FINAL REPORT

EVALUATION OF EVERMAX CONTROLLED RELEASE FERTILIZERS FOR OIL PALM BASED ON TRIAL PLOT

FOR

EVERCHEM CORPORATION (M) SDN. BHD.

BY

UNITED PLANTATIONS SDN BHD

TELUK INTAN, PERAK

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Report- Trial Plot Done At United Plantation, Teluk Intan.

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Date: January 2012

Subject: To Analyze the Result of Evermax (CRF) based on trial plot done at United Plantations.

Purpose

We are doing trial plot conducted by United Plantations Research and Development team to analyze Evermax (CRF) specially made to provide long term, uniformed and sustainable release nutrients against ordinary fertilizer on a set or palm oil crops.

Problem caused by Nutrient Deficiencies in Palm Oil Crops.

In some parts of the world, soils have a relatively low exchange capacity, contain low organic matter and are subjected to heavy rains. Under these conditions of soil and the heavy rainfall, other fertilizers such as highly soluble compound fertilizer may either supply nutrients in higher quantities than required, or be leached by heavy rains that adequate supply of nutrient cannot be maintained.

**Some of the Nutrient Deficiency Symptoms*

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**Other Nutrient Deficiency Symptoms*

A Solution to the Problem

Under such conditions, less soluble fertilizer compounds are used as a means to provide a more uniform and continuous supply of nutrients throughout the growing season. **Evermax** requires a longer period of time to dissolve; it is ideal for acidic soils and for the areas subjected to heavy rain falls. Application of **Evermax** reduces the seasonal fluctuations in the supply of available nutrient and provides a uniform supply that result in a more efficient use of the nutrients which would be reflected as higher yields.

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EVERMAX®
Controlled Release Fertilizer
20+9+12+3MgO+TE

Dosage

- 2.5 g of Evermax is to be applied into each seedling at pre-nursery stage.
- 50.0g of Evermax is to be applied into each seedling at main nursery stage.
- 300.0g of Evermax is to be applied into each plant in the 1st year planting.

Findings – August 1st , 2011- First time Fertilizers are applied into the Trial Plot

Plot A: UP Formulation Compound Fertilizer, 12:12:17+2+TE (NPK Blue)
Plot B: EVERMAX 20+9+12+3MgO+TE (6 mth Application)
Plot C: EVERMAX 20+9+12+3MgO+TE (9 mth Application)

UP Standard Fertilizer Applied

Evermax CRF Applied-Sample B

Evermax CRF Applied- Sample C

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Findings – September 9th- Photos Below are Taken 1 Month After First Fertilizers Application

1. Plants apply with Evermax CRF showing good results. Leaves are bigger and with good colouration.

2. After culling process (removing bad seed process) and transplanting of this plants will be taken around October - November

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Findings – November 8th- Pre-Nursery

- Out 1000 seedlings, 80 % of the best chosen. Therefore, 800 best seedling chosen out of the 1000. Each set of A, B and C has 800 seedlings.
- It is planted in a 6x9 inch poly bags.
- 0-3 months old tree are planted in pre-nursery.
- Measurement of the tree is not taken at pre-nursery stage.

1. As you can see above, Trial Plot C and B showing plant is taller and the leavers are bigger compared to A. They are ready to be moved to Main Nursery.

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Findings – November, Main Nursery

- Plant measurement is taken at this stage.
- 2 stage nurseries is used/ applied in United Plantations as they believe is better because it has lower wastage in soil, polybags and etc.
- 3-12 months old tree are planted in Main Nursery.
- It is planted in 15 x 18 inch polybags
- Shells are topped on the soil to avoid splashing.
- Micro sprinkler system is used in Main Nursery.

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*Observations being done at the Main Nursery

*Fertilizer Applied During Transplanting

*Hole is Created in Polybags

*Shells is used to avoid Splashing

* Poly Mat is Used at the Bottom of the Bag to Avoid Mixture of Soil

*Dedicated UP workers at Work- Applying Fertilizers. Workers are with at least 3-5years Experience.

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**Photo Showing 25g Measurement Spoon is used to Apply Fertilizer*

Findings – November 8th- After Transplant into Main Nursery Completed (15x18 Bag)

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Standard Up Fertilizer

Evermax CRF 6 mth Application

Evermax CRF 9 mth Application

*Overview of the Main Nursery

**Micro Sprinkler System is used at the Main Nursery*

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Findings – January 27th

A: UP Standard Nursery Fertilizer is Applied
B: Evermax CRF-6 Months is Applied
C: Evermax CRF-9 Months is Applied

1. A Showing symptom of leave changing colouration. More Fertilizers application needed to improve the plant.
2. B showing healthy signs. Leaves are in good colouration and fertilizers still visible even only after 1st application during the transplantation.
3. C also showing healthy signs and fertilizers will be applied again on the 9th month.

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Findings – April 18, 2012

Plot A

Showing Symptoms of Nutrient Deficiency

Leaves still have not Pinnate (split)

Leaves are much shorter/smaller than others

Plot B

Showing Signs of Sufficient Nutrient Balance.

Leaves start Pinnating (Split)

Leaves are taller and showing Good Coloration.

Plot C

Sufficient Nutrient Balance

Leaves Start Pinnating (Split)

Leaves are Taller/ Bigger

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Latest Findings- July 2012

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EVALUATION OF EVERMAX CONTROLLED RELEASE FERTILISERS ON OIL PALM MAIN NURSERY

Treatments

A: Seedlings fertilised with Standard Fertilisation Programme of UPB

B: Seedlings fertilised with Evermax Controlled Released Fertilisers at 6 months interval

C: Seedlings fertilised with Evermax Controlled Released Fertilisers at 9 months interval

Seedling evaluated per treatment: 1000 seedlings

Variables Measured:-

1. Vegetative :
    a. Length of Frond 1
    b. Seedling Height
    c. Leaf Production
    d. Collar Diameter of Seedling

2. Foliar Nutrient Content of Seedling at Experiment End

Results

Vegetative Measurement

Carried out at end of pre-nursery phase and 11 months after transplanting (experiment end)

Reading 1 (end of nursery phase)

Treatment	Length of Frond 1 (cm)	Seedling Height (cm)	Leaf Production	Collar Diameter (cm)
A	31.05^{ab}	40.14^{a}	5.03^{a}	1.57^{a}
B	29.48^{b}	37.04^{b}	4.96^{a}	1.29^{b}
C	31.35^{a}	38.88^{a}	5.08^{a}	1.31^{b}

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Reading 2 (6 months after transplanting)

Treatment	Length of Frond 1 (cm)	Seedling Height (cm)	Leaf Production	Collar Diameter (cm)
A	86.81[a]	114.43[a]	15.56[a]	7.10[a]
B	84.85[ab]	108.16[b]	15.50[a]	6.40[b]
C	81.69[a]	103.04[b]	14.69[b]	6.14[b]

Reading 3 (11 months after transplanting)

Treatment	Length of Frond 1 (cm)	Seedling Height (cm)	Leaf Production	Collar Diameter (cm)
A	109.86[a]	138.52[a]	4.94[a]	9.08[a]
B	111.66[a]	139.50[a]	4.88[a]	9.24[a]
C	104.06[b]	128.96[b]	5.06[a]	8.51[b]

FOLIAR ANALYSIS

Treatment	N	P	K	Ca	Mg	B (ppm)
A	2.63	0.213	1.418	0.61	0.35	10
B	2.27	0.170	0.945	0.78	0.47	11
C	2.28	0.158	0.935	0.75	0.48	10

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