Andhra Pradesh J Agril. Sci : 6(4): 217-223, 2020

FARMERS' PESTICIDE BUYING BEHAVIOUR: ESTIMATING THE INFLUENTIAL FACTORS AND CONSTRAINTS IN KURNOOL DISTRICT OF ANDHRA PRADESH

C. YASWANTH, N. VANI, B. APARNA AND B. RAMANA MURTHY

Institute of Agribusiness Management, S.V. Agricultural College, ANGRAU, Tirupati

Date of Receipt: 31-08-2020 Date of Acceptance: 06-11-2020

ABSTRACT

The present study was to know the factors that influence the farmers buying behavior towards pesticides and constraints faced by them in Kurnool district of Andhra Pradesh. Kurnool district was purposively selected as it occupies first place in gross area sown in Andhra Pradesh. Among the crops cultivated in Kurnool district, cotton and chilli were selected as the pesticides consumption is high in these crops. The analytical tools employed were percentage and frequencies, Chi-square test, Garrett's ranking technique and likert's scale technique. Results reveal that credit availability, preferred brand and quality of the product were the factors that significantly influence the pesticide buying behavior of the farmers. Major constraints faced by the farmers while purchasing pesticides were high price and non availability of credit from private dealers and department of agriculture respectively.

KEY WORDS: Buying behavior, chi-square, likert summative scale, pesticide and private dealers.

INTRODUCTION

Agriculture is primary source of livelihood up to 58 per cent of India's population (Indian agriculture and allied industries report, 2018). With increasing population, demand for food and agricultural production is inevitable.

Pesticide consumption in India was accounted to 59,543metric tons, whereas in state of Andhra Pradesh it was accounted to 1432 metric tons (Indiastat, 2017-18). Pesticide usage increased rapidly for the last two decades at 12 per cent each year (Kumar *et al.,* 2017).

Most of pesticide dealers do not have proper knowledge about the pest and diseases management but farmers take their advice over the pest and disease management due to availability to credit. In this context, the study is planned to understand the purchasing behavior of farmers towards pesticides in the Kurnool district of Andhra Pradesh.

METHODOLOGY

Kurnool district was purposively selected for the study, as it occupies first place in gross area sown in Andhra Pradesh. Out of the various crops cultivated in the Kurnool district two crops *viz* cotton and chilli were selected as the pesticides consumption is high in these crops. For each crop based on the highest area; two mandals were chosen. From each mandal, two villages were selected. Ten farmers from each village were selected randomly, to make sample size to 80 farmers. The required data collected with the help of a pre-tested schedule for the year 2019-20 using survey method.

TOOLS OF ANALYSIS

The data collected were subjected to appropriate set of statistical tools to arrive at valid conclusions. Data was statistically analysed using SPSS 19 version.

Frequencies and Percentages

Some of the data were also interpreted in terms of their frequencies and percentages wherever necessary to know the distribution pattern of respondents according to variables.

Chi-square test

To compare an observed with an expected group of frequencies, chi-square test was employed as given in literature.

Garrett's Ranking Technique

Garrett's ranking technique was employed to prioritize or rank the level of information sources available on pest management, basis of application of chemical pesticides, factors influencing in the quantity of pesticides usage and brand selection, problems while purchasing pesticides from private dealers and agriculture department as given in literature.

*Corresponding author, E-mail: yeswanthc8776@gmail.com

Likert's scale

Likert's scale is named after its creator, Rensis Likert, who developed it in 1932. Likert's scale is a psychometric scale used to scale the responses of the consumers. It was used to give quantitative value on subjective or objective dimensions, with various levels between agreement and disagreement. It is considered symmetric or balanced because there are equal numbers of positive and negative positions. Five point scale was given to the different parameters which are highly satisfied, satisfied, moderate, dissatisfied and highly dissatisfied to measure the pest management techniques adopted, services provided by pesticide private companies, agriculture department and support given by private dealers and peer group.

RESULTS AND DISCUSSION

Factors influencing the pesticide buying behaviour of farmers

Farmers bought pesticides from private dealers or from both private dealers and department of agriculture. A look through the Table 1 shows the percentages of variables with the sample farmers towards the buying behaviour of pesticides.

