EFFECTS OF NUTRIENT SOURCES ON GROWTH AND FRUIT YIELD OF WATERMELON (*Citrullus lanatus*) IN OGBOMOSO, NIGERIA

OLOSO, K. K.; OYELEKE, O. R.; ONARINDE C. R.; ADEDEJI, J. A.; & AKANBI W. B.
Department of Crop Production and Soil Science, Ladoke Akintola University of Technology, Ogbomoso

DOI: https://doi.org/10.70382/caijaat.v9i1.006

Corresponding Author: christy4world@gmail.com

Abstract

Watermelon (*Citrullus lanatus*) is an economically and nutritionally important fruit crop cultivated across tropical and subtropical regions. However, its productivity in smallholder farming systems is often limited by declining soil fertility and the unsustainable use of inorganic fertilizers. This study evaluated the effects of different nutrient sources on the growth and reproductive performance of watermelon under field conditions at the Ladoke Akintola University of Technology (LAUTECH) Teaching and Research Farm, Ogbomoso, Nigeria in years 2022 and 2023. Eight fertilizer treatments (no fertilizer, 100% NPK, 100% compost, Supergrow, poultry manure, 75% NPK + 25% compost, 50% NPK + 50% compost, and 25% NPK + 75% compost) were arranged in a randomized complete block design with three replications. Data were collected on vine length, number of secondary vines, number of leaves, number of flowers, and yield attributes at different growth stages. Results indicated that nutrient sources significantly ($P \leq 0.05$) influenced all measured parameters. At 8 weeks after planting, plants treated with 100% compost recorded the longest vines (260.67 cm) and highest number of leaves (139.67), while the no-fertilizer treatment produced the most flowers (12.03). Reproductive performance varied across treatments: 100% compost yielded the highest total fruit set (27.50 per plant), whereas 75% NPK + 25% compost produced the highest fruit number (4.40 per plant) and a high mean fruit weight (2.67 kg). The heaviest individual fruits (2.80 kg) were obtained from 100% NPK. The application of organic and inorganic fertilizers enhanced watermelon growth and yield more effectively than the sole use of either nutrient source. Highest yield was obtained from 100% Compost (34.00 t ha^{-1}) while Lowest yield was observed in Control (21.33 t ha^{-1}). The study demonstrates the synergistic benefits of integrated nutrient management in improving watermelon performance and maintaining soil fertility. Therefore, application of 100% compost is recommended for achieving optimal yield and sustainable production for watermelon under similar agro ecological conditions.

Keywords: Watermelon, fertilizers, super grow, fruit yield, nutrient sources.

INTRODUCTION

Watermelon (*Citrullus lanatus*) is an economically and nutritionally important fruit crop cultivated widely across tropical and subtropical regions. It provides substantial income to smallholder farmers and contributes to food and nutritional security through its high water content, vitamins, and minerals (Adebayo *et al.,* 2023). In Nigeria, watermelon production has gained increasing importance due to its short growth cycle, adaptability to diverse soils, and high market demand both for fresh consumption and processing (Yakubu *et al.,* 2024). However, its productivity is often limited by declining soil fertility, nutrient depletion, and the inappropriate or excessive use of chemical fertilizers (Abdul-Baki *et al.,* 2021).

Soil fertility decline remains a major challenge in sub-Saharan Africa, where continuous cropping and minimal organic matter return to the soil reduce productivity and degrade soil structure (FAO, 2022). Although inorganic fertilizers supply nutrients rapidly, their continuous use can cause soil acidification, nutrient imbalance, and high production costs (Eneji *et al.,* 2023). Conversely, organic nutrient sources such as compost and poultry manure improve soil organic matter content, enhance microbial activity, and promote long-term soil fertility but release nutrients slowly, which may not always meet crop nutrient demand during critical growth stages (Singh *et al.,* 2022).

Integrated nutrient management (INM), which combines organic and inorganic fertilizers, has been recognized as a sustainable strategy for improving crop productivity and maintaining soil health (Youssef *et al.,* 2019; Daramola *et al.,* 2023). Several studies have demonstrated that combining organic manures with mineral fertilizers enhances nutrient use efficiency, water retention, and yield stability in vegetable crops (Adebayo et al., 2023; Yakubu *et al.,* 2024). In watermelon, such integrated approaches can improve vegetative growth, flowering, fruit set, and yield components while ensuring long-term soil fertility conservation. Therefore, this study was conducted to evaluate the effects of different nutrient sources (organic, inorganic, and their combinations) on the growth and reproductive parameters of watermelon under field conditions. The objective was to determine the most effective nutrient management practice for optimizing watermelon productivity and improving soil fertility sustainability.

