Knowledge of farmers about improved pea production technology in Kota region of Rajasthan

■ **N.R. MEENA , F.L. SHARMA, R.A. KAUSHIK AND PREVESH CHOUHAN**

SUMMARY : Pea (*Pisum sativum* L.) is one of the important vegetable crops grown all over the world. It is a cool season crop of the tropical and sub-tropical regions. Pea is the major vegetable crop of rabi season in Rajasthan. It occupies of area of 3729 hectares with the production of 5807 tonnes in Rajasthan (vital statistics, 2009-10). It is mainly cultivated in Jaipur, Nagaur, Kota, Bundi, Alwar and Chittorgarh districts in the state. The Kota region of Rajasthan is leading in area and production of pea. It occupies on an area of 1176 hectares with the production of 1493 tonnes in Kota region. The study revealed that out of 200 respondents, 50.50 per cent respondents had medium level of knowledge about improved pea production technology. This was followed by 21.00 per cent farmers having low knowledge level regarding pea production technology. Whereas, only 28.50 per cent respondents were observed in the high knowledge group. Analysis of results further revealed that 24.00 and 18.00 per cent marginal farmers and small farmers respectively were in the low knowledge group. Likewise, 50.00 and 51.00 per cent marginal and small farmers had medium level of knowledge, respectively. Whereas, 26.00 per cent marginal farmers and 31.00 per cent small farmers possessed high knowledge about improved pea cultivation technology.

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BACKGROUND AND OBJECTIVES

In India, pea occupies on area of 370.0 thousand hectares with the production of 3517.0 thousand mt. (Indian Horticulture Database-2011). Pea is grown as winter vegetable in the plains of north India and as summer vegetable in the hills. It is cultivated in Uttar Pradesh, Madhya Pradesh, Himachal Pradesh, Punjab, Haryana, Rajasthan, Maharashtra, Bihar and Karnataka, which contributing to 67 per cent of the total production. Pea is a cool season crop best suited to production in the temperate regions. In the warmer areas of the tropics pea is restricted to production in the cooler highlands. Temperature between 7° and 24°C are suitable for plant growth but optimum yield are achieved between 13° and 21°C. It is relatively tolerant to frost when compared with solanaceous and cucurbitaceous crops. Blossoms and pods are susceptible to frost, whereas leaves and stems are relatively tolerant. Seed germinates better at the soil

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temperature of 10-18.3°C. The pea crop is produced primarily under rainfed conditions but can also be irrigated. Irrigations most common for the fresh market crop. Pea is the major vegetable crop of *Rabi* season in Kota region of Rajasthan. The productivity is low of this crop as compared to recommended by the scientists. Looking to the above facts, the present study aimed to find out the knowledge of farmers about improved pea cultivation technology.

RESOURCES AND METHODS

The present study was conducted in Kota region of Rajasthan. Kota region consist of five districts, out of which three districts namely Bundi, Kota and Tonk were selected purposively on the basis of maximum area under pea cultivation. Two tehsils from each identified districts were selected on the basis of maximum area under pea cultivation. Thus, in all six tehsils were taken for the present study. Total twenty villages were identified on the basis of proportionate sampling from the selected tehsils. To select the respondents, a comprehensive list of all pea growers was prepared for all villages. Thereafter, the farmers were categorized into two groups *i.e.* small and marginal on the basis of pea cultivation. The respondents selected randomly from each category of the farmers. It was planned to select 10 respondents *i.e.* five in each category from the each selected village. Thus, the total sample size of the study was 200 respondents. Data were collected through prestructured interview schedule. Thereafter, data were analysed, tabulated and interpreted in the light of the objective.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Distribution of farmers on the basis their existing

knowledge about improved pea production technology :

To distribute the farmers on the basis of their existing knowledge level about pea production technology, three categories *viz.* low, medium and high level of knowledge were made by using mean score and standard deviation of the obtained knowledge scores by the respondents.

