



Adoption of recommended cultivation practices for the onion (*Allium cepa.*) growers

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ABSTRACT

The present research study was based on exploratory research design of social research. The field survey was carried out in Akot tahsil under Akola district of Vidharbha region of Maharashtra State during 2011-2012. For ascertaining the Adoption level of the farmers about recommended cultivation practices for onion crop. The results revealed that over half (61.00%) of farmers had medium level of adoption of recommended cultivation practices for onion crop followed by 22.00 per cent and 17.00 per cent of the farmers had low and high level of adoption. 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 adoption, perception, knowledge and ultimately the yield level onion crop.

INTRODUCTION

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. The production and productivity of onion in Andhra Pradesh are low compared to Gujarat, Maharashtra and other onion growing states (Gupta and Singh, 2010). Unawareness of the farmers about suitable seasons, varieties for different seasons, Climate, Soil and improved cultivation techniques are the main reasons, unawareness of the characteristic of the varieties, seasonalities and adoption of proper package of practices are also the reasons responsible for limiting the production and productivity of onion directly or indirectly (Pandey and Bhondey, 2002). 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 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 is occupies a premier position

Table A : Adoption of recommended cultivation practices for onion crop

Sr. No.	Recommended cultivation practices	Adoption		
		CA (2)	PA (1)	NA (0)
Land preparation				
1.	Ploughing, harrowing			
Variety				
2.	White varieties : Akola safed, Pusa white flat, Phule Safed, Red Varieties : Basvant-780, Agrifound dark red, N-53, Yellow varieties : Phule- Suvarna, Arka- Pitambari			
Raising of seedlings				
3.	Raising of onion seedlings in the month of October- November on Flat bed/BBF			
Seed rate				
4.	9-10 kg/ha			
Transplanting of seedlings				
5.	Seedling with 10-15 cm height and 6 to 8 week old probably 1st forth night of January.			
Spacing				
6.	10 x 10 cm or 15 x 10 cm			
Intercultural operation				
7.	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 manure				
8.	40-50 cart load of FYM /ha.			
Fertilizer Application				
9.	100Kg N and 50kg P / Ha. 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				
10.	According to soil type, weather, crop stage irrigation should be given with 8-12 days interval.			
Plant protection				
11.	<i>Protection from pest:</i> Thrips: Spraying of Endosulphon 35 EC, 12ml + 50 ml Triton/ Sandovit or spraying of Quinolphos 25EC, 12ml + 50 ml Triton/ Sandovit in 10 lit water after 2-3 weeks of seed sowing. Jassids: Application of 20ml Endosulfuon in 20 lit water for 1ha. area. Helicoverpa: HNPV 500 le For 1ha. area. Onion fly: Mixing of Phorate 10EC @10kg/ha at the time of tillage operations.			
12.	<i>Protection from Diseases:</i> Wilt : Application of Thiram/ Catain @ 2g/lit. of water, 20-30 days after sowing. Blight : Mancozeb 2.5 g/lit. of water should be applied 10-20 days interval of sowing seed. Onion rot: Mixing of Tricoderma 1250 g/ 125kg of FYM at the time of last harrowing.			
Harvesting				
13.	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.	10-15 days for curing.			
Grading				
16.	Size(mm) Grade 55 to 60 Very large 45 to 55 Large 35 to 45 Medium 20 to 35 Small			
Storage				
17.	Adoption of improved storage practices like Kandachal, Nashik method,etc.			

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.

Onion is important vegetable crop in Vidarbha region. 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 adoption of onion growers about recommended cultivation practices of onion crop.

MATERIAL 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.

Adoption :

Adoption was operationally defined as the degree of actual use of recommended cultivation practices by onion growers. It was measured with the help of teacher made

test. It was constructed in consultation with scientist, research articles and scientific publication. It was measured on three point continuum as completely adopted, partially adopted and not adopted by assigning the score of 2, 1 and zero, respectively. The adoption raw score was then converted into adoption index by applying following formula :

$$\text{Adoption index} = \frac{\text{Actual obtained adoption score}}{\text{Maximum obtained adoption score}} \times 100$$

Obtained adoption raw score was converted into adoption index by using following formula and the respondents were categorized into three categories *i.e.* low, medium and high on the basis of overall adoption index by equal interval method as follows.

