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Buying Behavior and Farmers' Practices Regarding Agrochemicals Use on Rice Crop in Punjab

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ABSTRACT

Use of agrochemicals in India is increasing at the rate of two to five per cent per annum and is about three per cent of total pesticides used in the world. Heavy reliance of agriculture on synthetic chemical fertilizers and pesticides is having critical effects on public health and environment. Consumer buying behaviour is a process of selecting, purchasing and disposing of goods and services according to the needs and wants of the consumers. The study explored the buying behavior of the farmers and practices followed regarding agrochemicals used on rice crop in Punjab. A total of 100 rice farmers were randomly selected from Ludhiana district. Most of the respondents were seeking information from their peer group, nearly 48 per cent were consulting the private dealers for getting the information about agrochemicals whereas 16 per cent of the respondents were going to extension specialists. Most of the rice farmers were purchasing the fertilizers from cooperative societies whereas for purchasing pesticides most of them preferred private dealers. Brand of the product was most important factor considered while purchasing agrochemicals followed by peer group advice, prior experience and product features whereas price of the product was given least importance. The farmers using recommended practices regarding use of agrochemicals were very few in number. Only five percent respondents in rice crop were observing the ETL of various pests before using the control measures. Most of the respondents were cleaning their spray pumps using detergent or soda.

Keywords: Agrochemicals, Buying behaviour, Farmers, Recommended practices, Rice

INTRODUCTION

Agrochemical refers to the broad range of pesticides including insecticides, herbicides, and fungicides. It may also include synthetic fertilizers, hormones and other chemical growth agents, and concentrated stores of raw animal manure (Anonymous, 2014). More than 1000 agro chemicals are being manufactured and used for agriculture as well as public health purposes and about 90 per cent is comprised of insecticides and herbicides with about equal share each. Fungicides represent about 10 per cent of the total. Only 0.1% of these chemical usage aims at the pest and rest 99.9 per cent remain and scatter in surroundings. Andhra Pradesh is the state which consumes most of the pesticides (23%) followed by Punjab and Maharashtra in pesticide consumption (Bhardwaj and Sharma, 2013).

According to Statistical Abstract of Punjab (2005) report, the grain production in Punjab has been increased from about 3 million tons in 1960–1961 to about 25.5 million tons in 2004–2005.Similarly, the cotton production increased from 0.12 million tons in 1960–1961 to 0.37 million tons in 2007–08 with a meagre 1.35 fold increase cotton cultivating land (Barik, 2010). This increase in output had some prime disadvantages, one of them was

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too much use of pesticides. Fertilizers, especially nitrogenous fertilizers are excessively used by the farmers that is responsible for making soil unfertile. Agro-chemical inputs are misused, especially, pesticides having adverse consequences on the environment. Use of pesticides is high (923 g/ha) especially in crops like cotton, rice, vegetables, etc. The hackneyed use of pesticides in Punjab has altered the pest scenario, outbreak of several deadly diseases, environmental degradation, and increasing input cost for agriculture leading the farmers under debt. Present study was designed to study the buying behavior of the farmers and practices followed by them regarding agrochemicals use on rice crop in Punjab.

METHODOLOGY

Ludhiana District is located in central Punjab and is major rice producing district of Punjab, which was selected purposively for the study. Later, 100 rice growers were selected randomly from the Ludhiana district. An Interview Schedule was prepared for data collection. Buying behavior was operationally defined as the behavior of the farmers while purchasing the agrochemicals and was measured with questions regarding the source of information for purchase of agrochemicals, source of purchase of fertilizers, pesticides and other agrochemicals, factors affecting them during purchase of agrochemicals, etc. These parameters were measured using multiple choice questions and direct open- ended questions. Practices followed by the farmers was defined as those practices which were related to the use of agrochemicals i.e. economic threshold level, use of recommended nozzle while spraying the fluid, spraying at the recommended height, use of leaf colour chart, site specific pesticide application, biological insect control methods and use of safety measures like: gloves, gas mask, full sleeve shirt and full trouser. These were measured using items with dichotomous response. Cumulative frequency cube root method was used to obtain approximately optimum strata boundaries for the proportional allocation method.

RESULTS AND DISCUSSIONS

Data related to paddy varieties sown is placed in Figure 1 which reveals that variety sown by large number of farmers was PR 1260 (44 %), PR 121 (29%), PR 124 (10%), whereas 9 per cent farmers used Pusa 44 and 8 per cent of the farmers had also sown Pusa basmati varieties which are not recommended in Punjab as they demand more water and pesticides as compared to the recommended varieties in Punjab. Figure 2 clearly indicates that most of the respondents i.e. 98 per cent were using manual method of transplanting rice in their fields whereas only two per cent of the respondents used direct seeded method of sowing for rice crop. The reasons behind this were that farmers do not find the machines easily for direct seeded rice and moreover they lack technical knowledge about operating the machines.