MATERIALS AND METHODS

Experimental Site

The experiment was conducted at the Teaching and Research Farm of the Ladoke Akintola University of Technology (LAUTECH), Ogbomoso, Oyo State, Nigeria (latitude 8°10′ N, longitude 4°10′ E, and altitude 340 m above sea level). The area lies within the Southern Guinea Savanna agro-ecological zone of Nigeria, characterized by a bimodal rainfall pattern with an annual average of 1,200 mm and mean temperature ranging between 25 °C and 34 °C. The soil of the experimental site is classified as an Alfisol, sandy loam in texture, moderately well-drained, and low in organic matter and available nutrients.

Experimental Materials

Watermelon Kaolack variety seeds were obtained from the Irorun Agbe farmer shopping complex, Ogbomoso, Nigeria. The nutrient sources used in the study included NPK (15:15:15) fertilizer and Tithonia compost. The NPK was obtained from Irorun Agbe market while then Tithonia compost

obtained from Department Crop Production and Soil Science, LAUTECH, Ogbomoso. Both the NPK and Compost were subjected to laboratory analysis prior to usage to determine their nutrient compositions.

Experimental Design and Treatments

The experiment was laid out in a Randomized Complete Block Design with eight treatments and replicated three times. The treatments were as follows: Control (no fertilizer), 100% NPK (15:15:15), 100% Compost, Supergrow, Poultry manure, 75% NPK + 25% Compost, 50% NPK + 50% Compost, and 25% NPK + 75% Compost. Each plot measured 4 m × 4 m ($16m^2$), with 1 m spacing between plots and 2m between blocks. Watermelon seeds were sown directly into the field at a spacing of 1 m × 1 m, giving a plant population of approximately 10,000 plants ha^{-1}.

Application of Nutrients

Compost and poultry manure were applied two weeks before sowing and thoroughly incorporated into the soil to allow mineralization. The NPK fertilizer was applied at two weeks after planting (WAP). Supergrow was applied as a foliar spray at the manufacturer's recommended rate at two-week intervals starting from 2WAP.

Crop Management

Manual weeding was done twice to ensure weed free pot. Application of insecticide (cypermethrin) at the rate of 40ml/15L of water were carried out to prevent insect attack on the plant.

Data Collection

Data were collected on water melon vegetative and reproductive parameters at 2, 4, 6, and 8 weeks after planting (WAP). The parameters measured included:

- **Vine length (cm)**: measuring the length of vine with meter rule and was recorded
- **Number of leaves per plant**: obtained by counting fully expanded leaves from five tagged plants per plot.
- **Number of flowers per plant**: counted at the onset of flowering at 4, 6, and 8 WAP.
- **Reproductive parameters**: including total number of flowers per plant, total fruit set per plant, total number of fruits per plant, and mean fruit weight (kg), determined at harvest.

Data Analysis

Data collected were subjected to Analysis of Variance (ANOVA) using SAS statistical software (version 9.4). Treatment means were compared using Duncan's Multiple Range Test (DMRT**)** at a 5% probability level ($P \leq 0.05$). The data collected over two years were pooled before subjected to data analysis.

RESULTS

Effects of Nutrient Sources on Growth Parameters of Watermelon

The vine length of watermelon was significantly ($P \leq 0.05$) influenced by the different nutrient sources at all growth stages as shown in Table 1. At 2 weeks after planting (WAP), plants that received 25% NPK + 75% compost had the longest vines (14.00 cm), while the shortest vine length (11.20 cm) was obtained from 100% compost. At 4 WAP, the highest vine length (25.20 cm) was observed in plants treated with 75% NPK + 25% compost, whereas the 50% NPK + 50% compost treatment produced the shortest vines (23.00 cm). At 6 WAP, plants that received no fertilizer**,** 100% NPK**,** 100% compost**,** and 50% NPK + 50% compost recorded statistically similar and highest vine lengths (ranging from 197.13 to 203.20 cm). The lowest vine length (163.20 cm) occurred in plants treated with 75% NPK + 25% compost. At 8 WAP, vine length was highest in plants that received 100% compost (260.67 cm), followed by 100% NPK (250.53 cm), and while the least vine length (221.67 cm) was recorded from Supergrow application. Vine length increased progressively with plant age under all fertilizer treatments.

