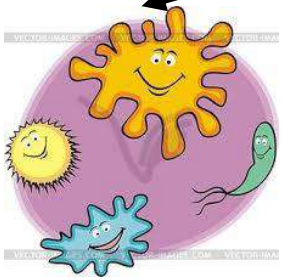

IBG
(649448-K)
IBG 生物肥料系列
通过创新生物技术发展可持续性农业

天然的土壤有些什么



益菌　　真菌，放线菌，小昆虫　　有机质　　巨量与微量化学元素　　水分

天然的土壤有些什么

1. 细菌
   - 分解有机质
   - 循环养分
   - 制造腐植土
   - 固氮
   - 促进植物的生长

2. 有机质
   - 成为植物的营养库存
   - 给予细菌食物

- 回复土壤的养分

天然的土壤有些什么

3. 巨量和微量元素

- 碳、氢，氧
- 氮
- 磷
- 钾
- 钙
- 镁
- 硫
- 锰
- 铜
- 锌
- 钼
- 鹏
- 氯
- 铁

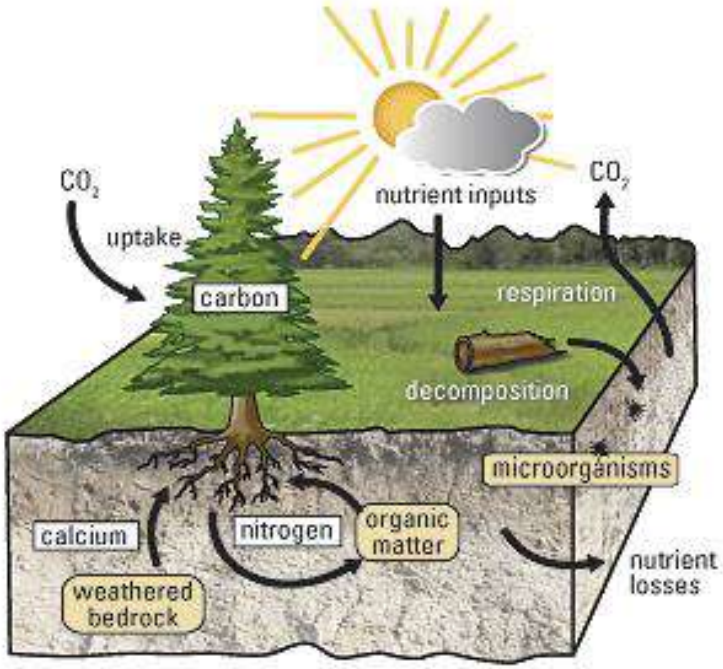
让植物健康生长，形成食物和对抗疾病等

为什么保护土壤那么重要

- 土壤 – 为植物提供水分，营养，空气和保护。
- 植物 – 为人类提供食物和保护。
- 人类 – 但人类却大量使用化肥而破坏土地

- 当土壤因酸性受损时，土壤的免疫系统会降低。不健康的土壤不会产生良好的植物。植物的病症也是变得严重。因此植物不会对人类产生优质的食物。 所以，保护土壤，保障人类健康是重要的。

原始森林阶段


CO_2
uptake
carbon
nutrient inputs
CO_2
respiration
decomposition
microorganisms
calcium
weathered bedrock
nitrogen
organic matter
nutrient losses

农根地开发阶段

化学肥料的重要性

- 土壤含有营养素的天然储备，但这些营养素很多是植物无法获得的形式。
- 这些营养通过天然的分解仅施放少部分，而且这个释放过程太慢，无法补偿农业生产中所需要的营养物质并满足农作物的需求。
- 植物生长需要至少16种营养元素，所以每次被农作物带走的元素是非常多的，被带走多少，就要补充多少，这是对土地的公平交易。
- 因此，为了补充土壤营养的不足，化学肥料被推荐使用以增加产量，进而增加农民盈利。

化学肥料的好处与坏处

早期使用

好处

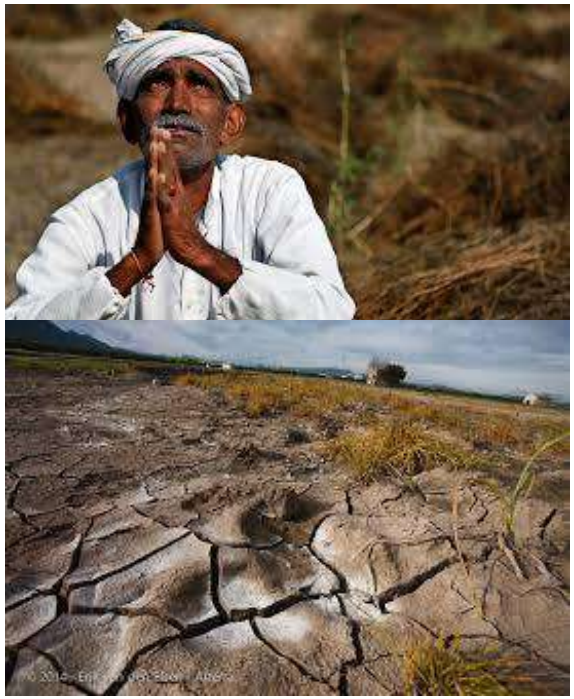
- 农作物生长快速而且肥大。
- 营养丰富。
- 支撑植物的生长。
- 提高产量。

