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Effect of nitrogen and phosphorus levels on flower yield and quality of annual chrysanthemum

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ABSTRACT : An experiment entitled, effect of nitrogen and phosphorus levels on growth and flower yield of annual chrysanthemum 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 with three replications. The treatments comprised of four levels of nitrogen *viz.*, 0, 100, 150 and 200 kg N ha^{-1} and four levels of phosphorus *viz.*, 0, 50, 75 and 100 kg P ha^{-1}. The results of present investigation revealed that, an application of 200 kg N and 100 kg P_2O_5 ha^{-1} significantly produce maximum flower yield *viz.*, weight of flower, flower yield $plant^{-1}$ and flower yield ha^{-1}. In respect of quality parameters *viz.*, diameter of flower, length of pedicel and longevity of intact flowers were recorded maximum in the same treatment. However, the minimum diameter of flower disc was recorded under the treatment combination of 100 kg N ha^{-1} and 50 kg P_2O_5 ha^{-1}.

KEY WORDS : Annual chrysanthemum, Nitrogen, Phosphorus, Flower yield, Quality

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Annual chrysanthemum (*Chrysanthemum coronarium*) is one of the most important flower crop grown in India. Maharashtra is one of the leading states in flower production. The growers get attracted towards annual chrysanthemum due to its short duration to produce marketable attractive yellow and white colour flowers with good keeping quality.

In Vidarbha region, the demand of chrysanthemum flowers is for various purposes and increasing tremendously. Growers in this region facing problem in scientific cultivation of chrysanthemum due to lack of technical information and improved agro-technique like fertilizer dose. Fertilization plays an important role in growth and flower yield production in flower crops. Therefore, the present investigation was undertaken to study the effect of nitrogen and phosphorus on growth and flower yield of annual chrysanthemum, standardization of agro-techniques in annual chrysanthemum is essential to obtain the higher yield of quality flowers.

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 phosphorus levels on growth and flower yield of annual chrysanthemum. Sixteen treatment combinations with four levels of nitrogen *viz.*,0, 100, 150 and 200 kg N ha^{-1} and four levels of phosphorus *viz.*, 0, 50, 75 and 100 kg P ha^{-1} were tried in factorial randomized block design with three replications. Seed of annual chrysanthemum were sown on raised beds in the month of October 2009 and the uniform sized and healthy seedlings were selected for transplanting which was done on 6th Nov. 2009. Treatment wise different nitrogen levels were applied in the form of urea and four levels of phosphorus were applied in the form of single super phosphate. A constant recommended dose of K_2O was applied through muriate of potash according to the plot size. Half dose of nitrogen and entire dose of phosphorus was applied as a basal dose, at the time of transplanting and remaining half dose of nitrogen was given one month after transplanting. Five plants were selected