

## INFLUENCE OF FOLIAR APPLICATION OF MICRONUTRIENTS ON FRUIT YIELD AND QUALITY OF GUAVA (*Psidium guajava*) Cv. ALLAHABAD SURKHA

<sup>1</sup>Jillela Sujith, <sup>2</sup>Vijay Bahadur, <sup>3</sup>Saket Mishra, <sup>4</sup>Shashi Kant Ekka

### Introduction:

Guava (*Psidium guajava* L.) is one of the most common fruit crop in the world and it is widely grown in various tropical and subtropical regions. The origin of guava is from tropical America in the area from Mexico to Peru. Belonging to the Myrtaceae family it's known to be the "Poor man's apple" and "apple of tropics". The edible part of guava is pericarp and thalamus. It has a bearing ability of 4 years. It's been used for direct consumption as well as for processing purposes. The fruits are round to pear-shaped and measure up to 7.6 cm in diameter, their pulp contains many small hard seeds (more abundant in wild forms than in cultivated varieties). The fruit has a yellow skin and white, yellow, or pink flesh. The musky, at times pungent, odor is observed. Genus *Psidium* contains approx. 150 species. The important species of this family are *Psidium*

*guajava* L. (common guava), *Psidium cattleianum* Sabine. (Chinese or strawberry guava), *Psidium guineense* Sw. (Brazilian guava), *Psidium friedrichsthalianum* Berg. (Costa Rica guava), *Psidium montanum* Sw. (Mountain guava), *Psidium pyriferum* L. (Pear fruited guava). Guava originated from Tropical America (Peru). India is one of the highest guava producing countries in the world with production of 36.67 lakh tones from area 2.68 lakh ha and productivity of 13.7 MT/ha (NHB Database, 2022) followed by Pakistan. The other countries producing guava are Thailand, Indonesia, China, Mexico, Brazil, the Philippines, Bangladesh, and Nigeria. In India Maharashtra is leading state in total area under guava whereas Uttar Pradesh is in third position. District Allahabad has the reputation of growing the best guava in the country as well as in the world. Well established markets for guava are found in more than 60 countries.

<sup>1</sup>Jillela Sujith, <sup>2</sup>Vijay Bahadur, <sup>3</sup>Saket Mishra, <sup>4</sup>Shashi Kant Ekka

*1M.Sc.(Horti.) Fruit Science, Department of Horticulture, Sam Higginbottom University of Agriculture Technology and Science, Naini, Prayagraj.*

*2Associate Professor, Department of Horticulture, Sam Higginbottom University of Agriculture Technology and Science, Naini, Prayagraj.*

*3Assistant Professor, Department of Horticulture, Sam Higginbottom University of Agriculture Technology and Science, Naini, Prayagraj.*

*4Research Scholar, Department of Horticulture, Sam Higginbottom University of Agriculture Technology and Science, Naini, Prayagraj.*

The Brazil is the highest producer of guava. In India UP produces the best quality guava.

### **BOTANICAL CLASSIFICATION OF GUAVA:**

Guava, (*Psidium guajava*), small tropical tree or shrub of the family Myrtaceae, cultivated for its edible fruits. Guava trees are native to tropical America and are grown in tropical and subtropical areas worldwide. Guava fruits are processed into jams, jellies, and preserves and are common pastry fillings. Fresh guavas are rich in vitamins A, B, and C; they are commonly eaten raw and may be sliced and served with sugar and cream as a dessert.

Myrtaceae, the myrtle family of shrubs and trees, in the order Myrtales, containing about 150 genera and 3,300 species that are widely distributed in the tropics. They have rather leathery evergreen leaves with oil glands. Some members of economic importance are the Eucalyptus, guava, rose apple, Surinam cherry, and feijoa. Allspice, clove, and oil of bay rum are spices derived from plants of this family. Other members of the family include Brisbane box, Callistemon, Eugenia, Leptospermum, myrtle, and jaboticaba (qq.v.).

“ALLAHABAD SURKHA” are a variety of guava having deep pink color inside instead of the typical white color and an apple red exterior skin. This fruit is sweet, and

strongly flavoured with few seeds and is slightly depressed at both ends. The plants are vigorous, dome shaped and compact. These guavas are cultivated across the Allahabad, Uttar Pradesh region in the northern belt of India. Allahabad Surkha is cultivated today on almost 1000 hectares of land mainly under Kaushambi and Kaurihar districts of Allahabad. The fruit is known for its medical properties such that during the winter season because it neutralizes disease symptoms.

