

HYFER PLUS BLOOM BOOSTER EFFICACY

TEST ON BANANA

INTRODUCTION:

Banana is the oldest fruit of tropical countries and regarded as Adam's fig or fruit of heaven. The plant is heavy feeder crop and requires high quantity of nutrients which most supplied through fertilization to obtain optimum yield on sustainable basis.

Fertilizers/conditioners are neces

sary farm inputs that somehow affect plant growth. The fertilizer materials are either in organic or inorganic, solid or liquid form which is being sourced locally or abroad. Farm cost cuts a big slice for fertilization which when done judiciously will enable a farmer to incur savings throughout the farm management operation.

Banana in general do not require intensive fertilization because they can survive in poor and infertile soils. However, proper fertilization and maintenance are necessary to stimulate early growth and rapid development of trees.

Hyfer Plus Bloom Booster contains nitrogen, phosphorous, and high amount of potassium that is promising in banana production, hence this test result is being submitted.

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OBJECTIVES:

In order for Hyfer Plus Bloom Booster to be accredited in Fertilizer and Pesticide Authority, the Agrotiger Philippines Corporation would like to study the effect of Hyfer Plus Bloom Booster on the yield component of Cavendish Banana for product label expansion purposes.

SITE DESCRIPTION:

The experimental site is located in Brgy. Tinampaan, Cadiz City 63 kilometers away from Bacolod City, going north of Negros Occidental. The place is almost kilometers away from the national road, and adjacent to the biggest Solar Plant in the country. The place has two pronounced seasons, the wet and dry. The dry season is from late December to early parts of May. Rainy season starts in June reaches its peak in September and ends in October. The area is bound by Himogaan river on its western side which is the source of irrigation water the whole year round for the growing of rice and other cash crops. The site is provided with small canals that empties extra water to Himogaan River. Precipitation is the lowest in April, with an average of 63mm. In October, the precipitation reaches its peak, with an average of 298mm. At an average temperature of 28.7 degrees Celsius, May is the hottest month of the year. At 26.0 degrees Celsius on average, January is the coldest month of the year.

TIME OF STUDY:

The study started January 2021 and ended September 2021.

RESEARCH DESIGN AND EXPERIMENTAL LAY-OUT:

An area of approximately two thousand five hundred (2, 500) square meters was laid out using a Randomized Complete Block Design (RCBD) was further divided into four (4) blocks. Each block has 2 meters space between plots and two meters path between blocks.

LAY- OUT:

(Please see separate sheet)

TREATMENTS:

The following treatments were used in the study;

T1 - Control

T2 – 250-230-350 kg/ha of NPK

T3 - 250-230-350 kg/ha of NPK +0.5 L/ha of Hyfer Plus Bloom Booster

T4 - 250-230-350 kg/ha of NPK + 1.0 L/ha of Hyfer Plus Bloom Booster

T5- 250-230-350 kg/ha of NPK + 1.5 L/ha of Hyfer Plus Bloom Booster

T6 – 2 liters / ha Hyfer Plus Bloom Booster

LAND PREPARATION:

Experimental site was plowed twice as deep as possible and harrowed twice to pulverize and flatten the soil and knockdown the weeds. A ripping equipment was used in one pass to provide aeration to soil.

PLANTING/ TRANSPLANTING:

The site grown with Cavendish banana was divided into six treatments and three replications. Each plot contained twenty-five bananas with a planting distance of 2 meters between rows and 2 meters between hills.

FERTILIZATION:

The base of the plant was cleared from any debris before the application of fertilizer. Inorganic fertilizer was applied according to designated treatments, basally, (30, 60, 90 DAP) and every month thereafter and Hyfer Plus Bloom Booster was sprayed every 15 days after transplanting of seedlings up to the 3rd month and every month interval until a month before harvest.

CULTIVATION AND WEEDING:

Cultivation was done when roots of plants had already established in the soil. Weeding was done every month especially during rainy months.

PEST AND DISEASE CONTROL:

Close monitoring of pests and disease infestation was done at the beginning up to the end of the experiment. Bunchy top, Sigatoka and aphids infestation and other pests and diseases were taken care of at once.