Effect of Nutrient Sources on Number of Secondary Vines of Watermelon at Different Growth Stages

The number of secondary vines of watermelon plants was significantly ($P \leq 0.05$) affected by the different nutrient sources at all growth stages (Table 2). At 2 weeks after planting (WAP)**,** plants treated with 25% NPK + 75% compost produced the highest number of secondary vines (2.00), while the lowest (0.80) was recorded in plants that received no fertilizer**.** At 4 WAP, the highest number of secondary vines (3.63) was observed in plants supplied with 25% NPK + 75% compost**,** which was statistically similar to most other treatments except no fertilizer. At 6 WAP**,** plants treated with 100% compost had the highest number of secondary vines (5.00), whereas the lowest (3.77) was observed in plants that received poultry manure**.** At 8 WAP, the number of secondary vines was highest in plants supplied with 25% NPK + 75% compost (7.23), followed closely by those treated with poultry manure (7.17), while the lowest value (4.83) was obtained from the no fertilizer treatment. The number of secondary vines increased progressively with plant age across all treatments.

Effect of Nutrient Sources on Number of Leaves of Watermelon at Different Growth Stages

The number of leaves of watermelon plants was significantly ($P \leq 0.05$) influenced by the different nutrient sources at all growth stages (Table 3). At 2 weeks after planting (WAP)**,** plants that received 100% NPK produced the highest number of leaves (5.33), while the least (3.20) was recorded in plants treated with 75% NPK + 25% compost**.** At 4 WAP, plants supplied with poultry manure had the highest number of leaves (22.67), whereas the lowest (13.20) was obtained in plants treated with 100% compost. At 6 WAP, the greatest number of leaves (76.43) was recorded in plants treated with poultry manure, while the no fertilizer treatment produced the fewest leaves (50.00). At 8 WAP, plants that received 100% compost and 25% NPK + 75% compost produced the highest numbers of leaves (139.67 and 138.67, respectively), whereas the lowest number (92.67) occurred in plants without fertilizer application. The number of leaves increased steadily with plant age across all nutrient treatments.

IJAAT: **E-ISSN 3027-2521 P-ISSN 3027-026X**

Effect of Nutrient Sources on Number of Flowers per Plant of Watermelon at Different Growth Stages

The number of flowers per plant of watermelon was significantly ($P \leq 0.05$) affected by the different nutrient sources at all growth stages (Table 4). At 4 weeks after planting (WAP), plants treated with 50% NPK + 50% compost produced the highest number of flowers (2.67), while the lowest (1.33) was recorded in plants that received no fertilizer. At 6 WAP, the highest number of flowers (7.50) was observed in plants treated with Supergrow, whereas the lowest (5.20) occurred in those supplied with poultry manure. At 8 WAP, plants that received no fertilizer produced the highest number of flowers (12.03), which was statistically similar to poultry manure (11.33), while the least (8.00) was recorded in plants treated with 50% NPK + 50% compost. The number of flowers per plant increased progressively with plant age across all treatments.

Effect of Nutrient Sources on yield Parameters of Watermelon

The reproductive parameters of watermelon were significantly ($P \leq 0.05$) influenced by the different nutrient sources (Table 5). The highest total number of flowers per plant (19.75) was recorded in plants treated with poultry manure, which was statistically similar to those that received no fertilizer (19.50), while the lowest value (16.65) occurred in plants supplied with 75% NPK + 25% compost. The highest total fruit set per plant (27.50) was obtained from 100% compost, followed closely by 75% NPK + 25% compost (26.70). The least fruit set (13.70) was recorded under Supergrow and 25% NPK + 75% compost treatments. Plants treated with 75% NPK + 25% compost produced the highest total number of fruits per plant (4.40), while Supergrow resulted in the lowest (2.40). Mean fruit weight per plant was highest in plants treated with 100% NPK (2.80 kg), which was statistically similar to 75% NPK + 25% compost (2.67 kg) and 50% NPK + 50% compost (2.50 kg). The lowest mean fruit weight (1.87 kg) was obtained from plants treated with poultry manure. Significant variations were observed among the different fertilizer treatments with respect to fruit yield. The highest fruit yield (34.0 t ha^{-1}) was obtained from plots treated with 100% compost. This was at par with what were observed on pltans treated with 100% NPK, supergrow and 25% NPK + 75% compost treatments. The lowest yield (21.33 t ha^{-1}) was recorded in the control (no fertilizer) plots, indicating severe nutrient limitation.

