The Asian Journal of Horticulture, (June to November, 2009) Vol. 4 No. 1 : 16-20

Post harvest storage life of onion (*Allium cepa* L.) influenced by organic farming practices farming practices

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Accepted : *February, 2009*

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ABSTRACT

The present experiment was conducted at Horticulture College and Research Institute, Tamil Nadu Agricultural University, Coimbatore in the year 2002-03 and 2003-04, India. The results revealed the total loss of stored bulbs increased steadily as the period of storage was extended. The organic treatment combination of M_1S_2 (3 per cent panchagavya + 50 per cent FYM + 50 per cent poultry manure) registered the lowest total loss *viz*., 30.57 and 32.71 per cent in the variety N 2-4-1 during crop I and crop II, respectively at 120 days after storage. The inorganic treatment consisting of 100 per cent recommended dose of NPK fertilizers (M_4S_{10}) significantly varied from organic treatment and exhibited the highest total losses in both crops. A similar kind of response was observed in sprouting and rotting per cent also.

Key words : Onion, Organic manures, Growth stimulants, Storage life.

Onion (*Allium cepa* L.) is the most important cultivated bulb vegetable crop commercially grown in India. The post harvest storage losses pose serious problem for onion growers and traders. Annual storage losses of onion have been estimated to be more than 40 per cent on different accounts during storage and handling. Organic farming improves the quality of the produce combined with higher nutritive value and better storage life than those grown conventionally with mineral fertilizers. In onion, the information on the studies of organic farming using different kinds of organic manures and organic growth stimulants are very meagre. The present study probably is the first of its kind, to investigate the cultivation prospects of onion under organic farming system, which involves conservation and management of natural resources like soil and also the post harvest storage quality of produce.

MATERIALS AND METHODS

The experiment was laid out in a split plot design with 40 treatment combinations replicated twice in the year 2002-03 and 2003-04. The variety used for this experiment N-2-4-1.The soil in the experimental field is sandy loam in texture. Before raising onion, nutrient stabilizing crop maize was taken in prepared ridges and furrows for exploiting residual nutrients status of the existing field. After harvesting of maize, onion crop was planted in the ridges and furrows at a spacing of 30 x 15.The crop was grown fully organically without using any chemicals. Plant protection measures were taken by using biopestcides and botanicals. The crop was harvested at 50 per cent of the leaf showing yellowing and senescence of leaves and neck fall. The entire plants were uprooted and the bulbs were separated from the stem by cutting the stem 1 to 2 cm, above the bulb. The bulbs were cured in shade for 10-15 days to remove the field heat and excess moisture. All the cured bulbs from the respective treatments were taken for storage study. The bulbs harvested from the first and second crop were stored under ambient conditions with proper ventilation and storage observations were recorded after 120 days of storage on the weight loss, sprouting and rotting percentage. The collected storage data were statistically analyzed as per standard procedures followed.

Treatment details

Main plot treatments: Foliar spray of organic nutrients

M_1	Panchagavya (Cow urine based)
M_2	Humic substances
M_3	Coconut water
M_4	Control (No spray)

Sub plot treatments: Organic manures:

S_1	FYM 50% as equivalent to RD of NPK	+	50% Neem cake as equivalent to RD of NPK
S_2	FYM 50% as equivalent to RD of NPK	+	50% Poultry manure as equivalent to RD of NPK
S_3	FYM 50% as equivalent to RD of NPK	+	50% Pressmud as equivalent to RD of NPK
S_4	FYM 50% as equivalent to RD of NPK	+	50% Vermicompost as equivalent to RD of NPK
S_5	FYM 50% as equivalent to RD of NPK	+	50% Digested coir pith compost as equivalent to RD of NPK