WATER MANGEMENT:

The area was equipped with irrigation facilities that were installed during water- stress days.

HARVESTING:

Harvesting was done 11- 12 weeks from shooting and when the diameter of the second hand of the bunch was 45 cm.

GATHERING DATA:

The data that were gathered were the following;

- a. Fruit length (Inches) this was obtained by measuring the middle finger of the middle hand from the base to the top of the fruit

- b. Fruit diameter (Inches) this was done by taking the size of the middle finger of the middle hand
- c. Average number of fingers developed per hand
- d. Average number of hands developed per bunch
- e. Average bunch weight (Kg)

STATISTICAL ANALYSIS:

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

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Results and Discussion

Table 2. Summary of yield means of banana applied with Hyfer Plus Bloom Booster Fertilizer.

Treatment	Average Number of Fingers/Hand	Average Fruit Length (cm)	Average Fruit Girth (cm)	Average Number of Hands/Bunch	Average Hand Weight (kg)	Average Bunch Weight (kg)
1	12.75c	21.50d	11.75d	6.50d	1.74e	16.82c
2	15.50b	22.75cd	12.25cd	7.50c	2.38d	19.20b
3	17.75a	25.50b	13.25b	8.50b	3.00bc	24.86a
4	18.50a	27.00a	14.25ab	8.75ab	3.69a	26.01a
5	18.75a	27.50a	14.75a	9.50a	3.36ab	26.50a
6	16.25b	23.25c	12.50a	8.25bc	2.71cd	20.12b
CV (%)	3.87%	2.64%	4.08%	4.65%	8.62%	3.64%

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Average Number of Fingers/Hand

There was no significant difference in the average number of fingers counted per hand in treatment 3,4, and 5. The highest average fruit count of 18.75 was noted in bananas applied with 1.5 liter per hectare of Hyfer Plus Bloom Booster Fertilizer in addition to 250-230-340 kilograms per hectare of inorganic fertilizer (T5) remarkably better by 3.25 fingers compared to bananas treated with 250-230-340 kilograms per hectare of NPK (T2) alone. T2 bananas produced an average of 15.50 fingers per hand.

Among treatments, control plants obtained the lowest count of 12.75 banana fingers per hand, significantly lower by 3.50 fingers compared to bananas applied with 2 liters per hectare of Hyfer Plus Bloom Booster Fertilizer (T6) which registered an average 16.25fingers per hand.

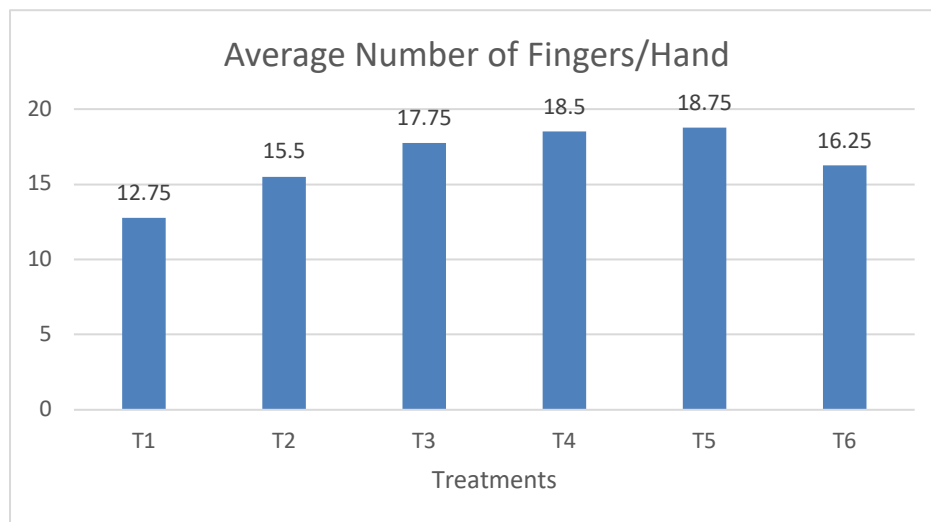


Figure 1. Number of fingers of banana applied with HYFER PLUS BLOOM BOOSTER FERTILIZER