化学肥料的好处与坏处

长期使用

<u>坏处</u>

- 植物毒性和污染。
- 导致土壤枯竭，并导致土壤变酸。
- 干扰自然土壤生态学，破坏土壤结构。



破坏的土壤与健康的土壤

肥料的种类

化学肥料

西药

效果快速，但有很多坏处。

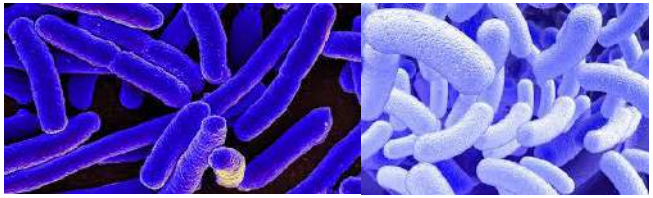
- 长期使用化学肥料 = 长期服用西药 = 虽然快速和有效但有很多副作用。

肥料的种类

有机肥料

中药/传统药方

效果慢，但没有副作用。



细菌/微生物

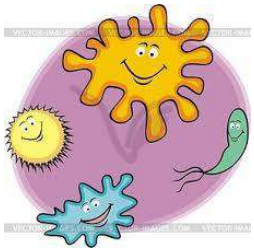
保健品

相对的安全和可靠，长期使用能够修复和保育土壤。

什么是IBG生物肥料

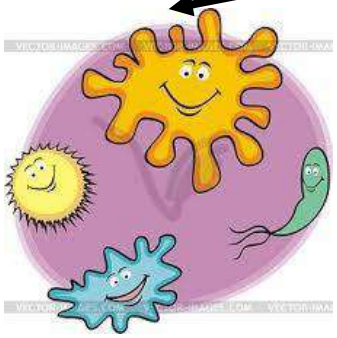
土壤保健最佳的组合

细菌/微生物



有机质

IBG生物肥料里面有什么?



1克有超过1000万的有益微生物

芦荟、海藻、腐殖酸、氨基酸、鱼精。

- 生物肥料里面的含菌量每克一定要超过千万单位才能称之为生物肥料。我们的产品每克的含菌量已经达到亿单位。

- 再者，生物肥料如果只有良菌的存在，良菌在没有有机质的情况下，也不能存活很久，良菌必须要在有机质和微巨量元素的配合下，才能达到回复土壤的效果。

- 这两个组合就是土壤里面原本拥有的东西。IBG生物肥料能够提供完整的元素供植物生长，让植物吸收的更好。

IBG MANUFACTURING SDN. BHD. 199801017236 (473365-H)
No. 3, Jalan TPP 3, Taman Perindustrian Putra, 47130 Puchong, Selangor Darul Ehsan.
Tel: +603 - 8066 2675 Fax: +603 - 8052 1303 E-mail: info@ibgv.com.my

IBG Manufacturing Sdn. Bhd. accredited by Standards Malaysia under accreditation number 494 for Chemical and Microbiology Tests

TEST REPORT

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

Lab Number : IBG-QC-02523
Date received : 10th July 2023
Date tested : 10th – 12th July 2023
Date reported : 12th July 2023

Page 1 of 1

Sample description : Liquid Biofertilizer
Sample marking : Durian 05/07/23 MAS-F030-2307-01

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	1.1×10^8
pH @ 23.0°C	In House Method, TM-IBG-02-004, based on pH meter	-	4.02
*Total Organic Matter	In House Method, TM-IBG-02-025, based on AOAC 967.05, MS 417: Part 2: 1994, Clause 3 & MS 417: Part 2: 1994, Clause 5	% w/w	55.10

* Not accredited

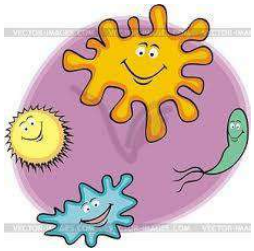
总细菌计数: 10^7 cfu/克

LEE CHOON HOONG
Senior Microbiologist
BSc (Hons) in Biomedical Science

Dr. LINDA NG YIAN YIAN
Chief Technical Officer
BSc (Hons), MSc, PhD, FMIC
(IKM No.: F/0100/1958/89/92/13)

The results reported relate only to the items tested as received.
This test report shall not be reproduced except in full without the approval of the laboratory

IBG生物肥料内含



有益微生物 - 改善吸收和分解有机物质，一克有超过1亿的有益微生物。

芦荟、海藻、腐殖酸、氨基酸、鱼精 - 改善土壤有机质含量。

IBG生物肥料的施放

分量

请注意，IBG生物肥料替代了化学肥料的20 – 30%。 因此，使用IBG生物肥料后，您的材料成本不会改变。

70 – 80%

20 – 30%

化学肥料

IBG生物肥料

为何选择IBG生物肥料

- 提高植物的生产效率。
- 提供了一种经济可行的支援。
- 土壤健康保护。
- 有效地帮助植物吸收养分。
- 减少化肥的用量。
- 降低植物的根的疾病。
- 节省储存室的空间。

一个健康的人不太可能患上任何疾病。

一个健康的植物将不太可能得到任何疾病。

土壤用IBG生物肥料处理后，微生物可以帮助有机物分解和土壤矿化。 在分解过程中释放氮和磷，从而可以减少氮肥和磷肥。

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

Biofertilizers: A novel tool for agriculture

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

Original scientific paper

The possible role of bio-fertilizers in agriculture

[illegible]mara Marozsán[1], Szilvia Veres[2], Éva Gajdos[3], Nóra

[illegible]ury Corporation

[illegible]ricultural and Techn
[illegible]biology,

Abstr
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Chapter 1

Potential and Possible Uses of Bacterial and Fungal Biofertilizers

Francesco Gentili
Ari Jumpponen

INTRODUCTION

During the past four decades we have witnessed the doubling of the human population and a concurrent doubling of food production (Vance, 2001). Plant nutrition has played a key role in this dramatic increase in demand for and supply of food. Increases in crop production have been made possible through the use of commercial man-made fertilizers. The use of nitrogen (N) fertilizer has increased almost ninefold and phosphorus (P) more than fourfold (Vance, 2001). The tremendous increase of N and P fertilization, in addition to the introduction of highly productive and intensive agricultural 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 groundwat
as air pollution, reduced biodiversity, and sim
(Schultz et al., 1995; Socolow, 19
Environmental poll
be either direct or indi
aged use of fertilizers
and denitrification. Ind
Bosch process) and tran
in airborne CO_2 and N pollution, which will be eventually deposited into terrestrial ecosystems. A more comprehensive and complete view of the N cycle and impacts of N deposition at the global level can be found in Socolow (1999).

