



# Woodman Plantation Group Usaha Sepadan Estate

Yield performance after  
applying IBG Bio Fertilizer

Period: 2002 – 2010

Location: Coastal Highway  
Bintulu – Miri, Sarawak, Malaysia

No. 3 Jalan TPP 1/3, Taman  
Perindustrian Kinrara, 47130  
Puchong, Selangor Darul  
Ehsan.

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[www.ibgv.com.my](http://www.ibgv.com.my)

## Introduction

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IBG bio fertilizer application had started and which data had been collected since year 2004. This estate has been using IBG bio fertilizer for 9 years (2002 – 2010). Usaha Sepadan had over 4,000 planted hectare, with palms planted on 2001 – 2002. Its harvesting interval was 12 – 14 days. Rainfall was 3,200 – 3,500 mm. Usaha Sepadan is a mineral soil estate. Soil type contains sandy, sandy clay, sandy loam, sandy lateritic, & hardpan coral, etc.

## Objective

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To evaluate the efficacy of IBG Bio Fertilizer on FFB production of oil palm.

## Fertilizer Program

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a. Fertilizer programme for the control blocks

- To follow exactly the estate fertilizer programme recommended by Woodman Plantation.

Conventional Manuring Program				
No.	Fertilizer	Dosage	Cost/palm	Cost/ha (130 palms)
1	SOA	1.50 kg	RM 1.35	RM 175.50
	MOP	1.50 kg	RM 2.33	RM 302.25
2	RP	2.00 kg	RM 1.44	RM 187.20
3	SOA	1.50 kg	RM 1.35	RM 175.50
	MOP	1.50 kg	RM 2.33	RM 302.25
4	Kieserite	1.00 kg	RM 0.82	RM 106.60
5	Borate	0.10 kg	RM 0.23	RM 29.90
6	SOA	1.50 kg	RM 1.35	RM 175.50
	MOP	1.50 kg	RM 2.33	RM 302.25
	<b>Total</b>	<b>12.10 kg</b>	<b>RM 13.52</b>	<b>RM 1,756.95</b>

b. Fertilizer programme for treatment blocks

- IBG fertilizer programme was made by IBG Manufacturing Sdn. Bhd. based on the existing Woodman's fertilizer program.

IBG Bio Fertilizer Manuring Program				
No.	Fertilizer	Dosage	Cost/palm	Cost/ha (130 palms)
1	IBG bio fertilizer (4 L)	40 ml	RM 3.45	RM 448.50
2	SOA	0.75 kg	RM 0.68	RM 87.75
	MOP	2.00 kg	RM 3.10	RM 403.00
3	RP	1.30 kg	RM 0.94	RM 121.68
	Kieserite	0.70 kg	RM 0.57	RM 74.62
4	Borate	0.100 kg	RM 0.23	RM 29.90
5	SOA	0.75 kg	RM 0.68	RM 87.75
	MOP	2.00 kg	RM 3.10	RM 403.00
	<b>Total</b>	<b>7.60 kg + 40 ml</b>	<b>RM 12.74</b>	<b>RM 1,656.20</b>
	Total cost saving/palm		<b>RM 0.78</b>	

Usaha Sepadan conventional program had used 6 round of 12.10 kg of chemical fertilizer. The cost/palm was RM 13.52, and cost/ha was RM 1,756.95. By using IBG bio fertilizer program, application round had reduced to 5 round of 7.60 kg of chemical fertilizer + 40 ml of IBG bio fertilizer. The cost/palm was RM 12.74, and cost/ha was RM 1,656.20.

## Method of application

The straight/compound fertilizers are to be applied to the palm circles using ordinary practices by estate while IBG Bio Fertilizer is to be applied to the palm base using Conventional Knapsack Sprayer (CKS).

