

# Impact of Tomato-Tone on Growth and Yield of Tomato in Summer

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**Abstract:** In the present study, a field experiment was conducted to study the effect of tomato tone organic fertilizers on tomato for its growth and yield of tomato. A field experiment was performed in wagan city, larkana, sindh, Pakistan, during the period from April 2021 to October 2021 to quantify the effect/impact of Tomato tone on growth and yield of summer tomato. The experiment consisted of two level of the Tomato tone viz. H0: no Tomato tone (H1) 2% Tomato tone. The test became laid out in the randomized entire block design with two replications. Outcomes found out that the tremendous variant was found for the special increase contributing characters of summer season tomato due to tomatotone. The longest plant about (72.1cm), greatest number of leaves (49), greatest number of flowers/plant (9.9), The very best duration of fruit (4.9 cm) found from the (H1) Highest wide variety of the end result/plant (39.1), and the best yield/plant (4.2 kg) And the best yield (21.8 t/ha) turned into found from (H1). Alternatively, the lowest plant peak, or lowest yield, and the lowest wide variety of leaves, flower and end result was observed from the H0 (control).

**Keywords:** Tomato Tone, Growth of Tomato, Yield of Tomato

## 1. Introduction

Tomato (*Lycopersicon esculentum*). Is certainly one of very popular vegetable plants in Pakistan it belongs to the solanaceae family. Tomato is grown in winter season due to favorable temperature for its good growth. And it's far utilized in salad as well as for culinary functions. The popularity of tomato and its merchandise preserve to upward push as it incorporates massive quantity of nutrition A and C. While tomatoes are grown for the duration of summer time in tropical areas like Larkana, the same old trouble is low fruit set due to excessive night temperature and high humidity which result in negative pollination observed by bad fertilization. Even though the hassle is solved with the usage of heat tolerant varieties, those are insufficient under extreme conditions. Application of plant increase regulators has been proven to enhance fruit setting [1]. Sprays of hormone mainly tomatotone (4-chlorophenoxy acetic acid; 4-cpa) on flower cluster effectively boom the fruit set in addition to fruit production. Tomatotone has been discovered to be

powerful in enhancing tomato fruit set underneath better temperature conditions [2]. Tomatotone now used commercially in Japan and China to boom fruit set in tomatoes. The growth regulator has an important impact on the fruit retention of tomato as well as different horticultural crops and as a consequence increasing the yield appreciably [3]. Tomatotone is likewise utilized in lowering pre-harvest fruit drop and ensuing in expanded range of end result and yield in tomato crop. Therefore, an attempt turned into made to study the effects of tomatotone on fruit set and fruit length of tomato and ultimately yield.

## 2. Importance

If you have been wondering, a tomato is a technically a fruit, because it's seed-bearing and develops from the ovary of a flowering plant. Tomatoes are very helpful in healing wounds because of the antibiotic properties found in the ripe

fruit [4]. (Botanically speaking, vegetables encompass different plant elements, like roots, leaves, and stems.) but in relation to nutrition, tomatoes—in conjunction with seedy cucumbers and zucchini—are labeled as vegetables. That's due in part to their decrease carbon and sugar contents: a medium tomato offers just 22 energy, and approximately 5 grams of overall carbon, with three as sugar and 1.5 as fiber. However this low-calorie, low-carbon package deal is chock-complete of nutrients, and has been linked to a spread of health advantages. Right here are five, alongside some easy approaches to include more tomatoes into your regular meals and snacks [5, 6].

### 2.1. Tomatoes Are a Notable Supply of Vitamins

A unmarried tomato can offer approximately forty% of the everyday recommended minimum of vitamin c. What is extra, tomatoes supply diet a, which helps immunity, vision, and pores and skin health; nutrition ok, which is ideal for your bones; and potassium, a key nutrient for heart characteristic, muscle contractions, and preserving a wholesome blood stress and fluid balance.