Community waste and sewage sludge provide an inexpensive and attractive alternative. One problem with the use of these sources of plant nutrition is their high content of heavy metals, which may have adverse effects on

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

ECISI

BIOFERTILIZER AFFECTS YIELD AND YIELD COMPONENTS OF WHEAT

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1- Postgraduate of Ramin University of agriculture and natural resources, Ahwaz, Khouzestan, Iran.
2- Professor of Ramin University of agriculture and natural resources, Ahwaz, Khouzestan, 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 (Nitrosin 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 (Azty 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

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 [illegible]

[illegible] et al., 2005). Sustainable agriculture based on the Bio-fertilizers with purpose of significant reduction or elimination in the use of chemical inputs, is an optimal solution for overcoming these problems. To achieve sustainable agriculture in areas with limited resources, we need to use ways to reduce production costs and improves stability of yield.

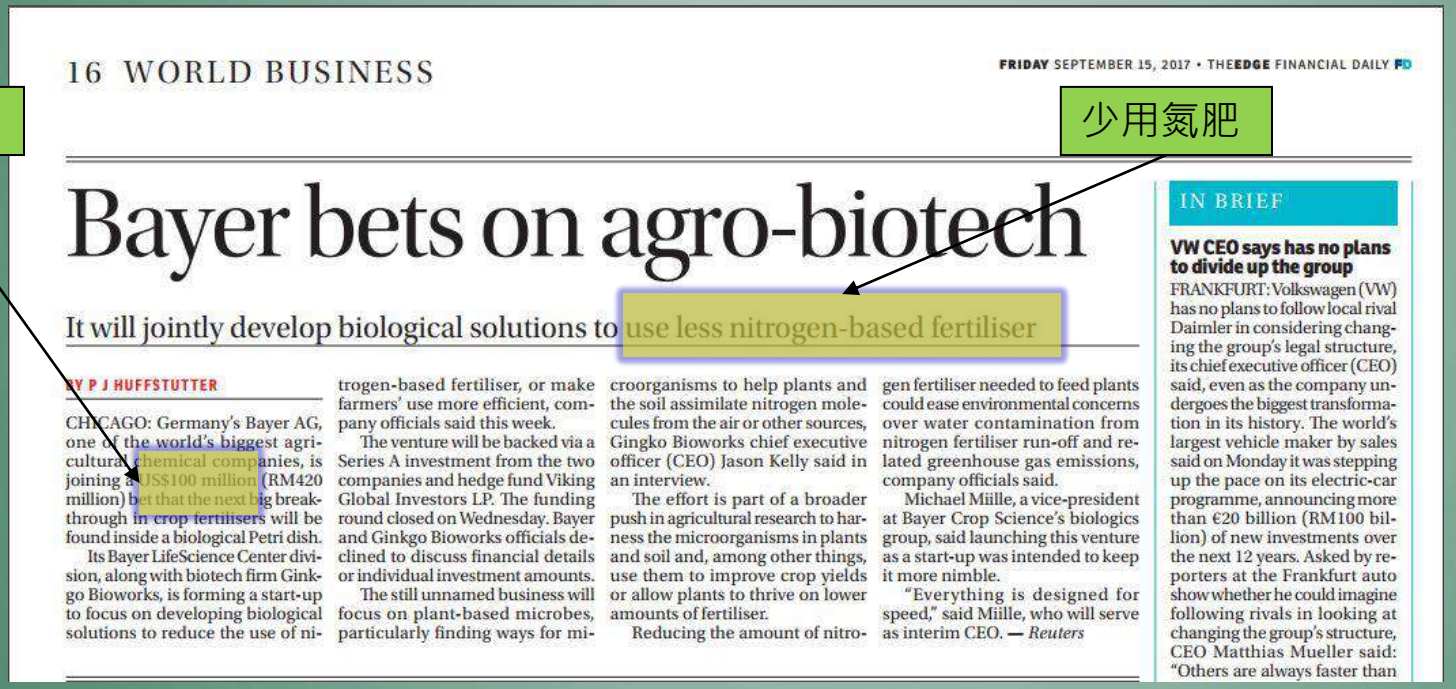
While utilize Bio-fertilizers importing a large population of effective microorganisms in the active field of root [illegible]

[illegible]eloped countries and developing countries especially in are carried out with different motivations. The purpose encourage developed countries to produce of such fertilizers is due to serious environmental consequences by uncontrolled and unbalanced use of chemical fertilizers. During the period of transition from conventional agriculture to sustainable agriculture, combination of chemical fertilizers and Bio-fertilizers, especially organic fertilizers

