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Effect of nitrogen and potassium on growth, flower yield and quality of golden rod

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Abstract : An experiment entitled, effect of nitrogen and potassium on growth, flower yield and quality of golden rod was carried out at Horticulture Section, College of Agriculture, Nagpur, during Nov., 2009 to April, 2010 with sixteen treatment combinations in factorial randomized block design. The treatments comprised of four levels (0, 50, 100 and 150 kg ha⁻¹) each of nitrogen and potassium. The results revealed that, an application of 150 kg ha⁻¹ each of nitrogen and potassium produced maximum length of flower stalk of golden rod, number of inflorescence flower stalk⁻¹ and maximum durability of inflorescence *in situ*. Whereas, maximum spread of inflorescence, vase life of flower stalk and yield of flower stalks ha⁻¹ were recorded under the treatment 150 kg N ha⁻¹ and 100 kg K₂O ha⁻¹. However, the maximum length of inflorescence was recorded due to the application of 100 kg each of nitrogen and potassium ha⁻¹.

Key words : Golden rod, Nitrogen, Potassium, Flower yield, Quality

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Golden rod (*Solidago canadensis* L.) is a perennial flowering plant which is grown for its attractive, long and straight flower stalk. It is commonly used for cut flower in India. Because of its easy cultivation, adaptability to varying soil and climatic conditions and excellent keeping quality, there is a great scope for cultivation of golden rod in India. It is well known that, nutrition plays an important role in improvement of growth and yield in flower crops like golden rod. Potassium also plays an important role in golden rod cultivation. However, the response of potassium increases significantly in the presence of nitrogen.

RESEARCH METHODS

The present investigation was carried out at Horticulture Section, College of Agriculture, Nagpur during Nov., 2009 to April, 2010 to study the effect of nitrogen and potassium on growth and flowering of golden rod. Sixteen treatment combinations with four levels of nitrogen (0, 50, 100 and 150 kg ha⁻¹) and four levels of potassium (0, 50, 100 and 150 kg ha⁻¹) were tried in factorial randomized block design with three replications. Golden rod suckers of uniform size were transplanted at the spacing of 30 cm x 30 cm in the month of November,

2009. Half the dose of nitrogen and full dose of potassium were applied as per the treatment before transplanting and the remaining half dose of nitrogen was applied after 45 days of transplanting. However, phosphorus was applied as a basal dose before transplanting. Various growth, flowering and yield observations *viz.*, height of plant (cm) at 90 days after transplanting, length of flower stalk and inflorescence (cm), inflorescence flower stalk⁻¹, spread of inflorescence (cm), durability of inflorescence *in situ* (days), vase life of flower stalk (days) and flower stalks plant⁻¹ and ha⁻¹ (lakh) were recorded.

RESEARCH FINDINGS AND DISCUSSION

The data presented in Table 1 revealed that, different levels of nitrogen and potassium had significant effect on all growth and flowering parameters of golden rod studied.

Growth:

Significantly the highest plant height (21.13 cm) was recorded at higher level of nitrogen *i.e.* 150 kg N ha⁻¹ which was followed by the treatment of 100 kg N ha⁻¹ (19.64 cm), whereas, application of 0 kg N ha⁻¹ had produced significantly minimum plant height (17.31 cm).