Buying behavior of the respondents regarding agrochemicals

It is apparent from the data in Figure 3 that in case of rice half of the respondents were preferring the experience of their peer group as their source of information for agrochemicals, slightly less than half of

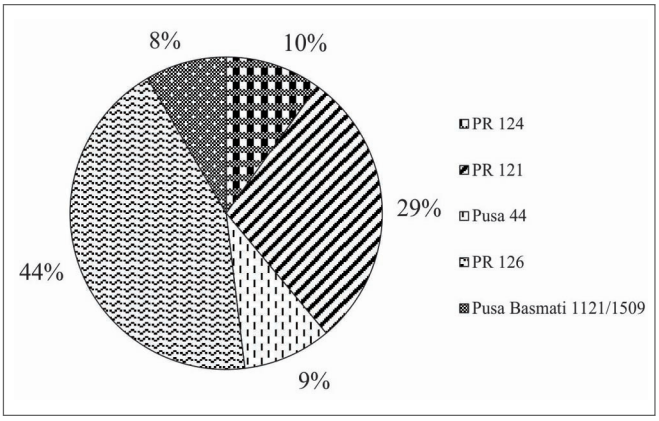

Figure 1: Rice varieties grown by the respondents

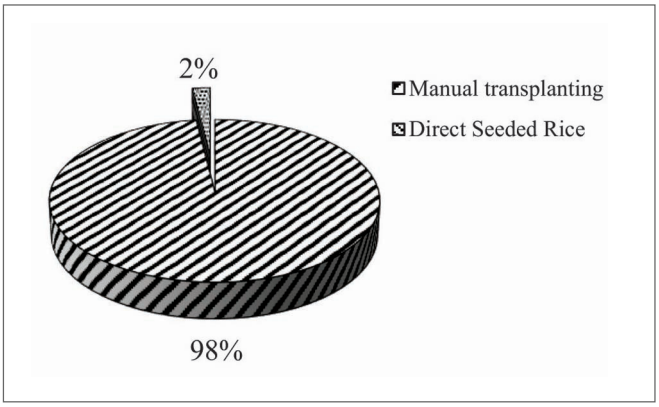

Figure 2: Method of Sowing of the rice crop

the respondents were having dealers as their source of information about the agrochemicals, whereas 16 per cent of the respondents preferred extension specialist for getting the information about agrochemicals, four per cent of them were getting the information about agrochemicals from the demonstrations only three per cent of the respondents prefer pamphlets or advertisements as their source of information about agrochemicals. Data in the Figure 4 depicts that in case of rice crop, 95 per cent of the respondents purchase fertilizers from cooperative societies whereas five per cent of the respondents purchase fertilizers from private dealers. Data placed in

