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## Effect of organic and inorganic sources of nutrients on yield attributes and yield of hybrid maize (*Zea mays* L.)

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### Abstract

Field experiments were carried out to study the effect of different sources of organic manures and inorganic fertilizers on yield attributes and yield of hybrid maize at Krishi Vigyan Kendra, Tamil Nadu Veterinary and Animal Sciences University, Kallakurichi during *Rabi* 2023 and 2024. The experiments were laid out in split-plot design consisting of twelve treatments with 3 replications. The main plot consisted of Farm yard manure @ 12.5 t ha<sup>-1</sup> (M<sub>1</sub>), Vermicompost @ 5.0 t ha<sup>-1</sup> (M<sub>2</sub>), Fish pond silt @ 5.0 t ha<sup>-1</sup> (M<sub>3</sub>) and Composted poultry manure @ 5.0 t ha<sup>-1</sup> (M<sub>4</sub>) and sub plot consisted of 100 per cent recommended dose of fertilizers NPK (S<sub>1</sub>), 75 per cent recommended dose of NPK (S<sub>2</sub>) and 50 per cent of recommended dose of NPK (S<sub>3</sub>). Results revealed that application of vermicompost @ 5.0 t ha<sup>-1</sup> (M<sub>2</sub>) recorded significantly higher cob length (22.0 and 22.0 cm), higher cob weight (202.6 and 208.6 g), higher number of grains cob<sup>-1</sup> (456.8 and 472.8) and higher grain yield (5614 and 5789 kg ha<sup>-1</sup>) and higher stover yield (9291 and 9545 kg ha<sup>-1</sup>) as compared to other organic manures treatment in both the years. It was followed by composted poultry manure @ 5.0 t ha<sup>-1</sup> (M<sub>4</sub>) and FYM @ 12.5 t ha<sup>-1</sup> (M<sub>1</sub>) in both the years. In addition, application of recommended dose of 100 per cent NPK (S<sub>1</sub>) significantly registered higher cob length (20.9 and 21.5 cm), higher cob weight (192.4 and 199.5 g), higher number of grains cob<sup>-1</sup> (439.2 and 450.9) and higher grain yield (5489 and 5618 kg ha<sup>-1</sup>) and higher stover yield (9125 and 9286 kg ha<sup>-1</sup>) over 75 and 50 per cent of NPK levels in both the years. It was on par with the application of 75 per cent recommended NPK (S<sub>2</sub>) in both years. However, the interaction between organic manures and fertilizer levels were not significant on number of grains cob<sup>-1</sup>, grain yield and stover yield of hybrid maize but significant on cob length, cob weight. The study showed that hybrid maize responded well in terms of yield attributes, grain yield and stover yield by the application of vermicompost @ 5.0 t ha<sup>-1</sup> and 75 per cent recommended dose of NPK fertilizers.

**Keywords:** Hybrid maize, vermicompost, fish pond silt, poultry manure, yield

### Introduction

Maize (*Zea Mays* L.) is one of the most important cereal crops in India and contributes to food security in most of the states in India. Having highest genetic yield potential among the cereals, maize is one of the most versatile emerging crops having wider adaptability under varied agro-climatic conditions (Rajeshkumar *et al.*, 2018) <sup>[10]</sup>. Maize is grown in a wide range of production environments and in all three seasons due to photo insensitive character, hence globally called as the queen of cereals. Its importance lies in the fact that it is not only used for human food and animal feed but at the same time it has become an important raw material in food processing, poultry, dairy and ethanol industry and along with its traditional uses makes it one of the fastest growing cash crop in the world. Maize crop requires the higher use of chemical fertilizer, but it is expensive and leads to loss of soil fertility. Therefore, the current trend is to explore the possibilities of supplementing organic manures like farm yard manure, vermicompost, poultry manure etc. Indigenously available organic sources of nutrients have enhanced the efficiency and reduced the requirements of chemical fertilizers (Bhat *et al.*, 2007) <sup>[2]</sup>. A fifteen percent of yield increased when maize crop fertilized with 100% recommended dose of Inorganic nutrients in addition to 12.5 t ha<sup>-1</sup> along with biofertilizer as integrated nutrient management practice (Kalyanasundaram and Augustine, 2021) <sup>[4]</sup>. Integrated nutrient management source has

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significantly increased the availability of nitrogen in soil and thus result in increasing the yield attributes like Cob length, cob diameter, Number of grains cob<sup>-1</sup> were increased in maize (Sukhjinder and Misal, 2022) [11]. Hence, it is necessary to integrate different sources of nutrients to meet the crop requirement. Such integrated approach with special emphasis on combined application of inorganic fertilizers with organic manures would sound well in cereal crops like maize grown under aberrated climatic conditions. Therefore, an experiment was conducted to study the effect of integrated use of organic and inorganic sources of nutrients on yield of Maize in Kallakurichi district of Tamil Nadu.

