving yield and yield components of wheat, and Bio-fertilizers with chemical fertilizers may be useful to increase the yield and reduce environmental pollution.

Key words: wheat, yield, yield components, Biofertilizer.

INTRODUCTION

During the past four decades we have witnessed the doubling of the hu-
man population and a concurrent doubling of food production (Vance,
2001). Plant nutrition has played a key role in this dramatic increase in de-
mand for and supply of food. Increases in crop production have been made
possible through the use of commercial man-made fertilizers. The use of ni-
trogen (N) fertilizer has increased almost ninefold and phosphorus (P) more
than fourfold (Vance, 2001). The tremendous increase of N and P fertiliza-
tion, in addition to the introduction of highly productive and intensive agri-
cultural systems, has allowed these developments to occur at relatively low
costs (Schultz et al., 1995; Vance, 2001). The increasing use of fertilizers
and highly productive systems have also created environmental problems
such as deterioration of soil quality, surface water, and groundwater ...
air pollution, reduced biodiversity, and ...
(Schultz et al., 1995; Socolow ...

INTRODUCTION

Given the increasing world population, more than ever feel the need to increase food production. For this purpose, four solutions (increase in area under cultivation, yield per unit area, yield per unit of time ...

While utilize Bio-fertilizers importing a large population of effective microorganisms in the active field of root system ...

Numerous research shows that the use of bio fertilizer does assist in plant growth and overall sustainable soil conservation

RM 420 million

…use less nitrogen-based fertilizer

Bayer bets on agro-biotech

It will jointly develop biological solutions to use less nitrogen-based fertiliser

BY P J HUFFSTUTTER

CHICAGO: Germany's Bayer AG, one of the world's biggest agricultural chemical companies, is joining a US$100 million (RM420 million) bet that the next big breakthrough in crop fertilisers will be found inside a biological Petri dish.

Its Bayer LifeScience Center division, along with biotech firm Ginkgo Bioworks, is forming a start-up to focus on developing biological solutions to reduce the use of nitrogen-based fertiliser, or make farmers' use more efficient, company officials said this week.

The venture will be backed via a Series A investment from the two companies and hedge fund Viking Global Investors LP. The funding round closed on Wednesday. Bayer and Ginkgo Bioworks officials declined to discuss financial details or individual investment amounts.

The still unnamed business will focus on plant-based microbes, particularly finding ways for microorganisms to help plants and the soil assimilate nitrogen molecules from the air or other sources, Gingko Bioworks chief executive officer (CEO) Jason Kelly said in an interview.

The effort is part of a broader push in agricultural research to harness the microorganisms in plants and soil and, among other things, use them to improve crop yields or allow plants to thrive on lower amounts of fertiliser.

Reducing the amount of nitrogen fertiliser needed to feed plants could ease environmental concerns over water contamination from nitrogen fertiliser run-off and related greenhouse gas emissions, company officials said.

Michael Miille, a vice-president at Bayer Crop Science's biologics group, said launching this venture as a start-up was intended to keep it more nimble.

"Everything is designed for speed," said Miille, who will serve as interim CEO. — *Reuters*

IN BRIEF

VW CEO says has no plans to divide up the group

FRANKFURT: Volkswagen (VW) has no plans to follow local rival Daimler in considering changing the group's legal structure, its chief executive officer (CEO) said, even as the company undergoes the biggest transformation in its history. The world's largest vehicle maker by sales said on Monday it was stepping up the pace on its electric-car programme, announcing more than €20 billion (RM100 billion) of new investments over the next 12 years. Asked by reporters at the Frankfurt auto show whether he could imagine following rivals in looking at changing the group's structure, CEO Matthias Mueller said: "Others are always faster than

IBG Technologies

Through technologies, we provide:

Innovative solution through biotechnology

Comprehensive model from the combination of microbes, organic, chemical and trace elements

Various benefits

DISTINCTIVE ADVANTAGES

1. Improve soil organic matter utilization, thus reduce soil erosion
2. Improve transportation of nutrients by roots' natural secretion of growth factor elements by microbes
3. Minimize losses caused by run-off through the Phosphorus and Potassium Releasing Bacteria
4. Enhances plant growth
5. Increase inflorescence rate and the female ratio
6. Increase fruit weight and quality
7. Provide non-acidic nitrogenous fertilizer

