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Research Paper

Seed production of onion and post harvest nutrients status of soil as influenced with planting time and nutrient levels

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ABSTRACT

Twenty treatment combinations consisting five dates of planting (1st October, 15th October, 1st November, 15th November and 30th November) and four nutrient levels (60 : 40 : 60 kg/ha NPK + 5t FYM + biofertilizer {*Azotobacter*, *Azospirillum* and PSB}, 80 : 50 : 75 kg/ha NPK+ 5 t FYM + biofertilizer, 100 : 60 : 90 kg /ha NPK + 5 t FYM +biofertilizer, and 120 : 80 : 100 kg /ha NPK) were tested during *Rabi* season of 2007-2008 in the randomized block design with three replications. The results revealed that planting of onion bulbs on 1st October recorded maximum dry weight of shoot per plant, days to 50% flowering and maturity, length of flower stalk, number of capsules per umbel as well as seed yield per plant. It was at par to 15th October planting but differed significantly with other dates of planting. Among the nutrients levels application of 100 : 60 : 90 kg/ha NPK + 5 t FYM + biofertilizer exhibited highest dry weight of shoot, length of flower stalk, number of capsule per umbel and seed yield per plant. Maximum days to 50% flowering and maturity were recorded with application of 120 : 80 : 100 kg/ha NPK). Combined effect of date of planting and nutrient levels showed significant effect on all these parameters.

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Onion is an important vegetable for both domestic consumption and export purpose. Onion has been a largest item of export amounting to 76.18% in the total export of vegetables from India. India ranks third in onion export after Netherlands and Spain, (NHB, 2010). Good quality seed is a prime requisite for increasing area and higher production of onion. Generally in plains of India, onion seed is produced in *Rabi* season, when temperature is low enough for floral initiation. Planting time plays an important role as proper time of planting provides congenial environmental conditions for vegetative growth, flowering and seed yield. Besides time of planting, plant nutrition also influences the crop growth, seed yield and quality. The optimum dose of nutrients is required for obtaining sustained high yield. Organic manures and biofertilizers play an important role in enhancing availability of nutrients to the plants thereby increasing the yield of onion seed (Bendegumbal *et al.*, 2008). Hence, an investigation was conducted to evaluate the effect of nutrients in conjunction of FYM and biofertilizers and date of planting on growth, flowering and yield of onion seed.

MATERIALS AND METHODS

A field experiment was conducted with onion cv. Agrifound Light Red at research farm, College of Horticulture, Mandsaur, Madhya Pradesh during *Rabi* season of 2007-08. Twenty treatment combinations comprising of five dates of planting (D_1- 1st October, D_2-15th October, D_3-1st November, D_4-15th November and D_5-30th November) and four nutrient levels (F_1- 60 : 40 : 60 kg /ha NPK + 5 t FYM + biofertilizer {*Azotobacter*, *Azospirillum* and PSB}, F_2-80 : 50 : 75 kg /ha NPK+ 5 t FYM + biofertilizer, F_3-100 : 60 : 90 kg /ha NPK + 5 t FYM + biofertilizer, and F_4-120 : 80 : 100 kg /ha NPK) were tested in factorial randomized block design with three replications. The healthy bulbs with uniform size of about 60-65g in weight were treated with mancozeb 75% solution (0.25%) and planted at 45 cm inter and 30 cm intra row spacing. Sallow furrows were opened and bulbs were burried in these furrows keeping neck open. The analysis of samples, collected prior to planting of bulb, revealed the soil pH 7.30, available nitrogen 221.0 kg/ha, available phosphorous 17.55 kg/ha and available potassium 548.80 kg/ha. Biofertilizers (*Azotobacter*, *Azospirillum* and PSB) culture were mixed in well rotten