### Materials and Methods

Field experiments were carried out to study the effect of different sources of organic and inorganic nutrients on yield attributed and yield of maize crop at Krishi Vigyan Kendra, Tamil Nadu Veterinary and Animal Sciences University, Kallakurichi district located at North Eastern zone of Tamil Nadu at lies between 11°58' North latitudes and 78°85' East longitudes during *Rabi* 2023 and 2024. The soil of the experimental site was moderately well drained, sandy clay loam in texture and chemical analysis showed low in available nitrogen (199.5 kg ha<sup>-1</sup>), medium in available phosphorus (19.8 kg ha<sup>-1</sup>) and high in available potassium (461.3 kg ha<sup>-1</sup>), 0.55 per cent of organic carbon and 7.8 pH of the soil. The experiments were laid out in split-plot design consisting of twelve treatments (four main and three sub plots) with 3 replications with a plot size of 6 m x 5 m. The main plot consisted of Farm yard manure @ 12.5 t ha<sup>-1</sup> (M1), Vermicompost @ 5.0 t ha<sup>-1</sup> (M2), Fish pond silt @ 5.0 t ha<sup>-1</sup> (M3) and Composted poultry manure @ 5.0 t ha<sup>-1</sup> (M4) and sub plot consisted of 100 per cent (250:75:75 kg NPK ha<sup>-1</sup>) recommended dose of fertilizers (S1), 75 per cent recommended dose of fertilizers (S2) and 50 per cent of recommended dose of fertilizers (S3).

TNAU maize hybrid (COH (M) 6) was used for treatment. Ridges and furrows were formed 60 cm apart for maize crop, layout was taken and organic manures were applied to each plot in accordance with the treatments assigned, incorporated manually and levelled. The seeds were sown in southern side of the ridge with a spacing of 25 cm between plants. Full dose of phosphorus and potassium along with half dose of nitrogen in all the treatments was applied as basal. Remaining dose of nitrogen was applied at 20 days after sowing and 45 days after sowing at the time of weeding as per the treatments. All other recommended cultural practices and prophylactic plant protection measures were followed to raise healthy crop. Observations were recorded in 10 randomly taken and tagged plants from each replication on Cob Length (cm), Cob weight (g), Number of grains cob<sup>-1</sup>, grain yield of maize (kg ha<sup>-1</sup>) and stover yield (kg ha<sup>-1</sup>) of different treatments. The harvested grain yield from each net plot cleaned separately as per the moisture content and expressed in kg ha<sup>-1</sup>. The stover yield of maize was recorded from the net plot area after enough sun drying and expressed in kg ha<sup>-1</sup>. The data on various parameters were statistically analyzed in split plot design as suggested by Gomez and Gomez (2010) [3]. Wherever the treatment difference was significant, critical differences were worked out at five per cent probability level.

### Results and Discussion

#### Yield attributes of Maize

Yield attributes of maize viz., cob length, cob weight and number of seeds cob<sup>-1</sup> were significantly influenced by the

application of organic manures and different levels of fertilizer NPK fertilizer during *Rabi* 2023 and 2024 (Table 1 and 2). Among the organic manures tried, application of vermicompost @ 5.0 t ha<sup>-1</sup> (M<sub>2</sub>) significantly recorded higher cob length of 22.0 and 22.0 cm, higher cob weight of 202.6 and 208.6 g with higher number of grains cob<sup>-1</sup> (456.8 and 472.8) during both years of study. It was followed by composted poultry manure @ 5.0 t ha<sup>-1</sup> (M<sub>4</sub>) and FYM @ 12.5 t ha<sup>-1</sup> (M<sub>1</sub>) in both the years. The lowest cob length (18.9 and 20.0 cm), cob weight (170.2 and 177.6 g) and number of grains cob<sup>-1</sup> (409.0 and 424.1) was recorded with the application of fish pond silt @ 5.0 t ha<sup>-1</sup> (M<sub>3</sub>) during both the years. With regard to different levels of fertilizers tried, application of 100 per cent recommended dose of NPK (S<sub>1</sub>) significantly registered higher cob length (20.9 and 21.5 cm), cob weight (192.4 and 199.5 g) and number of grains cob<sup>-1</sup> (439.2 and 450.9) during both the years. It was comparable with 75 per cent recommended dose of NPK (S<sub>2</sub>), whereas, 50 per cent of recommended dose of NPK (S<sub>3</sub>) registered lower cob length (19.5 and 20.0 cm), cob weight (173.8 and 180.2 g) and number of grains cob<sup>-1</sup> (418.4 and 437.1) during both years of study.