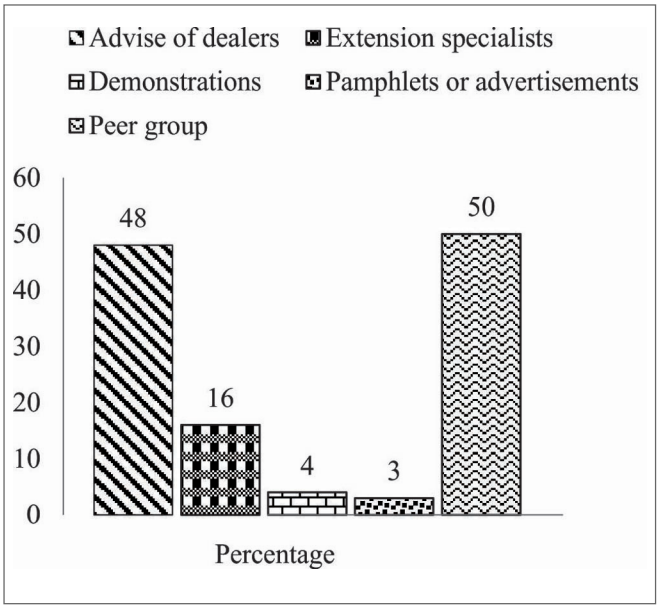

Figure 3: Source of information about pesticides

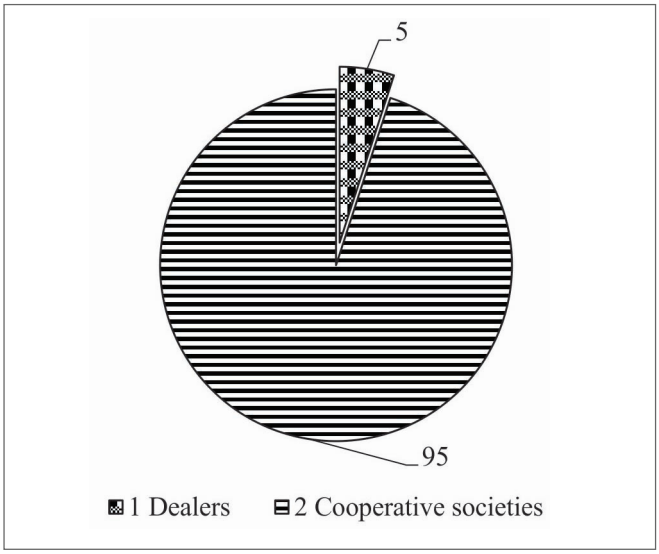

Figure 4: Source of fertilizers purchase

the Figure 5 depict that in case of rice crop, 77 per cent of the respondents purchased pesticides/ fungicides/ weedicides from private dealers, twenty per cent of the respondents purchased from cooperative societies whereas only three per cent of the respondents took these agrochemicals from other government agencies such as: agricultural department and IFFCO.

Factors affecting buying the agrochemicals

It is evident from the Figure 6 that 80 percent of the respondents gave foremost priority to the brand of the agrochemicals, 60 percent of the respondents gave priority to peer group advice, 60 per cent gave preference to their prior experience in using the agrochemicals and the slightly half of them gave preference to the product feature whereas least preference was given to the price

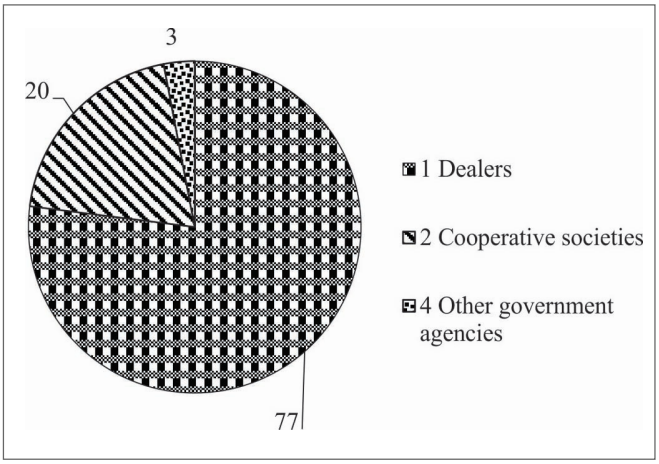

Figure 5: Source of purchase of pesticides/ fungicides/ weedicides

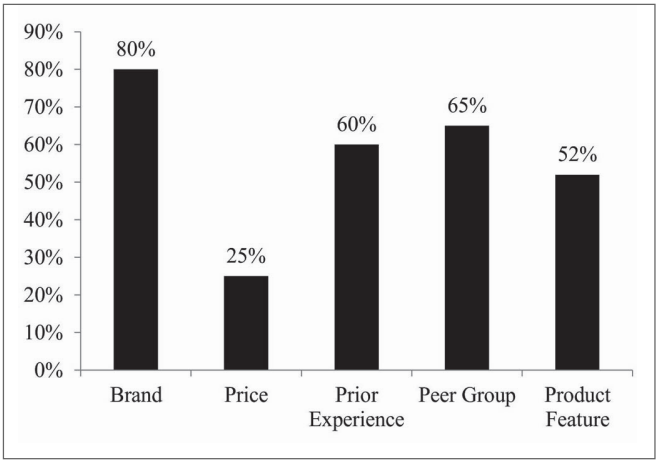

Figure 6: Factors affecting them during buying the agrochemicals

of the product. Practices followed by the farmers with regard to the agrochemicals use i.e. economic threshold level, use of recommended nozzle while spraying the fluid, spraying at the recommended height, leaf colour chart, site specific pesticide application, biological insect control methods and use of safety measures like: gloves, gas mask, full sleeve shirt and full trouser. These were measured using items with dichotomous response and Table 1. depict that 36 percent of the respondents gets their soil tested, only seven per cent of the respondents were using leaf color chart, only five per cent of the respondents were following the ETL observation, 34 per cent of the respondents use insecticide/ weedicide rotation in rice crop to avoid resistant for insecticides/ weedicides, 20 per cent of the respondents used recommended nozzle for spraying, 60 per cent were purchasing recommended brand of pesticides whereas 67 per cent of them were cleaning their spray pump with detergent or soda. No respondent was using soil health card. Ghaswa *et al.* (2019) stated in their study that maximum number of respondents had medium knowledge score that is 56.95 per cent followed by respondents with low knowledge score (23.61%) and only 19.44 per cent respondents had high knowledge score about soil health card. It is evident from Figure 7 that 20 per cent of the respondents used gloves while spraying in the field or while preparing spray fluid, 90 per cent of them wear full trousers, 70 per cent of them wear full sleeve shirt while only three per cent of the respondents were using gas masks while spraying in the field or while preparing spray fluid. Figure 8 reveals that 43 per cent of the respondents throw it away, 40 per cent of them use it for another purpose, 35 per cent of the respondents collect the empty containers and sell it to *kabadiwalas*, 20 per cent of the respondents destroy it by burning and few of them i.e. five per cent of them dump it by digging the soil.

