



Knowledge Level of Farmers about Improved Production Technology of Onion Crops in Sikar District of Rajasthan

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ABSTRACT

Knowledge about innovation may be an important factor affecting the adoption behaviour of farmers. The farmers who have more knowledge about newly developed technology also have more level of adoption of technology compared to those who have low knowledge. Therefore, present study was conducted to assess the knowledge level of the farmers on the improved production technology of onion in Sikar District of Rajasthan. The Sikar district consists of 9 blocks, out of which two panchayat samities namely Laxmangarh and Dhod were selected on the basis of large area coverage under onion crops. From each selected blocks, three villages were selected and 15 farmers were selected from each selected village randomly, thus making a total sample of 90 farmers. The selected respondents were interviewed personally with the help of a well structured and pre-tested interview schedule. The result reveals that the maximum of the respondents (65.56%) had medium level of overall knowledge, followed by 20.0 per cent of them had low level of knowledge and only 14.14 per cent of them had high level of overall knowledge about onion production technology. 70.74 per cent respondents had good knowledge about field preparation and hence this practice was ranked first. The second highest per cent of respondents 61.48 per cent were having knowledge about transplanting of nursery in main field which was given second rank. Only 25.0 per cent respondents had knowledge about selection of suitable variety which was ranked last because most of the respondents had minimum knowledge about this practice.

Key Words: Onion, Training, Knowledge level, KVK, Sikar, Production technology.

INTRODUCTION

Onion (*Allium cepa* L.) is one of the most important commercial vegetable crops cultivated extensively in India and it belongs to the family Alliaceae. It is one of the few versatile vegetable crops that can be kept for a fairly long time and can safely withstand the hazards of rough handling including long distance transport. It is liked for its flavour and pungency, which is due to the presence of a volatile oil "Allyl prophyyl disulphide"- It is dietary essential for human beings because of its nutritional and medicinal values, which commands extensive markets. It can also be used in innumerable ways. The immature and mature bulbs are eaten raw or they may be cooked and eaten as vegetable and commonly used as condiments and spice for flavouring and enriching various cuisines. It is also

used in the form of dehydrated (form of flakes, rings, kibbles and powder), freezing, canning and pickling (in vinegar or brine).

India is the second largest producer of onion in the World next to China with production of 20931.21 thousand MT from an area of 1320.04 thousand hectares (Anonymous, 2017). The major onion producing states are Maharashtra, Madhya Pradesh, Karnataka, Gujarat, Rajasthan and Bihar. In Rajasthan, it is grown extensively in the districts of Jodhpur, Sikar, Alwar, Nagaur, Jhunjhunu, etc. The total production in the state during the year 2016-17 was 1350 thousand MT from an area of 85.0 thousand hectares (Anonymous, 2017). Sikar district stands second in area and production of onion cultivation in Rajasthan. In Sikar district, the

cropping season for onions begins in the months of September-October. Most of farmers choose local cultivar for sowing in their field during Rabi season in order to get good returns during winter. Onion production is not always profitable for farmers owing to certain risks associated with it. Due to various constraints like poor knowledge about proper storage methods of onion bulbs, poor keeping quality of local cultivar, negligible area under Kharif onion, lack of storage facilities, etc. farmers sold their produce at a price below their cost of production.

The farmers could increase their benefit through adoption of new technologies. The adoption of improved technologies requires high level of technical knowledge in areas package of practices and synchronized with needs and requirement of farmers like proper post harvest handling, selection of suitable variety, proper nutrient management, insect-pest and diseases management, etc. Due to technological advancement in onion cultivation, there is a strong need to train the growers to keep them abreast about improved technologies for improving their knowledge and increasing income. Thus, the present study was designed to know the extent of Knowledge level of farmers about improved production technology of onion crops in Sikar District of Rajasthan.

MATERIALS AND METHODS

The study was conducted in in Laxmangarh and Dhod blocks of Sikar district in Rajasthan. In the district there were nine blocks. Out of which Laxmangarh and Dhod blocks were selected purposively and only 06 villages (three villages each) *viz.*, Kaswali, Khoru and Hameerpura from Laxmangarh and Sanwaloda Ladkhani, Jhigar Chhoti and Rashidpura from Dhod were selected. From each selected village, 15 onion growers were selected on the basis of random sampling method. Thus the total sample size was 90 respondents for the purpose of investigation. A well-structured and pre-tested schedule was used to

collect the information from the onion growers. In this study, an interview schedule, having 29 statements, regarding different constraints normally faced by the farmer were asked on different aspect of onion cultivation practice *viz.*, field preparation, selection of variety, nursery management, transplanting of nursery in main field, nutrient management, weed management, irrigation management, plant protection, post harvest management. The responses observed from the different farmers were divided into two categories *i.e.*, correct and wrong. The statement having “wrong” responses was given zero mark and the statement having “correct” was given one mark. So, individual onion grower can get maximum marks of 29 and thus a minimum mark was zero. The scores obtained under various practices were summed up with both respondent wise and as well as component wise and computed in to low, medium and high knowledge level on the basis of socio economic status. The collected data were analyzed with suitable statistical tools.

