A. TITLE: Efficacy Evaluation of Crop-Up® as Liquid Foliar Fertilizer for Sugarcane

B. PROPONENT: JOCANIMA CORPORATION
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PNT-117

D. DURATION OF THE STUDY: Twelve (12) Months

E. STUDY SITE: Negros Occidental

I. Background

Crop growth and development are dependent on several factors; soil, water supply and biotic and abiotic stress among others. Thus, growers have to address and follow various requirements to achieve optimum growth and yield on their crops. In addition, the market and the consumers are setting quality standard for the produce, not only to look good, but also needs to be firm to the touch, crunchy and full of nutrition. Essentially, crop produce needs to last longer and arrive in better condition in the market thus, the need for the plants for optimum mineral nutrition to be healthy.

Liquid Foliar Fertilizers from Albion Plant Nutrition are designed for foliar application on plants to prevent or correct nutrient deficiencies that may limit crop growth and yields. Albion's unique patented manufacturing process and formulations ensures that plants will get the most readily absorbable, highest quality nutrition available.

Albion's lines use amino acids in their chelation technology. Chelation is the process of attaching a specific organic molecule to a mineral in two or more places to form a ring. The molecule holds the mineral like a claw to make it stable and readily absorbable. Since amino acids are the basic building blocks of protein found in all living organisms, the chelation of minerals with amino acids provides a tremendous advantage in the efficiency of absorption and translocation of minerals within plants.

Other types of chelation include synthetic type such as EDTA (Ethylenediaminetetraacetic acid) and EDDHA (ethylenediamine-N, N'-bis (2-hydroxyphenylacetic acid). The advantage of using natural chelated forms of minerals is that the amino acid ligands surroun protect the minerals from adverse interactions which take place in a solution, in the soil or on the surface of the leaf. They often render the minerals unavailable to the plant. Because Albion uses natural amino acids derived from soybean (*Glycine max*) to chelate the minerals, they are rapidly absorbed, translocated and metabolized by plants.

Crop-Up® Liquid Foliar Fertilizer contains well balanced nutrients specifically designed to support the growth and development of crops. The product contains 0.025 % B, 0.25% Cu, 0.25% Fe, 0.5% Mg, 2.5% Mn, and 1.25% Zn. Throughout the years, it has been proven that foliar mineral application in addition to major nutrient fertilization helps in improving growth and development of crops. These essential nutrients, contrary to the major nutrients – NPK, are required in minute amounts but functions as equally important given their general role in plant physiological and chemical processes especially in photosynthesis and metabolism. Specific symptoms manifest for specific deficiency should these nutrients be scarce during the growing period. Most deficiencies can be detrimental to the plant and can lead to serious losses if not corrected at an early stage.

JOCANIMA Corporation, a leading Filipino owned agrochemical Corporation in collaboration with Albion Plant Nutrition from Utah, USA, will introduce Crop-Up® liquid foliar fertilizer and its novel technology to the Filipino farmers. This will help farmers meet the soaring standards for crop production by improving crop growth, development and yield.

II. Objectives

1) Evaluate the efficacy of Crop-Up® Liquid Foliar Fertilizer on Sugarcane;
2) Compare the efficacy of Crop-Up® Liquid Foliar Fertilizer with the commercial inorganic fertilizers used;
3) Evaluate the effect of different rate applications of Crop-Up® Liquid Foliar Fertilizer as follow-up spray to commercial inorganic fertilizers used;
4) Generate the bioefficacy data to support the registration of Crop-Up® Liquid Foliar Fertilizer Supplement with Fertilizer and Pesticide Authority (FPA)

III. Materials and Methods

Time and place of test

The study commenced in February 2015 and ended December 2015. The experiment was conducted in Hda. Canibungan Cadiz City Negros Occidental.

Treatments

The following standard treatments as per FPA Guidelines, for Foliar Applied Liquid Fertilizer (Micronutrients) was used.

FPA Prescribed Treatments	Amount of Inorganic Fertilizer	Amount of Crop Up
T1 – Control	-	-
T2 – RRIF	180 – 180 – 220 kgs/ha of NPK	
T3 – RRIF + ½ rr Crop-Up	180 – 180 – 220 kgs/ha of NPK	0.25 L/ha of Crop-up
T4 – RRIF + rr Crop-Up	180 – 180 – 220 kgs/ha of NPK	0.5 L /ha of Crop-up
T5 – RRIF + 1 ½ rr Crop-Up	180 – 180 – 220 kgs/ha of NPK	0.75 L/ha of Crop-up
T6 –rr Crop-Up		0.5 L/ha of Crop-up

RRIF = Recommended Rate of Inorganic Fertilizer; *rr Crop-Up* = Recommended Rate of Crop-Up

Plots were measured 8x7 square meters following the Randomized Complete Block Design. Treatments was replicated 4 times for a total area of almost 1500 square meters. The data was analyzed for analysis of variance (ANOVA) and comparisons by Least Significant Difference Test (LSDT)

Soil Sampling

Soil samples were taken at random from the experimental site and were brought to laboratory for NPK analysis before planting time and after cane harvest.

Land Preparation

The area was plowed by a tractor using disc plow and was harrowed twice using spike tooth harrow. Staking was done to ensure proper distancing between follows, blocks and plots.

Planting

Selected seed pieces of VMC 88-524 variety with three (3) well-developed viable buds of normal size, more or less thirty (30) centimeters long were used in the experiment.