It reveals that greater percentage of farmers 91.25 per cent purchased pesticides from private dealers, 8.75 per cent of farmers from both agricultural department and private dealers and nobody relied on the department of agriculture exclusively as the department had limited pesticides at its dispersal. Farmers bought pesticides for cash, credit and for both cash and credit. Maximum farmers 63.75 per cent depended on credit purchases and minimum farmers 13.75 per cent bought through credit.

About 65 per cent preferred to switch over to the dealer who provided credit, 32.5 per cent opted to take credit from others and 2.5 per cent of farmers voted for reducing the quantity of pesticides application. It is therefore very clear that farmers switch over to dealers who provide credit. Pesticide prices keep changing from time to time and it is of interest to elicit farmers' opinion on the pattern of use of pesticides, when prices change. 81.25 per cent preferred to use the same brand with same quantity, 3.75 per cent of farmers felt to use same brand with reduced quantity and 15 per cent of farmers switch over to low priced brand. Same brand same quantity was the opinion of greater percentage of farmers when prices change.

Information regarding farmer's decision during the period of non-availability of required pesticides is presented in the table showed that in the absence of required brand, 92.5 per cent farmers shifted to other branded products while 7.5 per cent of farmers preferred to wait for their choice brand. The opinion of the farmers on the loyalty towards pesticide brands and private dealers was not uniform. Every farmer had his own opinion. Majority 67.5 per cent of farmers felt that they did not mind changing the brand or dealer according to the situation. There was nothing like commitment to a brand or dealer always. 23.75 per cent of the farmers were religiously sticking on to the same dealer without taking the situation into account. The practice of sticking on to the same dealer was found with 5 per cent of farmers and 3.75 per cent of farmers always loyal to the same brand and dealer. The results are in line with Dharmaraj and Desai (2013).

Factors influencing quantity of pesticides application and brand selection

Information regarding various factors influencing quantity of pesticides application and brand selection was analysed with the help of Garrett's ranking technique and the same is presented in Table 2. Dealer recommendation was the first ranked factor influencing pesticide application. Intensity of pest and diseases was the second ranked factor. Types of pest and peer group recommendation were the 3rd and 4th ranked factors. Stage of crop growth, size of land holding and department recommendation were the next factors to follow. The least ranked factor were the free samples offered by the private companies and trail.

Satisfaction level of farmers towards pesticides and support services

The relevant factors for the satisfaction level of the farmers were considered to measure the satisfaction level of farmers towards pesticides usage and support services and the opinion of the farmers was measured through a five point rating scale (Table 3).

According to the sample farmers, their satisfaction level was high with the cost pesticides as it secured a mean score of 4.2. The next was free samples distribution by the private companies. Agri department support service, promotional strategies adopted by the sellers, arrival of new pesticide molecules in the market etc., were the factors to follow. Least rank was given to the availability/distance of pesticide dealer shops.

Table 1. Factors influencing the pesticide buying behavior of farmers

Variable		Frequency	Per cent	Cumulative Per cent
Source of pesticides purchase				
Only from private dealer		73	91.25	91.25
Both from agricultural department and private dealer		7	8.75	100
Only from agricultural department		0	0	
	Total	80	100	
Mode of payment for pesticides				
Cash		11	13.75	13.75
Credit		51	63.75	77.50
Cash and credit		18	22.50	100
	Total	80	100	
Choice of alternative if credit sales are not available				
Switch over to dealer who provides credit		52	65.00	65.00
Credit source from others		26	32.50	97.50
Reduce the quantity of application		2	2.50	100
	Total	80	100	
Response to price change in preferred pesticide brands				
Same brand same quantity		65	81.25	81.25
Same brand reduced quantity		3	3.75	85.00
Switch over to low price brand		12	15.00	100
	Total	80	100	
Farmer's decision during the non-availability of required pesticides				
Shift		74	92.50	92.50
Wait		6	7.50	100
	Total	80	100	
Loyalty towards brand and dealer				
Always sticking to same dealer		19	23.75	23.75
Always sticking to same brand		4	5.00	28.75
Always loyal to the brand and dealer		3	3.75	32.5
Changes brand or dealer loyal according to situation		54	67.50	100
	Total	80	100	