### 2.2. They Protect Heart Fitness

Tomatoes comprise an antioxidant called lycopene that is accountable for their pink shade. Research suggests that during terms of coronary heart health benefits, it's more powerful to devour tomatoes and tomato merchandise than take lycopene supplements. Different research have shown that higher blood tiers of lycopene are tied to decrease dying quotes for people with metabolic syndrome, a cluster of hazard factors that increase the probabilities of developing coronary heart sickness, diabetes, and stroke.

### 2.3. Protect from Cancer

Observational studies have found hyperlinks among the celeb compound lycopene and fewer incidences of prostate, ovarian, lung, and stomach cancers.

### 2.4. Increase Digestive Fitness

The fluid and fiber in tomatoes may be beneficial if you're prone to constipation. (According to the usda one massive tomato consists of 6 oz of fluid, and 1.5 grams of fiber.) just be aware that in some human beings, the acidity from cooked tomatoes might also cause or get worse acid reflux and indigestion.

### 2.5. Assist with Diabetes Management

Tomatoes can be a protective food for humans with type 2 diabetes: in a single take a look at, people with diabetes who supplemented with cooked tomatoes for 30 days skilled a decrease in lipid per oxidation, a sequence reaction in which materials referred to as loose radicals assault fats, leading to harm that united states of americathe chance of heart ailment. This is mainly critical, because diabetes doubles the threat of stroke and heart assault.

## 3. Materials and Method

The experiment was performed during the period from April 2021 to October 2021 in the Wagan city, Larkana, Sindh, Pakistan. The seedlings (30 days age) of tomato (Black Krim) had been collected from the nursery of larkana. The experiment consisted of two doses of tomato tone solution viz. control or without tomato tone ((H0)) 2% tomato tone (H1) here, 2% tomato tone solution was prepared by mixing 20 ml tomato tone with 1 liter of water. The size of the plot turned into 1.6m × 1.2m and spacing become maintained with row to row and plant to plant 60 cm and 40 cm respectively [7]. Manures and fertilizers had been used which can be the recommended. Five tomato plants were randomly selected from every unit plot for the collection of information. Information have been amassed on exceptional boom and yield contributing characters. The information obtained for special characters had been statistically analyzed to discover the significance of the difference for level of tomato tone on yield contributing characters of tomato [12-14].

## 4. Results and Discussion

In the results we are see there are many changes was occurs in the tomato plant after use of tomatotone we found many changes in the tomato plant such as plant height, Number of leaves per plants, Numbers of the branches per plant, Number of flower cluster per plant, Numbers of the fruits per plant, Length of the fruit, Yield per plot, Yield of the tomato per hectare.

### 4.1. Plants Height

The levels of the tomato tone at the 15, 30, 45, and 60 Days (Days after Transplanting) represent great source of variation on the plants height (Figure 1). The longest plant (29.1 cm, 39.3 cm, 55.1 cm, and 72.1 cm) were obtained from the (H1) (2% tomato tone) respectively. However, the shortest plant (22.6 cm, 29.6 cm, 44.4 cm, 59.8 cm) was recorded from the (H0) (control) at 25, 30, 45, and 60 days, respectively.

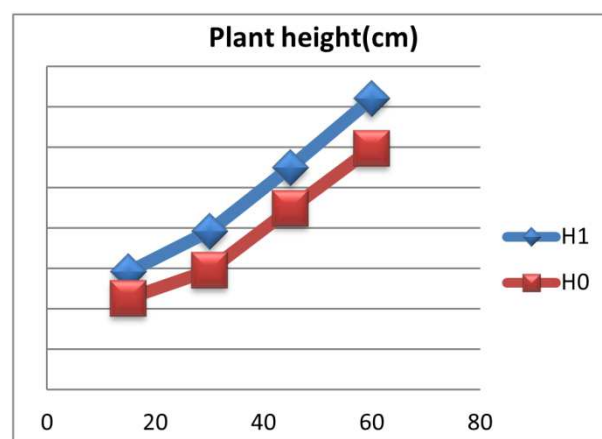


Figure 1. Plants height.