Fertilization

Fertilization scheme was based according to assigned treatments. All of the required P205 & ½ of the recommended N were applied basally. The other half of N and 50% of the required K20 was side dressed 45 days after planting. The other 50% K20 was applied 60 DAP. Crop-Up® was used as foliar spray or soil drench as indicated below.

a. Conventional or reference fertilizers:

The commercial fertilizer use rate of 180-180-220 kg/ha of NPK for sugarcane was applied.

b. Application of Crop-Up® was as follows:

	Timing of Application
1st Application	45 Days After Planting
2nd Application	70 Days After Planting
3rd Application	100 Days After Planting or at Closing-in Stage

Water Management

Plants were supplied with water during vegetation stage and dry months of the year.

Cultivation and Weeding

Ridge busting was done four (4) weeks after planting, followed by first off baring three (3) weeks after or seven (7) weeks after planting. The first hilling up operation began when the plant is about ten (10) weeks old and final off barring was carried out three (3) months after planting. The last hilling-up was done when the leaf canopy of the cane plant is about to close in. Weeds left uncontrolled by off barring and hilling-up was manually removed using grab hoes.

Pest and Disease Control:

Pests and diseases occurrence was strictly monitored and judicious amount of pesticide products were applied to prevent pest/disease build up. There was no major pest/disease infestation throughout the duration of the trial which might have affected the trial results.

Harvesting

Canes were cut manually at eleven (11) MAP using sugarcane cutters.

Data Gathering

TC/Ha – ton cane per hectare was obtained by weighing the stalks from each plot using a weighing scale and converted into per hectare basis.

LKG/Ha – (equiv. 50 kg sugar/ha) was obtained by taking twenty (20) representative samples from each plot and taken to laboratory for LKg/TC (50 kg/Ton Cane) analysis and was converted to LKG/Ha basis.

Statistical Analysis:

Yield data that were generated were analyzed using the Analysis of Variance (ANOVA) for Random Complete Block Design (RCBD). Least Significant Difference Test was used to test the level of significance among treatments means.

RESULT AND DISCUSSION

Average Stalk Size (in)

Stalk size of VMC 88-524 vary differently as shown in table 1. The biggest circumference was 3.56 inches measured from area fertilized with 180-180-220 kilograms of –NPK with follow-up spray of 0.75 L/Ha of Crop-Up (T5). Sugarcane plants sprayed with 0.5 L/Ha of Metalosate Crop -up (T6) alone, 0.25 L/Ha Metalosate Crop-up as follow-up spray to application of 180-180-220 kilograms per hectare of NPK (T3), and 180-180-220 kilograms per hectare of inorganic fertilizer (T2) exhibited a comparable stalk girth of 3.29 inches, 3.10 inches and 3.30 inches, respectively. The smallest stalk girth was 2.78 inches taken from control rows.

Average Stalk Length (m)

The tallest cane was 1.79 meters recorded from area applied with 180-180-220 kilograms per hectare of NPK supplemented with 0.75 liter per hectare of Metalosate Crop-up as Liquid Spray. A comparable stalk length of 1.78 meters, 1.76 meters and 1.75 meters were sprayed with 0.5 liter per hectare of Metalosate Crop-up as follow-up spray to application of 180-180-220 kilograms per hectare of NPK (T4), 0.25 liter per hectare of Metalosate Crop-up as follow-up spray to application of 180-180-220 kilograms per hectare of NPK (T3) and 0.5 liter per hectare of Metalosate Crop-up (T6), respectively. T6 plants showed a remarkable stalk height difference of 0.25 meters over the sugarcane harvested from control rows. Canes from control plots recorded an average stalk height of 1.50 meters.

Average Stalk Weight (kg)

Heaviest cane stalks were taken from sugarcane applied with 180-180-220 kilograms per hectare of inorganic fertilizer with a follow-up spray of 0.5 liters per hectare of Metalosate Crop-up (T5). This was significantly heavier by 0.79 kilograms over plants fertilized with 180-180-220 kilograms per hectare of inorganic fertilizers (T2) alone. The average stalk size of the former was 2.04 kilograms and 1.33 kilograms for the latter. Sugarcane sprayed with 0.5 liter per hectare of Metalosate Crop-up fertilizer alone (T6) recorded an average stalk weight of 1.10 kilograms, considerably lighter by 0.23 kilogram against canes fertilized with full dose of inorganic fertilizers (T2). However, T6 canes was remarkably heavier by 0.35 kilograms over the control plants. Lightest cane stalks was 0.75 kilogram weighed from control plots.

Plants sprayed with 0.25 and 0.5 liters per hectare of Metalosate Crop-up as follow-up spray to application of 180-180-220 kilograms per hectare of inorganic fertilizer (T3 and T4) weighed 1.53 and 1.58 kilograms respectively. The same treatments showed a significantly better average weight performance by 0.78 and 0.83 kilograms compared with sugarcane treated with 180-180-220 kilograms per hectare of NPK (T2).

Number of Stalks/Meter

VMC 88-524 fertilized with 180-180-220 kilograms per hectare of NPK with follow-up spray of 0.75 liter per hectare Metalosate Crop-up (T5) obtained the most number of stalks with 13.00 per linear meter, comparable with those counted from plots treated with the same amount inorganic fertilizers with follow-up spray of 0.5 liter per hectare of Metalosate Crop-up (T4) which registered 12.50 stalks per linear meter. Plants applied with 0.25 liter per hectare of Metalosate Crop-up as follow-up spray to application of 180-180-220 kilograms per hectare of inorganic fertilizer (T3) registered 12.25 stalks per linear meter comparable with those applied with inorganic fertilizers alone (T2). Rows sprayed with 0.5 liter per hectare of Metalosate Crop-up fertilizer alone (T6) produced 11.00 stalks per linear meter remarkably higher by 1.25 stalks over control rows which exhibited 9.75 stalks, the lowest number per linear meter.

