

Response of onion seed production to integrated nutrient management

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ABSTRACT

A field experiment entitled "Integrated nutrient management in onion (*Allium cepa* L.) seed production" with variety Phule Samarth was conducted at Department of Horticulture, Mahatma Phule Krishi Vidyapeeth, Rahuri, during the *Rabi* season 2005-06. It revealed that yield attributes *viz.*, number of flower stalk, number of seeds per umbel and per bulb, weight of seeds per umbel and per bulb, seed yield per hectare were significantly increased with the application 150% RDF+FYM+BF, where as application of 50% RDF +FYM+BF resulted in lowest values of yield attributes. It is concluded that application of 150:75:75 kg/ha N, P₂O₅ and K₂O in conjugation with FYM @ 20 t/ha along with biofertilizer was found promising for obtaining higher seed yield and yield contributing characters of onion cv. PHULE SAMARTH.

Key words : Organic, Inorganic, Biofertilizer, Seed yield, Onion

Onion (*Allium cepa* L.) a native of palestine is one of the most important vegetable cash crop grown for vegetable in green stage and also for mature bulb. It is indispensable item in every kitchen as it adds flavour to various vegetable preparation, hence it is called "Queen of Kitchen". Onion is being extensively cultivated all over the world especially in India, Pakistan, China, Netherlands, Bangladesh and Australia. India is the second largest producer of onion in the world with in area of 5.93 lakh ha and production of 75.15 lakh mt next to China (Anonymous, 2005). Maharashtra is the largest producer of onion in the country. In Maharashtra the onion growing area is concentrated mainly in Nasik, Pune, Jalgaon, Dhule, Ahmadnagar, Solapur and Satara districts. Nasik district is a major producer of onion and contributes 34 per cent of the state area

Under ambient condition, however, immature or unfilled seed has poor germination and viability. Environmental condition as well as management practices during crop growth stages are found to influence the seed quality. The yield of such a valued crop is low on account of non-availability of genetically pure, genuine seed. With the use of poor seed the investment to major inputs like fertilizer, irrigation, plant protection, etc will not pay rich dividends. Considering the importance of seed and non-availability of genetically pure, true to type seed is highly essential to have standardized technology for onion seed production under Indian condition. Onion seed production is undertaken only during *Rabi* season, while higher temperature of more than 35°C especially during flowering have detrimental effects and cause significant reduction in seed yield and also lowered seed viability (Wagh, 1986).

Nutrition is one of the most important factor which

governs the onion seed production. The nutrients needed by the onion seed crop are supplied through organic manures and inorganic fertilizers. In past, the use of organic manures has been reported to improve physical, chemical and biological properties of soil. However, due to low nutrients, these organic manures alone may not be able to meet the nutritional requirement of high yielding cultivars and hence there is need for supplementing the use of chemical fertilizers.

MATERIALS AND METHODS

The present field investigation was carried out during *Rabi* season 2005-2006 in Department of Horticulture, Mahatma Phule Krishi Vidyapeeth, Rahuri (M.S.). The experiment was conducted in soil with moderate fertility and good drainage. The experimental soil was moderately alkaline (pH 8.5), with low soluble salts (non-saline) and clay loam in texture. The soil was low in available nitrogen and phosphorus and moderately high in potassium. The experiment was laid out in a Randomized Block Design with 3 replications. There were 7 treatments having combinations of different organic, inorganic and bio fertilizer treatments. The bulb of cv. PHULE SAMARTH were planted at a spacing of 60x30 cm during *Rabi* season of 2005-06. RDF For onion bulb production is 20t/ha FYM +100:50:50 N, P₂O₅, K₂O kg/ha. Biofertilizers : *Azospirillum* 12.5 kg/ha, Phosphate solubilizing bacteria (PSB) 12.5 kg/ha, vesicular arbuscular mycorrhiza (VAM) 16 kg/ha.

Mixture of bio-fertilizer *i.e.* VAM (16 kg/ha), *Azospirillum* (12.5 kg/ha) and PSB (12.5 kg/ha) was applied at the base of seed bulb along with FYM. The statistical analysis of the experimental data was carried