## Yield record

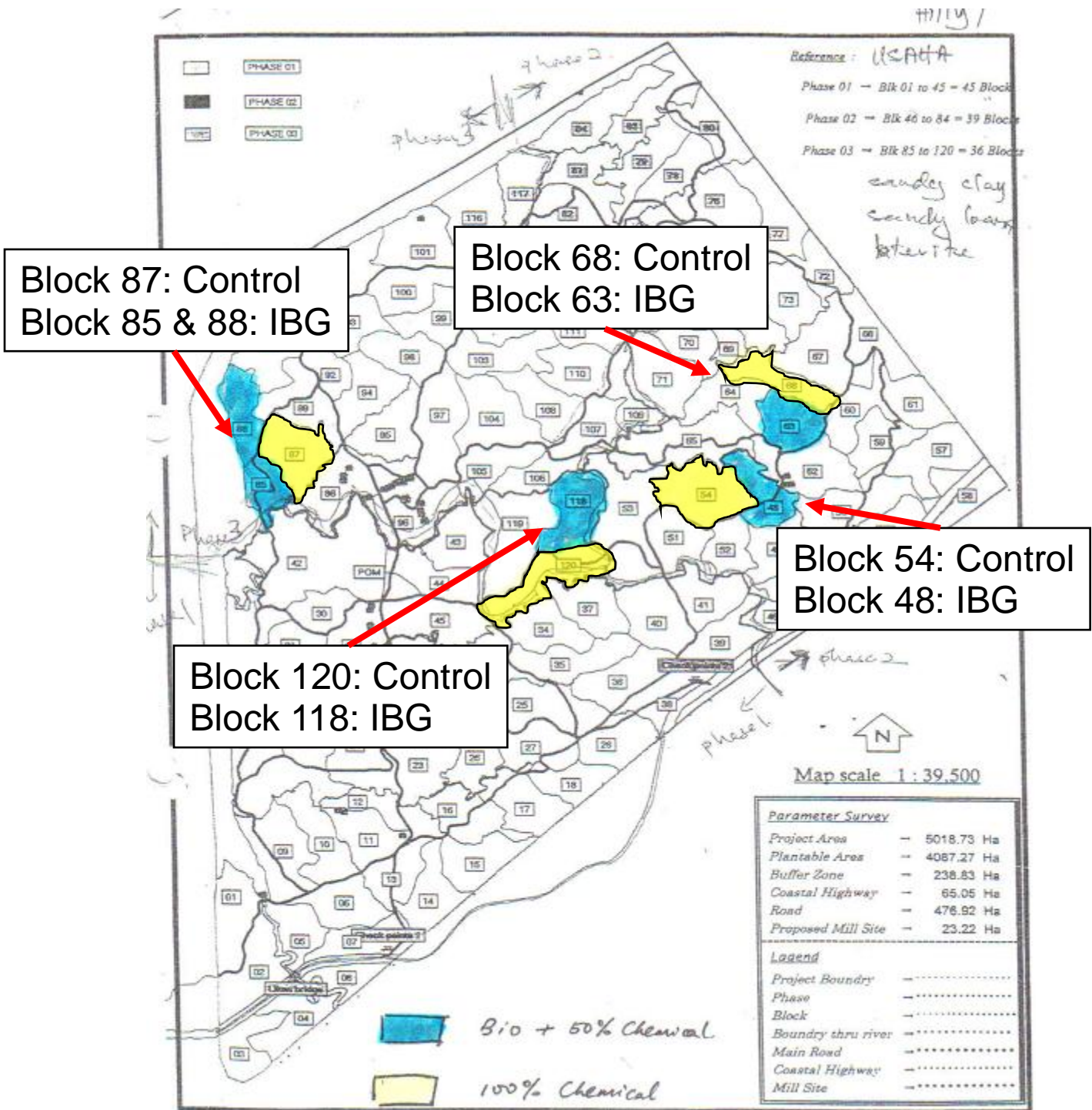
The yield record will be updated in terms of each trial block's total metric ton every year to observe the performance of IBG Bio Fertilizer on the yield increment.