许多研究表明，生物肥料的使用确实有助于植物生长和可持续的土壤保养

马币 4.2 亿

少用氮肥



16 WORLD BUSINESS

FRIDAY SEPTEMBER 15, 2017 • THEEDGE FINANCIAL DAILY

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 的科技

通过技术，我们提供：

•通过生物技术创新的解决方案

•微生物，有机，化学和微量元素的组合的综合模型

•各种好处

独特优势

1.提高土壤有机质的利用率，从而减少水土流失

2. 微生物以根部天然分泌的生长因子元素，提高营养成分运输

3. 通过磷，钾释放细菌，减少损失

4. 提高植物生长

5. 增加结花率和比例

6. 增加果实的重量和品质

7. 提供非酸性氮肥

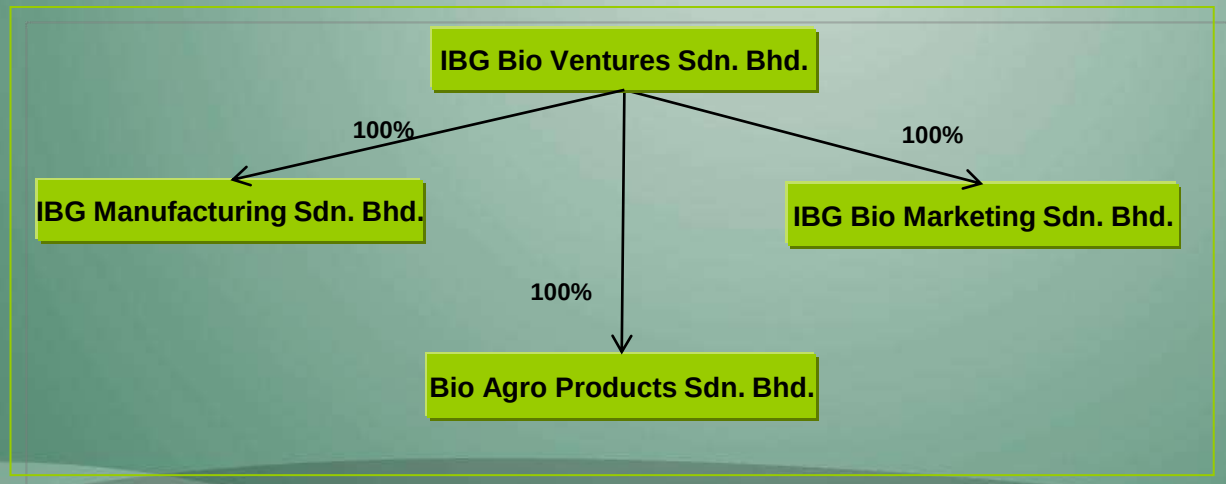
IBG Manufacturing Sdn. Bhd.

关于 IBG Manufacturing Sdn. Bhd.

IBG Manufacturing Sdn. Bhd.自1998年起在马来西亚设立工厂。该公司于2004年7月隶属于IBG Bio Ventures Sdn. Bhd. IBG Manufacturing缴足资本为200万令吉。

我们的哲学:

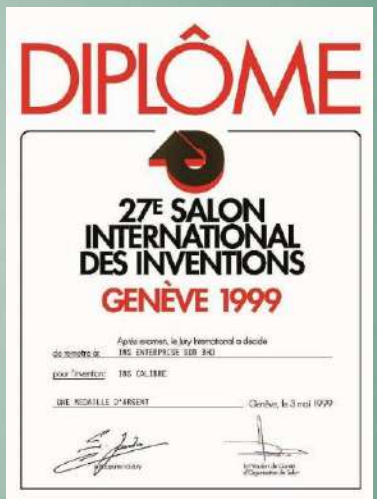
“绿色世界的创新生物技术将最终对我们的人类有益”



奖项和认证

1999年《马来西亚ITEX国际发明展》发明与设计比赛金奖

第一个生物肥料在马来西亚申请专利PI20062236



《1999年日内瓦国际发明奖》银奖

奖项和认证

生物科技核心业务地位 – 从大马生物科技机构取得 – IBG被认证为国家生物技术重点领域的行业参与者。*享有10年100％的免税优惠。*

《2006年亚洲生物科技奖》银奖

ISO 9001 认证; ISO 17025 认证实验室（化学和微生物实验室）。

AWARDS & CERTIFICATIONS

2011 国际标准品质奖

企业白金奖
PLATINUM
BUSINESS AWARD 2016

2016 杰出成就奖 – 马来西亚中小型企业工会

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

2016 产品与卓越服务奖

2018 肥料产品品质杰出大奖 – 第四届大马神农楷模奖

2018 创业楷模既相扶奖

2020 菲律宾 Halal 认证

2023 马来西亚科技展 (MTE) 金奖（与MPOB合作）

实验室 – ISO/IEC 17025认证

研究与开发

IBG Manufacturing Sdn Bhd 建立了最高科技研发中心，以支持其强大的研发计划。研发中心致力于尖端技术，从广泛的研究到开发具有自主知识产权和巨大营销潜力的世界级生物肥料产品。

我们已经建立了实验领域，以确保持续的产品升级和创新。

稻米施放步骤

(-) 7天: 100 毫升IBG/喷雾器 x 10 喷雾器, 共 1,000 毫升IBG 于 1 公顷
25天: 100 毫升IBG/喷雾器 x 10 喷雾器, 共 1,000 毫升IBG 于 1 公顷
50天: 150 毫升IBG/喷雾器 x 10 喷雾器, 共 1,500 毫升IBG 于 1 公顷
75天: 150 毫升IBG/喷雾器 x 10 喷雾器, 共 1,500 毫升IBG 于 1 公顷

摘要

1

保护根部以维持其发展

改变土壤结构和调节其酸碱度

3

效果

增加稻米的重量

2

CONFIDENTIAL

COLLABORATION AGREEMENT

BETWEEN

MALAYSIAN AGRICULTURAL RESEARCH AND DEVELOPMENT INSTITUTE (MARDI)

AND

IBG MANUFACTURING SDN. BHD.