Average Finger Length (cm)

The longest middle-hand finger was 27.50 centimeters exhibited by bananas applied with 250-230-340 kilograms per hectare of NPK plus 1.5 liters per hectare of Hyfer Plus Bloom Booster Fertilizer (T5), significantly longer by 2.00 centimeters against fruits measured from site fertilized with 250-230-340 kilograms per hectare of NPK (T2) alone which registered an average of 22.75 centimeters. Fruits taken from plots treated with 2 liters per hectare of Hyfer Plus Bloom Booster Fertilizer (T6) revealed a fruit length of 23.25 centimeters which showed a significant length difference of 1.75 centimeters over the fruits of unfertilized bananas. Treatment 3 plants exhibited an average fruit length of 25.50 centimeters significantly longer by 2.75 centimeters compared to fruits obtained from area fertilized with the same amount of traditional fertilizer (T2).

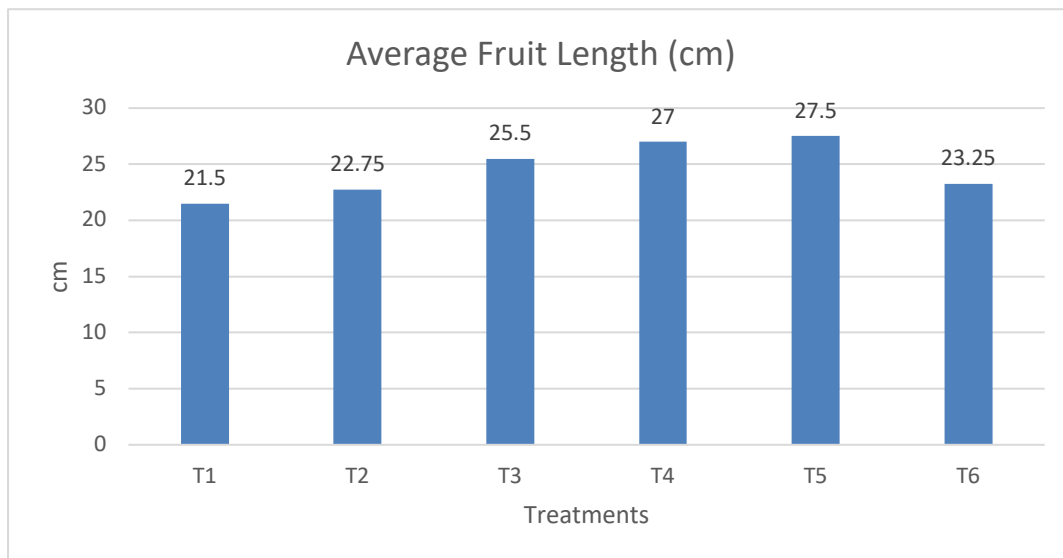


Figure 2. Fruit length (cm) of banana applied with HYFER PLUS BLOOM BOOSTER FERTILIZER.

Average Finger Girth (cm)

The biggest finger girth was 14.75 centimeters taken from the middle hand of bananas fertilized with 250-230-340 kilograms per hectare of NPK in combination with 1.5 liters per hectare of Hyper Plus Bloom Booster (T5) with a significant difference of 1.50 over fruits measured from area treated with 250-230-340 kilograms per hectare of NPK(T2) alone. T2 bananas registered an average finger girth of 12.25 centimeters. Bananas applied with the same bags of inorganic fertilizer per hectare in combination with 1 liter per hectare of Hyfer Plus Bloom Booster Fertilizer obtained an average finger girth of 14.25 centimeters, significantly bigger by 2.05 centimeters against the plants grown in area applied with the same conventional fertilizer (T2) alone.

The use of 2 liters per hectare of Hyper Plus Bloom Booster (T6) showed a significantly superior finger circumference of 0.75 centimeters over control fruits, which recorded 12.50 centimeters and 11.75 centimeters fruit circumference respectively.