## Duration: 2002 – 2010 (9 years)

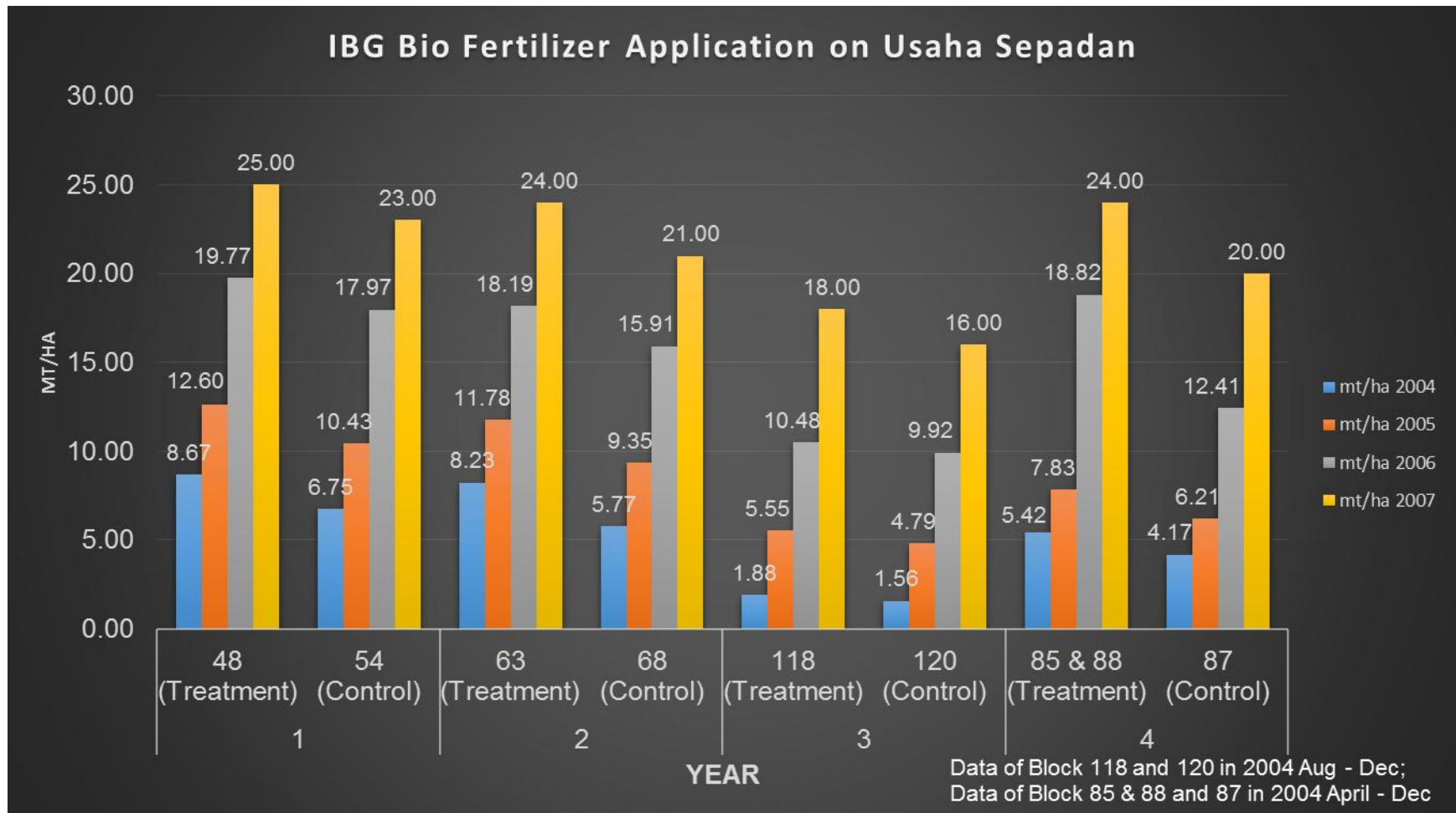
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IBG bio fertilizer trial application on Usaha Sepadan estate had started since year 2002. Since year 2004 – 2007, the average yield improvement is 2.19 mt/ha. At year 2007, IBG bio fertilizer had been fully used on the estate.

# Map



# IBG Bio Fertilizer Application on Usaha Sepadan



Usaha Sepadan estate had used IBG bio fertilizer since planted on 2002, data was collected from 2004 to 2007. From 2007 onward, Woodman decided to fully use the IBG bio fertilizer on Usaha Sepadan.