IN RELATION TO THE DEVELOPMENT OF IBG MULTIPURPOSE BIO FERTILIZER FOR RICE CULTIVATION

CONFIDENTIAL

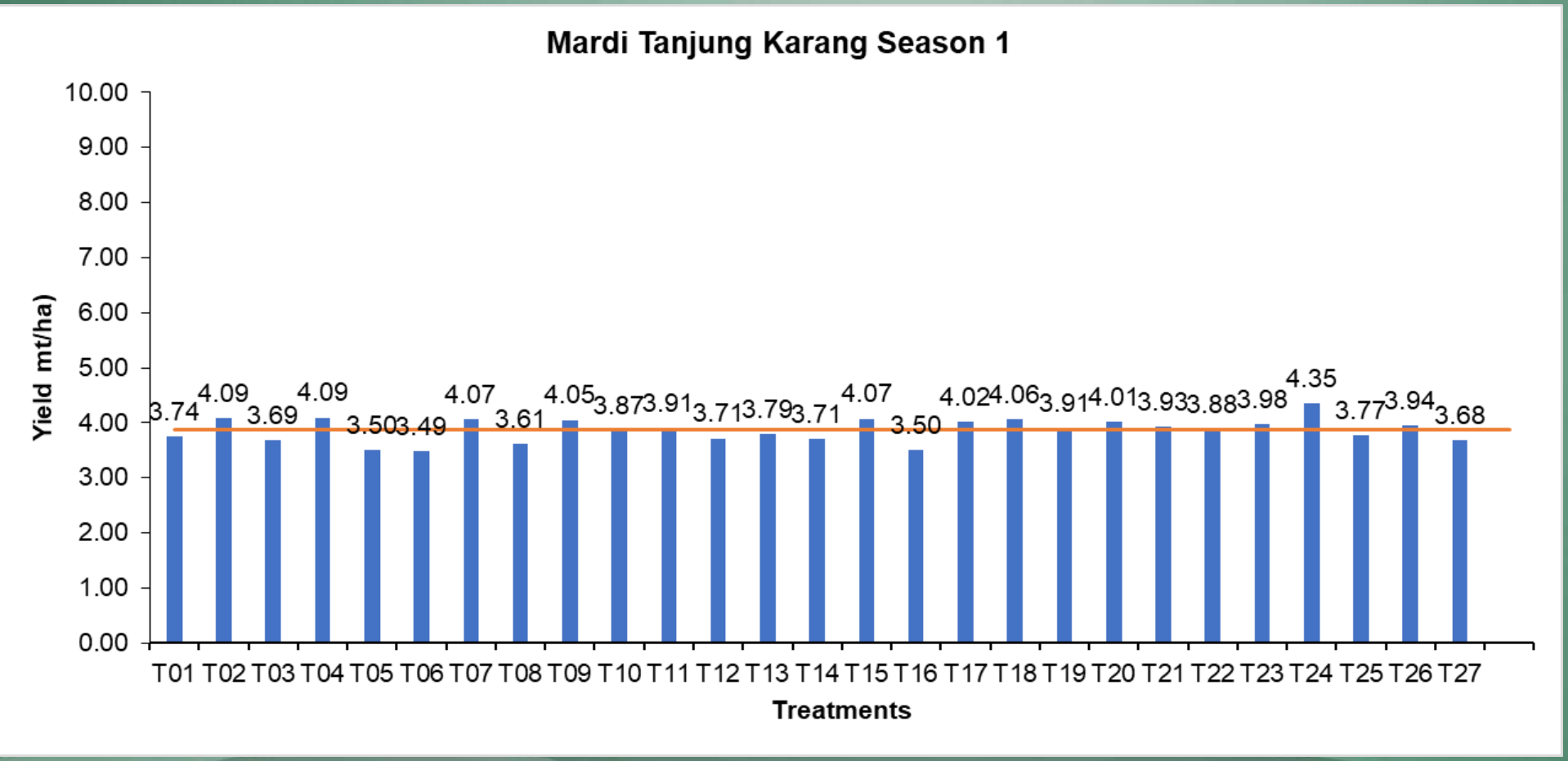
MARDI

FINAL REPORT ON

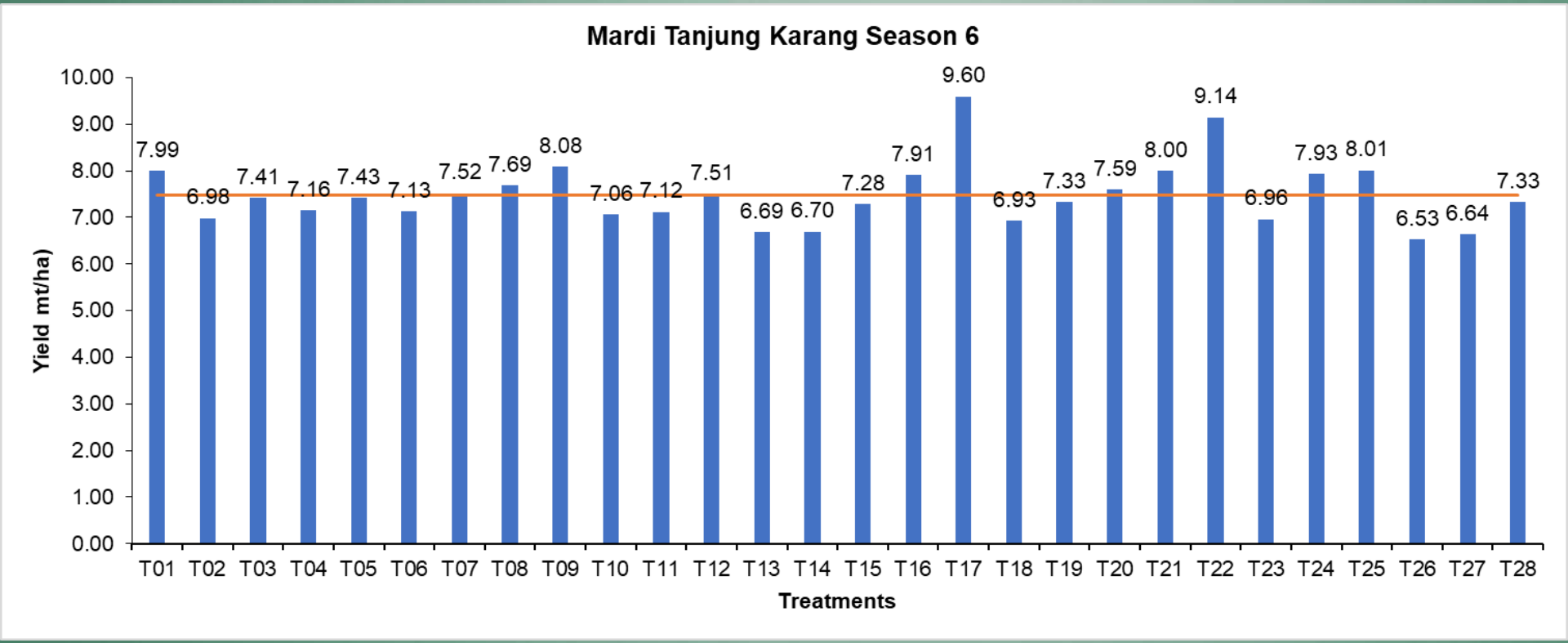
DEVELOPMENT OF IBG MULTIPURPOSE BIO FERTILIZER FOR RICE CULTIVATION

15th February 2017 – 30th May 2020 (6 Seasons)

IBG Multipurpose生物肥料对产量的影响



IBG Multipurpose生物肥料对产量的影响



Ringkasan Laporan Kajian

Satu Perjanjian Kolaborasi untuk menjalankan kajian di antara MARDI dan IBG Manufacturing Sdn. Bhd. telah dimeterai pada 11 April 2017. Kajian ini dilaksanakan di MARDI Tanjong Karang selama 6 musim penanaman dalam tempoh jangkamasa 40 bulan. Objektif utama kajian ini ialah untuk menentukan kombinasi IBG Multipurpose Bio Fertilizer dan baja subsidi untuk keperluan pembajaan tanaman padi. Dapatan kajian menunjukkan aplikasi rawatan T17 (kombinasi nisbah 50:50 (IBG:baja subsidi) dengan kadar 5 liter/ha merupakan rawatan yang terbaik kerana trend hasil yang tertinggi secara ketara pada musim 3, 4 dan 6. Perbezaan peningkatan hasil bagi musim terakhir iaitu ke-6 adalah sebanyak 40% berbanding dengan T26 (plot kawalan tiada pembajaan). Bilangan tangkai turut dipengaruhi secara ketara oleh rawatan dan mempunyai kolerasi positif dengan hasil. Penggunaan produk IBG juga didapati turut meningkatkan populasi mikrob di dalam tanah yang turut mempengaruhi peningkatan positif terhadap nitrogen, fosforus, kalium dan konduktiviti di dalam tanah.

IBG MANUFACTURING SDN. BHD. (473365-H)
GST No: 001336541184
No. 3, Jalan TPP 3, Taman Perindustrian Putra, 47130 Puchong, Selangor Darul Ehsan.
Tel: 603 -8066 2875 Fax: 603 -80521303 E-mail:info@ibgv.com.my

之前

TEST REPORT

Customer: Agronomy Department
IBG Manufacturing Sdn Bhd
No. 3, Jalan TPP 3,
Taman Perindustrian Putra,
47130 Puchong,
Selangor Darul Ehsan.

Lab Number : IBG-QC-83K/17
Date received : 4th August 2017
Date tested : 5th August 2017
Date reported : 7th August 2017

Page 1 of 1

Sample description : Soil