Table 2. Factors influencing quantity of pesticides application and brand selection

Particulars	Total score	Garrett's mean score	Rank
Dealer recommendation	6261	78.26	1
Intensity of pest and diseases	5038	62.98	2
Type of pest	4930	61.63	3
Peer group recommendation	4902	61.28	4
Stage of crop growth	4730	59.13	5
Size of land holding	4622	57.78	6
Department recommendation	4416	55.20	7
Cost of pesticides	4020	50.25	8
Crop income	3450	43.13	9
Easy availability of product	3338	41.73	10
Advertisements	2656	33.20	11
Free samples	2317	28.96	12
Trail	1521	19.01	13

Socio economic variables Vs satisfaction level of sample farmers

Three quartile points for cumulative scores of level of satisfaction particulars were calculated and categorized as low, medium and high level of satisfaction. Chi-square test was used to test the association between the variables and their level of satisfaction towards pesticides usage and support services viz., low, medium and high.

From the Table 4 the "p" value were more than 0.05 for age of farmers, land holding and farming experience indicating that these variables were independent of farmer's satisfaction towards pesticides and support services. For the variable education, p value was less than 0.05. This infers that the education was dependent of farmer's satisfaction towards pesticides and support services.

CONSTRAINTS FACED IN PURCHASING PROCESS OF PESTICIDES BY FARMERS

Constraints while purchasing pesticides from the private dealers

The major constraint faced by the sample farmers while purchasing pesticides from the private dealer was high price of pesticides followed by high interest on credit as most of the farmers in the study area were purchasing pesticides on credit basis and dealers making it as an advantage they imposing high price for the borrowed (Table 5). The other constraints were in the order of lack of credit availability, discount during bulk purchases which was not forth coming, non-availability of preferred brands, poor quality of the products, fear of adulteration and inadequacy of the desired product. Lokesh *et al.* (2017) identified various constraints faced by the farmers with respect to pesticides were in line with the present study.

Constraints while purchasing pesticides from agriculture department

A perusal of Table 6 reveals that major constraint faced by the sample farmers while purchasing pesticides from the department of agriculture was no credit availability followed by untimely supply. When the timely availability was a constraint, probably farmers could do little on this and there is no way such a situation encourages the farmers to develop faith on the department of agriculture. It was also noted that farmers face constraints like non availability of preferred brands followed by poor quality of products, inadequacy of

Table 3. Satisfaction level of farmers toward pesticides and support services

Particulars	Highly satisfied		Satisfied		Moderately satisfied		Dissatisfied		Highly dissatisfied		Total score	Mean score	Rank
	NR	S	NR	S	NR	S	NR	S	NR	S			
Type of pesticide available in the market	0	0	4	16	32	96	39	78	5	5	195	2.44	14
Intensity of pest and disease control system	1	5	16	64	51	153	6	12	6	6	240	3.00	8
Result on crop after pesticide usage	3	15	32	128	29	87	16	32	0	0	262	3.28	6
Dealer support services	2	10	15	60	37	111	19	38	7	7	226	2.83	9
Agri department support service	16	80	14	56	39	117	11	22	0	0	275	3.44	3
Peer group references	1	5	11	44	20	60	47	94	1	1	204	2.55	12
Cost of pesticides	27	135	42	168	11	33	0	0	0	0	336	4.20	1
Easy availability of product	0	0	6	24	26	78	47	94	1	1	197	2.46	13
Agri input company support services	3	15	9	36	64	192	4	8	0	0	251	3.14	7
Arrival of new pesticide molecules in the market	1	5	30	120	48	144	0	0	1	1	270	3.38	5
Promotional strategies adopted by the sellers	0	0	38	152	35	105	7	14	0	0	271	3.39	4
Free samples distribution by the private companies	14	70	37	148	22	66	6	12	1	1	297	3.71	2
Availability/ distance of pesticide dealer shops	1	5	8	32	11	33	41	82	19	19	171	2.14	15
Package quantities availability in the market	0	0	1	4	51	153	25	50	3	3	210	2.63	11
Dealer awareness on pesticides	1	5	7	28	51	153	18	36	3	3	225	2.81	10