Ave. LKG/TC

There was no significant difference in the sweetness of VMC 88-524 harvested, as reflected in the Table 5. The LKG/TC reading ranges from 1.92 to 1.95.

TC/HA

The biggest tonnage of cane per hectare was 78.00 obtained from areas applied with 180-180-220 kilograms per hectare of inorganic fertilizer with follow-up spray of 0.75 liters per hectare of Metalosate Crop-up Fertilizer (T5). T5 canes were significantly heavier by 7.50 tons against plants fertilized with 180-180-220 kilograms per hectare of inorganic fertilizer (T2) which exhibited an average of 70.50 Ton Cane per hectare. Plants sprayed with 0.5 liter per hectare of Crop-up alone (T6) weighed 71.50 tons significantly better by 33.75 tons compared with the control rows which weighed an average of 37.25 tons of cane per can hectare.

Areas sprayed with 0.5 liter per hectare of Crop-up Fertilizer as follow-up spray to 180-180-220 kilograms per hectare of NPK (T4) was significantly inferior by 3 tons against cane plants applied with 0.75 liters per hectare of Metalosate Crop-up Fertilizer and the same amount of NPK (T5). However the same treatment showed superior tonnage over treatments fertilized with 180-180-220 kilograms per hectare of inorganic fertilizer (T2) and over control (T1) canes by 4.50 and 37.25 tons respectively. Summary of results can be seen in Table 6.

Ave. LKg/HA

The average of 50-kilograms bag of sugar produced by VMC 88254 per hectare as shown in Table 7 was significantly affected by the varying rate of Crop-up application. More bags of sugar per hectare with 151.52 bags was taken from plants treated with 180-180-220 kilograms per hectare of NPK with follow-up spray of 0.75 liters per hectare of Crop-up Fertilizer (T5).

The said treatment showed significantly better sugar yield of 14.82 bags over plants supplied with 180-180-220 kilograms per hectare of NPK (T2) which obtained 136.70 LKg/ha. The latter treatment produced comparably the same amount of sugar as of those plants applied with 0.5 liter per hectare of Crop-up Fertilizer (T6). T6 canes gave sugar yield of 140.36 LKg/ha, significantly superior by 66.92 LKg/ha over canes harvested from the control rows which registered 73.44 LKg/Ha.

CONCLUSION AND RECOMMENDATION

The application of Metalosate Crop-up of Fertilizer brought a significant influence on yield of VMC 88524 sugarcane variety. In all data gathered the addition 0.25 liter, 0.5 liter, and 0.75 liters per hectare of Metalosate Crop-up Fertilizer as follow-up spray to application of 180-180-220 Kilograms per hectare of inorganic fertilizer consistently showed a remarkable influence on the yield components of sugarcane.

Based on the study therefore, the use of Metalosate Crop-up Fertilizer at 0.5 to 0.75 liter per hectare is recommended as supplement to synthetic fertilization.

PNT - 117

Appendix Table 1

Average stalk size of VMC 88-524 grown in Cadiz City, Negros Island Region

Treatments	R1	R2	R3	R4	Means
T1 – Control	2.80	2.50	2.80	3.00	2.78 c
T2 – RRIF	3.20	3.50	3.30	3.20	3.30 b
T3 – RRIF + ½ rr Crop-Up	3.10	3.20	3.10	3.00	3.10 b
T4 – RRIF + rr Crop-Up	3.26	3.40	3.50	3.20	3.34 ab
T5 – RRIF + 1 ½ rr Crop-Up	3.75	3.80	3.50	3.20	3.56 a
T6 –rr Crop-Up	3.40	3.30	3.10	3.25	3.29 b

Mean (s) followed by a common letter (s) are not significantly different from each other.