Sample marking : TKS9 R2 T10

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	4.4×10^5

4.4×10^5 cfu/克

LEE CHOON HOONG
Microbiologist cum R&D Executive
BSc (Hons) in Biomedical Science

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.

An Innovation in Biotechnology for Green World www.ibgbiofertilizer.com.my

ISO/IEC 17025

IBG MANUFACTURING SDN. BHD. (473365-H)
GST No: 001336541184
No. 3, Jalan TPP 3, Taman Perindustrian Putra, 47130 Puchong, Selangor Darul Ehsan.
Tel: 603 -8066 2875 Fax: 603 -80521303 E-mail:info@ibgv.com.my

之后

TEST REPORT

Customer: Agronomy Department
IBG Manufacturing Sdn Bhd
No. 3, Jalan TPP 3,
Taman Perindustrian Putra,
47130 Puchong,
Selangor Darul Ehsan.

Lab Number : IBG-QC-07220
Date received : 17th September 2020
Date tested : 17th-19th September 2020
Date reported : 19th September 2020

Page 1 of 1

Sample description : Soil
Sample marking : TKS6 R2 T10

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	3.8×10^6

3.8×10^6 cfu/克

LEE CHOON HOONG
Microbiologist cum R&D Executive
BSc (Hons) in Biomedical Science

The results reported relate only to the items tested as received.
This test report shall not be reproduced except in full without the approval of the laboratory

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ISO/IEC 17025

APPLIED AGRICULTURAL RESOURCES SDN. BHD.

(No. Syarikat : 90455-D)

Soil Analysis Results

Date : 08/09/2020
Crop : OUTSIDE
Estate : BG MANUFACTURING

Date Sampled : 30/07/2020
Date Received : 04/08/2020
Date Tested : 12/08/2020

Lab. Reference	Sample/Block	Area	Horizon /Depth (cm)	pH in Water (2:5)	Org. C (%)	N (%)	C/N	P (ppm) Total	P (ppm) Acid fluoride soluble	Exchangeable Cations (m.e. %) K	Ca	Mg	Na	C.E.C. NH4OAC method (m.e.%)	Conductivity (uS/cm)	Mechanical Analysis (%) Clay	F Silt	C Silt	F Sand	C Sand	Gravel
SC20/BG 10	TKS1 R2T10			5.36	2.54	0.33	7.7	488	31.7	1.31	12.59	16.04	2.36	24.8	511						

Date : 11/09/20

Chemist

APPLIED AGRICULTURAL RESOURCES SDN. BHD.