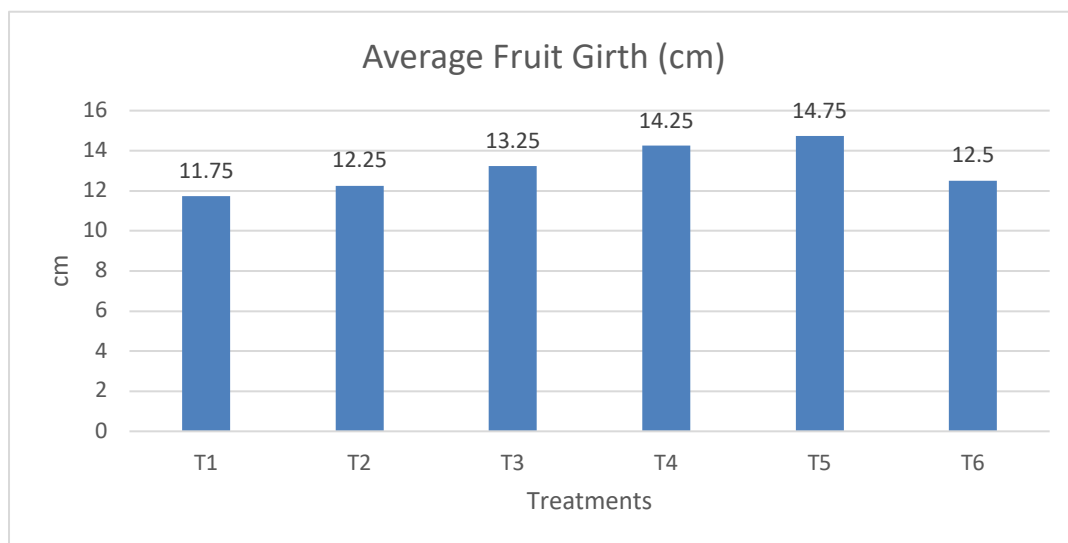


Figure 3. Fruit girth (cm) of banana applied with HYFER PLUS BLOOM BOOSTER FERTILIZER.

Average Number of Hands per Bunch

Unfertilized bananas showed the harvest average number of 6.50 hands per bunch, significantly inferior by 1.08 hands against bananas sprayed with 2 liters per hectare of Hyfer Plus Bloom Booster (T6) which obtained an average of 8.25 hands per bunch.

The use of 1.5 liter (T5) and 1 liter (T4) per hectare of Hyfer Plus Bloom Booster Fertilizer in combination with inorganic fertilizer obtained 9.50 and 8.75 hands per bunch respectively. The former treatment revealed a remarkably better number of hands of 2.00 the latter treatment showed a significantly better count by 1.25 count per bunch against those applied with 250-230-340 kilograms per hectare of NPK (T2) alone.

The lowest average hands per bunch count was 6.50 shown by control plants significantly inferior by 1.75 hands against with those applied with 2 liters per hectare of Hyfer Plus Bloom Booster Fertilizer (T6) which revealed a hand count of 8.25 per bunch.