Appendix 1a

ANOVA on the average stalk size of VMC 88-524

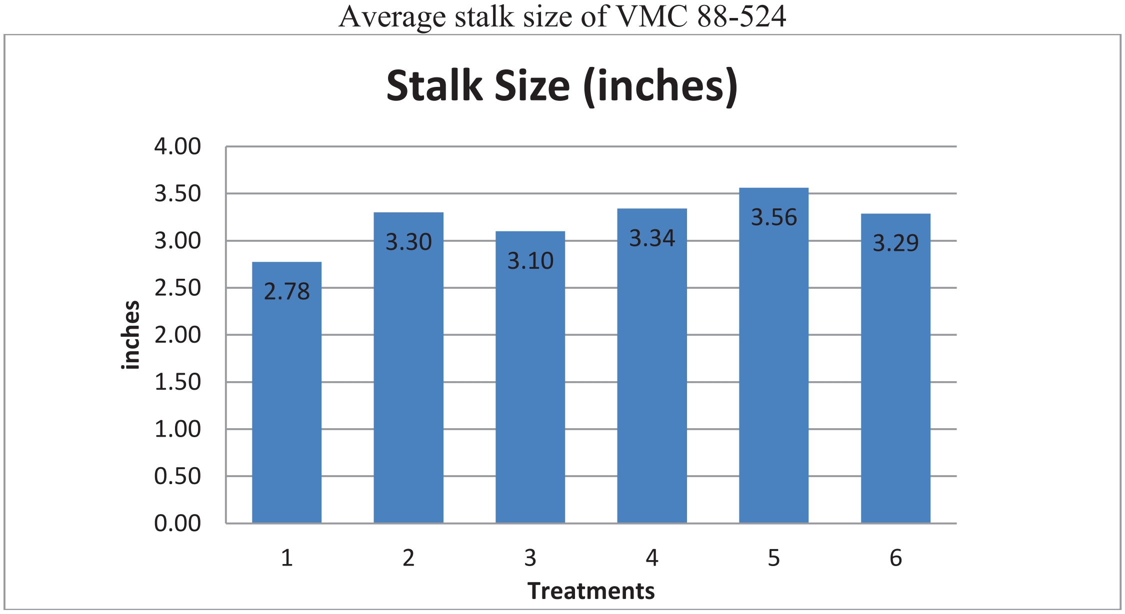
Source	DF	Sum of Squares	Mean Square	F value	Pr>F
Rep	3	0.06661667	0.2220556	0.75	0.5398ns
Treatment	5	1.41900000	0.28380000	9.57	0.0003**
Error	15	0.44483333	0.02965556		
Corrected Total	23	1.93045000			

** - Highly significant

CV – 5.33 %

Appendix Figure 1

Average stalk size of VMC 88-524



Treatments: T1 – Control; T2 – RRIF; T3 – RRIF + ½ rr Crop-Up; T4 – RRIF + rr Crop-Up; T5 – RRIF + 1 ½ rr Crop-Up; T6 –rr Crop-Up

RRIF = Recommended Rate of Inorganic Fertilizer

rr Crop-Up = Recommended Rate of Crop-Up

Appendix Table 2
Average stalk length of VMC 88-524 grown in Cadiz City, Negros Island Region

Treatments	R1	R2	R3	R4	Means
T1 – Control	1.40	1.50	1.60	1.50	1.50 c
T2 – RRIF	1.75	1.60	1.70	1.70	1.69 b
T3 – RRIF + ½ rr Crop-Up	1.80	1.75	1.80	1.75	1.78 ab
T4 – RRIF + rr Crop-Up	1.80	1.80	1.75	1.70	1.76 ab
T5 – RRIF + 1 ½ rr Crop-Up	1.80	1.85	1.70	1.80	1.79 a
T6 –rr Crop-Up	1.80	1.70	1.70	1.80	1.75 ab

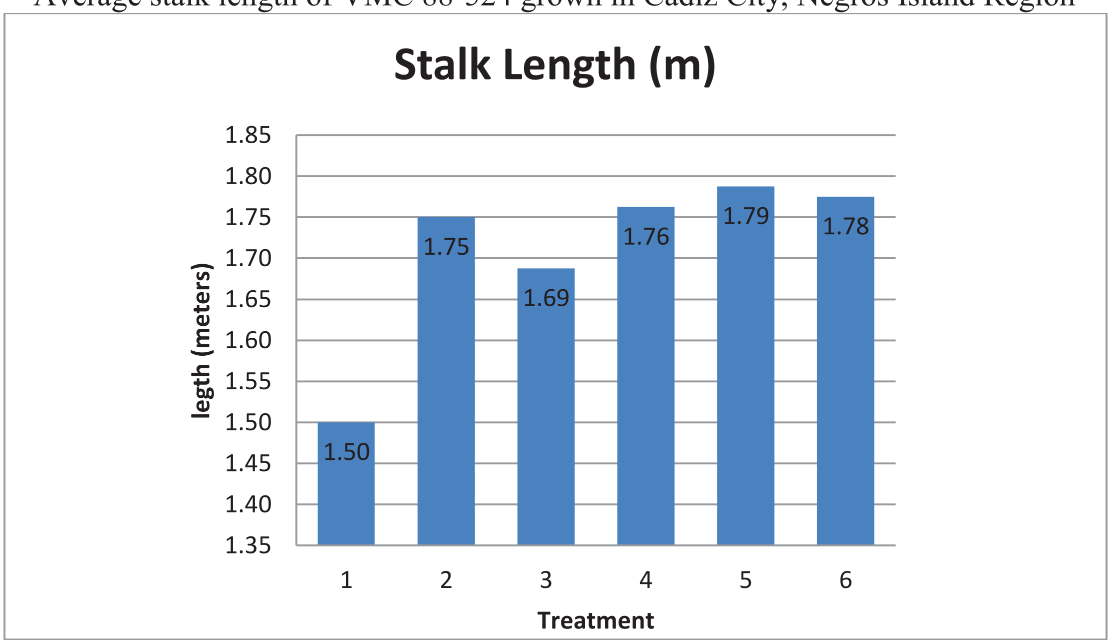
Mean (s) followed by a common letter (s) are significantly different from each other.