(No. Syarikat : 90455-D)

Soil Analysis Results

Date : 01/10/2020
Crop : OUTSIDE
Estate : IBG MANUFACTURING S/B

Date Sampled : 30/07/2020
Date Received : 04/08/2020
Date Tested : 28/08/2020

Lab. Reference	Sample/Block	Area	Horizon /Depth (cm)	pH in Water (2:5)	Org. C (%)	N (%)	C/N	P (ppm) Total	P (ppm) Acid fluoride soluble	Exchangeable Cations (m.e. %) K	Ca	Mg	Na	C.E.C. NH4OAC method (m.e.%)	Conductivity (mS/cm)	Mechanical Analysis (%) Clay	F Silt	C Silt	F Sand	C Sand	Gravel
SC20/IBG 37	TKSB R2T10			5.86	2.85	0.76	3.8	3035	359.5	17.02	16.06	10.51	2.19	20.1	4.26						

Date : 01/10/20

Chemist

TK Season 1 (Before) R2T10 (30%)
pH 5.36; Organic C 2.54%; Total N 0.33%; Total P 488.00 ppm; Avail P 31.70 ppm; Avail K 1.31 meq; Avail Ca 16.04 meq; Avail Mg 12.59 meq; CEC 24.80 meq

TK Season 6 (After) R2T10 (30%)
pH 5.86; Organic C 2.85%; Total N 0.76%; Total P 3035.00 ppm; Avail P 359.50 ppm; Avail K 17.02 meq; Avail Ca 16.06 meq; Avail Mg 10.51 meq; CEC 20.10 meq

PRODUCT COMMERCIALIZATION AGREEMENT

BETWEEN

MALAYSIAN AGRICULTURAL RESEARCH AND DEVELOPMENT INSTITUTE (MARDI)

AND

IBG MANUFACTURING SDN. BHD. (REG. NO.: 199801017236 (473365-H))

****

IN RELATION TO THE IBG PADDY BIO FERTILIZER

****

This Product Commercialization Agreement dated 8th September 2021 (hereinafter referred to as this "Agreement").

BETWEEN

MALAYSIAN AGRICULTURAL RESEARCH AND DEVELOPMENT INSTITUTE a statutory body incorporated in Malaysia under the Malaysian Agricultural Research and Development Institute Act 1969 [*Act 11*] and having its headquarters office at MARDI Headquarters, Persiaran MARDI-UPM, 43400 Serdang, Selangor Darul Ehsan, (hereinafter referred to as "MARDI") of the one part;

AND

IBG MANUFACTURING SDN. BHD. (Company Registration No.: 199801017236 (473365-H)) a business registered under the law of Mulaysia and having its registered address at Suite 9-13A, Level 9, Wisma UOA II, Jalan Pinang, 50450, Kuala Lumpur, Wilayah Persekutuan and its business address at No. 3, Jalan TPP3, Taman Perindustrian Putra Puchong, 47130, Selangor (hereinafter referred to as "the Company") on the other part.

MARDI and the Company are hereinafter referred to as "the Parties" collectively and each as "the Party".

WHEREAS:

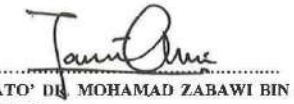
A. MARDI and the Company has entered into the Collaboration Agreement in relation to the "Development of IBG Multipurpose Bio Fertilizer for Rice Cultivation" dated 11 April 2017 (hereinafter referred to as the "Collaboration Agreement"). Pursuant to Clause 13 of the Collaboration Agreement, the Parties agree that any future commercialization of IBG Multipurpose Bio Fertilizer in relation to the rice cultivation shall be formalized and secured in a separate written agreement detailing the rights and responsibilities of the Parties, including any financial commitments (if any).

B. Pursuant to the above, the Company is desirous to produce, market, distribute and sell the IBG Multipurpose Bio Fertilizer for rice cultivation in any territory / country in the world and MARDI agrees for the Company to lead the commercialization of the IBG Multipurpose Bio Fertilizer subject to the terms and conditions as stated in this Agreement.

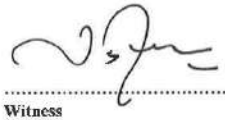
C. For the purpose of the Company commercializing the IBG Multipurpose Bio Fertilizer pursuant to this Agreement, both Parties agree to name and commercialize the IBG Multipurpose Bio Fertilizer for rice cultivation as "IBG Paddy Bio Fertilizer" (hereinafter referred to as "the Product") subject to the terms and conditions hereinafter set forth in this Agreement.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the dates indicated above.

SIGNED by for and on behalf of
MALAYSIAN AGRICULTURAL RESEARCH AND DEVELOPMENT INSTITUTE



DATO' DR. MOHAMAD ZABAWI BIN ABDUL GHANI
Designation: Director General



Witness
TAPSIR BIN SERIN
Designation: Deputy Director General

SIGNED by for and on behalf of
IBG MANUFACTURING SDN. BHD.
Company Registration No.: 199801017236 (473365-H)

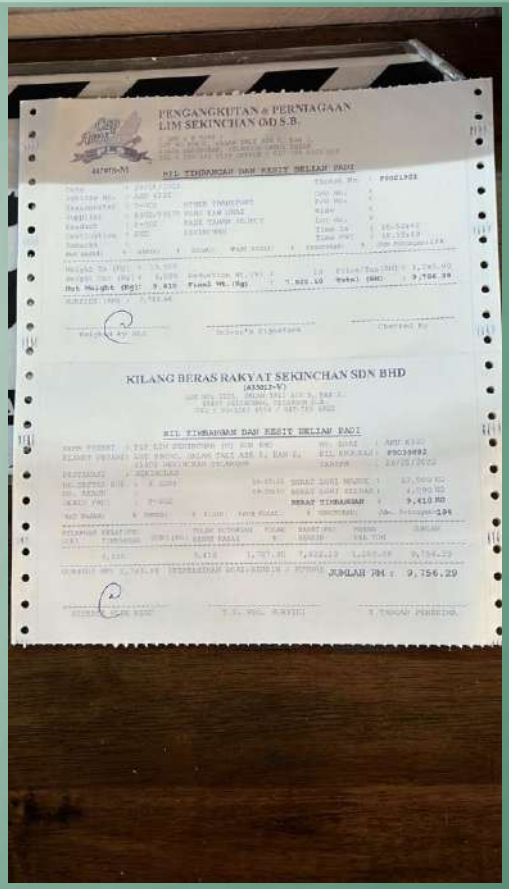
DATO' YEAT SIAW PING
NRIC No: 630702-08-6037
Designation: Group CEO

Witness
YEAT NAI JIN
NRIC No: 911201-14-5503
Designation: Marketing Manager

Mardi Tanjung Karang

Mardi Seberang Perai

Kilang Beras Rakyat Sekinchan Sdn. Bhd.



