

Effect of different growth promoters on the growth and yield of watermelon

Objective: Find out the effect of different growth promoters to increase growth and yield of Watermelon.



Introduction:

Watermelon (*Citrullus lanatus* Thunb.) belongs to the Cucurbitaceae family, which comprises over 800 species, including cucumbers, melons, squashes, and various gourds. Among the genus *Citrullus*, watermelon is the only species that is widely cultivated. It is thought to have originated in Southern Africa, where wild varieties exhibit significant genetic diversity. In India, watermelon is a key crop, covering 1.10 million hectares and yielding 2.78 million metric tons annually.

The fruit of the watermelon is composed of 93% water and contains various nutrients, though in relatively small quantities. Per 100 grams of watermelon flesh, there is approximately 127 kJ (30 kcal) of energy, 7.55 g of carbohydrates, 6.2 g of sugars, 0.4 g of fiber, 0.2 g of fat, and 0.6 g of protein. Additionally, it provides 569 IU of vitamin A, 8.1 mg of vitamin C, 7

mg of calcium, 0.24 mg of iron, and 4532 µg of lycopene—a potent anti-carcinogenic compound. Notably, the lycopene content in dark red watermelon varieties surpasses that found in tomatoes, grapefruits, and guavas, as per the USDA nutrient database.

Treatments:

Crop	: Watermelon
Variety	: Black Supremo
Experiment Layout	: RBD
No. of Replications	: Three
Spacing	: 150 cm x 45 cm
Plot size	: 4.5 m X 3.0 m
Date of sowing	: 13/12/2023

Treatment details:

Treat. No.	Treatment Details
T1	Sea weed extract (2ml per litre water (Spray at Fruit development stage))
T2	Drip K Plus (2ml per lit. water (Spray at Fruit development stage))
T3	P Star (2ml per lit. water (Spray at shoot & bud development stage))
T4	Photon X (1.5 ml per lit. water (Spray at vegetative or flowering stage))
T5	Grinophyll (0.25 ml per lit. water)
T6	Control

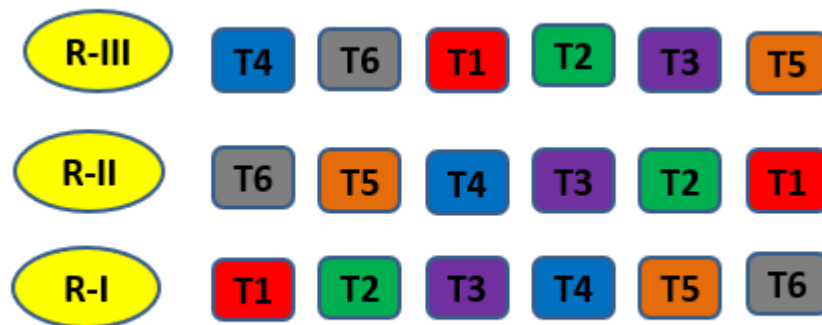
Methodology:

A field experiment was conducted during the Rabi season of 2023 at ASPEE Foundation's Tansa Farm in Palghar, Maharashtra, to assess the effect of different growth promoters to increase growth and yield of

Watermelon. The study evaluated six different organic treatments, along with a control, using a randomized block design with three replications.

Periodic spraying of growth promoters was conducted according to the specified treatments. Observations were recorded for various growth and yield parameters, including vine length, number of primary branches, no. of leaves on main branches, length of fruit, fruit weight, fruit yield per plant and fruit yield per hectare.

Layout:

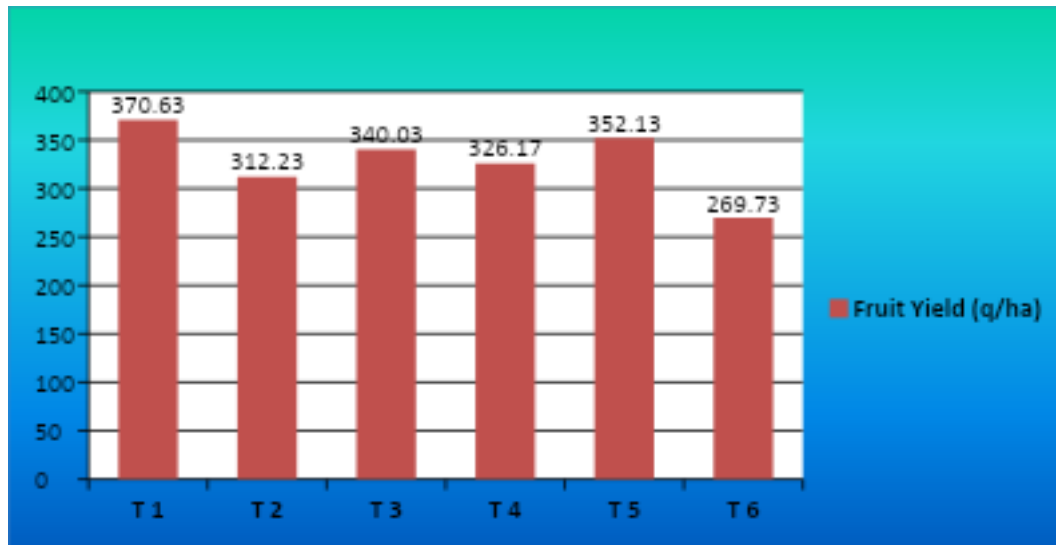


Results

The plant growth parameters viz., vine length (135.48 cm), no. of primary branches (9.6) and no. of leaves on main branches (119) were markedly influenced by treatment T1 i.e. application of Sea weed extract @ 2ml per litre water in watermelon.

This treatment also shows the higher value for yield parameters like length of fruit (27.27 cm), fruit weight (2863.47 g), fruit yield per plant (7158.67 g) and fruit yield per ha (370.63 q/ha).

Graph



Conclusion

The data indicates that various growth promoters had differing effects on the growth and yield of watermelon. Among these, the application of Sea weed extract @ 2ml per litre water significantly enhanced the yield, particularly when applied to the Black suprimo variety. This suggests that Sea weed extract, in this specific dosage, is highly effective in promoting optimal growth and productivity in watermelon cultivation.