Table 1: Distribution of respondents according to practices followed by farmers

Practices	Percentage
Soil testing	36.00
Soil health card	00.00
Neem coated urea	100.00
Leaf color chart	07.00
Site specific pesticide application	00.00
ETL observation	05.00
Biological insect control methods	00.00
Pheromone traps	00.00
Growth regulators	00.00
Insecticides/ fungicides/weedicides rotation	34.00
Recommended nozzle for spraying	20.00
Purchase recommended brand of pesticides	60.00
Cleaning of their spray pump with surf and soda	67.00

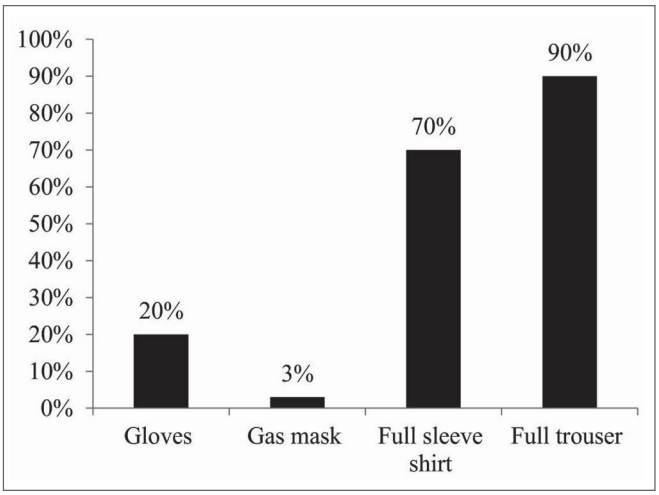

Figure 7: Safety measures used

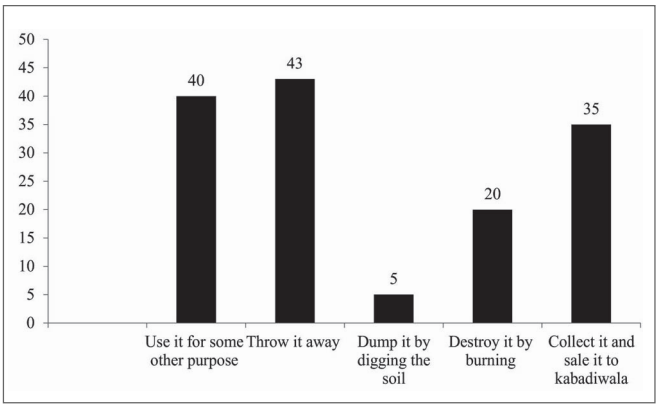

Figure 8: Disposal/use of empty agrochemical containers

CONCLUSION

Most of the farmers were growing PAU recommended varieties of paddy and most of the respondents (98%) were using manual method of transplanting. Farmers mostly rely on private dealers for gaining the information regarding agrochemicals. They had not given preference to the innovators and early

adopters. Few of them even contacts extension specialists for gathering the information about use and purchase of agrochemicals. Farmers give preference to the brand of the agrochemicals during purchase. The farmers using recommended practices regarding use of agrochemicals were very few in number. Only five percent respondents in rice crop were observing the ETL level of various pests before using the control measures. Most of the respondents were cleaning their spray pumps after every use.

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REFERENCES

Anonymous (2014). *Agrochemical.* Retrieved from http://en.wikipedia.org/wiki/ Agrochemical on 17th October, 2019.

Barik (2010). *Cotton statistics at a glance.* Directorate of cotton development, Ministry of Agriculture, Government of India, Mumbai, Maharashtra. Retrieved from www.dacnet.nic.in on 8th July 2019.

Bhardwaj, T. and Sharma, J.P. (2013). Impact of Pesticides Application in Agricultural Industry: An Indian Scenario, *International Journal of Agriculture and Food Science Technology*, **4**, 817-822.

Gabbott, M. and Hogg, G. (1998). *Consumers and Services.* pp 56-67. John Wiley and Sons, Chichester.

Ghaswa, R., Tripaty, S. and Sharma, B. (2019). Knowledge Adoption and Constraints of Soil Health card based Fertilizer Application in Rattam District, M.P., *Indian Journal of Extension Education*, **55**(4), 94-96.

Sivakumar (1994). Buying behaviour of farmers with reference to pesiticides, *Journal of Agricultural Marketing*, **8,** 127-133.

Stallworth, P. (2008). Consumer behavior and marketing strategic, *International Journal of Management and Communication Innovation*, **2**, 44-52.