#### 4.2. Number of Leaves/Plants

Great variation was recorded in terms of number of leaves per plant of tomato at 15, 30, 45, and 60 DAT for different levels of tomato tone (Figure 2). At 60 Days, the greatest number of leaves per plant was recorded from (H1) (49) while the minimum number from the (H0) (40.7) [8, 9].

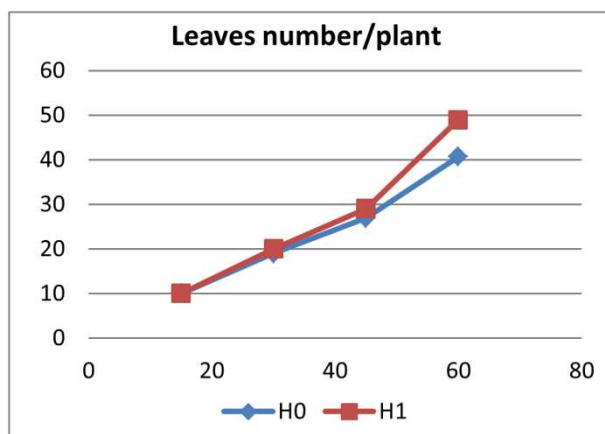


Figure 2. Leaves number per plant.

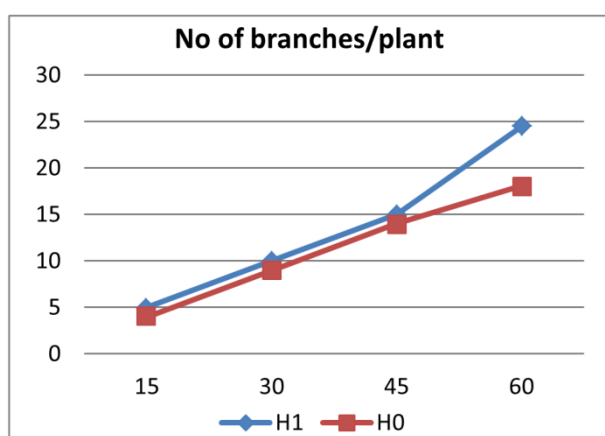


Figure 3. No of branches per plant.

#### 4.3. Numbers of the Branches/Plant

The used of tomatotone showed great source of variation on number of the branches per plant of tomato at 15, 30, 45,

and 60 Days (Figure 3). At 60 Days, the greatest number of the branches per plant (24.5) was obtained from (H1) (2% tomato tone). The minimum number (18.1) was observed from (H0) (no tomato tone).

#### 4.4. Number of Flower Cluster/Plant

Significant variation was observed for number of flower cluster per plant of tomato for the different level of tomatotone (Table 1). The highest number of flower cluster per plant (9.9) was found from H1 (2% tomato tone) respectively where as the lowest number of flower cluster/plant (7.9) was obtained from H0 (no tomato tone) [10].

#### 4.5. Numbers of the Fruits/Plant

Awesome version became recorded for quantity of the end result according to plant at distinctive level of tomato tone (table 1). The best number of fruits in line with plant (39.1) become obtained from (H1) (2% tomato tone) respectively while the lowest number (29.1) was found from (H0) (no tomato tone) [11].

#### 4.6. Length of the Fruit

Length of the fruit statistically greatest variation was found for length of fruit of tomato at different levels of the tomato tone (Table 1). The very best duration of fruit (4.9 cm) turned into found from the (H1) (2% tomato tone). The lowest length (4.2 cm) was observed from (H0) (no tomato tone).

#### 4.7. Yield/Plot

Statistically significant variations were recorded for the different level of tomatotone applications in terms of yield/plot (Table 1). The highest yield per plant (4.2 kg) was found from H1 (2% tomatotone) again, the lowest yield (3.5 kg) from the H0 (no tomatotone).

