Indian Journal of Extension Education
Vol.47, No. 3 & 4, 2011 (96-99)

Income Generation Through Varietal Selection of Rabi Onion in Kymore Plateau of Madhya Pradesh

Rajesh Singh[1], P. S. Gurjar[2], Saurabh Singh[3] and A.K. Singh[4]

ABSTRACT

A field study was conducted to study the income generate through varietal selection of rabi onion in Kymore Plateau of Madhya Pradesh during 2010-11 at Krishi Vigyan Kendra, Rewa (M.P.). The treatments comprising of nine varieties of onion collected from various sources were tested. There were nine treatment assigned to randomized block design with three replications. The results showed non significant variation in number of plant per square meter and significant variation in number of leaves per plant, plant height, neck thickness, length of bulb, width of bulb, length: width of bulb, weight of 100 bulbs and bulb yield among the various varieties. The maximum number of plant per square meter (65 plant), plant height (34.10 cm), width of bulb (7.60 cm), weight of 100 bulbs (10.147 kg) and bulb yield (249.33 q/ha) were recorded in Agrifound Light Red and maximum number of leaves per plant (14.0) in Pusa Red, neck thickness (1.1 cm) in Bhima Sweta, length of bulb (5.63 cm) in Pusa Red and length: width of bulb (0.83) were observed in Pusa Madhavi. Minimum number of plant per square meter (63.0 plant), number of leaves per plant (8.0), width of bulb (6.53 cm), weight of 100 bulbs (6.960 kg) and bulb yield (210.67 q/ha) were noted in Bhima Shakti and minimum plant height (32.27 cm) in N-2-4-1, neck thickness (0.70 cm) in Pusa Madhavi and Agrifound Dark Red, length of bulb (4.60 cm) in Pusa Madhavi and length: width of bulb (0.65) were found in Agrifound Light Red. Agrifound Light Red was superior in yield compared to other varieties and high income generate through Agrifound Light Red (Rs 1, 99,464/ha).

Onion (*Allium cepa* L.) is an important vegetable as well as condiment grown worldwide. Onion (2n= 2×= 16), belongs to family Aliaceae, is maily a cool season crop. India ranks first in area (16.2%) and second in production (12.0%) of onion in the world. About 70% of the total production in India has accounted to rabi season crop. Bulbing is a combine effect of photoperiod and temperature at a given location. Over centuries, onion genotypes have adapted themselves to short day conditions of subtropics and tropics. Hence different varieties of long and short durations have been developed due to continuous selection and adaptation to different climatic conditions. Through this, the varieties are able to produce good yield during winter season in the plains of India. In certain varieties, at the time of growth, sudden fall in temperature results in formation of flowers instead of bulb development. Ideal variety of onion depends on it's use like export, demand of customer, time of planting etc. and for maintaining demand and supply in proper order, both kharif and rabi crops need to be taken seriously in terms of its planning, enhancing productivity and quality of bulbs. Successful onion production depends on the selection of varieties that are adapted to different conditions imposed by specific environment (Mohanty and Prusti, 2001; 2002). It was felt imperative to find out suitable varieties for its successful cultivation under Kymore plateau of Madhya Pradesh condition as a basic step towards its popularization. Hence, the present experiment was conducted to study income generate through some improved varieties of onion (*Allium cepa* L.) during rabi season in order to achieve this objective.

METHODOLOGY

The experimental study was carried out at Krishi Vigyan Kendra, Rewa (M.P.). The experiment was conducted in a randomized block design with three replications during rabi seasons of 2010-11. Nine varieties of onion i.e. Agrifound Light Red, NHRDF Red, Agrifound

[1]SMS (Horti.), [2]SRF, Krishi Vigyan Kendra, Rewa, [3]Research Associate, COA Rewa and [4]FEO, DES, JNKVV, Jabalpur (M.P.)

Dark Red, Pusa Red, Pusa Madhavi, Bhima Shakti, Bhima Sweta, Bhima Kiran and N-2-4-1 collected from various sources were tested. Six weeks old healthy seedlings of each variety were transplanted on flat beds at a spacing of 15×10 cm in a plot of 3×3 sq. m. during first week of January, 2011. Recommended cultural practices were followed during investigation to raise the crops successfully. Observations were recorded on number of plant per square meter, number of leaves/plant, plant height, neck-thickness, length and width of bulbs and length width ratio of bulbs from ten randomly selected plants in each plot. Weight of a set of 100 bulbs was recorded. The bulb yield was noted on plot basis. The mean data were statistically analysed according to standard procedure.

RESULTS AND DISCUSSION

The data presented in table-1 indicated that the number of plants per square meter were non-significantly associated with different tested varieties. The maximum number of plants per square meter were recorded in Agrifound Light Red and Agrifound Dark Red (65 plants), followed by Bhima Kiran and N-2-4-1 (64.33 plants each), while the minimum number of plants per square meter were observed in Bhima Shakti (63 plants).

