

# Adoption behaviour of pea growers in Kota region of Rajasthan

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## ARTICLE INFO :

Received : 28.02.2017  
Revised : 07.05.2017  
Accepted : 22.05.2017

## KEY WORDS :

Pea growers, Adoption behaviour, Small farmers

## HOW TO CITE THIS ARTICLE :

Meena, N.R., Sharma, F.L., Kaushik, R.A. and Chouhan, Prevesh (2017). Adoption behaviour of pea growers in Kota region of Rajasthan. *Adv. Res. J. Soc. Sci.*, 8 (1) : 75-79, DOI: 10.15740/HAS/ARJSS/8.1/75-79.

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## ABSTRACT

The findings revealed that 105 (52.50%) of total pea growers were found to be from medium adoption level group, whereas, 43 (21.50%) respondents were reported from the group of low adoption level and 52 (26.00%) respondents were in the high adoption level. The study further revealed that 23.00 per cent marginal farmers were in the high adoption level and 28.00 per cent marginal farmers were in the low adoption level, while 49.00 per cent marginal pea growers were found in the medium adoption category. In case of small farmers' category it was observed that 15.00, 56.00 and 29.00 per cent respondents had low, medium and high level of adoption, respectively about pea production practices in the study area. It was noted that the extent of adoption in marginal farmers was from 23.70 to 73.20 per cent, while in case of small farmers the extent of adoption was from 30.37 to 74.12 per cent in all improved pea cultivation practices. Further it was found that small farmers had more extent of adoption than marginal farmers but there still exists a gap in the adoption of improved pea cultivation practices. The findings indicated that there was significant difference between marginal and small farmers in adoption of improved pea production technology. Hence, it is concluded that there was significant difference between marginal and small farmers in adoption of improved pea production technology.

## INTRODUCTION

Pea has been grown in India for several decades and is quite adapted to this part of the world. There are good number of local strains and exotic varieties available. Most of the exotic varieties were introduced in India and used as commercial varieties. Genetic diversity within the genus *Pisum* has resulted in a myraid of uses for the crop. Pea can be grown on all types of

soils but the early crop is expected in light soils and higher yields in loose, friable and heavy soils. Pea is grown as a rabi crop and sown from the beginning of October to middle of November in the Kota region of Rajasthan.

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 (Vital Statistics, 2009-10). Kota region consists of Kota, Baran, Bundi, Jhalawar and Tonk districts. The soil and climatic

condition of this region is most suitable for pea cultivation. Looking to the above facts, the present study was conducted in Kota region of Rajasthan with specific objectives:

- To find out the level of adoption of improved pea cultivation practices by the farmers.
- To compare the level of adoption of improved pea cultivation technology between the small and marginal farmers.

## MATERIAL 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

To get an overview of the respondents with respect to their level of adoption, they were grouped into three strata *viz.*, low, medium and high adoption group. This stratification was based on the calculated mean value and standard deviation of the adoption score obtained

by the respondents. The results are presented Table 1.

The data in Table 1 reveal that 105 (52.50%) of total pea growers were found to be from medium adoption level group, whereas, 43 (21.50%) respondents were reported from the group of low adoption level and 52 (26.00%) respondents were in the high adoption level. An analysis of small and marginal respondents regarding their level of adoption about improved pea production technology revealed that 23.00 per cent marginal farmers were in the high adoption level and 28.00 per cent marginal farmers were in the low adoption level, while 49.00 per cent marginal pea growers were found in the medium adoption category. In case of small farmers' category, it was observed that 15.00, 56.00 and 29.00 per cent respondents had low, medium and high level of adoption, respectively about pea production practices in the study area.

It can be concluded that small farmers possessed more adoption level than marginal farmers about improved practices of pea cultivation. It may be due to the reason that knowledge level of small farmers was comparatively higher than that of marginal farmers that might have contributed to slightly higher level of adoption. Another reason behind such findings may be that the small farmers were slightly more progressive in nature than marginal farmers. Thus, adoption is dependent on knowledge and social participation might have also played vital role in higher adoption of small farmers.

