

RESEARCH ARTICLE :

Knowledge level of the onion growers about recommended cultivation practices for onion (*Allium cepa*) crop

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ARTICLE CHRONICLE :

Received :

15.09.2014;

Revised :

10.03.2015;

Accepted :

25.03.2015

SUMMARY : The present research study was based on exploratory research design of social research. The field survey was carried out in Akola district of Vidarbha region of Maharashtra State during 2011-2012 for ascertaining the knowledge level of the onion growers about recommended cultivation practices for onion crop. The results revealed that 39.00 per cent of farmers had medium level of knowledge about recommended cultivation practices for onion crop followed by 35.00 per cent and 26.00 per cent of the farmers had high and low level of knowledge. In this context, it was implied that the information regarding recommended cultivation practices should be disseminated to the farmers by extension functionaries, KVK's, NGO's, through demonstrations, workshops, distributing printed material like leaflets; folders; etc. It will lend a hand for increasing knowledge, perception, adoption and ultimately the yield level of onion crop.

How to cite this article : Bhise, R.N., Kale, N.M., Waghmode, Y.J., Shinde, S.B. and Kadam, J.R. (2015). Knowledge level of the onion growers about recommended cultivation practices for onion (*Allium cepa*.) crop. *Agric. Update*, 10(2): 109-114.

KEY WORDS:

Knowledge,
Adoption, Training
need

BACKGROUND AND OBJECTIVES

India has a largest area under onion crop. Yield wise it is second in the world. In export, India is the third exporter after the Netherland' and Spain.

In India, total area under vegetable cultivation is 6.24 million hectares and total production 98.50 million tones. Out of these area 0.53 million hectares area is under onion cultivation and with production of 5.45 million tones. In per cent total area under onion is 7.41 per cent and the output is 5.70 per cent of the total yield of vegetable. Onion account

for 90 per cent of exports of vegetables from India in terms of value (Gaikwad, 2005).

Total area under vegetable in Maharashtra is 0.341 million hectares and production is 4.48 million tones. Maharashtra have the largest area under onion and have a bumper production. The area under onion cultivation is 1.60 lakh ha total yield is 13.92 lakh tones. The per cent share in production of all India is 20.98 per cent. In Maharashtra, Nashik, Jalgaon, Ahmednagar, Pune, Sangli, Satara and Solapur are the major onion growing districts. The Nashik region in

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Maharashtra account 30 per cent of the total production (Waghmare and Baber, 1986).

In case of Vidarbha region, it is considered as major vegetable crop. Total area under onion in Vidarbha region is 0.96 lakh ha and total production is 1.57 lakh tones. In Vidarbha region Amravati stands first in total production of onion. In case of Akola total area under onion cultivation is 2182 ha and total yield of 12393 tonnes. It occupies a premier position among vegetable crops due to high remunerative prices and regular demand in the market.

In Maharashtra onion crop is grown in both *Kharif* and *Rabi* seasons. On an average, 55.00 per cent production is from *Kharif* onion while the remaining 45.00 per cent is from the *Rabi* season. The cultivation of onion, in Vidarbha region, is mostly concentrated in six districts viz., Akola, Buldana, Nagpur, Amravati and Yavatmal. Different varieties and technologies in onion, suiting to the need of the farmer of the region are evolved and recommended by the university to boost up the yield of onions.

The onion production per hectare area is comparatively low. The low yield may be attributed to non adoption of latest technologies by onion growers. It is therefore, necessary to find out the knowledge and adoption level of onion growers. It will be helpful to identify the area of training to be given to the onion growers, to increase the knowledge and adoption of recommended cultivation practices of onion. With this view, the study is proposed to be undertaken with the following objectives.

- To study the personal, socio-economic and psychological characteristics of onion growers.
- To identify knowledge level of the onion growers about recommended cultivation practices of onion crop.

RESOURCES AND METHODS

The present research study was based on exploratory research design of social research. The present study was carried out in Akot tahasil of Akola district in Vidarbha region of Maharashtra State. Out of seven Panchayat Samiti in Akola district, Akot tahasil was purposively selected for the study. In Akot Panchayat Samiti the area under onion crop was 745 ha during 2009-2010.

The list of villages having cultivation of onion during

2009-10 was obtained from office of the Akot Panchayat Samiti. Out of the total villages, 10 villages were selected purposively where the majority of farmers have taken onion during 2009-10. The selected villages were namely Vadaley Satave, Pimpal Khuta, Adgaon, Belora, Umri, Navri, Jalgaon Rahate, Pimpri, Shivpur and Bordi and from selected ten villages 100 respondents were drawn with help of disproportionate random sampling method. Data were collected by personally interviewing the respondents with the help prestructured and pretested interview schedule. Collected data were tabulated; categorized and relational analyses were employed for interpretation of the data.

Knowledge :

Knowledge is operationally defined as the body of awareness and information possessed by an individual onion grower about cultivation practices of onion.