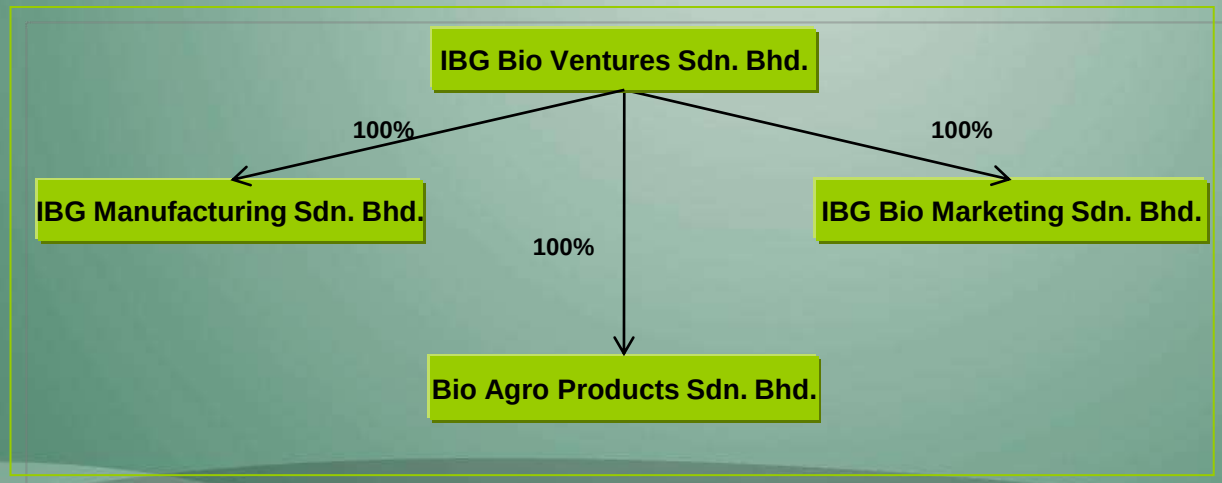
IBG Manufacturing Sdn. Bhd.

About IBG Manufacturing Sdn. Bhd.

IBG Manufacturing Sdn. Bhd. has its plant setup in Malaysia since 1998. It is incorporated in July 2004, under IBG Bio Ventures Sdn. Bhd. IBG Manufacturing paid up capital is RM 2 million.

Our philosophy :

"Innovative Biotechnology for Green world will ultimately benefit to our human kind "



AWARDS & CERTIFICATIONS

Gold Medal Award in ITEX99' (Malaysia International Invention, Innovation & Industrial Design 1999) for the invention of Bio Fertilizer**.**

First Bio fertilizer Inoculants patent filling in Malaysia ***PI20062236***

Silver Medal Award in **27th Geneva International Exhibition of Agricultural Invention & New Techniques 1999.**

AWARDS & CERTIFICATIONS

LETTER OF AWARD OF BIONEXUS STATUS AND TAX INCENTIVE TO IBG MANUFACTURING SDN BHD (473068-H) ("the Company")
BioNexus Ref. No. : BNX-B0807

We refer to the following documentation submitted by the Company to our Client Support Services Division:

(a) the completed BioNexus Status application form dated 24 March 2008 applying for BioNexus Status;
(b) the final business plan, financial projections and relevant documents; and
(c) all agreed variations or modifications to the above mentioned documents in paragraph (b) above pursuant to letter/ meetings (if any),

collectively to be referred to as the "Application Documents".

We are pleased to inform you that the Minister of Finance, in concurrence with the recommendation made by Malaysian Biotechnology Corporation Sdn Bhd, has APPROVED your Company's application for the BioNexus Status and 100% tax exemption of the statutory income for a period of ten (10) years under Income Tax (Exemption) (No. 17) Order 2007 [P.U. (A) 371/2007] on 27 March 2008 ("Effective Date"). Kindly take note that the Company has been conferred the BioNexus Status and the exemption subject to its acceptance of such status and full compliance with the attached Terms and Conditions.

a) Qualifying Activities.
The Company must conduct only the following Qualifying Activities:
Research, development and production of bio-fertilizers.

b) Location of Operations.
The Company must conduct the Qualifying Activities at the following location:
No. 3, Jalan TPK 1/2
Taman Perindustrian Kinrara
47100 Puchong
Selangor
Malaysia

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN BHD

BIONEXUS – Obtained from **Malaysian Biotech Corporation** – IBG certified as an industry player within the national biotechnology focus zone. ***Entitled to enjoy a 10 year 100% tax exemption.***

Silver Award in Bio Technology Asia 2006 (3rd International Biotechnology Trade Exhibition, Conference & Awards)

ISO 9001 certified UKAS SGS; ISO 17025 Accredited Laboratory (For Chemical and Microbiology Laboratory).

