

Influence of organics, plant growth regulators and micronutrients on yield and yield components in carrot (*Daucus carota* L.)

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SUMMARY

A field experiment was conducted at Main Agricultural Research Station, University of Agricultural Sciences, Dharwad during *rabi* seasons of 2003-04 and 2004-05. The results revealed that yield components *viz.*, root length, root diameter and fresh weight of root differed significantly due to application of organics, plant growth regulators and micronutrients. Among varieties, Pusa Kesar recorded significantly higher root length and fresh weight of root over Dharwad Local. Among treatments, effect was more pronounced with the application of RDF + GA₃ (40 ppm) and RDF + cytozyme (2000 ppm) over other treatments.

Key words : Vermicompost, Carrot, GA₃, MnSO₄, RDF, Miracullar, Plant growth regulators, Micronutrients, Carrot

Carrot (*Daucus carota* L.) is an important vegetable crop grown all over the world in spring, summer and autumn in temperate regions and during winter in tropical and sub-tropical regions. Carrot roots are used as a vegetable for soups, stews, curries and pies; grated roots are used as salad, tender roots as pickles and gajar halwa is a delicious dish. Carrot juice is a rich source of carotene and is sometimes used for colouring buffer and other food articles. Carrot root is an excellent source of carotene (1890 mg/100 g fresh weight), a precursor of vitamin-A and fibre in the diet. Vitamin-A is an important nutrient, especially deficiency of which causes xerophthalmia, an eye ailment. In several carrot growing areas in our country, many soils may be unable to supply the available nutrients at the rate at which the carrot plants need for their maximum growth and yield. In recent years, the use of organics, micronutrients and plant growth regulators is gaining more importance in improving the yield potential and also the quality of the produce in several crops.

MATERIALS AND METHODS

Experiments were conducted at Main Agricultural Research Station, University of Agricultural Sciences, Dharwad during *rabi* seasons of 2003-04 and 2004-05. The following treatment combinations involving organics (applied at the time of sowing), plant growth regulators and micronutrients were applied as foliar spray at 30th and 50th day after sowing on two cultivars *viz.*, Dharwad Local and Pusa Kesar. The experimental site consisted of medium black clay loam soil and common dose of RDF (75:62.5:50 kg NPK/ha) was supplied to all the treatments receiving organics, plant growth regulators and micronutrients. The details of the treatments are given

below.

- T₁ - Control (RDF)
- T₂ - RDF + Vermicompost (12.5 t/ha)
- T₃ - RDF + FYM (5 t/ha)
- T₄ - RDF + *Azospirillum* (500 g/ha)
- T₅ - RDF + Miraculan (1000 ppm)
- T₆ - RDF + Miraculan (2000 ppm)
- T₇ - RDF + Cytozyme (1000 ppm)
- T₈ - RDF + Cytozyme (2000 ppm)
- T₉ - RDF + GA₃ (20 ppm)
- T₁₀ - RDF + GA₃ (40 ppm)
- T₁₁ - RDF + MgSO₄ (0.5%)
- T₁₂ - RDF + MgSO₄ (1.0%)
- T₁₃ - RDF + FeSO₄ (0.3%)
- T₁₄ - RDF + FeSO₄ (0.6%)
- T₁₅ - RDF + MnSO₄ (0.3%)
- T₁₆ - RDF + MnSO₄ (0.6%)

RESULTS AND DISCUSSION

During both seasons (2003-04 and 2004-05), the variety Pusa Kesar recorded significantly higher root length, fresh weight of root and root yield as compared to Dharwad Local. Among treatments, application of RDF + GA₃ (40 ppm) and RDF + cytozyme (2000 ppm) were found to be very effective over other treatments (Table 1 and 2). The lowest root length and root yield was recorded in control (RDF). The data on root diameter recorded significantly higher in Dharwad Local over Pusa Kesar. The interaction between variety and treatments showed non-significant during both the seasons. All the treatments showed significantly higher root diameter compared to control.

The carrot root yield depends on the accumulation

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