Trial 1	DOP	mt/ha				Average
		28 to 39 months	40 to 51 months	52 to 63 months	64 to 75 months	
		2004	2005	2006	2007 Est	
48 (Treatment)	1-Jun	8.67	12.60	19.77	25.00	
54 (Control)	1-Jun	6.75	10.43	17.97	23.00	
Yield variance		1.92	2.17	1.80	2.00	1.97
Trial 2	DOP	mt/ha				Average
		27 to 38 months	39 to 50 months	51 to 62 months	63 to 74 months	
		2004	2005	2006	2007 Est	
63 (Treatment)	1-Jul	8.23	11.78	18.19	24.00	
68 (Control)	1-Jul	5.77	9.35	15.91	21.00	
Yield variance		2.46	2.42	2.28	3.00	2.54
Trial 3	DOP	mt/ha				Average
		25 to 29 months	30 to 41 months	42 to 53 months	54 to 65 months	
		2004 Aug to Dec	2005	2006	2007 Est	
118 (Treatment)	2-Apr	1.88	5.55	10.48	18.00	
120 (Control)	2-Apr	1.56	4.79	9.92	16.00	
Yield variance		0.32	0.76	0.56	2.00	0.91
Trial 4	DOP	mt/ha				Average
		25 to 33 months	34 to 45 months	46 to 57 months	58 to 70 months	
		2004 April to Dec	2005	2006	2007 Est	
85 & 88 (Treatment)	1-Dec	5.42	7.83	18.82	24.00	
87 (Control)	1-Dec	4.17	6.21	12.41	20.00	
Yield variance		1.25	1.63	6.41	4.00	3.32

Mean increment: 2.19 mt/ha



## Yield comparison

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There had 4 trials initially to be tested with IBG bio fertilizer. Each trial contains control and treatment plot. In 2004, trial 1 – treatment's yield was 8.67 mt/ha while control's yield was 6.75 mt/ha. Treatment's yield has 1.92 mt/ha more than control's. The increment gap was staying positive with treatment plot had get ahead of control plot at year 2005 (2.17 mt/ha), 2006 (1.80 mt/ha), & 2007 (2.00 mt/ha). Averagely, trial 1 had acquired 1.97 mt/ha increment throughout the 4 years trial.

The condition is same in trial 2, trial 3 and trial 4. All the treatment plot had get ahead of control plot at year 2004 – 2007. Averagely trial 2 had achieved positive increment of 2.54 mt/ha, trial 3 of 0.91 mt/ha and trial 4 of 3.32 mt/ha throughout the 4 years trial.

In summary the performance of IBG in trial 1 – 4, had mean increment of **2.19 mt/ha**.

## Visual improvement on Usaha Sepadan's palm

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Picture 1 & 2: Earthworm cast had appeared on the soil after IBG application





Picture 3, 4, 5, & 6: Treatment plot's bunch was well formed on the palm



Picture 7 & 8: Visitors from the Felda had visited Usaha Sepadan

## Conclusion

Block	Fertilizer (kg)	Round/year	Cost/palm (RM)	Labour cost/ha (RM)	Cost/ha (130 palms) (RM)	Total cost/ha (RM)
Control	12.10	6	13.52	48.00	1,756.95	1,804.95
Treatment	7.60 + IBG 40 ml	5	12.74	40.00	1,656.20	1,696.20

Extra yield mt/ha	2.19
Average price/mt	RM 460.00
Revenue	RM 1,007.00
Cost variance/ha	RM 108.75
Extra earning/ha	RM 1,115.75

In conclusion, by using IBG bio fertilizer, average yield increment was 2.19 mt/ha. With the price of CPO RM 2,350, the average price/mt was RM 460. Revenue was  $RM\ 460 \times 2.19 = RM\ 1,007/ha$ . With the fertilizer cost variance RM 108.75/ha, extra earning was  $RM\ 1,007 + RM\ 108.75 = RM\ 1,115.75/ha$ . Although the cost of IBG bio fertilizer program is almost same with that of conventional program, but the extra yield of 2.19 mt/ha had become a revenue to the estate, contributed RM 1,115.75/ha.

IBG bio fertilizer was used in this estate from year 2007 – 2010. The yield in 2011 was **25 mt/ha**. The effect of IBG bio fertilizer has reflected on the yield increment after being applied for several years.





## WOODMAN KUALA BARAM ESTATE SDN. BHD.

(616631-U)

Lot 306, Jalan Krokop, P. O. Box 1437, 98008 Miri, Sarawak.  
Tel: 085-419321 (8 Lines) Fax: 085-435470 / 416759 / 420145

DATE : 25<sup>th</sup> May 2010

### **To Whom It May Concern:**

This serve to certify that the IBG Microorganism Bio Fertilizers is a high technology product which Woodman Group Of Companies are using such as Usaha Sepadan Estate on mineral soil. Tamar Estate, Tatau Estate and Semanok Estate are on peat area for several years, area coverage approximately **18,000 Ha** since 2003 till at present.

