

## ABSTRACT

Tomato (*Solanum lycopersicum* L.) is an important horticultural crop that contains vitamins and various beneficial compounds for human health. However, tomato production often fluctuates due to agricultural land conversion and the excessive use of inorganic fertilizers. Tomato productivity can be improved through the application of organic fertilizers, such as animal manure compost and eggshell-based liquid organic fertilizer.

This study aimed to determine the effects of solid compost fertilizer and eggshell-based liquid organic fertilizer on the growth and yield of tomato plants. The experiment employed a two-factor Randomized Block Design (RBD) with three replications. The first factor was compost fertilizer application consisting of three levels: K0 (0 tons ha<sup>-1</sup>), K1 (5 tons ha<sup>-1</sup>), and K2 (10 tons ha<sup>-1</sup>). The second factor was the application of eggshell-based liquid organic fertilizer consisting of three levels: C0 (0 mL L<sup>-1</sup>), C1 (14 mL L<sup>-1</sup>), and C2 (14.5 mL L<sup>-1</sup>).

The results showed that compost fertilizer significantly affected plant height at 42 days after planting (DAP), stem diameter at 28–42 DAP, leaf area at 28–42 DAP, flowering time, number of fruits per plant at the first harvest, fruit weight per plant at the first and second harvests, fruit diameter at the first to third harvests, fruit length at the second and third harvests, and yield (tons ha<sup>-1</sup>).

The application of eggshell-based liquid organic fertilizer significantly affected plant height at 42 DAP, leaf area at 21–42 DAP, flowering time, number of fruits at the first harvest, fruit weight at the first and second harvests, fruit diameter at the first to third harvests, fruit length at the second and third harvests, and yield (tons ha<sup>-1</sup>).

The interaction between compost fertilizer and eggshell-based liquid organic fertilizer significantly affected stem diameter at 21 and 28 DAP, leaf area at 21 and 28 DAP, number of fruits at the first harvest, and fruit weight at the first harvest.

**Keywords :** Tomato, Compost fertilizer, Eggshell fertilizer, Growth and yield