Table 1 depicts that out of 200 respondents, 50.50 per cent respondents had medium level of knowledge about improved pea production technology. This was followed by 21.00 per cent farmers having low knowledge level regarding pea production technology. Whereas, only 28.50 per cent respondents were observed in the high knowledge group. Analysis of table further reveals that 24.00 and 18.00 per cent marginal farmers and small farmers, respectively were in the low knowledge group. Likewise, 50.00 and 51.00 per cent marginal and small farmers had medium level of knowledge, respectively. Whereas, 26.00 per cent marginal farmers and 31.00 per cent small farmers possessed high knowledge about improved pea cultivation technology. The knowledge level of small farmers was slightly higher due to more size of land holding, more income level, active social participation, more cosmopolitan in nature and more prone to change than marginal farmers.

The present findings are in accordance with the findings of Angadi *et al.* (1992) who revealed that majority of farmers (58%) possessed medium knowledge of cultivation practices of groundnut. Dongardive (2002) also observed that majority (71.33%) of the chilli growers had low level of knowledge, while 15.33 and 12.34 per cent respondents had medium and high level of knowledge, respectively about improved chilli cultivation.

Aspect-wise extent of knowledge of farmers about improved pea production technology :

The data accorded in Table 2 indicate that the extent of knowledge about soil and field preparation aspect for pea cultivation was highest among small farmers with

Table 1 : Distribution of respondents on the basis of their knowledge level regarding improved pea production technology						(n = 200)
Sr. No.	Level of knowledge	Marginal farmers		Small farmers		Total	
		f	%	f	%	f	%
1.	Low (< 47)	24	24.00	18	18.00	42	21.00
2.	Medium (47–74)	50	50.00	51	51.00	101	50.50
3.	High (> 74)	26	26.00	31	31.00	57	28.50
	Total	100	100.00	100	100.00	200	100.00

f = Frequency, % = Per cent

82.30 per cent, while in case of marginal farmers the extent of knowledge was 79.20 per cent about soil and field preparation aspect and ranked second by the marginal farmers. The majority of both the categories of respondents were fully acquainted with the type of soil required for pea cultivation, quantity of FYM/ha is added to the soil and number of ploughing to be done for field preparation for successful cultivation of pea.

The extent of knowledge about time of sowing was 81.35 and 80.60 per cent among small and marginal farmers. The knowledge of both the categories of farmers was more or less same about sowing time of pea in the study area. This practice was ranked first by marginal farmers and second by small farmers. Almost all the farmers possessed knowledge about second week of October to first week of November is the appropriate time of sowing for pea in Kota region of Rajasthan.

Further analysis of table shows that the extent of knowledge about manure and fertilizers application for pea cultivation was 68.37 and 73.80 MPS among marginal and small farmers, respectively. It was ranked third and fourth by the marginal and small farmers, respectively. It was also found that few farmers knew the actual doses and times of application of manures and fertilizers in the pea crop. The knowledge about water management among marginal and small farmers was recorded to be 65.35 and 72.70 per cent, respectively. Majority of the pea growers of the area possessed knowledge about time of flowering (after 45 days of sowing) and time of pod development stage are the critical stages of irrigation in pea crop. The knowledge about method and quantity of using potassium chloride was poor among the pea growers. It was also noted that 61.85 and 78.23 per cent knowledge about weed management was found in marginal and small farmers, respectively. Majority of the pea growers were aware with hand weeding and chemical weed control practices.

The knowledge about seed rate and recommended spacing was ranked sixth by both marginal and small farmers with 58.53 and 69.50 per cent knowledge, respectively. Further analysis of data reveals that nearly fifty per cent of the respondents had exact knowledge about recommended seed rate (80-100 kg/ha) for pea/ha. The extent of knowledge about high yielding varieties of pea among marginal and small farmers was 54.39 and 60.96 per cent, respectively. The knowledge of small farmers was higher than marginal farmers about high yielding varieties of pea. This aspect was ranked seventh by both the categories of pea growers. It was also noticed that pea growers possessed knowledge about the name of high yielding varieties of pea namely T-163, RPG-3, Rachna, Pusa Mugta, Pusa Panna (ODR-27) and DMR-