AWARDS & CERTIFICATIONS

2011 International Standard Quality Award for **Quality Product**

企业白金奖
PLATINUM
BUSINESS AWARD 2016

2016 Outstanding Achievers Award in **Platinum Business Award – in SME Malaysia**

星洲企業楷模獎
Sin Chew Business Excellence Awards 2016
Innovation · Transformation · Sustainability

2016 Product & Services Excellent Award in **Sin Chew Business Excellence Award**

2018 Outstanding Fertilizer Quality Product Award in **4th Malaysia Agro Excellence Award.**

2018 Model of Entrepreneurs Awards.

2020 Philippine Halal certificate

RESEARCH AND DEVELOPMENT

IBG Manufacturing Sdn Bhd has built the most hi-tech R & D Centre to back its strong R & D initiatives. The R & D centre focuses on cutting edge technology, from extensive research to the development of world-class biofertilizer products with self-owned intellectual property rights and great marketing potential.

We have established experiment fields as an effort to ensure continuous products upgrade and innovations.

Preeminence effect on application of IBG Multipurpose Bio-fertilizer

Dragon Fruit

Sweet Corn

Cucumber & Long Bean & Bitter Gourd

Kailan & Pak Choy

Rambutan & Cocoa

Guava & Pamelo

Water melon & honey dew

Banana

Durian & Mango

Tobacco & Pepper

Papaya & Pineapple

Sugarcane & Rubber

Duku & Langsat & D.Langsat

Tapioca & Lychee

Flowers

Extraordinary Effects - Durian

- Increase the flowering and fruit formation rate for 25%, reduce unripe fruits for 50%
- Can be used during harvesting to shorten the dormant and lag period of durian.
- Get rid of climbing plant for 80% after 9 – 14 months of application.

Extraordinary Effects - Durian

- The infected black spots will be relieved after 4 – 6 weeks of application and recovered within 6 months.

Radiance Forest Sdn. Bhd.
IBG application date: 24th April 2019

Radiance Forest Sdn. Bhd.
IBG application date: 24th April 2019

Broga Orchard Hill
IBG application date: 26th November 2019

Extraordinary Effects - Mango

- To eliminate and reduce fruit crack, and yellowing of leaves.
- Increase A-grade fruit, more delicious, tasty and bigger fruits.
- Blooming and fruit formation

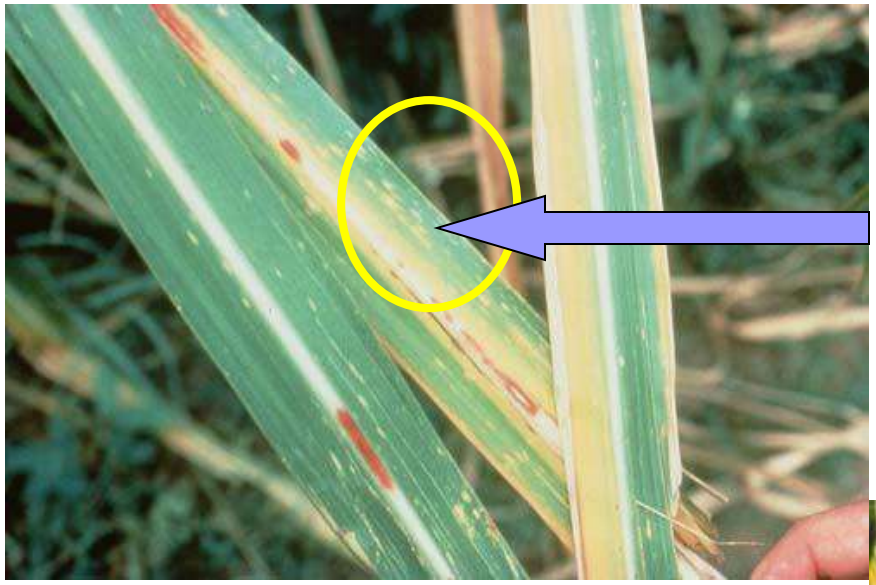
happen in stages continuously.