Appendix Table 2a
ANOVA on the average stalk length of VMC 88-524

Source	DF	Sum of Squares	Mean Square	F Value	Pr>F
Rep	3	0.00197917	0.00065972	0.16	0.9204ns
Treatment	5	0.23677083	0.04735417	11.62	0.0001**
Error	15	0.06114583	0.00407639		
Corrected Total	23	0.29989583			

** - Highly Significant
CV – 3.73%

Appendix Figure 2
Average stalk length of VMC 88-524 grown in Cadiz City, Negros Island Region



Treatments: T1 – Control; T2 – RRIF; T3 – RRIF + ½ rr Crop-Up; T4 – RRIF + rr Crop-Up; T5 – RRIF + 1 ½ rr Crop-Up; T6 –rr Crop-Up
RRIF = Recommended Rate of Inorganic Fertilizer
rr Crop-Up = Recommended Rate of Crop-Up

Appendix Table 3

Average stalk weight of VMC 88-524 grown in Cadiz City, Negros Island Region

Treatments	R1	R2	R3	R4	Means
T1 – Control	0.60	0.70	0.90	0.80	0.75 e
T2 – RRIF	1.40	1.35	1.25	1.30	1.33 c
T3 – RRIF + ½ rr Crop-Up	1.40	1.40	1.50	1.80	1.53 cb
T4 – RRIF + rr Crop-Up	1.60	1.70	1.50	1.50	1.58 b
T5 – RRIF + 1 ½ rr Crop-Up	1.80	2.25	2.20	1.90	2.04 a
T6 –rr Crop-Up	1.10	1.20	1.10	1.00	1.10 d

Mean (s) followed by a common letter (s) are not significantly different from each other.

Appendix Table 3a

ANOVA on the average stalk weight of VMC 88-524

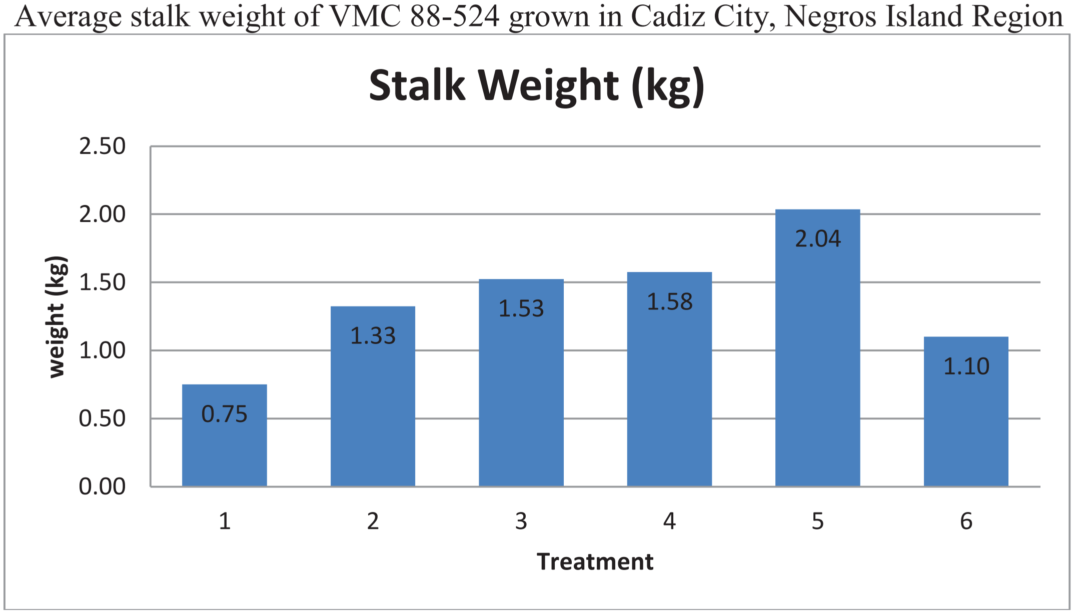
Source	DF	Sum of Squares	Mean Square	F Value	Pr>F
Rep	3	0.04531250	0.01510417	0.71	0.5609ns
Treatment	5	3.87802083	0.77560417	36.46	<.0001**
Error	15	0.31906250	0.02127083		
Corrected Total	23	4.24239583			

** - Highly Significant

CV – 10.52%

Appendix Figure 3

Average stalk weight of VMC 88-524 grown in Cadiz City, Negros Island Region



Treatments: T1 – Control; T2 – RRIF; T3 – RRIF + ½ rr Crop-Up; T4 – RRIF + rr Crop-Up; T5 – RRIF + 1 ½ rr Crop-Up; T6 –rr Crop-Up

RRIF = Recommended Rate of Inorganic Fertilizer

rr Crop-Up = Recommended Rate of Crop-Up

PNT-117

Appendix Table 4

Average stalk per linear meter of VMC 88-524 grown in Cadiz City, Negros Island Region

Treatments	R1	R2	R3	R4	Means
T1 – Control	10	11	9	9	9.75 c
T2 – RRIF	12	13	13	11	12.25 ab
T3 – RRIF + ½ rr Crop-Up	13	13	12	11	12.25 ab
T4 – RRIF + rr Crop-Up	12	13	14	11	12.50 a
T5 – RRIF + 1 ½ rr Crop-Up	13	13	12	14	13.00 a
T6 –rr Crop-Up	11	12	11	10	11.00 bc

Mean (s) followed by a common letter (s) are not significantly different from each other.