Table 2 : Extent of knowledge of farmers regarding improved pea cultivation practices						(n = 200)
Sr. No.	Improved practices	Marginal farmers		Small farmers		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	High yielding varieties	54.39	7	60.96	7	57.68	7
2.	Soil and field preparation	79.20	2	82.30	1	80.75	2
3.	Soil treatment	38.73	12	40.20	12	39.46	12
4.	Seed treatment	43.63	11	46.62	11	45.13	11
5.	Time of sowing	80.60	1	81.35	2	80.98	1
6.	Seed rate and recommended spacing	58.53	6	69.50	6	64.02	6
7.	Manures and fertilizer application	68.37	3	73.80	4	71.09	3
8.	Water management	65.35	4	72.70	5	69.03	5
9.	Weed management	61.85	5	78.23	3	70.04	4
10.	Plant protection measures	44.82	10	46.62	10	45.72	10
11.	Harvesting techniques	48.10	9	52.95	9	50.53	9
12.	Marketing	52.39	8	53.96	8	53.18	8

MPS = Mean per cent score

Table 3 : Comparison of knowledge between the marginal and small farmers about improved pea production technology				
Sr. No.	Category of respondents	Mean	S.D.	'Z' value
1.	Marginal farmers	68.42	6.8	5.06**
2.	Small farmers	74.40	9.7	

** indicates significance of value at P=0.01

7, whereas they were ill awared about duration and average yield of these recommended varieties of pea.

Analysis of Table 2 further shows that the extent of knowledge about marketing of produce was 52.39 and 53.96 per cent among marginal and small farmers, respectively. Some of the pea growers had good knowledge about regulated market, village wholesalers and nearby mandies where green pod of pea can be marketed for good price of pea. The knowledge about harvesting techniques of pea was 48.10 and 52.95 per cent among marginal and small farmers, respectively. The knowledge about this aspect was ranked ninth by both marginal and small farmers categories. It was found that most of the respondents were harvesting pea at appropriate time with hand picking method. Further it was observed that very few respondents possessed knowledge about green pea can be preserved for future use.

The knowledge about plant protection measures was ranked tenth by both, marginal and small farmers with 44.82 and 46.62 per cent knowledge, respectively. Further analysis of data reveals that most of the respondents had knowledge regarding diseases of pea namely powdery mildew, root rots, rust, mosaic but they were lacking in knowledge for their chemical control measures. It was also found that nearly 40.00 per cent pea growers possessed good knowledge of common insect pests of pea and their control measures. The extent of knowledge about seed treatment, it was recorded that marginal and small farmers had 43.63 and 46.62 per cent, respectively. Nearly forty per cent of the pea growers did not know the name and quantity of chemicals which can be used for treatment of pea seed at the time of sowing. Analysis of table also reveals that the extent of knowledge about soil treatment for pea cultivation was 38.73 and 40.20 per cent, respectively. The knowledge about this aspect was ranked last by both the categories of respondents.

Thus, from the above results can be concluded that extent of knowledge of marginal farmers was from 38.73 to 80.60 per cent, whereas in case of small farmers the extent of knowledge was found to be from 40.20 to 82.30 per cent in all improved cultivation practices of pea. Further, it was inferred that small farmers had more knowledge than marginal farmers about all the pea cultivation practices.

The present findings are supported by the findings of Wankhede *et al.* (1997) who reported that majority of onion growers lacked the knowledge about the important practices such as recommended varieties, seed treatment with fungicide, fertilizer application, occurrence of pests and diseases and curing as bulb produce. The majority of them had medium level of knowledge about improved practices of onion cultivation.

Comparison of knowledge of the pea growers :
The comparison of knowledge about improved pea cultivation technology was made under following heads:

Comparison of knowledge between marginal and small farmers :
To find out the significant difference between marginal and small farmers about knowledge of improved pea cultivation technology, 'Z' test was applied. The results of the same have been presented in Table 3.

Hypotheses :
NH_{01}: There is no significant difference in knowledge between marginal and small farmers about improved pea production technology.

RH_1: There is significant difference in knowledge between marginal and small farmers about improved pea production technology.

Table 3 reveals that calculated 'Z' value was greater than its tabulated value at 1 per cent level of significance.