The interaction effect between organic manures and fertilizer levels on cob length and cob weight was significant and number of grains cob<sup>-1</sup> was not significant during 2023. During 2024, the interaction effect on cob length, cob weight and number of grains cob<sup>-1</sup> was significant. Application of vermicompost @ 5.0 t ha<sup>-1</sup> along with 75 per cent recommended dose of NPK (M<sub>2</sub> S<sub>2</sub>) recorded higher cob length (22.9 and 23.2 cm), cob weight (218.5 and 225.2 g) and number of grains cob<sup>-1</sup> (480.0 and 494.5) during 2023 and 2024.

#### Grain yield of Maize

Application of organic manures along with different levels of fertilizers significantly influenced the maize grain yield in both the years (Table 3 and 4). Among the different organic manure, application of vermicompost @ 5.0 t ha<sup>-1</sup> (M<sub>2</sub>) recorded significantly higher grain yield of 5614 and 5789 kg ha<sup>-1</sup> during 2023 and 2024, respectively. It was on par with the application of composted poultry manure @ 5.0 t ha<sup>-1</sup> (M<sub>4</sub>) (5457 and 5533 kg ha<sup>-1</sup>). The lowest grain yield of 5266 and 5346 kg ha<sup>-1</sup> was observed with the application of fish pond silt @ 5.0 t ha<sup>-1</sup> (M<sub>3</sub>) in both the years, which was on par with the application of FYM @ 12.5 t ha<sup>-1</sup> (M<sub>1</sub>).

Regarding fertilizer levels, recommended dose of 100 per cent NPK (S<sub>1</sub>) recorded perceptibly higher grain yield of 5489 and 5618 kg ha<sup>-1</sup> during 2023 and 2024, respectively. It was on par with the application of 75 per cent recommended NPK (S<sub>2</sub>) (5479 and 5577 kg ha<sup>-1</sup> during 2023 and 2024, respectively), whereas application of 50 per cent recommended dose of NPK (S<sub>3</sub>) registered the lowest grain yield of 5284 and 5397 kg ha<sup>-1</sup> in both the years. Interaction between organic manures and different levels of fertilizer did not exhibit any significant variations on the grain yield of maize.

#### Stover yield of Maize

Stover yield of maize was highly influenced by the application of organic manures and different levels of fertilizer in the both the years (Table 3 and 4). Vermicompost application @ 5.0 t ha<sup>-1</sup> (M<sub>2</sub>) recorded significantly higher stover yield of 9291 and 9545 kg ha<sup>-1</sup> in both the years. It was followed by composted poultry manure (9071 and 9196 kg ha<sup>-1</sup>). Application of fish pond silt @ 5.0 t ha<sup>-1</sup> (M<sub>3</sub>) recorded conspicuously the lowest maize stover yield.

With regard to different levels of application, 100 per cent of

recommended dose of NPK ( $S_1$ ) recorded significantly the highest stover yield of 9125 and 9286 kg ha<sup>-1</sup> during 2023 and 2024, respectively. It was on par with the application of 75% recommended dose of NPK in both the years. The lowest stover yield was observed with 50 per cent recommended dose of NPK ( $S_3$ ). The interaction effect between organic manures and fertilizer levels was not significant during both years of experimentation.