DISCUSSION

Nutrient source exerted a marked influence on the reproductive performance of watermelon, as reflected in variations in total flower number, fruit set, fruit count, and mean fruit weight. The observed differences among treatments indicate that the balance and availability of macro and micronutrients at critical phenological stages are central to reproductive success in watermelon. The application of 100 % compost produced the highest total fruit set per plant (27.50) but comparatively lower mean fruit weight, while 100 % NPK fertilizer enhanced mean fruit weight (2.80 kg) but resulted in fewer fruits per plant. This suggests that while mineral fertilizers rapidly supply readily available nutrients particularly nitrogen and phosphorus for early flowering and fruit filling, organic amendments release nutrients more gradually, supporting sustained reproductive activity throughout the crop cycle. Such complementary behavior between fast-acting inorganic and slow-release organic nutrient sources has

been widely reported in horticultural crops (Phares *et al.,* 2022; Hitchings *et al.,* 2023). The superior performance of integrated nutrient applications, especially 75 % NPK + 25 % compost, which produced the greatest number of fruits per plant (4.40) with high mean fruit weight (2.67 kg), highlights the synergistic advantage of combining organic and inorganic inputs. The co-application likely improved soil nutrient synchrony, microbial activity, and moisture retention, creating favorable conditions for continuous nutrient uptake and fruit development. Similar outcomes were documented by Abdul-Baki *et al.* (2021) and Adebayo *et al.* (2023), who reported enhanced watermelon yield and fruit quality under integrated soil fertility management compared with the sole use of mineral fertilizers.

Interestingly, although the no-fertilizer and poultry manure treatments produced relatively high flower counts, their fruit set and yield were significantly lower, implying that nutrient availability rather than flower initiation limited reproductive success. This agrees with the findings of Huang et al. (2021), who observed that watermelon fruit set is highly sensitive to nutrient supply, particularly potassium and nitrogen, which govern photosynthetic assimilate translocation and ovary retention. The lower mean fruit weight recorded under supergrow and 100 % compost treatments may reflect slower nutrient mineralization rates or lower immediate nitrogen availability, leading to reduced carbohydrate partitioning to fruits during the filling phase. However, these treatments may still contribute to long-term soil fertility improvement through increased organic matter content and microbial biomass (Kayani *et al.,* 2022; Yakubu *et al.,* 2024).

The superior performance of the integrated nutrient treatments (especially 50% NPK + 50% compost) could be attributed to the combined effect of the readily available nutrients from the inorganic fertilizer and the improved soil physical condition and microbial activity from the organic amendment. This finding supports earlier reports by Adeleke *et al.* (2022) and Ndukwe *et al*. (2023), who observed that balanced integration of organic and inorganic nutrient sources enhances nutrient-use efficiency and promotes higher fruit yield in cucurbit crops. Overall, the results demonstrate that integrating organic and inorganic nutrient sources enhances reproductive efficiency and yield components in watermelon. This approach optimizes nutrient use efficiency, sustains soil health, and minimizes the negative environmental impacts associated with excessive use of synthetic fertilizers. The findings are consistent with contemporary research advocating integrated nutrient management as a sustainable alternative for maximizing crop productivity and maintaining soil ecological balance (Adewumi *et al.,* 2024; Phares *et al.,* 2022).