#### 4.8. Yield of the Tomato/Hectare

Yield/hectare of tomato numerous notably for the application of tomato tone (Table 1). The very best yield (21.8 t/ha) turned into recorded from (H1) (2% tomato tone), while the lowest yield (18.4 t/ha) from (H0).

Table 1. Impact of tomatotone on fruits numbers, length, and yield of the tomato.

Treatment	No of flower cluster/plant	No of the fruits/plant	Length of the fruit	Yield/plot	Yield/hectare
HO	7.9	29.1	4.2 cm	3.5 kg	18.4 t/ha
H1	9.9	39.1	4.9 cm	4.2 kg	21.8 t/ha

## 5. Conclusion

In this test, two level of tomato tone changed into used which resulted incredible version on increase contributing characters of tomato plant.

Among two level of Tomato tone, 2% tomato tone performed better then the (H0) no Tomato tone in respect of yield per hectare of summer tomato.

## References

- [1] AVRDC, (1990). Progress Report. Asian Vegetables Research and Development Center, Shanhua, Tainan, Taiwan. p. 352-358.
- [2] Kuo, C. G., Chen, B. W. & Chou, M. H. (1978). Tomato fruit set at high temperature, 1st International Symposium on Tropical Tomato, AVRDC, Taiwan. 94-108.

- [3] Younis, M. E. & Tigani, S. E. (1977). Comparative effect of growth substances on the growth, flowering and fruting of tomato plants. *Acta. Agron. Acad. Societ. Hsung.* 26, 89-103.
- [4] Conn, E. E.; Stumph, P. K. *Outlines of biochemistry.* 3rd ed. New York: John Wiley and sons; 1970.
- [5] Blum A, Monir M, Wirsansky I. The beneficial effects of tomatoes. *Eur J Intern Med* 2005; 16: 402-404.
- [6] Blum A, Merei M, Karem A. Effects of tomatoes on the lipid profile. *Clin Invest Med* 2006; 29: 298-300.
- [7] BARI, (2005). *Krishi Projukti Hatboi (Handbook of Agro-Technology).* Bangladesh Agricultural Research Institute, Joydevpur, Gazipur. p. 304.
- [8] Rahman, M. A. (2002). Screening of okra varieties for Agroforestry system under reduced light condition. MS Thesis, Department of Agroforestry and Environment, Bangabandhu Sheik Mujibur Rahman Agricultural University, Gazipur, Bangladesh. p. 78.
- [9] AVRDC, (1982). Progress Report. Asian Vegetables Research and Development Center, Shanhua, Tainan, Taiwan. p. 19-54.
- [10] AVRDC, (1997). Progress Report. Asian Vegetables Research and Development Center, Shanhua, Tainan, Taiwan. p. 124-140.
- [11] Miah, M. M. U. (2001). Performance of fibre winter vegetables under different light conditions for Agroforestry system. MS Thesis, Bangabandhu Sheik Mujibur Rahman Agricultural University, Gazipur, Bangladesh. p. 88.
- [12] Mohammed, A. E., Smit, I., Pawelzik, E., Keutgen, A. J., Horneburg, B., 2011. Organically grown tomato (*Lycopersicon esculentum* Mill.): bioactive compounds in the fruit and infection with *Phytophthora infestans*. *Journal of the Science of Food and Agriculture* 92, 1424–1431.
- [13] Simonne, A. H., Fuzere', J. M., Simonne, E., Hochmuth, R. C., Marshall, M. R., 2007. Effect of nitrogen rates on chemical composition of yellow grape tomato grown in subtropical climate. *Journal of Plant Nutrition* 30, 927–935.
- [14] Thompson, R. B., Gallardo, M., Rodri'guez, J. S., Sa'nchez, J. A., Maga'n, J. J., 2013. Effect of N uptake concentration on nitrate leaching from tomato grown in free-draining soilless culture under Mediterranean conditions. *Scientia Horticulturae* 150, 387–398.