Application of organic manures and different levels of fertilizers significantly influenced the yield and yield attributes of maize viz., maize cob length, cob weight and number of seeds cob<sup>-1</sup> during both the years. Higher cob length, cob weight and number of seeds cob<sup>-1</sup> was recorded with vermicompost application @ 5.0 t ha<sup>-1</sup> followed by the application of composted poultry manure and FYM during both the years. Combined application of vermicompost along with 75 per cent of recommended dose of NPK recorded higher cob length, cob weight, number of seeds cob<sup>-1</sup> and grain yield. It was comparable with the application of vermicompost along with 100 per cent of recommended dose of NPK in both the years. Addition of inorganic sources of nitrogen into the soil fertilized with vermicompost resulted in highest cob weight, cob length and grain yield of maize as reported by Kmetova and Kovacik

(2013) [5] is in support of the present finding. Okoroafor *et al.* (2013) [9] stated that use of organic manure improves the chemical and physical properties of the soil, thereby increasing the growth and yield of maize. Maize yield parameters like number of cobs per plant, number of grains per cob, 1000 grain weight, grain yield and harvest index were significantly more from the plots fertilized by 100 kg N ha<sup>-1</sup> as urea + 100 kg N ha<sup>-1</sup> as poultry manure. The experimental findings revealed that use of organic and inorganic fertilizers in proper combination can gave higher yields than the sole application of either of the fertilizer or manure particularly in hybrid corn as reported Tasneem Khaliq *et al.* (2004) [12]. Kumar *et al.* (2017) [6] also revealed that application of recommended dose of fertilizers recorded significantly higher growth parameters and yield of maize. Augustine and Imayavaramban (2022) [1] revealed that 50% RDF through NPK + 50% RDF through FYM with micro nutrients as foliar application @ 0.5% led to highest growth and yield attributes, grain yield and stover yield. Biological yield of maize was significantly higher with vermicompost application. Mohadeseh reported similar results. Application of organic manures at higher levels significantly increased the growth and yield parameters of maize. The results confirm with the findings of Mponya *et al.* (2014) [8], who also reported similar results.

**Table 1:** Effect of treatments on yield attributes of maize during 2023

| Treatments     | Cob length (cm) |       |        |        | Cob weight (g) |       |        |        | No. of grains cob <sup>-1</sup> (No) |       |        |        |
|----------------|-----------------|-------|--------|--------|----------------|-------|--------|--------|--------------------------------------|-------|--------|--------|
|                | $S_1$           | $S_2$ | $S_3$  | Mean   | $S_1$          | $S_2$ | $S_3$  | Mean   | $S_1$                                | $S_2$ | $S_3$  | Mean   |
| M <sub>1</sub> | 20.6            | 20.0  | 18.8   | 19.8   | 182.5          | 175.3 | 168.3  | 175.3  | 435.2                                | 420.6 | 409.5  | 421.7  |
| M <sub>2</sub> | 21.7            | 22.9  | 21.4   | 22.0   | 205.2          | 218.5 | 184.2  | 202.6  | 449.3                                | 480.0 | 441.3  | 456.8  |
| M <sub>3</sub> | 19.5            | 19.1  | 18.4   | 18.9   | 175.6          | 169.7 | 165.2  | 170.2  | 421.2                                | 406.2 | 399.8  | 409.0  |
| M <sub>4</sub> | 22.0            | 21.1  | 19.6   | 20.9   | 206.5          | 180.6 | 177.6  | 188.2  | 451.2                                | 432.2 | 423.1  | 435.4  |
| Mean           | 20.9            | 20.7  | 19.5   |        | 192.4          | 186.0 | 173.8  |        | 439.2                                | 434.7 | 418.4  |        |
|                | Cob length (cm) |       |        |        | Cob weight (g) |       |        |        | No. of grains cob <sup>-1</sup> (No) |       |        |        |
|                | M               | S     | M at S | S at M | M              | S     | M at S | S at M | M                                    | S     | M at S | S at M |
| SEd            | 0.2             | 0.2   | 0.4    | 0.4    | 2.9            | 1.5   | 3.8    | 3.0    | 5.1                                  | 5.3   | 10.0   | 10.6   |
| CD(P=0.05)     | 0.5             | 0.4   | 0.9    | 0.8    | 7.1            | 3.2   | 8.8    | 6.5    | 12.5                                 | 11.2  | NS     | NS     |