NR: Number of respondents, S: Score

Table 4. Socio economic variables Vs satisfaction level of sample farmers

Variables	Level of satisfaction							
	Low		Medium		High		Total no. of respondents	
	F	Per cent	F	Per cent	F	Per cent		
Age								
Young age (Up TO 30)	4	19.05	13	61.90	4	19.05	21	P = 0.6141
Middle age (31-50)	6	15.00	31	77.50	3	7.50	40	
Old age (51 and above)	2	10.53	15	78.95	2	10.53	19	
Education								
Illiterate	3	10.00	25	83.33	2	6.67	30	P = 0.0010
Upto 10^{th}	7	19.44	26	72.22	3	8.33	36	
Intermediate	2	25.00	6	75.00	0	0.00	8	
Degree and above	0	0.00	2	33.33	4	66.67	6	
Operational land holding								
Marginal	4	30.77	7	53.85	2	15.38	13	P = 0.1212
Small	2	7.14	25	89.29	1	3.57	28	
Large	6	15.38	27	69.23	6	15.38	39	
Farming experience								P = 0.1646
Low (1-10)	7	24.14	18	62.07	4	13.79	29	
Medium (11-20)	1	4.17	19	79.17	4	16.67	24	
High (21 and above)	4	14.81	22	81.48	1	3.70	27	

Table 5. Constraints while purchasing pesticides from the private dealers

Particulars	Total score	Garrett's mean score	Rank
High price	5533	69.16	1
High interest on credit borrowing	5012	62.65	2
Lack of credit availability	4499	56.24	3
No discount	4034	50.43	4
Preferred brands are not available	3590	44.88	5
Poor quality of products	3368	42.10	6
Fear of adulteration	3299	41.24	7
Inadequacy of desired products	2719	33.99	8

Table 6. Constraints while purchasing pesticides from agriculture department

Particulars	Total score	Garrett's mean score	Rank
No credit availability	5687	71.09	1
Untimely supply	5488	68.60	2
Preferred brands are not available	4104	51.30	3
Poor quality of products	3651	45.64	4
Inadequacy of desired products	3483	43.54	5
No discount	3363	42.04	6
Fear of adulteration	3188	39.85	7
High price	2977	37.21	8

desirable products, no discount on the pesticides, fear of adulteration and high price.

CONCLUSION

1. Majority of the pesticides purchases were from private dealers on credit basis and shift over to dealer who provide credit and stick to the same brand and same quantity.
2. Credit availability, preferred brand and quality of the products were the factors that significantly influenced the dealer's loyalty.
3. Dealer recommendation and intensity of pest and diseases were the major factors that influenced the quantity of the pesticide usages.
4. Farmers' satisfaction was ranked first with cost of pesticide and free samples distribution by the private companies but they are dissatisfied against agricultural department support services.
5. The most important problems faced by the farmers in purchasing pesticide from private dealer were high price and high interest on credit borrowing.
6. The major problems in purchasing pesticide from agricultural department were no credit availability, untimely supply and non-availability of preferred brands.

LITERATUCE CITED

Dharmaraj, S and Desai, P. 2013. consumer buying behaviour towards agricultural inputs: A study in area of Bardoli. *Global Journal for Research Analysis*. 2(6): 117-118.

Kumar, B.A., Ragini, K., Padmasri, A., Rao, K.J and Shashibhushan, V. 2017.Survey on pesticide usage pattern in bhendi (*Abelmoschus esculentus* L.). *Bulletin of Environment, Pharmacology and Life Sciences.* 6(1): 182-188.

Lokesh Babu, S., Suradkar, D.D and Dhage, S.V. 2017. Identification of constraints faced by farmers with respect to pesticides and suggestions to overcome constraints. *Journal of Pharmacognosy and Phytochemistry*. Spl. 1068-1070.

http://www.indiastat.com/agriculture-consumption of pesticides/2017-2018.

http://www.ibef.org/agriculture and allied industries/ 2018.