RESULTS AND DISCUSSION

Socio-Economic Status of Respondents

It was evident from the table 1 that the majorities (41.11%) of the respondents were middle aged ranging from 35 to 50 year age group and belong to backward caste (77.78%). The frequency distribution was highly skewed towards the younger respondents. While, looking at the educational status of respondent, results revealed that majority (36.67 %) of respondents were secondary passed. Majority of the farmers had main occupation as agriculture (70.00 %) followed by business (8.89%), labour (7.78%), independent profession (7.78%) and service (5.56%). It is evident from the data that maximum 61.11 % onion growers had medium income from onion cultivation. Results on land holding demonstrated that nearly 76.66 % of respondents were small (20.00 %) to medium (34.44 %) farmers. In case of experience of onion cultivation the data revealed that highest (52.22 %) onion growers had low medium experience. Out

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Table 1. Distribution of respondents based on their socio economic characteristics. (N=90)

Variable	Category	Frequency	Percentage
Age (in years)	Young (18-35)	35	38.89
	Middle (35-50)	37	41.11
	Old (50 and above)	18	20.00
Education	Illiterate	06	6.67
	Primary	09	10.00
	Middle	13	14.44
	High School/High	18	20.00
	Secondary	33	36.67
	Graduate	11	12.22
Cast	General	09	10.00
	OBC	70	77.78
	SC/ST	11	12.22
Occupation	Labour	07	7.78
	Agriculture	63	70.00
	Business	08	8.89
	Independent profession	07	7.78
	Service	05	5.56
Income	Low	26	28.89
	Medium	55	61.11
	High	09	10.00
Operational land holding	Marginal (less than 1 ha land)	18	20.00
	Small(1-2 ha land)	38	42.22
	Medium (2-5 ha land)	31	34.44
	Large (above 5 ha)	03	3.33
Experience of onion cultivation	Low (1-5 yr)	29	32.22
	Medium (5-10 yr)	47	52.22
	High (above 10 yr)	14	15.56
Mass media exposure	Low	33	36.67
	Medium	42	46.67
	High	15	16.67

of total 90 respondents under study, 46.67 % had a medium exposure to the mass media followed by 36.67 % and 16.67 % had low and high exposure to the mass media, respectively, Singh *et al* (2014) also lending support to the present findings.

Knowledge level of recommended cultivation practices of onion

It was evident from the data (Table 2) that

the highest level of knowledge was observed in days to transplanting (88.89%), land preparation (86.66%), selection of soil (84.44%), seed rate/ha (83.33%), appropriate irrigation interval (68.89%), time of fertilizer application (66.67%), time of nursery preparation (66.66%), suitable harvesting stage (62.22%), seed treatment (61.11%), required spacing for onion crop (57.78%), identification

Table 2. Distribution of the onion growers according to their knowledge level.

Sr. No	Parameter	Knowledge level (N=90)	
		Frequency	Percentage
A.	Field Preparation		
1.	Selection of Soil	76	84.44
2.	Soil testing	37	41.11
3.	Land preparation	78	86.66
B.	Selection of Variety		
4.	Name of Kharif season variety	18	20.00
5.	Selection of variety according to season	27	30.00
C.	Nursery Management		
6.	Soil treatment	39	43.33
7.	Time of nursery preparation	60	66.66
8.	Method of bed preparation	13	14.44
9.	Seed rate/ha	75	83.33
10.	Line method of seed sowing	17	18.89
11.	Seed treatment	55	61.11
D.	Transplanting of nursery in main field		
12.	Days to transplanting	80	88.89
13.	Required spacing for onion crop	52	57.78
14.	Seedling treatment	34	37.78
E.	Nutrient management		
15.	Recommended dose of NPK application	31	34.44
16.	Application of micro nutrients	21	23.33
17.	Time of fertilizer application	60	66.67
F.	Weed management		
18.	Time of weeding	40	40.44
19.	Use of weedicide	21	23.33
G.	Irrigation management		
20.	Appropriate irrigation interval	62	68.89
21.	Knowledge about method of taking water sample	37	41.11
H.	Plant Protection		
22.	Identification of major insect pest	48	53.33
23.	Identification of major diseases	48	53.33
24.	Plant protection measures	35	38.89
25.	Use of bio-agents	27	30.00
I.	Post Harvest Management		
26.	Suitable harvesting time	56	62.22
27.	Curing of onion	34	37.78
28.	Grading of onion bulb	10	11.11
29.	Storage methods of onion	21	23.30