#### Main Plot

M<sub>1</sub> - FYM @12.5 t ha<sup>-1</sup>

M<sub>2</sub> - Vermicompost @ 5.0 t ha<sup>-1</sup>

M<sub>3</sub> - Fish pond silt @ 5.0 t ha<sup>-1</sup>

M<sub>4</sub> - Composted poultry manure @ 5.0 t ha<sup>-1</sup>

#### Sub plot

$S_1$  - 100 per cent recommended NPK

$S_2$  - 75 per cent recommended NPK

$S_3$  - 50 per cent recommended NPK

**Table 2:** Effect of treatments on yield attributes of maize during 2024

| Treatments     | Cob length (cm) |       |        |        | Cob weight (g) |       |        |        | No. of grains cob <sup>-1</sup> (No) |       |        |        |
|----------------|-----------------|-------|--------|--------|----------------|-------|--------|--------|--------------------------------------|-------|--------|--------|
|                | $S_1$           | $S_2$ | $S_3$  | Mean   | $S_1$          | $S_2$ | $S_3$  | Mean   | $S_1$                                | $S_2$ | $S_3$  | Mean   |
| M <sub>1</sub> | 21.4            | 20.9  | 19.5   | 20.6   | 195.6          | 183.4 | 176.3  | 185.1  | 441.2                                | 435.2 | 428.2  | 434.8  |
| M <sub>2</sub> | 21.4            | 23.2  | 21.7   | 22.0   | 210.6          | 225.2 | 190.2  | 208.6  | 465.3                                | 494.5 | 458.6  | 472.8  |
| M <sub>3</sub> | 21.1            | 19.8  | 19.2   | 20.0   | 182.6          | 178.3 | 172.1  | 177.6  | 435.2                                | 421.5 | 415.6  | 424.1  |
| M <sub>4</sub> | 22.2            | 21.5  | 20.0   | 21.2   | 209.5          | 187.3 | 182.6  | 193.1  | 462.1                                | 455.2 | 446.2  | 454.4  |
| Mean           | 21.5            | 21.3  | 20.0   |        | 199.5          | 193.5 | 180.2  |        | 450.9                                | 451.6 | 437.1  |        |
|                | Cob length (cm) |       |        |        | Cob weight (g) |       |        |        | No. of grains cob <sup>-1</sup> (No) |       |        |        |
|                | M               | S     | M at S | S at M | M              | S     | M at S | S at M | M                                    | S     | M at S | S at M |
| SEd            | 0.1             | 0.2   | 0.3    | 0.4    | 2.6            | 1.4   | 3.5    | 2.9    | 4.3                                  | 3.6   | 7.4    | 7.3    |
| CD(P=0.05)     | 0.2             | 0.4   | 0.7    | 0.8    | 6.4            | 3.0   | 8.1    | 6.1    | 10.7                                 | 7.8   | 16.6   | 15.6   |

#### Main Plot

M<sub>1</sub> - FYM @12.5 t ha<sup>-1</sup>

M<sub>2</sub> - Vermicompost @ 5.0 t ha<sup>-1</sup>

M<sub>3</sub> - Fish pond silt @ 5.0 t ha<sup>-1</sup>

M<sub>4</sub> - Composted poultry manure @ 5.0 t ha<sup>-1</sup>

#### Sub plot

$S_1$  - 100 per cent recommended NPK

$S_2$  - 75 per cent recommended NPK

$S_3$  - 50 per cent recommended NPK

**Table 3:** Effect of treatments on grain and stover yield of maize during 2023

| Treatments     | Maize grain yield (kg ha <sup>-1</sup> ) |                |                |             | Maize stover yield (kg ha <sup>-1</sup> ) |                |                |             |
|----------------|------------------------------------------|----------------|----------------|-------------|-------------------------------------------|----------------|----------------|-------------|
|                | S <sub>1</sub>                           | S <sub>2</sub> | S <sub>3</sub> | Mean        | S <sub>1</sub>                            | S <sub>2</sub> | S <sub>3</sub> | Mean        |
| M <sub>1</sub> | 5480                                     | 5306           | 5213           | <b>5333</b> | 9139                                      | 8615           | 8355           | <b>8703</b> |
| M <sub>2</sub> | 5568                                     | 5875           | 5399           | <b>5614</b> | 9310                                      | 9568           | 8994           | <b>9291</b> |
| M <sub>3</sub> | 5310                                     | 5281           | 5206           | <b>5266</b> | 8650                                      | 8467           | 8386           | <b>8501</b> |
| M <sub>4</sub> | 5595                                     | 5454           | 5320           | <b>5457</b> | 9399                                      | 9125           | 8690           | <b>9071</b> |
| Mean           | <b>5489</b>                              | <b>5479</b>    | <b>5284</b>    |             | <b>9125</b>                               | <b>8944</b>    | <b>8606</b>    |             |
|                | Maize grain yield (kg ha <sup>-1</sup> ) |                |                |             | Maize stover yield (kg ha <sup>-1</sup> ) |                |                |             |
|                | M                                        | S              | M at S         | S at M      | M                                         | S              | M at S         | S at M      |
| SEd            | 67                                       | 58             | 117            | 117         | 58                                        | 90             | 158            | 180         |
| CD(P=0.05)     | 164                                      | 124            | NS             | NS          | 143                                       | 191            | NS             | NS          |

