



*Research Note :*

**EFFECT OF ORGANIC MANURE AND INORGANIC FERTILIZER ON GROWTH AND YIELD OF ONION (*Allium cepa* L.) CV. PUSA RED**

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**ABSTRACT :** The experiment was laid out with nine treatments and three replications in Randomized Block Design. Maximum plant height, bulb size and weight was observed with the application of Urea 50% + Vermicompost 50% per plot. Whereas, the maximum bulb weight was recorded with application of Urea 50% + Vermicompost poultry manure 25% each per plot. Application of different organic manures on onion bulbs is useful for improving the growth and yield characteristics.

**Keywords :** Onion, organic manure, growth, yield.

Onion is one of the important vegetable crops grown in our country in an area of 7.04 lakh hectares, producing 91.37 lakh tones bulb for local consumption as well as for export purpose. The average yield per unit in India is comparatively low *i.e.* 13.25/ ha as compared to 17.91/ha of the world. In India, Maharastra is the leading states accounting for 29.05% and 29.69% in production. (Gupta and Singh, 2). Organic manures increases the growth and yield of onion. In Indian sensorio, there is a great importance of organic manures, but many agricultural scientists have mostly emphasized its complementary role in combination with the inorganic fertilizers. Compost obtained through urban soled, waste enriched with mineral fertilizers, has proved to be economically favourable and agronomically more suitable. Organic sources are relatively bulky material and are added mainly to improve the physical condition of soil to replace and keep up its humus status to maintain the optimum condition for the activities of soil microorganisms. Inoganic manures are required in very small quantity and is very quick in action, the interaction of chemical fertilizer with the soil is considered less favourable to environment in comparison to organic sources of crop nutrients (Bhonde, 1) .

The present experiment was conducted at Department of Horticulture, Allahabad Agricultural Institute, Deemed University, Allahabad (U.P.) during

the winter season of 2005-2006. The experiment was conducted with 9 treatments *viz.*, T<sub>0</sub>-Control, T<sub>1</sub>-urea 100%, T<sub>2</sub>-urea 50% + FYM 50%, T<sub>3</sub>-urea 50% + Vermicompost 50%, T<sub>4</sub>-urea 50% + Poultry manure 50%, T<sub>5</sub>-urea 50% + Compost 50%, T<sub>6</sub>-urea 50% +FYM 25% +Vermicompost 25%, T<sub>7</sub>-urea 50% + Poultry manure 25% + Vermicompost 25%, and T<sub>8</sub>-urea 50% + Compost 25% + Vermicompost 25% in 'Randomized Block Design' with three replications having a total of 27 plots. The onion was given uniform cultural operations during the course of investigation. All treatments were applied on December 2005. Full dose of farm yard manure, vermicompost, poultry manure and compost were applied as basal. No manure was applied to the control. Observation on plant height, leaf sheath per plant, plant girth, bulb weight per plant, bulb size and bulb yield per plot were recorded.

The maximum plant height of 65.27 cm was produced by T<sub>3</sub> followed by T<sub>7</sub> (64.33 cm), whereas minimum (54.93 cm) remained with T<sub>0</sub>, *i.e.* control (Table 1). Treatment T<sub>6</sub> and T<sub>8</sub> were statistically at par. Similar findings had also reported by Rodriguez *et al.* (4). The maximum leaf sheath number (11.27) was found in treatment T<sub>3</sub> followed by 10.87 with T<sub>7</sub>, whereas minimum 6.93 leaf sheaths were with T<sub>0</sub>, *i.e.* control. Treatment T<sub>3</sub> emerged significantly superior all other treatments in relation to number of leaf sheaths per plant. Similar results were also reported by Singh *et al* (6). The plant girth in all the treatments increased at all successive stages of girth. Maximum plant girth was recorded with treatment T<sub>3</sub> followed by T<sub>7</sub> and

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**Table 1: Effect of different treatments on growth and yield characters of onion.**

Treatment	Plant height (cm)	Leaf sheath/ plant	Plant girth (cm)	Bulb weight/ plant (gram)	Bulb size (cm)	Bulb yield/plot
	1	2	3	4	5	6
T <sub>0</sub>	54.93	9.87	2.08	121.33	6.23	2.44
T <sub>1</sub>	58.07	10.00	2.10	124.33	6.48	2.61
T <sub>2</sub>	61.07	10.07	2.21	135.67	6.53	3.09
T <sub>3</sub>	65.27	11.27	2.38	151.67	6.98	3.85
T <sub>4</sub>	62.60	10.47	2.21	138.67	6.53	3.21
T <sub>5</sub>	59.60	10.00	2.11	127.67	6.53	3.08
T <sub>6</sub>	63.27	10.60	2.27	140.67	6.77	3.58
T <sub>7</sub>	64.33	10.87	2.36	145.33	6.83	3.61
T <sub>8</sub>	63.20	10.53	2.24	139.67	6.55	3.52
C.D. (P = 0.05)	0.97	0.15	0.03	2.23	0.05	0.11

minimum remained with control at all growth stages. Performance of T<sub>3</sub> was significantly superior to all other treatments with regard to vegetative growth parameters in onion var. Pusa Red. The maximum bulb weight per plant (151.67g) was recorded with treatment T<sub>3</sub> followed by T<sub>7</sub> (145.33g), whereas minimum (121.33g) was with control. Treatment T<sub>6</sub> and T<sub>8</sub> were statistically at par. Similar results were also reported by Singh *et al.* (6) and Gupta *et al.* (3).

The maximum bulb size (6.98cm) was recorded with treatment T<sub>3</sub> followed by T<sub>7</sub> (6.83cm) and the minimum (6.23g) remained with T<sub>0</sub> control where T<sub>2</sub>, T<sub>5</sub> and T<sub>8</sub> were statistically at par. Similar results were also reported by Gupta *et al.* (3). The maximum bulb yield/plot (3.85 kg) was recorded under treatment T<sub>7</sub>, whereas minimum (2.44kg) in control. Treatments T<sub>6</sub> and T<sub>8</sub> were statistically at par. Similar results were also reported by Singh *et al.* (5) and Singh *et al.* (6).

It was concluded that treatment T<sub>3</sub> (urea 50% + vermicompost 50%) was significantly superior over the other treatments in terms of growth and yield in onion (var. Pusa Red) under Allahabad Agro Climatic Condition.

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