### **ECONOMIC IMPORTANCE OF GUAVA:**

Guava fruit is nutritious and has substantial health benefits compared to other fruits. Knowing its nutritional value, guava is gaining popularity in the various food processing industries. Since Guavas are rich sources of Vitamins C, Calcium, and Pectins, the fruit is used to manufacture processed foods like jellies, jams, fruit cheese, and nectars. Since pink guava puree has a pleasant taste, aroma, and attractive colour, the puree is used in cakes, sauces, desserts, toppings, and puddings.

Since the fruit pulp industry is expected to grow in the coming years, the demand for fresh juices and drinks has increased in the past few years. Guava Pulp is primarily used to manufacture smoothies, fruit drinks, cocktails, and other guava-based drinks. Guava pulp is also a key ingredient in the dairy industry and is used in the

manufacturing of Ice creams; guava flavoured yoghurts, and milkshakes.

### INFLUENCE OF MICRONUTRIENTS ON GUAVA:

Guava plants show micronutrient deficiency and could be responsible for lesser yield and quality. Foliar feeding of nutrients to fruit plants has gained much importance in recent years which is quite economical and obviously an ideal way of evading the problems of nutrients availability and supplementing the fertilizers to the soil. Micronutrients like Calcium and Boron perform a specific role in the growth and development of plant, quality produce and uptake of nutrients and are responsible for metabolic activities in fruit physiology. Application of micronutrients should be at first growth phase and before flowering. Boron is a constituent of cell membrane and essential for cell division. It acts as a regulator of potassium/calcium ratio in the plant helps in nitrogen absorption and translocation of sugar in plant. It also increases nitrogen availability to the plant. Iron increases the chlorophyll content of leaves, reflecting the colour of leaves.

### CONCLUSION:

Micronutrients provide special lubricants required for variety of energy transfer mechanism within the plants. They are as important as macronutrients for growth,

yield and quality of fruits. They are required in traces. Micronutrients are involved in all metabolic and cellular functions. Micronutrients happen to improve quality, size, colour, taste and earliness of fruits thereby enhancing their market appeal, improve input use efficiency of NPK fertilizers and water. They provide disease resistance, thereby reducing dependence on plant protection chemicals, increase the post-harvest life of horticultural produce thereby avoiding wastage prevent physiological disorders and increase marketable yield.

### References:

1. **Bagali, A.N., Hulamani, N.C. and Sulikeri, G.S. 1993.** Effect of foliar application of zinc, magnesium and boron on grown and yield of guava (*Psidium guajava* L.) Cv. Sardar. *Karnataka J. Agric. Sci.*, 6(2):137-141.
2. **El-Sherif AA, Saeed WT, Nauman VF.** Effect of foliar application of potassium and zinc on behaviour of Monta Kabb-El-Kanater guava tree. *Bulletin of Faculty of Agriculture, University of Cairo.* 2000; 51(1):73-84.
3. **Kumar, S., Bhushan, S. 1980.** Effect of zinc, manganese and boron applications on quality of Thompson Seedless grapes. *Punjab Hort J.* 20:62-65.
4. **Kumar J, Kumar R, Rai R, Mishra DS.** Response of 'Pant Prabhat' guava

- trees to foliar sprays of zinc, boron, calcium and potassium at different plant growth stages. *The Bioscan*. 2015; 10(2):495-498.
5. **Lal, G., Sen, N.L. 2001.** Effect of N, Zn and Mn fertilization on fruit quality of guava (*Psidium guajava* L.) cv. Allahabad Safeda. *Haryana J Hort Sci* 30(3, 4): 209-10.
6. **Mansour, N. M. and EL-Sied. 1981.** Effect of zinc sulphate on set and yield of guava trees. *Agril. Res. Review (cairo)*, 59: 119-135.
7. **Meena, R.P., Mohammed, S. and Lakhawat, S.S. 2005.** Effect of foliar application of urea and zinc sulphate on fruit quality and yield of pruned guava tree (*Pisidium guajava* L.). Cv. Sardar under high density planting system. *J. Hort. Sci.*, 11(2): 90-93.
8. **Rawat, V., Tomar, Y.K. and Rawat, J.M.S. 2010.** Influence of foliar application micronutrients on the fruit quality of guava Cv. Lucknow-49. *J.Hill Agri.*, 1(1):63-66.
9. **Sharma, D.P. and Sharma, R.G. 1992.** Effect of foliar application of N- P- K on growth and yield of guava (*Psidium guajava* L.) *Adv in Plantsci*, 5:313315.
10. **Skoog, F. 1940.** Effect of Zinc-auxin in plant growth. *Hort Abst* 11: 332.
11. **Trivedi, N., Singh, D., Bhadur, V., Prasad, V.M. and Collis, J.P. 2012.** Effect of foliar application of zinc and boron on yield and quality of guava (*Psidium guajava* L.). *Hort.Res. Spect.* 1(3):281-283.