**Main Plot****M<sub>1</sub>** - FYM @12.5 t ha<sup>-1</sup>**M<sub>2</sub>** - Vermicompost @ 5.0 t ha<sup>-1</sup>**M<sub>3</sub>** - Fish pond silt @ 5.0 t ha<sup>-1</sup>**M<sub>4</sub>** - Composted poultry manure @ 5.0 t ha<sup>-1</sup>**Sub plot****S<sub>1</sub>** - 100 per cent recommended NPK**S<sub>2</sub>** - 75 per cent recommended NPK**S<sub>3</sub>** - 50 per cent recommended NPK**Table 4:** Effect of treatments on grain and stover yield of maize during 2024

| Treatments     | Maize grain yield (kg ha <sup>-1</sup> ) |                |                |             | Maize stover yield (kg ha <sup>-1</sup> ) |                |                |             |
|----------------|------------------------------------------|----------------|----------------|-------------|-------------------------------------------|----------------|----------------|-------------|
|                | S <sub>1</sub>                           | S <sub>2</sub> | S <sub>3</sub> | Mean        | S <sub>1</sub>                            | S <sub>2</sub> | S <sub>3</sub> | Mean        |
| M <sub>1</sub> | 5605                                     | 5450           | 5306           | <b>5454</b> | 9324                                      | 8988           | 8658           | <b>8990</b> |
| M <sub>2</sub> | 5785                                     | 5996           | 5586           | <b>5789</b> | 9496                                      | 9795           | 9345           | <b>9545</b> |
| M <sub>3</sub> | 5399                                     | 5345           | 5294           | <b>5346</b> | 8826                                      | 8506           | 8452           | <b>8595</b> |
| M <sub>4</sub> | 5683                                     | 5516           | 5401           | <b>5533</b> | 9499                                      | 9285           | 8803           | <b>9196</b> |
| Mean           | <b>5618</b>                              | <b>5577</b>    | <b>5397</b>    |             | <b>9286</b>                               | <b>9144</b>    | <b>8815</b>    |             |
|                | Maize grain yield (kg ha <sup>-1</sup> ) |                |                |             | Maize stover yield (kg ha <sup>-1</sup> ) |                |                |             |
|                | M                                        | S              | M at S         | S at M      | M                                         | S              | M at S         | S at M      |
| SEd            | 62                                       | 72             | 133            | 144         | 94                                        | 79             | 159            | 158         |
| CD(P=0.05)     | 151                                      | 152            | NS             | NS          | 229                                       | 168            | NS             | NS          |

**Main Plot****M<sub>1</sub>** - FYM @12.5 t ha<sup>-1</sup>**M<sub>2</sub>** - Vermicompost @ 5.0 t ha<sup>-1</sup>**M<sub>3</sub>** - Fish pond silt @ 5.0 t ha<sup>-1</sup>**M<sub>4</sub>** - Composted poultry manure @ 5.0 t ha<sup>-1</sup>**Sub plot****S<sub>1</sub>** - 100 per cent recommended NPK**S<sub>2</sub>** - 75 per cent recommended NPK**S<sub>3</sub>** - 50 per cent recommended NPK**Conclusion**

In agricultural land soil fertility depletion is an important drawback due to continuous cultivation with inorganic nutrients. In order to increase the soil fertility, inorganic fertilizers are being widely utilized in cultivable lands. Even though they promote the growth of crops, their toxic effect is the negative impact by means of their over utilization of fertilizers. To overcome these factors, the combined application of organic manure especially vermicompost, poultry manures and farm yard manure along with NPK fertilizers is recommended. The study showed that the yield attributes, grain yield and stover yield parameters of maize were enhanced by different sources of organic manures and levels of NPK fertilizers. Among the organic manure treatments, application of vermicompost performed better than the other sources through improved cob length, cob weight and number of seeds cob<sup>-1</sup>, grain yield and stover yield of maize crop. It could be concluded that the maize crop responded well in terms of yield attributes, grain yield and stover yield by the application of vermicompost @ 5.0 t ha<sup>-1</sup> and 75% recommended dose of NPK fertilizers.

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