Extraordinary Effects – Sugarcane

(Saccharum officinarum L.)

- Increase the length of segments, thicker stem.
- Increase the sweetness level.

Common Effects on Sugarcane



High removal of K nutrients will result in Potassium deficiency that lead to depressed growth, slender stalks, and "firing" (an orange or reddish-brown discoloration/ necrosis) on older leaves.

Lactobacillus spp. ***are able to secrete organic acids to dissolve non-soluble potassium into soluble form in order to improve potassium uptake by the sugarcane plants.***

Extraordinary Effects - Rubber

- Bark becomes softer and easier to be tapped.
- Latex concentration increases.
- Application at the tapped bark to improve the metabolism and reproduction of new skin.

Extraordinary Effects - Rubber

- After 6 months of application, it can recover from *Phytophthora* and starts to produce latex again.
- Increase the plant's immunity against disease.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Extraordinary Effects – Corn

- Enhance the root development.
- Increase the absorption rate of root.
- Increase amount of A-grade corns.
- Full formation of grains and kernels.

Extraordinary Effects – Rose-apple / Guava / Pamelo

- Anthesis and fruit formation happen in stages continuously.
- Increase amount of A-grade fruits.
- Better fruit's complexion.

Extraordinary Effects – Dokong / Duku / Duku Langsat

- Longer & denser fruit bunch (>35%).
- To prevent and eliminate scabs on the bark.
- Increase the flowering and fruit formation rate after eliminating scabs.

Extraordinary Effects – Long Bean, French Bean, Cucumber, Bitter Gourd

- Longer harvesting period.
- Even and definite shape of fruits.
- Full and nice complexion.
- Reduces fruit crack.

Extraordinary Effects – Dragon Fruit

- Accelerate rooting and the germination of the new shoots.
- Prevent stem from rotting.

IBG treated cut shown greater root growth.	Untreated/Control cuts shown much slower root establishment

Extraordinary Effects :

Tobacco *(Nicotiana tabacum L.)*

- **Wider and heavier leaves for harvesting.**

Before using IBG Biofertilizer

After IBG Biofertilizer Application

Wider and heavier leaves for harvesting that translate into greater income .

Extraordinary Effects – Pepper

- Prevent attacks of root rotting disease.
- Fuller grains.
- Longer bunch.

Extraordinary Effects –
Rambutan / Pulasan

- Sweeter and fuller fruits.
- Reduce unfilled and flatted fruits.
- Stronger branches.

Extraordinary Effects – Cocoa

- Higher anthesis & fruit formation rate.
- Higher yield.
- Bigger cocoa pods.
- Higher quality & quantity of cocoa beans.

Extraordinary Effects – Lychee

- Higher anthesis & fruit formation rate.
- Higher quality & quantity of bunches.

Extraordinary Effects – Tapioca

Tapioca Plantation in Ayer Hitam, Johor (270 days tree)

Tapioca Plantation in Ayer Hitam, Johor (270 days tree)

One of the tapioca roots extracted from one 270 days tree weighed more than 20 kg (> 4 feet long; Max, 28 kg)

Extraordinary Effects – Papaya

(*Carica sapientum* L.)

- ***Helps to boost the root establishment,***
- ***shortens the germination period through the secretion of natural regulatory growth hormones such as Auxin and Gibberelic Acid from the microbes.***

Extraordinary Effects – Papaya

(*Carica sapientum* L.)