CONCLUSION

This study revealed that different nutrient sources significantly affected the growth, reproductive development, and yield of watermelon. Vegetative parameters such as vine length, number of secondary vines, and number of leaves increased progressively with plant age under all treatments, but their magnitude varied with nutrient source. Sole application of 100% NPK fertilizer enhanced early vegetative growth and mean fruit weight, while 100% compost promoted vine elongation, higher fruit set, and the highest fruit yield. However, the integrated application of organic and inorganic nutrient sources produced more balanced and superior results across both growth and yield parameters. In particular, combinations of NPK fertilizer and compost, notably 75% NPK + 25% compost and 50%

NPK + 50% compost, optimized fruit number, maintained relatively high fruit weight, and achieved yields comparable to or higher than sole fertilizer applications. The lowest growth and yield were consistently recorded in the no-fertilizer treatment, highlighting the importance of adequate nutrient supply for successful watermelon production. The results confirm that integrated nutrient management is a more effective and sustainable approach for improving watermelon productivity.

Recommendations

The findings of this study underscore the importance of integrated nutrient management for sustainable and profitable watermelon production. The combined application of organic and inorganic nutrient sources is strongly recommended, as it consistently produced more balanced vegetative growth, enhanced reproductive development, and superior yield performance compared with the sole use of either nutrient source. In particular, the application of NPK fertilizer in combination with compost at ratios of 75% NPK + 25% compost or 50% NPK + 50% compost is recommended, given their effectiveness in optimizing fruit number while maintaining relatively high fruit weight and overall yield. Although the sole application of inorganic fertilizer (100% NPK) improved early vegetative growth and mean fruit weight, its exclusive use is less desirable for maximizing total yield and sustaining soil fertility. Similarly, while sole compost application enhanced vine elongation, fruit set, and total yield, its integration with inorganic fertilizer offers a more balanced nutrient supply and improved agronomic performance. The consistently poor growth and yield observed in the unfertilized control further highlight the critical role of adequate nutrient input in watermelon cultivation.

REFERENCES

Abdul-Baki, A. A., Nwafor, C. O., and Umar, M. B. (2021). Integrated nutrient management improves growth and yield of cucurbit crops in semi-arid soils. *African Journal of Agricultural Research*, 16(7), 301–310.

Abdul-Baki, A. A., Nwanguma, E. I., and Azeez, F. A. (2021). Integrated nutrient management improves fruit yield and quality of watermelon (*Citrullus lanatus*) in tropical soils. *Journal of Horticultural Science and Biotechnology, 96*(4), 451-460.

Adebayo, A. O., Lawal, A. F., and Ajayi, T. O. (2023). Comparative effects of organic and inorganic fertilizers on growth and yield of watermelon (*Citrullus lanatus*). *Journal of Horticultural Science and Biotechnology*, 98(3), 412–420.

Adebayo, R. O., Olatunji, K. A., and Eze, C. I. (2023). Response of watermelon to combined organic and inorganic fertilizer regimes in a derived savanna agro-ecosystem. *Agricultural Research Communications, 15*(2), 87-95.

Adewumi, O. J., Bello, I. T., and Ogunleye, S. A. (2024). Sustainable soil fertility management using organic-inorganic fertilizer integration: A review of tropical field evidence. *Frontiers in Sustainable Food Systems, 8*, 1423112.

Daramola, O. O., Adejumo, A. O., and Bello, A. R. (2023). Response of watermelon to combined application of poultry manure and NPK fertilizer under tropical conditions. *International Journal of Agricultural Research and Development*, 15(1), 55–64.

Eneji, A. E., Yakassai, M. A., and Okon, I. E. (2023). Long-term fertilizer use and soil degradation in vegetable production systems. *Soil and Tillage Research*, 229, 105736.

FAO. (2022). *State of the World's Soil Resources: Main Report.* Food and Agriculture Organization of the United Nations, Rome.

Hitchings, R., Evans, L., and Carter, D. (2023). Effects of compost amendments on nutrient dynamics, soil structure, and crop productivity: A global synthesis. *Compost Science & Utilization, 31*(1), 15-29.

Huang, X., Li, M., and Wang, Q. (2021). Nutrient supply affects fruit set, quality, and antioxidant activity of watermelon under field conditions. *Scientia Horticulturae, 285*, 110188.

Kayani, W. K., Khan, N. U., and Ali, S. (2022). Organic fertilizer effects on soil microbial communities and yield quality of cucurbit crops. *Plant Science Today, 9*(4), 823-831.

Phares, C. A., Nyongesa, J. W., and Omondi, E. C. (2022). Co-application of compost and NPK fertilizer improves soil fertility, nutrient uptake, and yield of vegetables in sub-Saharan Africa. *Journal of Environmental Management, 311*, 114862.

