

Studies on integrated nutrient management on vegetative growth, fruiting behaviour and soil fertilizer status of ber (*Zizyphus mauritiana* Lamk.) orchard cv. BANARASI KARAKA

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ABSTRACT

The present experiment was carried out at Main Experiment Station, Department of Horticulture, Narendra Deva University of Agriculture and Technology, Kumarganj, Faizabad (U.P.) during the year 2005-06 and 2006-07, to evaluate the response of organic manures, inorganic fertilizers and biofertilizers on vegetative growth, fruiting behaviour and soil fertility status of ber orchard cv. BANARASI KARAKA. The maximum plant height, spread, trunk girth, fruit set and fruit retention was recorded with the soil application of T₈ (FYM+100%NPK+Azotobacter+PSB) closely followed by T₉ (FYM+75%NPK+Azotobacter+PSB). The maximum improvement of soil nutrient status viz., organic carbon, N, P, K, calcium, magnesium and minimum soil pH and EC with the soil application of T₈ (FYM+100%NPK+Azotobacter+PSB) which was at par with T₉ (FYM + 75% NPK +Azotobacter + PSB) treatment, during both the year of experimentation.

Key words : Integrated Nutrient Management, Ber orchard

Ber (*Zizyphus mauritiana* Lamk.) is one of the most important fruit which belongs to family Rhamnaceae. It is also known as Chinese date or Chinese fig and commonly consider as poor man's fruit. This fruit probably originated in India. It is reported to be grown in other countries like Iran, Syria, Australia, USA, France and certain parts of Italy, Spain, Africa etc. Precisely it is seen to grow under tropical and sub-tropical as well as Mediterranean region of the world. The major growing state is India, like Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, Gujarat and Maharashtra. It is cultivated widely for its resistance to grow in drought and other diversified soil and climatic condition. In Uttar Pradesh, ber orchards are found around Varanasi, Aligarh, Fatehpur, Faizabad, Agra and Raibareilly district (Singh *et al.*, 1973). It is one of the most nutritious fruit and good source of vitamin A, B and C. Ber fruits are richer than apple in proteins, phosphorus, calcium, carotene and ascorbic acid. The present investigation was, therefore, undertaken to evaluate the combined effect of organic manures, biofertilizers and inorganic fertilizer on vegetative growth, fruiting behaviour and soil fertility status of ber orchard.

MATERIALS AND METHODS

The field experiment was carried out on eight years old plant of ber cv. BANARASI KARAKA, having uniform vigour were selected at Main Experiment Station (Horticulture) of Narendra Dev University of Agriculture and Technology, Kumarganj, Faizabad (U.P.) during the year 2005-06 and 2006-07. The experiment was laid out

in Randomized Block Design (RBD) with following ten treatments and each treatment was replicated three times.

T₁ (Control), T₂ (FYM), T₃ (NPK), T₄ (FYM + 100% NPK), T₅ (FYM + 75% NPK), T₆ (FYM + 50% NPK), T₇ (FYM+Azotobacter+PSB), T₈ (FYM + 100% NPK + Azotobacter+PSB), T₉ (FYM + 75% NPK + Azotobacter+PSB) and T₁₀ (FYM + 50% NPK + Azotobacter+PSB). The observations were recorded on vegetative growth, fruiting behaviour and soil fertility status of ber orchard.

RESULTS AND DISCUSSION

Data presented in Table 1 clearly indicated that vegetative growth characteristics viz., plant height, spread and trunk girth was improved by all the treatments over control. The maximum plant height, spread and trunk girth was recorded with T₈ (FYM+100%NPK+Azotobacter+PSB), which was at par with T₉ (FYM+75%NPK+Azotobacter+PSB). However, minimum in control were during both the year of experimentation. It might be due to proper supply of nutrients and induction of growth hormones. Babu and Sharma (2005) also reported that maximum height and girth of banana pseudostem were recorded under 100%NPKS+ 20Kg FYM+10 kg Azolla plant followed by 75%NPKS+ 20Kg FYM+100 kg Azolla plant which were at par with each other but significantly superior as compared to rest of the treatments. Shirol *et al.* (2003) also reported maximum increase in plant height and tree value with the integrated use of 25 kg FYM+200:140:150g NPK plant⁻¹. The better vegetative