Appendix Table 4a

ANOVA on the average stalk per linear meter of VMC 88-524

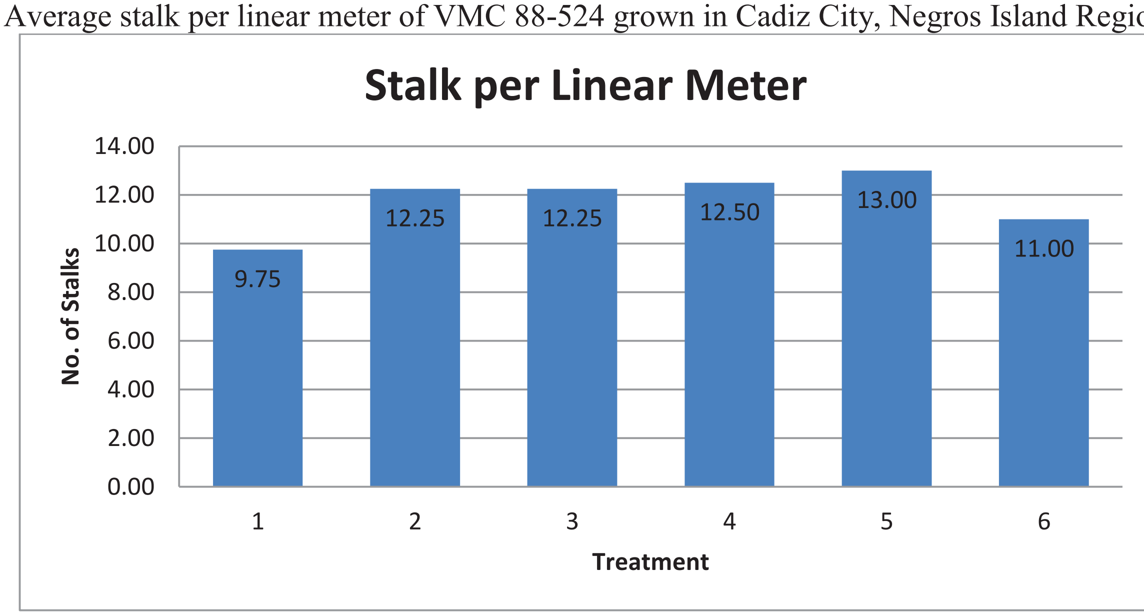
Source	DF	Sum of Squares	Mean Square	F Value	Pr>F
Rep	3	6.79166667	2.26388889	3.25	0.0517ns
Treatment	5	28.70833333	5.74166667	8.24	0.0007**
Error	15	10.45833333	0.069722222		
Corrected Total	23	45.95833333			

** - Highly Significant

CV – 7.08%

Appendix Figure 4

Average stalk per linear meter of VMC 88-524 grown in Cadiz City, Negros Island Region



Treatments: T1 – Control; T2 – RRIF; T3 – RRIF + ½ rr Crop-Up; T4 – RRIF + rr Crop-Up; T5 – RRIF + 1 ½ rr Crop-Up; T6 –rr Crop-Up

RRIF = Recommended Rate of Inorganic Fertilizer

rr Crop-Up = Recommended Rate of Crop-Up

Appendix Table 5
Average LKg/TC of VMC 88524 grown in Cadiz City

Treatments	R1	R2	R3	R4	Means
T1 – Control	1.94	1.93	1.97	1.90	1.94 a
T2 – RRIF	1.97	1.93	1.93	1.93	1.94 a
T3 – RRIF + ½ rr Crop-Up	1.92	1.90	1.94	1.93	1.92 a
T4 – RRIF + rr Crop-Up	1.92	1.93	1.96	1.99	1.95 a
T5 – RRIF + 1 ½ rr Crop-Up	1.94	1.96	1.94	1.93	1.94 a
T6 –rr Crop-Up	1.92	1.97	1.95	1.98	1.95 a

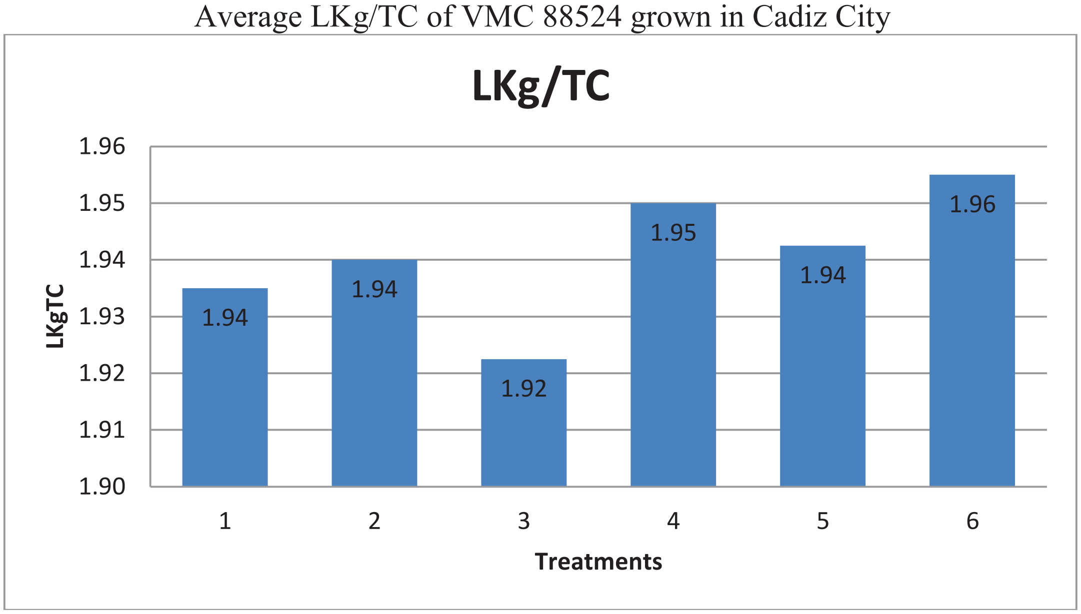
Mean (s) followed by a common letter (s) are not significantly different from each other.

