

## Effect of integrated nutrient management on growth and yield of onion (*Allium cepa* L.) seed production

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### ABSTRACT

A field experiment entitled, "Effect of integrated nutrient management on growth and yield of onion seed production" with variety of N-2-4-1 was conducted at the Central Farm, M.P.K.V., Rahuri during *rabi* 2004-05. The experiment was laid out in randomized block design with nine treatments and three replications. Significantly higher values of all growth attribute parameters were recorded with the treatment ( $T_2$ ) fertilizer combination of 120 : 60 : 60 N :  $P_2O_5$  :  $K_2O$  kg ha<sup>-1</sup> + 20 t FYM ha<sup>-1</sup> over all treatments but was closely followed by application of RDF as per soil test. The treatment ( $T_3$ ) 75 % RDF + 5 t FYM ha<sup>-1</sup> recorded the lowest values of growth attributes. Treatment ( $T_2$ ) 120 : 60 : 60 NPK + 20 t FYM ha<sup>-1</sup> recorded highest number of umbels/plant, number of seeds/umbel, weight of seeds/umbel and 1000 seed weight (g). The use of 100 per cent RDF ( $T_2$ ) through inorganic source with 20 t FYM ha<sup>-1</sup> was capable to gain the highest residual N, P and K. The results obtained in the present investigation indicated that the treatment ( $T_2$ ) combination of 100 % RDF of NPK (120 : 60 : 60 kg ha<sup>-1</sup>) with FYM (20 t ha<sup>-1</sup>) gave the highest seed yield. So it can be advocated for cv. N-2-4-1 in *rabi* season under irrigated conditions.

**Key words :** Nutrient management, Seed production.

### INTRODUCTION

Onion (*Allium cepa* L.) is one of the most important vegetable cash crop grown for vegetable in green stage as well as for mature bulb. Onion has called as "Queen of Kitchen" (Selviraj, 1976). India is the second largest producer of onion in the world with an area of 5.2 lakh ha and production of 65.7 lakh MT next only to China (Anonymous, 2003). Onion ranks first in the export of fresh vegetables from India constituting 73.94 per cent. Its productivity was low i.e. 10.67 t ha<sup>-1</sup> compared to world average productivity of 17.16 t ha<sup>-1</sup>. Maharashtra is the largest producer of onion in the country with an output of 30 lakh metric tonnes production from 1.03 lakh ha area which is about 25 per cent to the production and 20 per cent to the total area. As per the estimates of NSC, India needs about 4000 tonnes of certified seed of onion per year while the production of seed for year 1998-99 was about 6000 quintals (Singh, 2003) this indicates that there is a great need for increasing seed production of onion. The yield of onion seed depends mainly on cultural practices like nutrition, irrigation, plant protection measures besides the congenial climatic factors. Nutrition is one of the most important factor which governs the onion seed production. There is need of supplementing the use of chemical fertilizers with organic manures. Organic matter provides many additional benefits such as supply of micronutrients, preventing erosion improving drainage and food microorganisms as well as increase in

base exchange capacity. As NPK doses and FYM application are varietal specific also, here is need to undertake the research on seed production aspect to onion cultivation. Therefore, it is envisaged to investigate the optimum dose of NPK and FYM application for onion seed crop to maximize the seed yield under Rahuri conditions. With these considerations in mind, the present trial was conducted to study the INM on growth and yield of onion seed crop.

### MATERIALS AND METHODS

The present field investigation entitled, "Effect of integrated nutrient management on growth and yield of onion seed production" was carried out during *rabi* season 2004-05 at Central Farm, M.P.K.V., Rahuri (M.S.). The soil of the experimental field was clayey in texture, alkaline in reaction (pH 8.30) low in available nitrogen (141.41 kg ha<sup>-1</sup>), medium in available phosphorus (19.11 kg ha<sup>-1</sup>) and high in available potassium (450 kg ha<sup>-1</sup>).

The experiment was laid out in randomized block design with nine treatments and three replications. Treatment consisted of RDF dose of NPK ha<sup>-1</sup> (as per soil test), RDF of NPK (120 : 60 : 60 NPK kg ha<sup>-1</sup>) + 20 t FYM ha<sup>-1</sup>, 75 % RDF + FYM 5 t ha<sup>-1</sup>, 50 % RDF + FYM 10 t ha<sup>-1</sup>, 25 % RDF + FYM 15 t ha<sup>-1</sup>, FYM 5 t ha<sup>-1</sup>, FYM 10 t ha<sup>-1</sup>, FYM 15 t ha<sup>-1</sup> and FYM 20 t ha<sup>-1</sup>. Good quality bulbs of onion variety N-2-4-1 were used.

### RESULTS AND DISCUSSION

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