A teacher made knowledge test was developed to measure the knowledge of an individual respondents about the recommended cultivation practices of onion crop, responses of the respondents were taken on two point continuum *i.e.* yes/no and numerical score of 1 and 0 was assigned, respectively. Obtained knowledge raw score was converted into knowledge index by using following formula :

$$\text{Knowledge index} = \frac{\text{Knowledge score actually obtained}}{\text{Maximum obtainable knowledge score}} \times 100$$

The knowledge of the respondent about various recommended cultivation practices for onion crop suggested by agricultural university was ascertained on the basis of the knowledge of the respondent and classified into three levels (Table A).

Table A : Classification of knowledge levels		
Sr. No.	Knowledge level	Index range
1.	Low	Up to 33.33
2.	Medium	33.34 to 66.66
3.	High	66.67 and above

OBSERVATIONS AND ANALYSIS

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Knowledge :

From Table 1, it is observed that respondents had knowledge about different colour varieties of onion and

Sr. No. Cultivation practices		Knowledge	
		Yes (1)	No (0)
Land preparation			
1.	Ploughing, harrowing.		
Variety			
2.	Knowledge of different colour varieties of onion? (White, red, yellow varieties.)		
3.	Name the different varieties of onion recommended for cultivation in this area? (<u>White varieties</u> : Akola safed, Pusa white flat, Phule safed, <u>Red Varieties</u> : Basvant-780, Agrifound dark red, N-53, <u>Yellow varieties</u> : Phule- Suvarna, Arka- Pitambari)		
Raising of seedlings			
4.	Which is suitable time for raising seedlings of onion crops? (October to November)		
5.	What type of seed bed is prepared for raising of onion seedlings? (Flat bed, Broad Bed Furrows)		
Seed rate			
6.	What is the seed rate per hectare of onion crops? (9-10 kg/ha)		
Transplanting of seedlings			
7.	What is the appropriate time of transplanting of onion seedlings in main field? (Seedling with 10-15 cm height and 6 to 8 week old probably 1st forth night of January.)		
Spacing			
8.	What is recommended spacing required for onion crop? (10 x 10 cm or 15 x 10 cm)		
Intercultural operation			
9.	What are the different intercultural operation recommended for onion crop?(3 to 4 weeding or Before transplanting the seedlings on in main field spraying of trifluralin @ 1 kg/ha with one weeding after 45 days of transplanting.)		
Organic manures			
10.	What is recommended dose of FYM per hectare for onion crop? (40-50 cart load of FYM /ha.)		
Fertilizer application			
11.	What is the fertilizer dose recommended for onion crop? (100 kg N and 50kg P. Out of this 50kg N and 50kg P should be applied at the time of transplanting and remaining 50kg N should be applied 30 days after transplanting.)		
Irrigation water management			
12.	Number of irrigation recommended for onion crop? (According to soil type, weather, crop stage irrigation should be given with 8-12 days interval.)		
Harvesting			
13.	Different method of harvesting for onion crop? (neck fall stage, yellowing of leaves, bulb stage, 180 days from seed sowing on main field.)		
14.	Spraying of malic hydrazide 2000 PPM before 15 days of harvesting for avoiding sprouting in storage of onion.		
Curing			
15.	What is the time period for curing of onion crop? (10-15 days)		
Grading			
16.	What are the different criteria for grading onion according to their size		
	Size(mm) Grade		
	55 to 60 Very large		
	45 to 55 Large		
	35 to 45 Medium		
	20 to 35 Small		
Storage			
17.	What are the different storage methods of onion? (Indigenous/ improved method like Kandachal, etc.)		
18.	Knowledge of improved storage practices? (like Kandachal, Nashik method)		
Yield per hectare			
19.	Knowledge about actual production of onion from one hectare of field? (200-250 q/ha)		

seed bed prepared for raising of onion seedlings was 95.00 per cent, respectively. In case of knowledge about suitable time for raising of onion seedlings and method of harvesting for onion crop, it was found that 86.00 per cent, respectively. 82.00 per cent, 78.00 per cent, 77.00 per cent, 76.00 per cent of growers had knowledge about

FYM application, various varieties of onion, transplanting of onion seedling in main field and recommended dose of fertilizer application, respectively. About 75.00 per cent respondents possessed knowledge about seed rate per hectare for onion crop. In land preparation operation, 66.00 per cent growers had knowledge about ploughing

Table 1: Distribution of the respondents according to their practice wise knowledge about recommended cultivation practices of onion crop