Table 4 : Comparison of knowledge between the pea growers of selected districts about pea production technology					(n = 200)
Sr. No.	Source of variation	d.f.	S.S.	M.S.S.	'F' cal
1.	Between the districts	2	12940.74	6470.37	14.08**
2.	Error	197	90540.26	459.59	
	Total	199	103481.00		
** indicates significance of value at P=0.01					
Mean value table					
Sr. No.	Name of district		Mean value		C.D. value
1.	Bundi		74.25		1.185
2.	Kota		71.20		
3.	Tonk		68.25		

Thus, the Null hypothesis (NH_{01}) was rejected and research hypothesis (RH_1) was accepted. It reveals that there was significant difference in knowledge between marginal and small farmers about improved pea production technology. The mean value further indicates that small farmers possessed more knowledge than marginal farmers about improved pea cultivation technology. This difference in the level of knowledge might be due to the fact that small farmers had more income, extension contacts and high participation in out reach programmes as compared to marginal farmers.

The present findings are conformity with the findings of Vashishtha (2011) who revealed that there was significant difference in knowledge between tribal and non-tribal farmers about chilli cultivation technology. She further found that non-tribal farmers had higher knowledge than tribal farmers about chilli cultivation technology.

Comparison of knowledge between selected three districts :

To find out the significant difference between the farmers of selected districts analysis of variance test ('F' test) was applied. The results are presented in Table 4.

Hypotheses :

NH_{02}: There is no significant difference in knowledge between the pea growers of selected three districts.

RH_2: There is significant difference in knowledge between the pea growers of selected three districts.

Table 4 reveals that the calculated 'F' value 14.08 is higher than the tabulated value at 1 per cent level of significance and 2 degree of freedom. Thus, the research hypothesis (RH_2) entitled "to find out significant difference in knowledge between the pea growers of selected three districts" was accepted and Null hypothesis (NH_{02}) was rejected. It infers that there was significant difference in knowledge between the pea growers of selected three districts about improved pea production practices. By comparing the mean value with C.D. value, there is significant difference among the pea growers of all three districts namely Bundi, Kota and Tonk with regard to possession of knowledge about improved pea cultivation technology. Similar results were found by Meena (2001), who reported that there is

significant difference in level of knowledge regarding improved production practices of pea among big, small and marginal category of farmers.

Conclusion :

From the above results it can be concluded that out of 200 respondents, 50.50 per cent respondents had medium level of knowledge, while 28.50 and 21.00 per cent farmers having high and low knowledge level regarding pea production technology, respectively. It was also noted that extent of knowledge of marginal farmers was from 38.73 to 80.60 per cent, whereas in case of small farmers the extent of knowledge was found to be from 40.20 to 82.30 per cent in all improved cultivation practices of pea. There was significant difference in knowledge between marginal and small farmers about improved pea production technology.

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REFERENCES

Angadi, I.G., Jahagirdhar, K.A. and Shinde, P.S. (1992). Awareness and knowledge of farmers about improved cultivation practices of groundnut. *Maharashtra J. Extn. Edu.,* **2**: 356-357.

Dongardive, V.T. (2002). A study on adoption of recommended technology of chilli crop by chilli growers in Anand district of Gujarat state. M.Sc. (Ag.) Thesis, Gujarat Agricultural University, Anand, GUJARAT (INDIA).

Meena, R. (2001). Role of Krishi Vigyan Kendra in adoption of improved production practices of groundnut by the farmers of Bikaner district of Rajasthan. Ph.D. (Ag.) Thesis, Maharana Pratap University of Agriculture and Technology, Udaipur, RAJASTHAN (INDIA).

Vashishtha, U. (2011). An assessment of knowledge and adoption of chilli (*Capsicum annum* L.) production technology in Udaipur district of Rajasthan. Ph.D. (Ag.) Thesis, Maharana Pratap University of Agriculture and Technology, Udaipur, RAJASTHAN (INDIA).

Wankhede, P.P., Shinde, P.S. and Bhople, S.R. (1997). Constraints in adoption of onion production technology. *Maharashtra J. Extn. Edu.,* **16** : 347-349.

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