Similar findings have been reported by Vashishta (2007) who found that 56.25 per cent of the total respondents adopted the pigeonpea production technology to a medium level, whereas, 26.88 and 16.87 per cent of the total respondents adopted pigeonpea production technology at low and high level, respectively.

To find out the aspect wise extent of adoption among small and marginal pea growers about improved pea cultivation practices, mean per cent score of each major practice was calculated and presented in Table 2.

Sr. No.	Level of adoption	Marginal farmers		Small farmers		Total	
		f	%	f	%	f	%
1.	Low (< 52)	28	28.00	15	15.00	43	21.50
2.	Medium (52-77)	49	49.00	56	56.00	105	52.50
3.	High (> 77)	23	23.00	29	29.00	52	26.00
	Total	100	100.00	100	100.00	200	100.00

f = Frequency, % = Per cent

Data accorded in Table 2 indicate that highest adoption was observed in the practice of time of sowing among the marginal and small farmers with the extent of 73.20 and 74.12 per cent, respectively. It was noticed that majority of the farmers were following the recommended time of sowing *i.e.* last week of October to first week of November. The study of table further reveals that the adoption regarding soil and field preparation was recorded 65.60 and 71.15 per cent among marginal and small farmers, respectively and it was ranked second by both the categories of respondents. It means that majority of pea growers were following all important operations for soil and field preparation for successful cultivation of pea crop.

The extent of adoption about weed management was 61.97 and 65.20 per cent among marginal and small pea growers, respectively. The adoption level of small farmers was higher than marginal farmers in weed management and intercultural operations in pea crop. The adoption of seed rate and spacing is almost equal among marginal and small farmers and ranked fourth in ranking hierarchy of all improved pea cultivation practices.

Analysis of table further reveals that adoption regarding fertilizer application among marginal and small farmers was 56.23 and 59.70 per cent, respectively. Majority of the farmers of the study area were not applying various fertilizers in pea cultivation as per the recommendation of scientists. The extent of adoption about water management was found to be 53.30 and 57.95 MPS among marginal and small farmers, respectively and it was ranked sixth by marginal farmers and seventh

by small farmers. It was observed during analysis of data that recommended irrigation management aspects were using by majority of marginal and small farmers because ample of irrigation water is available in Kota region of Rajasthan.

In case of the extent of adoption regarding the high yielding varieties of pea was 51.50 and 58.54 per cent among marginal and small pea growers, respectively. Analysis of data clearly shows that majority of the respondents were adopting the high yielding varieties namely Rachna, T-163, Pusa Ratna, which are more suitable and providing higher yield. It was further noted that extent of adoption in the case of harvesting, post-harvest techniques and marketing was 48.67 and 51.80 per cent among marginal and small farmers, respectively. Majority of the farmers were not following the cold storage practices of pea because such facilities are not common in the study area. The adoption about seed treatment was noticed 41.70 and 45.60 per cent among marginal and small farmers, respectively and it was ranked ninth by both the categories of pea growers.

Further analysis of table reveals that extent of adoption of staking technique in pea cultivation was 40.62 and 45.33 per cent among marginal and small farmers, respectively and this aspect was placed on tenth position by both the categories of respondents (Table 2). The extent of adoption of plant protection measures was observed to be 40.10 and 41.33 per cent among marginal and small respondents, respectively. The adoption level of pea growers was not encouraging about this aspect. This may be due to the fact that chemicals used for

Sr. No.	Improved practices	Marginal farmers		Small farmers		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Use of high yielding varieties	51.50	7	58.54	6	55.02	7
2.	Soil and field preparation	65.60	2	71.15	2	68.38	2
3.	Soil treatment	23.70	12	30.37	12	27.03	12
4.	Seed treatment	41.70	9	45.60	9	43.65	9
5.	Time of sowing	73.20	1	74.12	1	73.66	1
6.	Seed rate and spacing	60.54	4	62.50	4	61.52	4
7.	Fertilizer application	56.23	5	59.70	5	57.97	5
8.	Water management	53.70	6	57.95	7	55.82	6
9.	Weed management	61.67	3	65.20	3	63.44	3
10.	Staking	40.62	10	45.33	10	42.98	10
11.	Plant protection measures	40.10	11	41.33	11	40.72	11
12.	Harvesting, post harvest techniques and marketing	48.67	8	51.80	8	50.23	8

MPS = Mean per cent score

controlling insect-pests and diseases are costly affairs. The extent of adoption about soil treatment aspect was prioritized at the last by the pea growers.