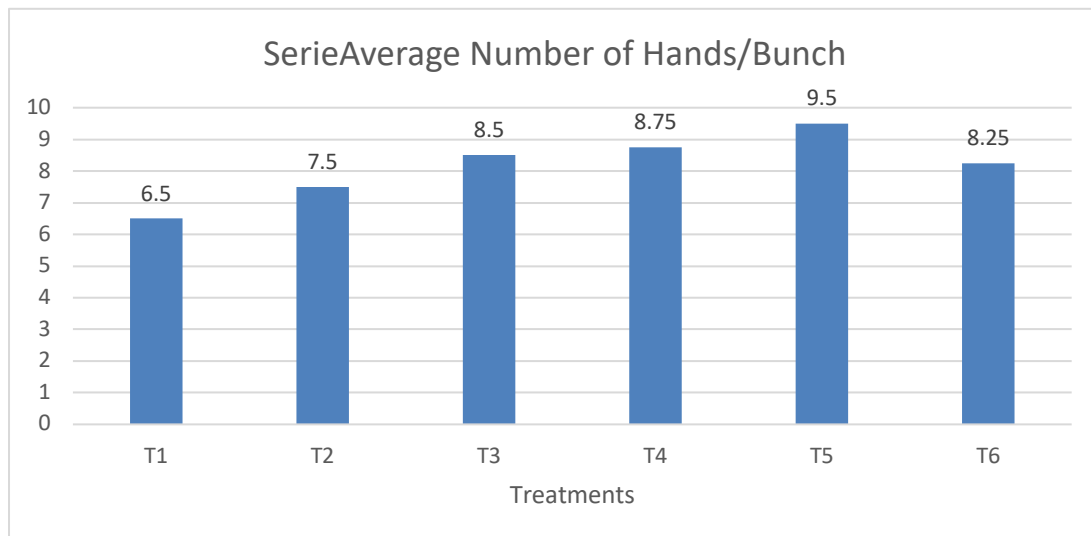


Figure 4. Number of Hands/Bunch of banana applied with HYFER PLUS BLOOM BOOSTER FERTILIZER.

Average Hand Weight (kg)

The heaviest hands were recorded from site treated with 250-230-340 kilograms per hectare of inorganic fertilizer plus 1 liter per hectare of Hyfer Plus Bloom Booster (T4) with a remarkable weight advantage of 1.31 kilograms against the average hand weight of fruits from plots applied with 250-230-340 kilograms per hectare of inorganic fertilizer (T2) alone. T4 plants obtained an average hand weight of 3.69 kilograms while T2 plants registered 2.38 kilograms hand weight.

Among the treatments the lowest average hand weight was 1.74 kilograms weighed from unfertilized banana rows, significantly lower by 0.97 kilograms compared to hands obtained from area fertilized with 2 liters per hectare of Hyfer Plus Bloom Booster Fertilizer (T6), which obtained the average hand weight of 2.71 kilograms.

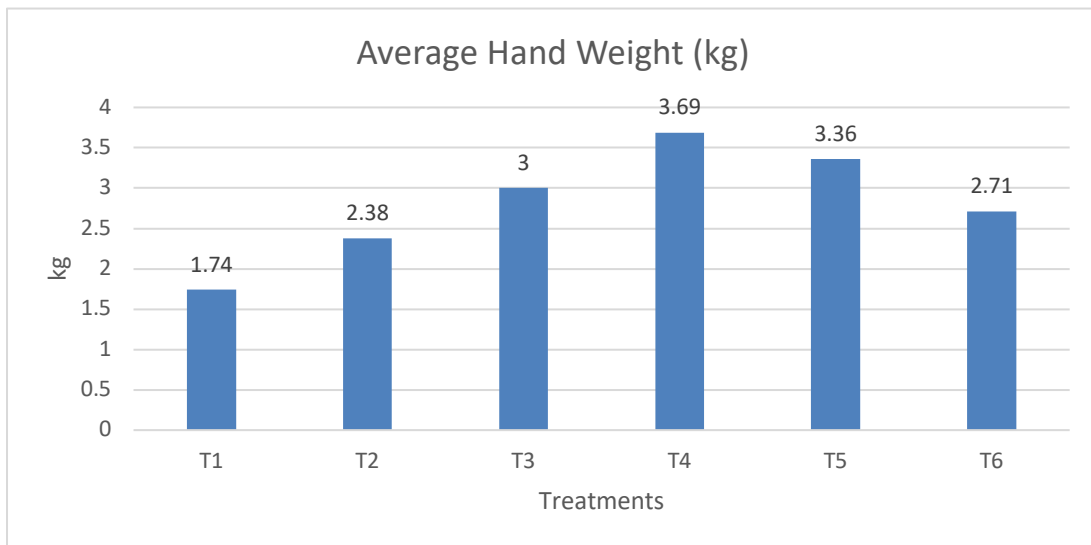


Figure 5. Hand weight (kg) of banana applied with HYFER PLUS BLOOM BLOOSTER FERTILIZER.

Average Bunch Weight (kg)

The biggest bunch has an average weight of 26.50 kilograms harvested from plots applied with 250-230-340 kilograms per hectare of inorganic fertilizer in combination with 1.5 liters per hectare of Hyfer Plus Bloom Booster (T5), comparably of the same weight with those taken from areas treated half dose of inorganic fertilizers in combination with 1 liter per hectare of Hyfer Plus Bloom Booster Fertilizer (T4), which registered an average of 26.01 kilograms bunch weight.