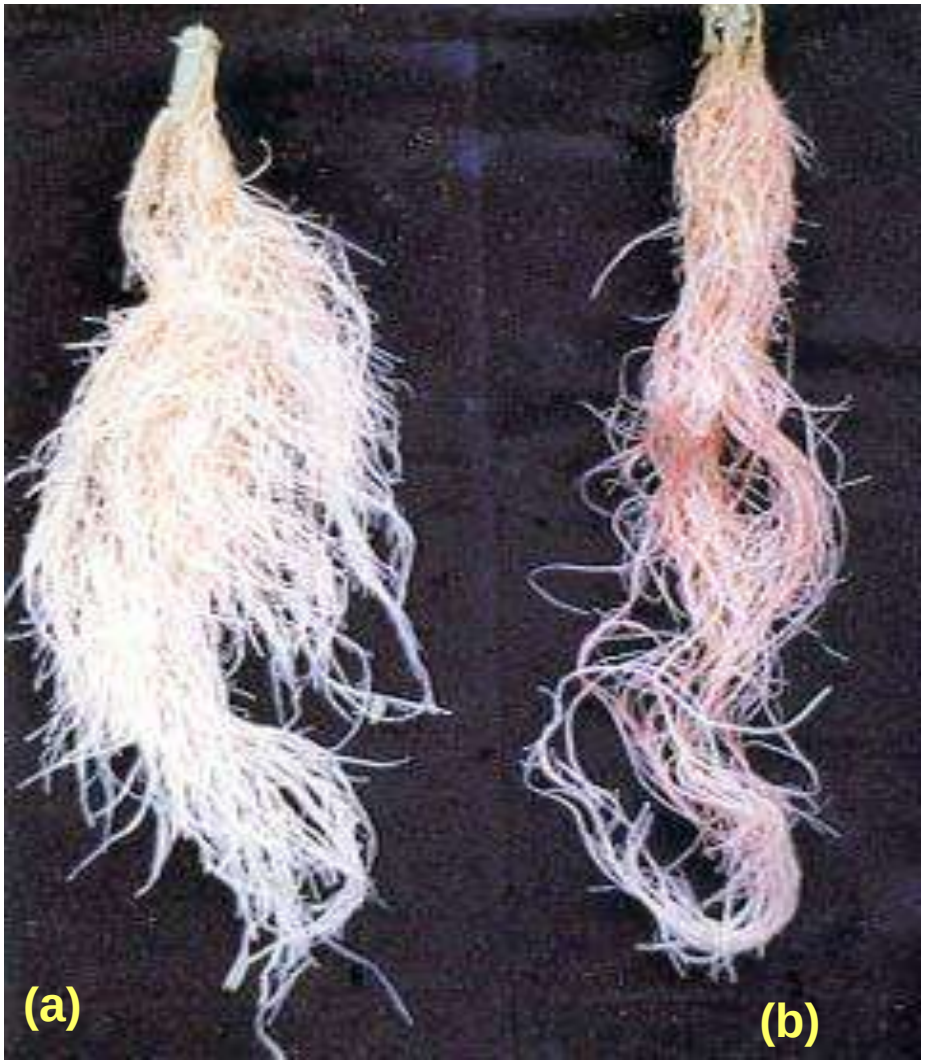


Figure (a) IBG Bio-fertilizer treated papaya shows higher rate of root growth. The roots appear whitish, vigorous, stronger and showing no signs of Phosphorus deficiency. Meanwhile,

(b) Non-Bio treated roots sample appear less vigor and shriveled and suffering from Phosphorus deficiency.

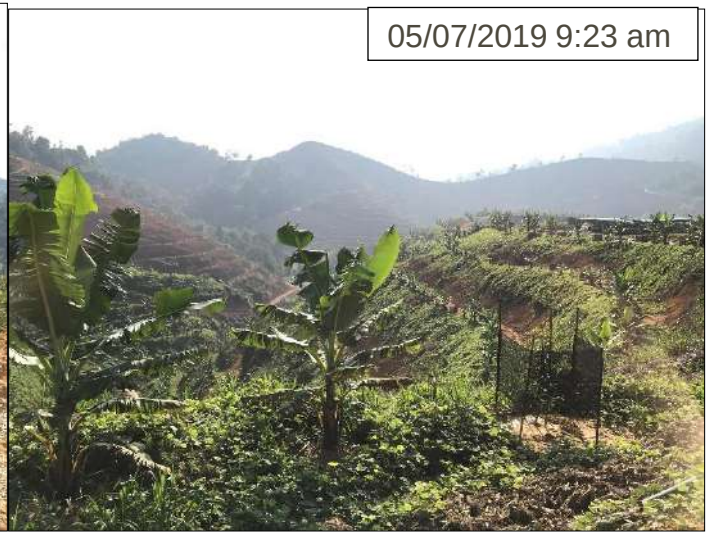
Extraordinary Effect – Pineapple

- Increase the fruit's quality, size and sweetness.
- Higher resistance towards the weather changes and disease.

