

EFFECT OF DIFFERENT SPACINGS AND NITROGEN LEVELS ON GROWTH AND FLOWER PRODUCTION OF GOLDEN ROD (*Solidago canadensis* L.)

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Accepted : November, 2007

ABSTRACT

A field experiment laid out in factorial randomized block design with three spacings viz., 30 x 20 cm, 30 x 30 cm and 30 x 40 cm, four nitrogen levels viz., 0, 100, 150 and 200 kg N/ha along with four replications, showed that growth of the plant, quality of flower and yield increased with increasing levels of nitrogen. The spacing of 30 x 30 cm (28 plants/2.42 sqm) and 150 kg. N/ha nitrogen application of 150 kg. ha⁻¹ was found optimum for the production of desirable quality and yield of flowers of golden rod.

Key words : Spacing, Nitrogen levels, Growth, Flower production, Golden rod.

Golden rod is a perennial flowering plant and has got and ornamental status. Though it is a commercial flower, very little research work has been done. Spacing and nitrogen application play a major role in obtaining satisfactory crop with desirable quality. Arora and Khanna (1986) reported that spacing and nitrogen fertilization are important factors contributing towards both yield and quality of ornamental crops like gladiolus, chrysanthemum, tuberose, carnation etc. To find out the effect of different spacings and various levels of nitrogen on growth, flowering and yield of golden rod, the present investigation was planned.

MATERIALS AND METHODS

The field experiment was laid out in factorial randomized block design with four replications and twelve treatments, at Modi Bagh Garden of Horticulture Section, College of Agriculture, Pune in the year of 2004. The gross plot size was 2.4 x 1.5 m, while, net plot size was 2.1 x 1.2 m. Flat beds at a distance of 30 x 20 cm² (42 plants / 2.52 sq.m.), 30 x 30 cm (28 plants/ 2.52 sq.m.) and 30 x 40 cm (21 plants/ 2.52 sq.m.) were prepared. Common dose of 50 kg P₂O₅ and 50 kg K₂O/ha were applied as a basal dose. Nitrogen was applied as per the treatments. Half dose of N was applied 45 days after planting and the remaining half N was applied 15 days after the first dose. The observations on the plant height, number of leaves on main stalk, spread of plant,

number of days required for hundred per cent flower to open, number of days required to dry 100 per cent flowering, number of flowering stalk per hill and number of flowering stalk per hectare were recorded. The soil samples collected before planting and after harvest, were analyzed for physico-chemical characteristics by adopting standard methods (Black, 1965 and Jackson, 1973). The data obtained were statistically analyzed as per the method advocated by Panse and Sukhatme (1967).

RESULTS AND DISCUSSION

Plant height :

It was observed that among different spacings, significantly maximum plant height was resulted from wide spacing S₃ being 26.81 cm followed by closer spacing S₂ (25.52 cm) and S₁ (24.08 cm) which significantly differed from one another (Table 1). Highest plant height (27.66 cm) was recorded at N₃ level (200 kg N/ha). It was significantly superior to N₁ (100 kg N/ha) and no (control) but was at par with N₂ level (150 kg N/ha). The data revealed that the maximum plant height (29.04 cm) was recorded under a combination of 30 x 40 cm and 200 kg N/ha that was significantly higher than those recorded for the rest of the treatment combinations, but was at par under 30 x 40 cm spacing and 150 kg N/ha. This may probably be due to the availability of more nutrients, moisture and light which ultimately increased the photosynthetic rate and enhanced the metabolic activities which reflected as maximum height of plant. The result are in agreement with those of Arora and Jhon (1978) in carnation, Borrelli (1984) and Gowda (1987) in gladiolus.