Bananas treated with 2 liters per hectare of Hyfer Plus Bloom Booster Fertilizer (T6) recorded an average bunch weight of 20.12 kilograms, significantly heavier by 3.30 kilograms against unfertilized ones which recorded an average of 16.82 kilograms bunch weight at harvest.

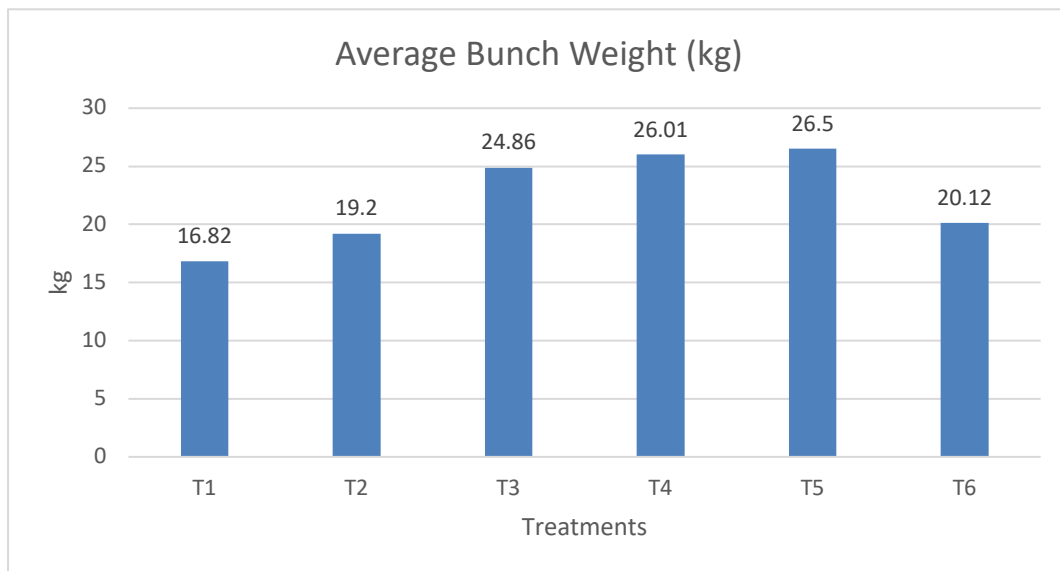


Figure 6. Bunch weight (kg) of banana applied with HYFER PLUS BLOOM BOOSTER FERTILIZER.

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Conclusion and Recommendation

The yield parameters of Cavendish banana were significantly influenced by the application of varying levels of fertilizers. The use of 2 liters per hectare of Hyfer Plus Bloom Booster the addition 0.5 liter, 1.0 liter, 1.5 liters per hectare of Hyfer Plus Bloom Booster to the inorganic fertilizer's recommendation revealed a remarkable increase in the average fruit length, average finger growth, average number of hands, and average bunch weight over the control rows.