The maximum number of leaves per plant were noted in Pusa Red (14.0), followed by Pusa Madhavi (12.0) and NHRDF Red (10.33), whereas the minimum number of leaves per plant were obtained in Bhima Shakti (8.0), followed by Bhima Kiran (8.33) and Bhima Sweta (8.67). The highest plant height was recorded in Agrifound Light Red (34.10 cm), followed by NHRDF Red (33.60 cm) and Pusa Madhavi (33.00 cm),whereas the lowest plant height was noted in N-2-4-1 (32.27 cm), followed by Bhima Shakti (32.50 cm) and Bhima Sweta (32.57cm).

Maximum thickness of neck (1.10 cm) recorded in variety Bhima Sweta, which was *at par* with both Bhima Shakti and Bhima Kiran (1.0 cm). However, minimum neck thickness of 0.70 cm was recorded in Agrifound Dark Red and Pusa Madhavi. The varieties N-2-4-1, NHRDF Red, Pusa Red and Agrifound Light Red (0.90 cm each) also displayed comparatively less neck thickness than other varieties. Bhonde *et al,* (1992) in their study on evaluation of onion varieties in Nasik area also found least neck thickness of Agrifound Light Red.

Maximum bulb length of 5.63 cm was recorded in Pusa Red, followed by Bhima Shakti (5.43 cm) and NHRDF Red (5.20 cm), whereas the minimum bulb length of 4.60 cm was observed in Pusa Madhavi, followed by Bhima Kiran (4.77 cm) and Agrifound Dark Red (4.87 cm). The largest width of bulb was obtained in Agrifound Light Red (7.60 cm), which was *at par* with NHRDF Red (7.57 cm) and Bhima Sweta (7.33 cm). On the other hand, Bhima Shakti possessed the smallest width of bulb (6.53) closely followed by Pusa Madhavi (6.63 cm) and Bhima Kiran (6.97 cm). The highest length: width of bulb was recorded in Bhima Shakti (0.83), followed by Pusa Red (0.80), N-2-4-1 (0.73) and Bhima Sweta (0.70), whereas the lowest length: width of bulb was noted in Agrifound Light Red (0.65), followed by Agrifound Dark Red (0.68), NHRDF Red, Pusa Madhavi and Bhima Kiran (0.69 each).

The highest weight of 100 bulbs was noted in Agrifound Light Red (10.147 Kg), followed by NHRDF Red (10.077Kg) and Bhima Sweta (9.437Kg), while the lowest weight of 100 bulbs was possessed by Bhima Shakti (6.960Kg), followed by Pusa Madhavi (7.473 kg) and Agrifound Dark Red (7.490 kg). Agrifound Light Red has already proved their superior storage quality in comparision to other varieties which has also been observed by Bhonde, 1998 and Bajaj *et al,* 1992.

The bulb yield ranged from 210.67 to 249.33 q/ha. The highest bulb yield of 249.33 q/ha was obtained from the variety Agrifound Light Red which was *at par* with NHRDF Red (244.33q/ha) and Pusa Red (236.67 q/ha), whereas the lowest bulb yield was recorded in Bhima Shakti (210.67q/ha), followed by Bhima Kiran (215.67 q/ha) and N-2-4-1 (219.00 q/ha). Detailed data for each variety has been provided in table 1 and also depicted in figure 1. Present study is also supported by observations concluded by Pandey (1989) and Singh *et al,* (1991), who also reported better performances of Agrifound Light Red and NHRDF Red in comparision to other tested varieties.

In terms of income generate, the formers were adopted the high yielding variety Agrifound Light Red. This variety perform very well in Kymore Plateau of Madhya Pradesh, whereas maximum yield was found in Agrifound Light Red (249.33 q/ha), which was found in Rs 1, 99,464.00/ha (Fig 1). So out of nine varieties Agrifound Light Red was perform well and maximum income was get and short duration also.

Table 1: Varietal response of onion during rabi season.

Treatment	No. of Plant/ sq. m	No. of leaf/ plant	Plant height (cm)	Neck thickness (cm)	Length of bulb (cm)	Width of bulb (cm)	Length: width of bulb	Weight of 100 bulbs in kg	Bulb Yield (q/ha)
Agrifound Light Red	65.00	9.33	34.10	0.9	4.97	7.60	0.65	10.147	249.33
NHRDF Red	64.00	10.33	33.60	0.9	5.20	7.57	0.69	10.077	244.33
Agrifound Dark Red	65.00	9.00	32.63	0.7	4.87	7.13	0.68	7.490	231.67
Pusa Red	64.00	14.00	32.60	0.9	5.63	7.03	0.80	8.160	236.67
Pusa Madhavi	63.33	12.00	33.00	0.7	4.60	6.63	0.69	7.473	227.67
Bhima Shakti	63.00	8.00	32.50	1.0	5.43	6.53	0.83	6.960	210.67
Bhima Sweta	64.00	8.67	32.57	1.1	5.13	7.33	0.70	9.437	239.33
Bhima Kiran	64.33	8.33	32.60	1.0	4.77	6.97	0.69	8.107	215.67
N-2-4-1	64.33	9.00	32.27	0.9	5.17	7.10	0.73	8.987	219.00
SEm±	**0.7071**	**0.4285**	**0.2091**	**0.0536**	**0.1681**	**0.1744**	**0.0196**	**0.1267**	**0.5514**
CD 5%	**NS**	**1.3205**	**0.6444**	**0.1651**	**0.5181**	**0.5374**	**0.0603**	**0.3905**	**1.6991**

