



## Boosting Guava Growth and Yield with Organic Manure and Biofertilizers

(Karandeveer Bishnoi, Dr.Saket Mishra, Dr.Vijay Bahadur and \*Reema Naik)

Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj

\*Corresponding Author's email: [reemanaik4548@gmail.com](mailto:reemanaik4548@gmail.com)

Guava (*Psidium guajava*) is a tropical fruit tree known for its delicious and nutritious fruit. It is grown in various parts of the world and is popular for its adaptability and high productivity. Guava cultivation has gained significant attention due to its economic importance and health benefits. To enhance guava production, sustainable and eco-friendly farming practices are essential. This article explores the influence of organic manure and biofertilizers on guava growth, yield, and productivity under meadow orcharding, emphasizing the environmental and economic benefits of these practices.



Guava is a perishable fruit that presents accelerated physiological processes. Therefore, nutrient handling of guava fruit should be done very carefully. The nutrient handling is done in such a way that it is not too much expensive, resistance to pest and disease. So, it is all about to observe the enhancement of growth of tree, quality and disease-free fruits so that it fulfills all needs of farmers.

Application of the organic manures such as F.Y.M, vermicompost and inorganic fertilizers such as N, P & K doses have been observed in increasing the number of leaves, the number of branches, plant height and also enhancing good yield and quality of fruits which, resulting in enhanced shoot growth, & fruit setting of fruit in ambient temperature.

### Organic Manure in Guava Cultivation

Organic manure, derived from natural sources such as compost, farmyard manure, and vermicompost, is rich in essential nutrients and organic matter. When applied to guava orchards, organic manure improves soil structure, enhances nutrient availability, and promotes microbial activity. This, in turn, benefits guava trees in numerous ways:

- 1. Enhanced Growth:** Organic manure provides a steady supply of nutrients, promoting vigorous vegetative growth in guava trees. This results in healthier, more robust plants with better resistance to pests and diseases.
- 2. Improved Soil Fertility:** Regular application of organic manure improves soil fertility, which is crucial for nutrient uptake and overall plant health. It also reduces the need for synthetic fertilizers, minimizing environmental impact.
- 3. Water Retention:** Organic matter in the soil increases its water-holding capacity, reducing the risk of drought stress in guava orchards, especially in arid regions.

### Biofertilizers in Guava Cultivation

Biofertilizers are microorganisms like bacteria and fungi that enhance nutrient availability to plants by fixing atmospheric nitrogen or solubilizing essential minerals in the soil. When biofertilizers are applied in guava cultivation, they offer several benefits:

- 1. Nitrogen Fixation:** Nitrogen-fixing bacteria, such as *Rhizobium* and *Azotobacter*, form symbiotic relationships with guava tree roots. They convert atmospheric nitrogen into a form that the plant can utilize, thereby reducing the need for synthetic nitrogen fertilizers.
- 2. Phosphorus Solubilization:** Phosphate-solubilizing bacteria and mycorrhizal fungi help solubilize phosphorus in the soil, making it more accessible to guava plants. This improves root development, flowering, and fruiting.
- 3. Disease Suppression:** Some biofertilizers, like *Trichoderma* spp., act as biocontrol agents, suppressing soil-borne pathogens and protecting guava plants from diseases.

### **Influence on Yield and Productivity**

The combination of organic manure and biofertilizers can significantly boost guava yield and productivity. When these natural inputs are utilized in meadow orcharding systems, the results are particularly impressive:

- 1. Increased Fruit Yield:** Guava trees treated with organic manure and biofertilizers produce higher fruit yields, resulting in increased income for growers.
- 2. Enhanced Fruit Quality:** The fruits harvested from organically managed orchards are often of superior quality, with better taste, texture, and nutritional content.
- 3. Sustainable and Environmentally Friendly:** Organic practices, including the use of organic manure and biofertilizers, are more environmentally sustainable. They reduce soil erosion, promote biodiversity, and decrease the risk of soil and water pollution from chemical fertilizers.
- 4. Cost-Efficiency:** While the initial investment in organic manure and biofertilizers may be slightly higher, the long-term cost-efficiency is undeniable, as they reduce the need for synthetic fertilizers and pesticides.

### **Conclusion**

Incorporating organic manure and biofertilizers into guava orchards under meadow orcharding systems not only promotes sustainable agriculture but also results in increased growth, yield, and productivity of guava trees. These practices contribute to healthier soil, enhanced fruit quality, and a reduced environmental footprint. As the world shifts towards more eco-friendly and sustainable agricultural practices, the influence of organic manure and biofertilizers on guava cultivation is undeniable and offers a promising avenue for both growers and consumers.

### **References**

1. Chandra R and Govind S. 1995. Influence of time and intensity of pruning on growth, yield and fruit quality of guava under high density planting. *Tropical Agriculture* 72: 110-3.
2. Dey, P., Rai, M., Nath, V., Das, B. and Reddy, N.N. 2005. Effect of biofertilizer on physico-chemical characteristics of guava fruit. *Indian J. Agri. Sci.* 75: 95-96
3. Dutta, P., Maji, S.B. and Das, B.C. 2009. Studies on the response of bio-fertilizer on growth and productivity of guava. *Indian Journal Horticulture* 66(1): 39-42.
4. Maity PK, Das BC, Kundu S. Effect of different sources of nutrients on yield and quality of guava cv. L-49. *Journal of Crop and Weed.* 2006; 2(2):17-19. 10.
5. Mannindla S, Prasad VM, Mishra S. Effect of different sources of organic and inorganic plant nutrients on fruit growth, yield and quality of guava (*Psidium guajava* L.) cv. Allahabad safeda. *Bioved.* 2014; 25(2):159-164.
6. Ram R A, Bharguvanshi S R, Garg N and Pathak R K. 2005. Studies on organic production of guava (*Psidium guajava* L.) cv. 'Allahabad safeda'. First International Guava Symposium, pp 69-70, held during 5-8 December 2005 at CISH, Lucknow

7. Singh T K, Dwivedi V and Singh D B. 2011. Integrated nutrient management of guava. Mysore Journal of Agricultural Sciences 45(4): 923-925. rnational Journal of Agricultural Science and Research Vol. 7: 23-30.
8. Singh, G., Mishra, A. K., Hareeb, M., Tandok, D. K. and Pathak R. K. 2003. The guava. Extension bulletin 17, Published by CISH, Lucknow (U.P.) India.
9. Varsha G, Barne SG, Bharad VN, Dod, Baviskar Effect of integrated nutrient management on yield and quality of Guava. Asian Journal of Horticulture, 2011; 6(2):546-548