Singh, R. P., Kumar, S., and Sharma, R. (2022). Organic amendments and soil fertility management in tropical agriculture. *Agronomy Journal*, 114(6), 3572–3583.

Yakubu, I., Usman, S., and Ojo, T. O. (2024). Organic and inorganic nutrient sources influence growth, yield, and quality traits of watermelon. *Heliyon*, 10(2), e25329.

Yakubu, I., Usman, S., and Ojo, T. O. (2024). Organic and inorganic nutrient sources influence growth, yield, and quality traits of watermelon. *Heliyon, 10*(2), e25329. https://doi.org/10.1016/j.heliyon.2024.e2532

Youssef, R. A., Ibrahim, M. E., & Kayani, W. K. (2019). Integrated nutrient management improves vegetable crop productivity and soil fertility. *Plant Science Today*, 6(4), 467–475.

Appendix

Table 1: Effect of nutrient sources on vine length (cm) of watermelon at different growth stages

Fertilizer type	2 WAP	4 WAP	6 WAP	8 WAP
No fertilizer	12.45 c	23.33 ef	203.20 a	231.33 d
100% NPK	13.45 ab	24.20 bc	200.00 a	250.53 b
100% Compost (C)	11.20 d	23.13 ef	200.00 a	260.67 a
Supergrow	13.43 b	24.37 b	171.10 c	221.67 e
Poultry manure	13.30 b	23.87 cd	166.80 c	246.67 bc
75% NPK + 25% C	13.70 ab	25.20 a	163.20 c	245.67 bc
50% NPK + 50% C	12.20 c	23.00 f	197.13 a	231.33 d
25% NPK + 75% C	14.00 a	23.55 de	180.00 b	241.33 c

Means with the same letter(s) in a column are not significantly different (P ≤ 0.05; DMRT).

Table 2: Effects of nutrient sources on number of secondary vines of watermelon plant at different growth stages

Fertilizer type	2 WAP	4 WAP	6 WAP	8 WAP
No fertilizer	0.80 c	2.67 b	3.83 b	4.83 d
100% NPK	1.57 ab	3.00 ab	4.33 ab	5.67 cd
100% Compost (C)	1.53 ab	3.00 ab	5.00 a	6.33 abc
Supergrow	1.53 ab	3.20 ab	4.17 ab	6.00 bcd
Poultry manure	1.27 bc	3.00 ab	3.77 b	7.17 ab
75% NPK + 25% C	1.07 bc	3.33 ab	4.33 ab	5.00 d
50% NPK + 50% C	1.07 bc	3.27 ab	4.07 ab	5.35 cd
25% NPK + 75% C	2.00 a	3.63 a	4.57 ab	7.23 a

Means with the same letter(s) in a column are not significantly different (P ≤ 0.05; DMRT).

Table 3: Effects of nutrient sources on number of leaves of watermelon plant at different growth stages

Fertilizer type	2 WAP	4 WAP	6 WAP	8 WAP
No fertilizer	3.33 bc	17.00 b	50.00 c	92.67 c
100% NPK	5.33 a	21.00 ab	66.00 abc	121.67 b
100% Compost (C)	4.33 ab	13.20 ab	59.33 abc	139.67 a
Supergrow	3.77 bc	18.13 ab	63.67 abc	131.67 ab
Poultry manure	4.33 ab	22.67 a	76.43 a	126.33 ab
75% NPK + 25% C	3.20 c	22.00 ab	57.00 bc	125.33 ab
50% NPK + 50% C	3.67 bc	20.77 ab	56.67 bc	132.00 ab
25% NPK + 75% C	4.20 bc	19.33 ab	67.33 ab	138.67 a

Means with the same letter(s) in a column are not significantly different (P ≤ 0.05; DMRT).

