

Short Communication

Effect of Foliar Spray of Micronutrients and their Combinations on Yield of Pomegranate

B.S. Afria, C.S. Pareek, D.K. Garg and Karan Singh

Department of Plant Physiology, SKN College of Agriculture, Jobner 303 329, India

Pomegranate is one of the most important fruit crops of arid region with an average yield of about 7-8 kg per plant, which is quite low. Low soil fertility is a major reason for poor yield of pomegranate. There is little information on the effect of foliar sprays of micronutrients on the yield of pomegranate, specially for sandy and nutrient deficient soils of Rajasthan. Therefore, the present experiment was

undertaken to study the effect of foliar spray of micronutrients and their combinations on yield and its parameters in pomegranate.

The experiment was conducted in a 5-year-old pomegranate orchard of Ganesh cultivar at Asalpur Farm of Agriculture College, Jobner, in the year 1992. The three micronutrients (zinc, iron and boron), and their combinations, were sprayed on the

Table 1. Effect of foliar spray of micronutrients and their combinations on yield and contents of Fe and Zn in leaves of pomegranate cv. Ganesh

| Treatment | Average No. of fruits/plant | Average fruit weight (g) | Yield/plant (kg) | Average foliar iron content (mg/g of dry wt.) | Average foliar zinc content (mg/g of dry wt.) |
|--|-----------------------------|--------------------------|------------------|---|---|
| T ₁ = Control | 40.54 | 165.3 | 6.62 | 1.410 | 0.047 |
| T ₂ = FeSO ₄ (0.4%) + Citric acid (0.04%) | 45.10 | 169.4 | 7.63 | 1.736 | 0.068 |
| T ₃ = ZnSO ₄ (0.25%) | 56.25 | 176.5 | 9.92 | 0.685 | 0.159 |
| T ₄ = Na ₂ B ₄ O ₇ (Borax, 0.2%) | 48.10 | 170.2 | 8.18 | 0.345 | 0.082 |
| T ₅ = T ₂ + T ₃ | 47.50 | 170.5 | 8.09 | 1.395 | 0.139 |
| T ₆ = T ₂ + T ₄ | 45.80 | 169.8 | 7.77 | 1.515 | 0.056 |
| T ₇ = T ₃ + T ₄ | 60.40 | 174.6 | 10.54 | 0.820 | 0.088 |
| T ₈ = T ₂ + T ₃ + T ₄ | 61.65 | 180.5 | 11.22 | 0.985 | 0.105 |
| Mean | 50.66 | 173.3 | 8.75 | 0.986 | 0.093 |
| SEM ± | 5.801 | 3.210 | 0.40 | 0.1482 | 0.0131 |
| CD at 5% | 11.208 | 6.108 | 1.10 | 0.4710 | 0.0423 |

Micronutrient content of the orchard soil: Zn = 0.38 ppm, Fe = 4.40 ppm, B = 0.40 ppm.

Normal range of micronutrient content in soil: Zn = 0.6 ppm, Fe = 4.5 ppm, B = 0.5 ppm.

leaves of 15 plants at full bloom and fruit set stages. Water was sprayed on control plants. The observations were recorded on yield and its parameters. The foliar iron and zinc contents were estimated by Atomic Absorption Spectrophotometer. Analysis of the orchard soil was also done for knowing availability of zinc, iron and boron in the soil.

The yields, in general, were low due to the sandy texture of the orchard soil. Number of fruits per plant, average fruit weight, yield per plant weight and yield per plant were maximum in the treatment T₈ (ZnSO₄ + FeSO₄ + Borax), followed by treatment T₇ (ZnSO₄ + Borax) and T₃ (ZnSO₄), as depicted in Table 1. It was observed that zinc sulphate alone, and in combination with other micronutrients (specially with boron), gave better results, as compared to other treatments, since soils were deficient in zinc and boron contents (0.38 and 0.40 ppm, respectively). In earlier studies also, a higher increase in yield of grapes was recorded with foliar spray of zinc sulphate and its combination than by

ferrous sulphate or borax (Dhillon and Bindra, 1995; Yamadagni *et al.*, 1981).

The foliar content of iron, as expected, was found significantly higher in the treatments T₂ (ZnSO₄, 0.4%) and T₆ (T₂ + T₄) as depicted in Table 2. Similarly, the foliar content of zinc (Table 2) was significantly higher in treatments T₃ (ZnSO₄, 0.25%) and T₅ (T₂ + T₃). These findings showed a good response of foliar spray of micronutrients on the pomegranate cv. Ganesh. Similar observations were recorded on grapes (Dhillon and Bindra, 1995).

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References

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