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Table 3. Distribution of the onion growers under different knowledge levels categories (N=90)

Sr. No.	Knowledge level category	No. of respondent	Percentage of respondent
1.	Low Knowledge (Score below 6.62)	18	20.00
2.	Medium Knowledge (Score from 6.63 to 14.13)	59	65.56
3.	High Knowledge (Score above 14.13)	13	14.14
	Total	90	100

of major insect pest (53.33%), identification of major diseases (53.33%), soil testing (41.11%), knowledge about method of taking water sample testing (41.11%), time of weeding (40.44%), plant protection measures (38.89%), curing of onion (37.78%), seedling treatment (37.78%), recommended dose of NPK application (34.44%), use of bio-agents (30.00%), selection of varieties according to season (30.00%), application of micro-nutrients (23.33%), use of weedicide (23.33%) and storage methods of onion (23.30%). Very low extent of knowledge regarding improved production technology was found in case of name of Kharif season variety (20.00%), line seed sowing (18.89%), method of bed preparation (14.44%) and grading of onion bulb (11.11%). Similarly findings were also reported by Bhise and Kale (2014) in onion, Poonia and Dhaka (2011) in other vegetable crops.

It was observed (Table 3) that majority of the respondents (65.56%) possess medium level of

knowledge, followed by 20.00 per cent respondents having low level and 14.14 per cent having high level of knowledge. A few of the respondents were having low knowledge which might be attributed due to the fear among them about the new innovations. Respondents and lack of specialized trainings about improved production technology of onion crop in the area. Similar findings were reported by Jat *et al* (2011), Singh and Hansra (2018).

The data (Table 4) revealed that 70.74 per cent respondents had good knowledge about field preparation and hence this practice was ranked first. The second highest per cent of respondents 61.48 per cent were having knowledge about transplanting of nursery in main field which was given second rank followed by 55.00 per cent respondents had knowledge about irrigation management and given third rank. 47.76 per cent respondents had knowledge about the nursery management and this practice was placed at rank fourth, followed

Table 4. Knowledge levels of respondents about improved production technology of onion. (N=90)

Sr. No.	Knowledge level about different practices	MPS	Rank
1.	Field preparation	70.74	I
2.	Transplanting of nursery in main field	61.48	II
3.	Irrigation management	55.00	III
4.	Nursery management	47.76	IV
5.	Plant protection	43.89	V
6.	Nutrient management	41.48	VI
7.	Weed management	33.89	VII
8.	Post harvest management	33.61	VIII
9.	Selection of suitable variety	25.00	IX

by plant protection, nutrient management, weed management and post harvest management with 43.89 MPS, 41.48 MPS, 33.89 MPS, 33.61 MPS and as such these were ranked at 5th, 6th, 7th and 8th, respectively. Only 25.00 per cent respondents had knowledge about selection of suitable variety which was ranked last because most of the respondents had minimum knowledge about this practice.

CONCLUSION

Knowledge is one of the basic components that greatly affect the extent of adoption of scientific practices. By enhancing farmers knowledge and capabilities for applying new scientific techniques in farm sector will help them to maximization of profit. For up-gradation farmers knowledge training is one of the important aspects. Transfer of technology holds key to rapid development and transformation of rural society. Farm science centre or Krishi Vigyan Kendras having district as jurisdiction, are playing crucial role in training and thereby enhancing productivity and income of the farming community. Thus, for organizing effective training programme, the present study was conducted in Sikar district of Rajasthan to know the extent of Knowledge level of farmers about improved production technology of onion. The overall level of knowledge of onion production technology was medium. Maximum knowledge was noticed in the practice of field preparation, transplanting of nursery and irrigation management. Knowledge level of farmers should

be increased in various aspects of onion production technology *i.e.*, selection of suitable variety, post harvest management, nutrient management, weed management, plant protection and nursery management through systematic training programme as well as field demonstration which could be more effective in future onion production.

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