Sr. No.	Recommended cultivation practices	Respondents having knowledge (n=100)	
		Frequency	Percentage
Land preparation			
1.	Ploughing, harrowing.	66	66.00
Variety			
2.	Different colour varieties of onion.	95	95.00
3.	Various varieties of onion.	78	78.00
Raising of seedlings			
4.	Suitable time for raising of onion seedlings	86	86.00
5.	Seed bed prepared for raising of onion seedlings.	95	95.00
Seed rate			
6.	Seed rate per hectare of onion crops.	75	75.00
Transplanting of seedlings			
7.	Transplanting of onion seedlings in main field.	77	77.00
Spacing			
8.	Required spacing for onion crop.	62	62.00
Intercultural operation			
9.	Important intercultural operation recommended for onion crop.	35	35.00
Organic manures			
10.	FYM application.	82	82.00
Fertilizer application			
11.	Recommended time and dose of fertilizer application.	76	76.00
Irrigation water management			
12.	Irrigation water management.	51	51.00
Plant protection			
13.	Major pests of onion crop.	53	53.00
14.	Plant protection measures against onion pests.	50	50.00
15.	Major diseases of onion crop.	03	03.00
16.	Plant protection measures against onion diseases.	04	04.00
Harvesting			
17.	Method of harvesting for onion crop.	86	86.00
18.	Spraying of mallic hydrazide	00	00.00
Curing			
19.	Curing of onion.	61	61.00
Grading			
20.	Grading of onion.	59	59.00
Storage			
21.	Different storage methods of onion.	37	37.00
22.	Improved storage practices of onion.	12	12.00
Yield per hectare			
23.	Actual production of onion from one hectare of field.	56	56.00

and harrowing followed by 62.00 per cent and 61.00 per cent growers had knowledge about spacing required for onion crop and curing on onion.

It is interesting to note that 59.00 per cent of the growers had knowledge about grading of onion and 56.00 per cent of the growers had knowledge about actual production of onion from one hectare field. While assessing the knowledge about major pests of onion crop, irrigation water management and knowledge about plant protection measures against onion pests 53.00 per cent, 51.00 per cent and 50.00 per cent respondents have knowledge, respectively about cultivation practices. It was observed that about 35.00 per cent, 37.00 per cent, 12.00 per cent, 04 per cent respondents had knowledge of important intercultural operation of onion, different storage method, and improved storage method of onion and plant protection measures against onion disease.

Data from Table 1 revealed that there were some important cultivation practices which were not known to majority of the onion growers like irrigation water management (49.00%), major pests of onion crop (47.00%), plant protection measures against onion pest (50.00%), major diseases of onion crop (97.00%), plant protection measures against onion diseases (96.00%), spraying of mallic hydazide (100.00%), improved storage practices (88.00%), and different storage methods (63.00%). As onion is important cash crop hence extension functionaries should have to take care about these triggers for raising yield in onion crop.

Data regards to the knowledge level possessed by onion growers furnished in Table 2 indicated that 39.00 per cent of the growers had medium knowledge level about recommended onion cultivation practices whereas 35.00 per cent and 26.00 per cent of the growers having high and medium knowledge level, respectively.

The maximum percentage of growers (39.00%) observed in medium category of knowledge about cultivation of onion crop. As regards to the practice wise knowledge, 95.00 per cent of the growers had knowledge about different colour varieties of onion and seed bed

prepared for raising of onion seedlings followed by 86.00 per cent growers were having knowledge about suitable time for raising of onion seedlings and maturity indices of onion crop.

The above three forth growers were having knowledge about FYM application (82.00%), various varieties of onion (79.00%), transplantation of onion seedlings in main field (77.00%), recommended time and dose of fertilizer application (76.00%) and knowledge about seed rate per hectare for onion crops is 75.00 per cent. The knowledge about land preparation includes ploughing, harrowing and application of FYM having 66.00 per cent. Knowledge regarding required spacing for onion crop, curing of onion, grading of onion, actual production of onion from one hectare field, major pest of onion crop, irrigation water management and plant protection measures against onion pests having 62.00 per cent, 61.00 per cent, 59.00 per cent, 56.00 per cent, 53.00 per cent, 51.00 per cent and 50.00 per cent, respectively. Knowledge regarding storage operation and intercultural operation were 37.00 per cent and 35.00 per cent, respectively. It was also observed that very low knowledge regarding improved storage methods of onion storage (12.00%), plant protection measures against disease of onion (04.00%), identifying major disease of onion crop (03.00%) and spraying of mallic hydrazide were zero per cent. Some important cultivation practices which were not known to majority of the onion growers like irrigation water management (49.00%), major pests of onion crop (47.00%), plant protection measures against onion pest (50.00%), major diseases of onion crop (97.00%), plant protection measures against onion diseases (96.00%), spraying of mallic hydazide (100.00%), improved storage practices (88.00%), and different storage methods (63.00%). As onion is important cash crop hence extension functionaries should have to take care about these triggers for raising yield in onion crop.

In this context, it was implied that the information regarding these recommended cultivation practices

Table 2 : Distribution of the respondents according to their overall knowledge about all recommended practices for onion crop

Sr. No.	Knowledge level	Respondents (n=100)	
		Frequency	Percentage
1.	Low (Upto 33.33)	26	26.00
2.	Medium (33.34 to 66.66)	39	39.00
3.	High (Above 66.67)	35	35.00
Total		100	100.00

should be disseminated to the farmers by extension personnel of the State Department of Agriculture, Zilla Parishad, KVK's, NGO's, Agril. Universities etc., should have to arrange demonstration, workshops, charchasatra, distribute the leaflets, folders and other printed material etc. for imparting knowledge about recommended practices.

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