五月，年份2022 7.84 吨/公顷

在Tanjung Piandang，霹雳，的效果

五月，年份2002 5.5 吨/公顷
一月，年份2003 7.2 吨/公顷

在Chui Chak，霹雳，的效果

在Chui Chak的产量
获得7 - 9 吨/公顷。
减少稻米塌下的问题。

在Sekinchan，雪兰莪，的效果

五月，年份2002　10.63 吨/公顷
二月，年份2003　11.03 吨/公顷

在Karangmalang 和 Kemuten，Kabupaten Brebes，印尼的研究结果 (截至: DINAS PERTANIAN KEHUTANAN DAN KONSERVASI TANAH, 年份 2001)

田地	方案	肥料	Karangmalang	Kemuten
P0	100% 化学肥料分量 (CH)	300公斤 氮肥/公顷 100公斤 锌氨/公顷 100公斤 磷酸－36/公顷 100公斤 氯化钾/公顷	4.28 吨/公顷	6.06 吨/公顷
P1	50% CH 分量 50% IBG 生物肥料分量	150公斤 氮肥/公顷 50公斤 锌氨/公顷 50公斤 磷酸－36/公顷 50公斤 氯化钾/公顷 2 公升 IBG生物肥料/公顷	4.21 吨/公顷	7.10 吨/公顷
P2	75% CH 分量 75% IBG 生物肥料分量	225公斤 氮肥/公顷 75公斤 锌氨/公顷 75公斤 磷酸－36/公顷 75公斤 氯化钾/公顷 3公升 IBG 生物肥料/公顷	5.56 吨/公顷	6.77 吨/公顷
P3	**100% of IBG 生物肥料分量**	**4公升 IBG 生物肥料/公顷**	**6.20 吨/公顷**	**7.73 吨/公顷**
在实验田地以外的产量 (间距: 2.5 x 2.5 公分)			4.16 吨/公顷	7.33 吨/公顷

在Desa Jatipancur的研究结果 备自PKPP

方案	分量	地点	产量/公顷
100% IBG 生物肥料	3.5 公升/公顷	Sukarma, Saluyu 园丘	11.01吨/公顷
IBG 生物肥料 + CH	2 公升/公顷 75 公斤 氮肥 50 公斤 磷酸三钙 – 36	Ado Suganda, Sukamulya 园丘 Astami, Siundak 园丘	8.40 吨/公顷 8.00 吨/公顷

菲律宾的个人鉴定

肥料使用: 3 公升 IBG 生物肥料 + 3 袋 17-0-17 + 1 袋 21-0-0

品种: 稻米种类 M-3 (Hi-Breed) 年份 2008

效果: 8,710 公斤/公顷

所有者: Vilma Garzon, Kabacan, North Cotabato。

肥料使用: 2公升 IBG生物肥料 + 化学肥料

品种: 稻米种类M-3 (Hi-Breed)

效果: 8.70 吨/公顷

所有者: Vilma Garzon, Kabacan, North Cotabato

菲律宾的个人鉴定

肥料使用: 3 公升 IBG 生物肥料 + 2 袋氮肥 (46-0-0)

品种: 稻米种类M-11 年份 2008

效果: 10,218.90 公斤/公顷

种植时间: 十一月年份2008 (*潮湿季节*)

所有者: Vilma Garzon, Kabacan, North Cotabato

肥料使用: 1公升IBG生物肥料 + 1袋氮肥 (46-0-0) + 2 袋14-14-14

品种: 稻米种类M-7 (Hi-Breed)

备注: 化学肥料 – 收割时3.35 吨/公顷; IBG 生物肥料 – 收割时7.04 吨/公顷

所有者: Manuel Quilantang, Ormoc City

柬埔寨鉴定

柬埔寨鉴定

费用分析

天数	IBG 生物肥料 (RM 345/4 公升)	费用/公顷
(-) 7 天	IBG 100 毫升/喷雾器 x 10 喷雾器/公顷	RM 86.25
25 天	IBG 100 毫升/喷雾器 x 10 喷雾器/公顷	RM 86.25
50 天	IBG 150 毫升/喷雾器 x 10 喷雾器/公顷	RM 129.38
75 天	IBG 150 毫升/喷雾器 x 10 喷雾器/公顷	RM 129.38
	总共费用/公顷	RM 431.25

以上施肥计划是给120天成熟的稻米；90天成熟的：在于第15，35，55天施放。

化学肥料的施放是按照业者的决定。

谢谢你

IBG Manufacturing Sdn. Bhd.

地址 : No. 3, Jalan TPP 3,
Taman Perindustrian Putra,
47130 Puchong,
Selangor Darul Ehsan.

电话号码.: 603 – 8066 2875

传真号码.: 603 – 8052 1303

坐标 : N 2.971074, E 101.575499 (N 2˚58’15.8664”, E 101˚34’31.7958”

网站 : www.ibgbiofertilizer.com.my/www.ibgv.com.my

电子邮件: info@ibgv.com.my/siawping@ibgv.com.my