Extraordinary Effect – Banana

- Increase the formation rate of inflorescence.
- Bigger fruit size
- Fruit are sweeter

Radiance Forest Sdn. Bhd.
IBG application date: 24th April 2019

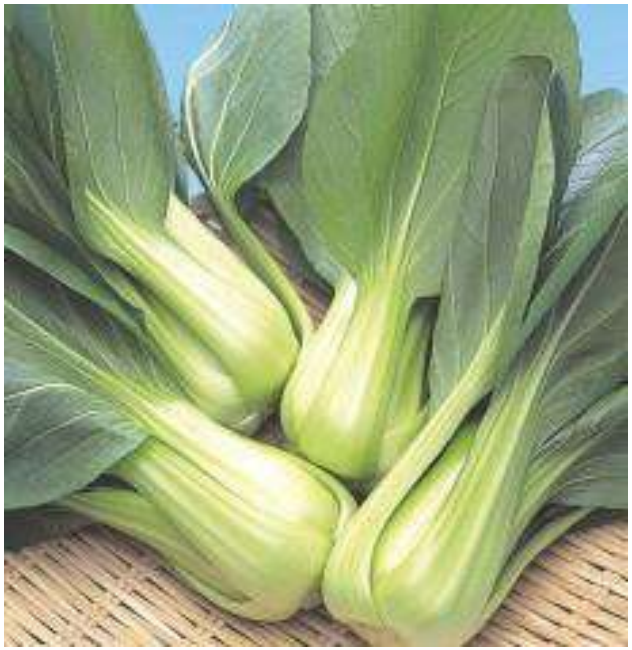


Extraordinary Effect – Watermelon / Honey Dew

- Higher fruiting rate.
- Fruit not easy to crack.
- More sweetness and juicy fruits.
- Thicker and full fruit.

Extraordinary Effects – Vegetables

- Waxy leaves surface.
- Bigger and wider leaves.
- Fuller and thicker leaves.



Extraordinary Effects – Flower's

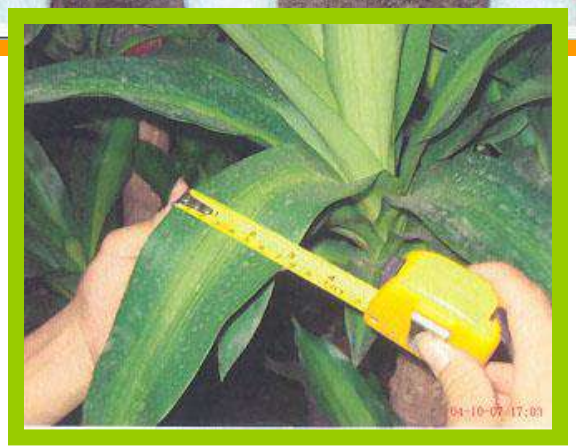
- Lush leaves.
- Bright colour of flower.

After

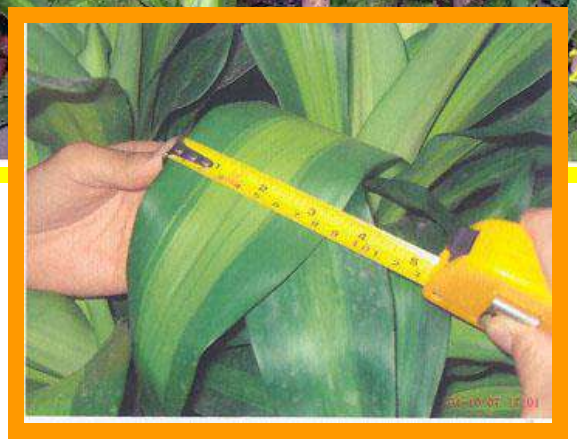
Before

Extraordinary Effects – Flower's

Before



After



Extraordinary Effects – Flower's

Flourish leaves with fully bloom radiant flowers after 60 days of application.

Thank you

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