Table 4: Effect of nutrient sources on number of flowers/plant of watermelon at different growth stages

Fertilizer type	4 WAP	6 WAP	8 WAP
No fertilizer	1.33 c	6.20 b	12.03 a
100% NPK	2.00 abc	6.30 b	9.97 bc
100% Compost (C)	2.33 ab	5.80 c	9.57 c
Supergrow	2.33 ab	7.50 a	8.13 d
Poultry manure	2.33 ab	5.20 d	11.33 ab
75% NPK + 25% C	1.67 bc	5.70 c	9.43 cd
50% NPK + 50% C	2.67 a	6.20 b	8.00 e
25% NPK + 75% C	2.00 abc	6.30 b	10.07 bc

Means with the same letter(s) in a column are not significantly different (P ≤ 0.05; DMRT).

Table 5: Effect of different nutrient sources on watermelon reproductive parameters

Fertilizer type	Total no of flowers /plant	Total fruit set /plant	Total no of fruit /plant	Mean fruit weight /plant (kg)	Total fruit yield (tons/ha)
No fertilizer	19.50 a	18.00 f	3.30 d	2.40 bc	21.33c
100% NPK	18.25 b	18.50 e	3.40 c	2.80 a	33.00a
100% Compost (C)	17.77 c	27.50 a	3.90 b	2.07 d	34.00a
Supergrow	17.50 c	13.70 g	2.40 g	2.40 bc	30.67a
Poultry manure	19.75 a	19.80 d	3.90 b	1.87 d	23.67cb
75% NPK + 25% C	16.65 d	26.70 b	4.40 a	2.67 ab	25.67b
50% NPK + 50% C	16.75 d	22.70 c	3.80 c	2.50 ab	21.66c
25% NPK + 75% C	18.25 b	13.70 g	3.20 f	2.40 bc	30.67a

Means with the same letter(s) in a column are not significantly different (P ≤ 0.05; DMRT).

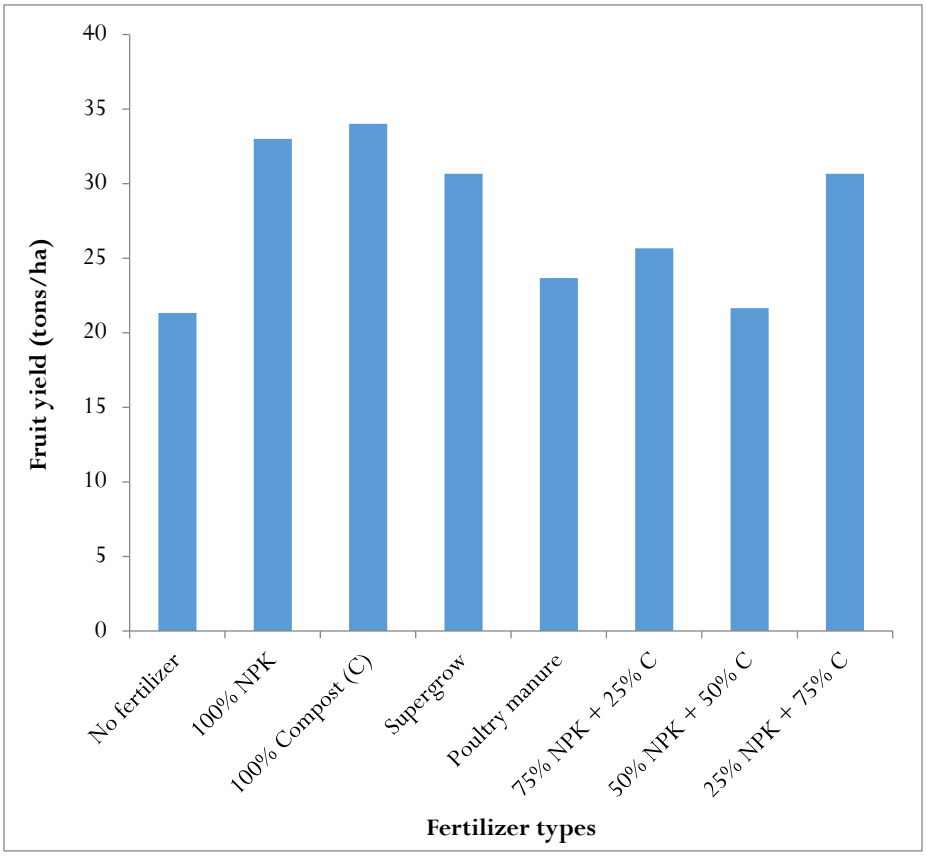

Fig. 1: Effect of fertilizer types on fruit yield of watermelon