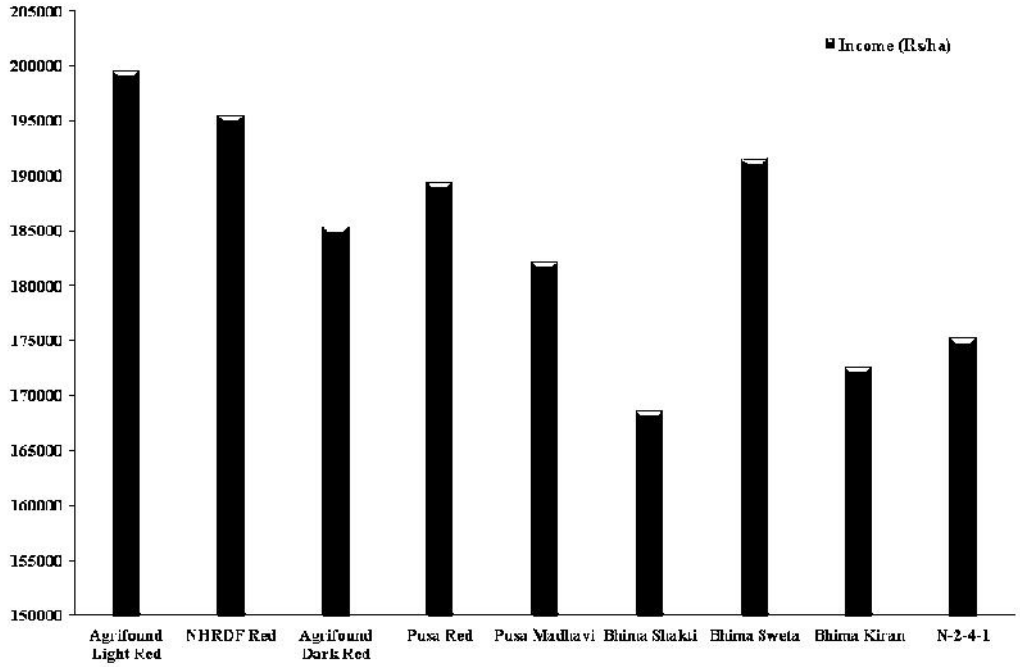

Figure 1: Income generate through selected varieties of rabi onoin

CONCLUSION

Nine varieties of onion were analyzed for income generate through varietal selection of onion during rabi season under Kymore Plateau of Madhya Pradesh. The results showed non-significant variation in number of plant per square meter and significant variation in number of leaves per plant, plant height, neck thickness, length of bulb, width of bulb, length: width of bulb, weight of 100 bulbs and bulb yield among the various varieties. In general, Agrifound Light Red was found superior in yield compared to other varieties and high income generate through Agrifound Light Red.

REFERENCES

Bajaj, K.L.; Chadha, M. L. and Sidhu, A. S. (1992). Evaluation of some important varieties of onion for the quality parameters and storage life. *Veg. Sci.,* 19:221-225.

Bhode, S. R. (1998). Storage of onion and post harvest technology. *NHRDF Newletter.XVIII* (1): 10-15.

Bhonde, S. R.; Srivastava, K. J. and Pandey, U. B. (1992). Evaluation of varieties for growing “Rangda” crop of onion (*Allium cepa* L.) in Nasik area of Maharashtra. *Maharashtra J. Hort*., 6(2):39-42.

Mohanty, B. K. and Prusti, A. M. (2001). Performance of common onion varieties in kharif seasons. *Journal of Tropical Agriculture,* 39:21-23.

Mohanty, B. K. and Prusti, A. M. (2002). Varietal performance of onion in rainy season. *Indian J. Res.,* 36 (3):222-224.

Pandey, U. B. (1989). Onion (*Allium cepa* L.). *Indian Hort.,* 33(4) & 34(1):58-62.

Singh, L.; Singh, S. P. and Mishra, P. K. (1991). Evaluation of onion varieties at Karnal. *AADF Newsletter.* XI (3):3-4.