After using this IBG-BIO Fertilizers product, it is proven that this product really benefits us through cost saving at 20% generally, maintain and improve its productivity, reducing labour cost, improve the soil structure and maintain adequate soil moisture without extra cost where the quantity of micro-organism in the soil create healthy natural environment for the palm growth where we reduce our chemical cost at 30% generally.

We do not hesitate to recommend any clients or company to use this product where it is mutual benefit for long term purposes.

Thank you,

Yours truly,  
WOODMAN KUALA BARAM ESTATE SDN. BHD.



MR. ANTHONY JAU  
Senior Plantation Manager

# Appendix – Purchase Order

## USAHA SEPADAN SDN. BHD.

( Company No. 475844-H )  
 Lot 306, Jalan Kropkop, P.O.Box 1437, 98008 Miri, Sarawak.  
 Tel: 085-419321 (6 Lines) Fax: 085-420145, 433039

### Purchase Order

M/S BIO-AGRO PRODUCTS SDN. BHD.

P.O No. : USP-09/51002  
 Date : 20/08/2009  
 P.R No. : S063691  
 R/N No. :  
 Page : 1 of 1

Item	Quantity	Part No.	Description	Unit Price	Remark
1	4,800.00	JAR BIO001	BIO-AGRO OIL PALM (4LT)	345.00	

Purchase Order 20<sup>th</sup> August 2009

RM 345/bottle x 4,800 bottles  
 IBG OP\*\* = RM 1,656,000


Total = RM 1,656,000

\*\* IBG OP (IBG Oil Palm Bio Fertilizer) is products of IBG Manufacturing Sdn. Bhd.

The above work to be completed within \_\_\_\_\_ days / weeks upon receipt of this order.  
 goods to be delivered

RM 1,656,000.00

USAHA ESTATE

  
 Authorised Signature

eg

**WOODMAN KUALA BARAM ESTATE SDN. BHD.**

( Company No. 616631-U )  
 Lot 306, Jalan Kropkop, P.O.Box 1437, 98008 Miri, Sarawak.  
 Tel: 085-419371 (6 Lines) Fax: 085-420145, 433039

**Purchase Order**

M/S BIO-ACRO PRODUCTS SDN. BHD.

P.O No. : KBE-09/29145  
 Date : 16/12/2009  
 P.R No. : S063786  
 R/N No. :  
 Page : 1 of 1

Item	Quantity	Part No.	Description	Unit Price	Remark
1	2,048.00	BIOM001	BIO MOLECULE (4LT)	200.00	January 2010

Purchase Order 16<sup>th</sup>  
December 2009  
 RM 200/bottle x 2,048  
 bottles Bio Molecule\*\* = RM  
 409,600


Total = RM 409,600

\*\* Bio Molecule is a product  
 of IBG Manufacturing Sdn.  
 Bhd.

FOB

The above work to be completed within \_\_\_\_\_ days / weeks upon receipt of this order. goods to be delivered RM 409,600.00

**USAHA ESTATE**

  
 \_\_\_\_\_  
 Authorised Signature

**USAHA SEPADAN SDN. BHD.** (475844-H)

P. O. Box 3370, 97013 Bintulu, Sarawak.  
Tel: 086-326327 Fax: 086-391236, 391510

PURCHASE ORDER

No. 010770

To: Bio-Agro Products Sdn. Bhd.  
Attn: mdm chong.

DATE: 24-11-2007

PRODUCT E/O: 506240

Item	Quantity	Part No.	Description	Unit Price	Remark	
1	4736 BT	Bio Agro Oil Palm (ALT)		315.00	1491840.00	
2	4736 BT	Bio Agro Nitrogen (ALT)		153.00	724608.00	
3					}	
4						
5						
6						
7						
8						
9						
10						
11						
12						
The above work to be completed goods to be delivered within ..... days / weeks upon receipt of this order				Item Only		

  
.....  
Authorised Signature

Purchase Order 24<sup>th</sup>  
November 2007

RM 315/bottle x 4,736 bottles  
IBG OP\*\* = RM 1,491,840

RM 153/bottle x 4,736 bottles  
IBG Nitrogen\*\* = RM 724,608

Total = RM 2,216,448

\*\* IBG OP (IBG Oil Palm Bio Fertilizer) and IBG Nitrogen are products of IBG Manufacturing Sdn. Bhd.