From the above discussion, it can be concluded that the extent of adoption in marginal farmers was from 23.70 to 73.20 per cent, while in case of small farmers the extent of adoption was from 30.37 to 74.12 per cent in all improved pea cultivation practices. Further it was found that small farmers had more extent of adoption than marginal farmers but there still exists a gap in the adoption of improved pea cultivation practices.

**Comparison of adoption of the pea growers between different components about improved pea cultivation technology :**

The comparison in the adoption of improved pea cultivation technology by the farmers was made under following heads:

**Comparison of adoption between marginal and small farmers :**

To find out the variation or similarity in the adoption of improved pea cultivation technology between the marginal and small farmers, the ‘Z’ test was applied. The results of the same have been given in Table 3.

NH<sub>01</sub>: There is no significant difference between marginal and small farmers in adoption of improved pea production technology.

RH<sub>1</sub>: There is significant difference between marginal and small farmers in adoption of improved pea

production technology.

Table 3 shows that the calculated value of ‘Z’ (2.87) is greater than the tabulated value at 1 per cent level of significance. This calls for the acceptance of the research hypothesis (RH<sub>1</sub>) i.e. there is significant difference between marginal and small farmers in adoption of improved pea production technology. Hence, it is concluded that there was significant difference between marginal and small farmers in adoption of improved pea production technology. The mean value further indicates that the small farmers had higher adoption mean than marginal farmers. This difference in the level of adoption between small and marginal farmers might be due to the reason that small respondents had more cosmopolitan outlook, economic motivation, extension contact, size of land holding and income level than marginal farmers.

**Comparison of adoption between selected districts :**

Analysis of variance test (‘F’ test) was applied to find out the significance of variation in adoption of the farmers of selected districts. The results of ANOVA computed for this purpose are presented in Table 4.

**Hypotheses:**

NH<sub>02</sub>: There is no significant variation in adoption of improved pea cultivation practices by the farmers of selected districts.

RH<sub>2</sub>: There is significant variation in adoption of improved pea cultivation practices by the farmers of selected districts.

Sr. No.	Category of respondents	Mean	S.D.	‘Z’ value
1.	Marginal farmers	43.73	7.4	2.87**
2.	Small farmers	47.01	8.7	

\*\* indicates significance of value at P=0.01

Sr. No.	Source of variation	d.f.	S.S.	M.S.S.	‘F’ cal
1.	Between the selected districts	2	7890.28	3945.40	11.63**
2.	Error	197	66846.72	339.32	
	Total	199	82203		

\*\* indicates significance of value at P=0.01

Sr. No.	Name of districts	Mean value	C.D. value
1.	Bundi	45.58	1.108
2.	Kota	43.20	
3.	Tonk	41.65	

Data presented in Table 4 show that the calculated 'F' value (11.63) is higher than the tabulated 'F' value at 1 per cent level of significance and 2 degree of freedom. So the result is statistically significant. Thus, Null hypothesis ( $NH_{02}$ ) was rejected and research hypothesis ( $RH_2$ ) was accepted. It means that there was a significant variation between the respondents of selected districts with regard to adoption of improved pea cultivation practices. By comparing the mean value with C.D. value, there was significant difference among Bundi, Kota and Tonk with respect to adoption of improved pea production technology.

### Conclusion :

It was concluded that the extent of adoption in marginal farmers was from 23.70 to 73.20 per cent, while in case of small farmers the extent of adoption was from 30.37 to 74.12 per cent in all improved pea cultivation practices. Further it was found that small farmers had more extent of adoption than marginal farmers but there still exists a gap in the adoption of improved pea cultivation practices.

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