Sr. No.	Adoption 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 :

Adoption :

It could be seen from Table 1 that majority of the farmers completely adopted some onion cultivation practices like harvesting methods (82.00%), curing of onion (76.00%), land preparation includes ploughing and harrowing (68.00%), transplanting of seedlings (64.00%), raising practice for onion (52.00%) and adoption of recommended varieties for onion (51.00%).

It is also interesting to note that 49.00 per cent, 31.00 per cent, 30.00 per cent, 24.00 per cent, 22.00 per cent, 14.00 per cent, 13.00 per cent, 09.00 per cent and 08 per cent respondents have completely adopted the cultivation practices about seed rate per hectare, recommended time and dose of fertilizer application, recommended intercultural operation, plant protection measures against onion pests, FYM application, gradation of onion, spacing recommended for onion crops, irrigation water management, plant protection measures against onion disease, respectively.

It is also interesting to note that not a single respondent were completely adopted spraying of mallic hydrazide before 15 days of harvesting and adoption of improved storage practices for onion.

77.00 per cent, 65.00 per cent and 64.00 per cent of the onion growers were partially adopted the onion cultivation practices like spacing, FYM application and gradation of onion produce, respectively. While 03.00 per cent of respondents

were partially adopted improved storage practices of onion. However, it is noted that the respondents were not adopted improved storage practices (97.00%) more in number.

The Table 2 revealed that majority (61.00%) per cent of

the onion growers found in medium level of adoption followed by 22.00 per cent growers had low level of adoption and only 17.00 per cent appeared in high level of adoption of recommended cultivation practices of onion.

Sr. No.	Recommended cultivation practices	Respondents according to adoption		
		CA	PA	NA
Land preparation				
1.	Ploughing, harrowing.	66	34	00
Variety				
2.	Recommended varieties for onion.	51	49	00
Raising of seedlings				
3.	Recommended seedlings raising practices for onion.	52	48	00
Seed rate				
4.	Seed rate per ha.	49	51	00
Transplanting of seedlings				
5.	Age of seedlings for transplanting.	64	24	12
Spacing				
6.	Recommended spacing.	13	77	10
Intercultural operation				
7.	Recommended intercultural operation.	30	55	15
Organic manure				
8.	FYM application.	22	65	13
Fertilizer application				
9.	Recommended time and dose of fertilizer application.	31	59	10
Irrigation				
10.	Irrigation water management.	09	52	39
Plant protection				
11.	Protection from Pest: Plant protection measures against onion pests.	24	44	32
12.	Protection from Diseases: Plant protection measures against onion diseases.	08	18	74
Harvesting				
13.	Method of harvesting for onion crop.	86	14	00
14.	Spraying of malic Hydrazide.	00	00	100
Curing				
15.	Curing of onion.	61	29	00
Grading				
16.	Grading of onion.	14	64	22
Storage				
17.	Adoption of improved storage practices.	00	03	97

Sr. No.	Adoption level	Respondents	
		Frequency	Percentage
1.	Low (Upto 33.33)	22	22.00
2.	Medium (33.34 to 66.66)	61	61.00
3.	High (Above 66.67)	17	17.00
	Total	100	100.00

Methods of harvesting and curing of onion methods completely adopted by 82.00 per cent and 76.00 per cent respondents, respectively. Followed by land preparation and transplanting of onion seedling in main field were completely adopted by 68.00 per cent and 64.00 per cent respondents, respectively.

Cultivation, practices like spacing (77.00%), FYM application (65.00%), grading of onion (64.00%) and recommended time and dose of fertilizer application (59.00%) were partially adopted. Above 97.00 per cent respondents not adopted the improved storage practices of onion and cent per cent (100.00%) respondent not adopt spraying of mallic hydrazide 15 days before harvesting on onion crop. Also 61.00 per cent of respondents observed to be medium level of adoption of recommended cultivation practices of onion. According to Singh and Pal (2001), Waman *et al.* (1990 and 1998). India produces 4.0 million tons onion from 0.4 mha with productivity of 10 tons/ha.

In this context, it was implied that the information regarding these recommended cultivation practices 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 adoption of recommended technologies.

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