Appendix Table 5a
ANOVA on the average LKGTC of VMC 88524

Source	DF	Sum of Squares	Mean Square	F Value	Pr>F
Treatments	5	0.00263333	0.00052667	0.83	0.5452 ns
Rep	3	0.00068333	0.00022778	0.36	0.7821 ns
Error	15	0.00946667	0.00063111		
Corrected Total	23	0.1278333			

** - Highly Significant
CV – 1.29%

Appendix Figure 5
Average LKg/TC of VMC 88524 grown in Cadiz City



Treatments: T1 – Control; T2 – RRIF; T3 – RRIF + ½ rr Crop-Up; T4 – RRIF + rr Crop-Up; T5 – RRIF + 1 ½ rr Crop-Up; T6 –rr Crop-Up
RRIF = Recommended Rate of Inorganic Fertilizer
rr Crop-Up = Recommended Rate of Crop-Up

Appendix Table 6
Average TC/Ha of VMC 88524 grown in Cadiz City

Treatments	R1	R2	R3	R4	Means
T1 – Control	35.00	36.00	42.00	38.00	37.75 c
T2 – RRIF	64.00	68.00	73.00	77.00	70.50 b
T3 – RRIF + ½ rr Crop-Up	69.00	67.00	71.00	75.00	70.50 b
T4 – RRIF + rr Crop-Up	78.00	77.00	70.00	75.00	75.00 ab
T5 – RRIF + 1 ½ rr Crop-Up	77.00	80.00	77.00	78.00	78.00 a
T6 –rr Crop-Up	64.00	72.00	76.00	75.00	71.50 b

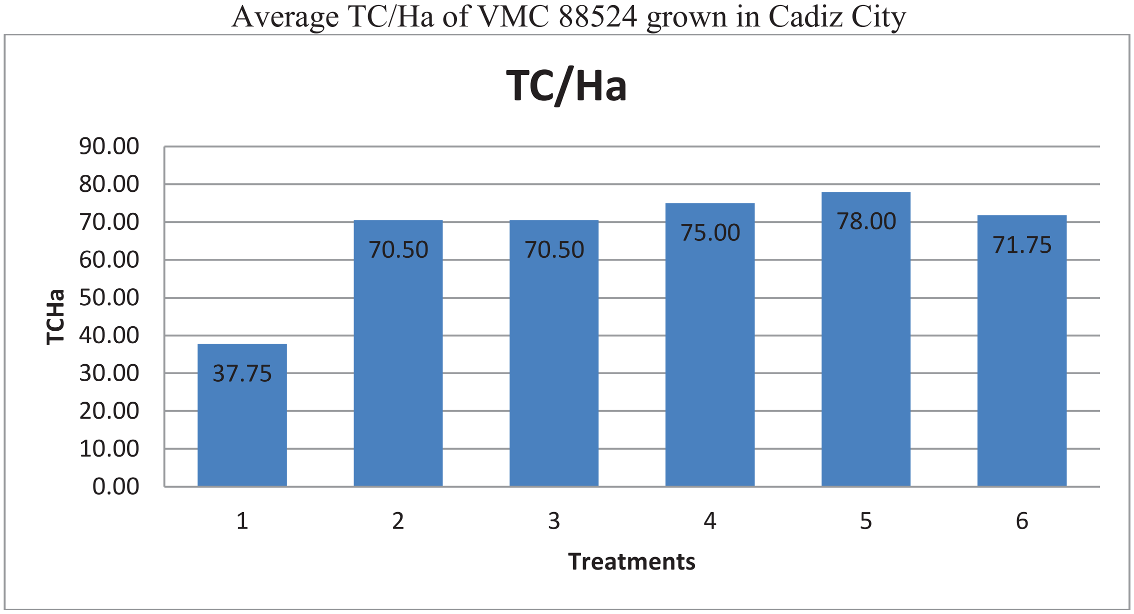
Mean (s) followed by a common letter (s) are not significantly different from each other.

Appendix Table 6a
ANOVA on the average TCHa of VMC 88524

Source	DF	Sum of Squares	Mean Square	F Value	Pr>F
Treatments	5	4349.000000	869.800000	63.33	<.0001**
Rep	3	87.500000	29.166667	2.12	0.1400ns
Error	15	206.000000	13.733333		
Corrected Total	23	4642.500000			

** - Highly Significant
CV – 5.51%

Appendix Figure 6
Average TC/Ha of VMC 88524 grown in Cadiz City



Treatments: T1 – Control; T2 – RRIF; T3 – RRIF + ½ rr Crop-Up; T4 – RRIF + rr Crop-Up; T5 – RRIF + 1 ½ rr Crop-Up; T6 –rr Crop-Up
RRIF = Recommended Rate of Inorganic Fertilizer
rr Crop-Up = Recommended Rate of Crop-Up

Appendix Table 7
Average LKg/Ha of VMC 88524 grown in Cadiz City

Treatments	R1	R2	R3	R4	Means
T1 – Control	67.90	70.92	82.74	72.20	73.44 c
T2 – RRIF	126.08	131.24	140.89	148.61	136.70 b
T3 – RRIF + ½ rr Crop-Up	132.48	127.3	137.74	144.75	135.57 b
T4 – RRIF + rr Crop-Up	149.76	148.61	137.2	149.25	146.20 ab
T5 – RRIF + 1 ½ rr Crop-Up	149.38	156.8	149.38	150.54	151.52 a
T6 – rr Crop-Up	122.88	141.84	148.2	148.5	140.36 ab