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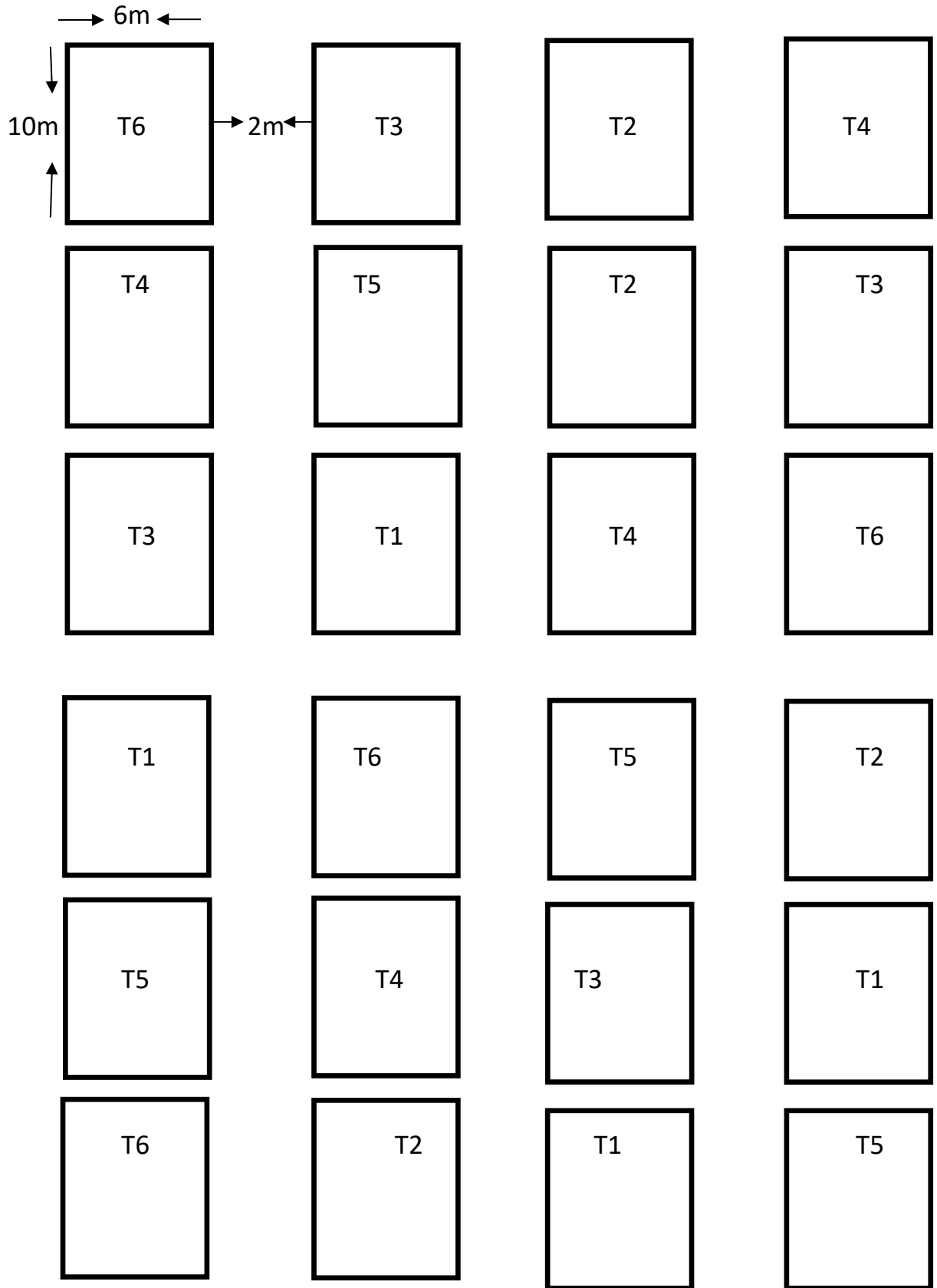


Fig. 1 Experimental Lay-out

Table - Fertilization scheme for Hyfer Plus Bloom Booster on banana applied at 30, 60, 90 DAT and monthly interval, applied 12 times for the whole duration of the experiment.

TRT	Treatment	Monthly Application
1	0-0-0 NPK	
2	250-230-340 kg/ha NPK	16.30 kg 18-46-0 29.12 kg 46-0-0 48.61 kg 0-0-60
3	250-230-340 kg/ha NPK + 0.5 L/Ha Hyfer Plus Bloom Booster	16.30 kg 18-46-0 29.12 kg 46-0-0 48.61 kg 0-0-60 0.5 L/Ha Hyfer Plus Bloom Booster
4	250-230-340 kg/ha NPK + 1.0 L/Ha Hyfer Plus Bloom Booster	16.30 kg 18-46-0 29.12 kg 46-0-0 48.61 kg 0-0-60 1.0 L/Ha Hyfer Plus Bloom Booster
5	250-230-340 hectare + 1.5 L/Ha Hyfer Plus Bloom Booster	16.30 kg 18-46-0 29.12 kg 46-0-0 48.61 kg 0-0-60 1.5 L/Ha Hyfer Plus Bloom Booster
6	2 L/Ha Hyfer Plus Bloom Booster	2 L/Ha Hyfer Plus Bloom Booster