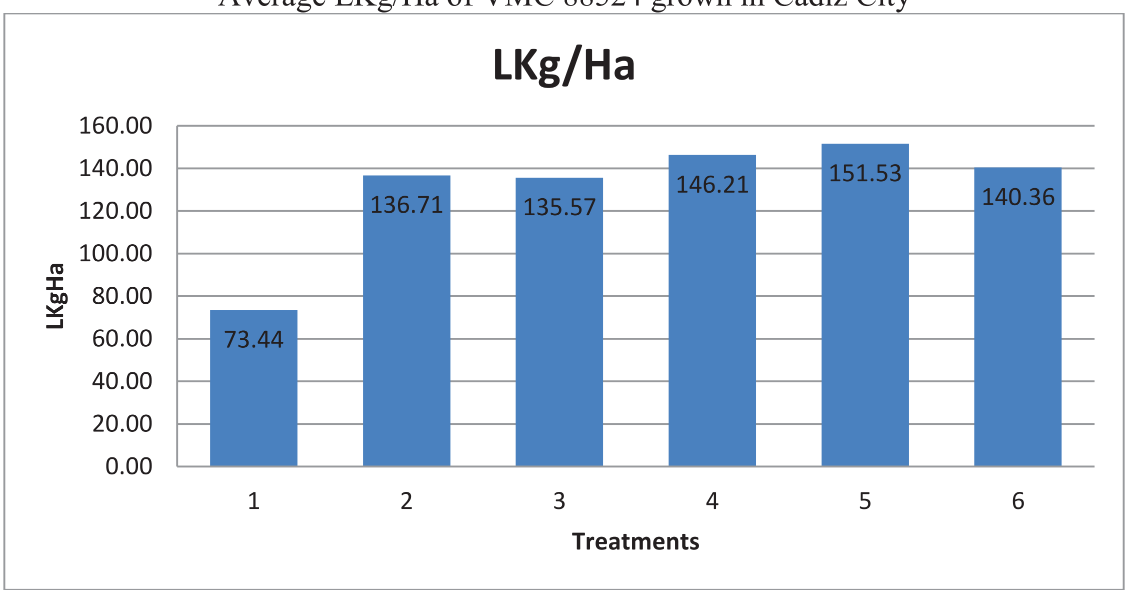
Mean (s) followed by a common letter (s) are not significantly different from each other.

Appendix Table 7a
ANOVA on the average LKG/Ha of VMC 88524

Source	DF	Sum of Squares	Mean Square	F Value	Pr>F
Treatments	5	16422.95142	3284.59028	62.84	<.0001**
Rep	3	392.21591	130.73864	2.50	0.0990ns
Error	15	784.02396	52.26826		
Corrected Total	23	17599.19130			

** - Highly Significant
CV – 5.53%

Appendix Figure 7
Average LKg/Ha of VMC 88524 grown in Cadiz City



Treatments: T1 – Control; T2 – RRIF; T3 – RRIF + ½ rr Crop-Up; T4 – RRIF + rr Crop-Up; T5 – RRIF + 1 ½ rr Crop-Up; T6 –rr Crop-Up
RRIF = Recommended Rate of Inorganic Fertilizer
rr Crop-Up = Recommended Rate of Crop-Up

PHOTODOCUMENTATION

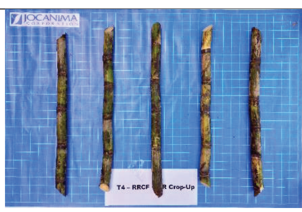
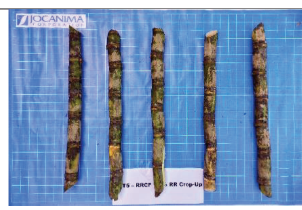
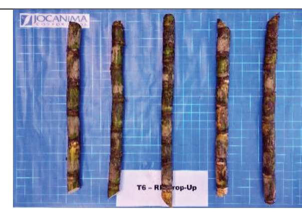
STALK WEIGHT

		
Treatment 1	**Treatment 2**	**Treatment 3**
Control	Recommended Rate of Inorganic Fertilizer (RRIF)	RRIF+ ½ rr Crop-Up
		
Treatment 4	**Treatment 5**	**Treatment 6**
RRIF+ rr Crop-Up	RRIF + 1 ½ rr Crop-Up	rr Crop-Up

STALK LENGTH

		
Treatment 1	**Treatment 2**	**Treatment 3**
Control	Recommended Rate of Inorganic Fertilizer (RRIF)	RRIF+ ½ rr Crop-Up
		
Treatment 4	**Treatment 5**	**Treatment 6**
RRIF+ rr Crop-Up	RRIF + 1 ½ rr Crop-Up	rr Crop-Up

STALK SIZE

		
Treatment 1	**Treatment 2**	**Treatment 3**
Control	Recommended Rate of Inorganic Fertilizer (RRIF)	RRIF+ ½ rr Crop-Up
		
Treatment 4	**Treatment 5**	**Treatment 6**
RRIF+ rr Crop-Up	RRIF + 1 ½ rr Crop-Up	rr Crop-Up