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Farmer perception regarding different variable in different size of farm in Sitamarhi district of Bihar

Gautam Kumar, Amit Kumar and Dr. Pratyasha Tripathi

Abstract

Agriculture is India's most important economic sector since it ensures food and livelihood security. Pesticides are used in agriculture to prevent crop-damaging pests, fungi, undesired plants (weeds), and a variety of crop-eating animals such as rats. The purpose of this study was to look into farmers' perceptions of pesticides, their knowledge of safe pesticide handling and application, and their pesticide usage practices. With 130 farmers, in-depth field surveys were conducted, which were supplemented with focus group discussions, interviews, questionnaires, and field observations. Pesticides were used by 17.7% of marginal farmers, 43.9 percent of small farmers, 6.2 percent of semi-medium farmers, and 1.5 percent of medium farmers for pest control; 3.1 percent of marginal farmers, 12.3 percent of small farmers, and 1.5 percent of medium farmers used pesticides for pest control. Pesticides were used by 17.7% of marginal farmers, 43.9 percent of small farmers, 6.2 percent of semi-medium farmers, and 1.5 percent of medium farmers for pest control, while 3.1 percent of marginal farmers, 12.3 percent of small farmers, 5.4 percent of semi-medium farmers, and 0.8 percent of medium farmers used pesticides for high yield. The most often used pesticides were Imidacloprid, Dimethoate, Monocrotophos, Chlorpyrifos, Phorate in insecticide, Carbendazim, Mancozeb in fungicide, and Pendimethalin, Atrazine in herbicide.

Keywords: Different size of farm, perception towards pesticides, Bihar, agricultural

1. Introduction

Agriculture, which is the backbone of India's economy, employs around 65 percent of the country's working population. Agriculture accounts for around 20% of the country's Gross Domestic Product (GDP), and 70% of the population works in agriculture. Pesticides are India's fourth largest industry and Asia's second largest after China. Over the years, various pesticides have been examined and licensed for use in crops, and new products are constantly available on the market.

In an effort to provide sufficient nutritive food for the ever-growing world population, the use of synthetic pesticides in agriculture has increased rapidly over the last four decades (2,353Mt to 90,586 MT) and has outperformed the traditional method of crop damages due to insects, pests, diseases, and weeds.

Maharashtra had the biggest pesticide consumption, and overall consumption climbed in Maharashtra and Uttar Pradesh, while total consumption decreased somewhat. On the other hand, total pesticide consumption increased dramatically in Chhattisgarh and Kerala. Punjab (0.74 kg), Haryana (0.62 kg), Maharashtra (0.57 kg), and Uttar Pradesh (0.57 kg) had the greatest pesticide consumption per hectare (0.39 kg).

2. Review of Literature

Pragati Nayak, Hitesh Solanki (2021) [6]: For more than 60 years, pesticides have been regarded a rapid, convenient, and low-cost alternative for managing weeds and insect pests in agriculture, public health, and other sectors in India. It is established that pesticides have contributed significantly in increasing agricultural production and the farmers' income globally. India has become self-sufficient in production of pesticides and also an important exporter of pesticides. More than 50% of the pesticides used in India are of insecticides. Chlorpyrifos insecticide has been utilized in highest amount compared to other insecticides.

Pratap, Rahul (2020) [4]: study was carried out with the main aim to study the Farmer Perception and Buying Behaviour towards Chemical and Bio- pesticides. Using the chemical pesticide because they prefer chemical because I get good quality, followed by I use chemical because for best production. Regular use of chemical increase land fertility. The price of chemical is convenient for me.

Farmer purchased the pesticide because they influence by T Promotional avidities, Pesticides have price value, Profit margin charge by company is reasonable, Past experience is the reason for purchasing, pesticides are problem solving, you get good quality produce after using pesticides, availability of pesticides when I need, dealer influences farmers.

M.V. Satya Sai, G. Devi Revati, R. Ramya, A.M. Swaroop, E. Maheswari, M.M. Kumar (2019) [3]: The findings of the study indicate that knowledge level is adequate among farmers but

this did not reflect in their practice. There is a need for continuous pesticide safety education along with training to the farmers regarding use of personal protective devices, personal hygiene and sanitation practices during and after application of pesticides. In addition, promotion of alternative pest control strategies such as application of bio pesticides can be introduced. This would reduce the dependency of chemical pesticides as well as their adverse impact on human health and environment. Rgvvd.

Table 1: Pesticides used by farmer in study area.

Name of pesticide	Category
Dimethoate	Insecticide
Chlorantranilliprole	Insecticide
Imidacloprid	Insecticide
Ridomil gold	Fungicide
Monocrotophos	Insecticide
Chlorpyrifos	Insecticide
Phorate	Insecticide
Deltamethrin	Insecticide
Cypermethrin	Insecticide
Carbendazim	Fungicide
Mancozeb	Fungicide
2,4 d	Herbicide
Pendimethalin	Herbicide
Atrazine	Herbicide
Thiacloprid	Insecticide
Triazophos	Insecticide
Profenofos	Insecticide

3. Materials and Methods

3.1 Selection of district

There are 38 districts in Bihar state. Out of these Sitamarhi district of Bihar will selected purposively as it was required for the study. Sitamarhi district occupies an area of 2,294 square Kilometre. It is situated in flood plain area. As in August 2019, Sitamarhi district was flooded heavily. Sitamarhi was detached from Muzaffarpur and became a separate district as of 11 December 1972.

- Total population: - 3,423,574
- Density:- 1,500/km² (3,900/sq mi)

3.2 Selection of block

There are 17 blocks in Sitamarhi district. Among the Pupri block was selected due to the Farmer's land holding capacity and for study of farmers' perception. That's why this block

was selected purposively for the study.

3.3 Selection of Villages

In Janakpur road (Pupri) block 44 villages. After selection of block, complete list of the village of selected block was obtained from the block development office of the concerned block. There 5% villages were selected randomly from block. From each village, farmers who used pesticide was selected randomly.

3.4 selection of respondents

A village wise list of all the respondent having farm (using pesticides) in the sample village was prepared along with the size of their operational holding. Further these respondents were stratified on the basis of their holding size. A complete list of all 5% farmers was selected randomly

Table 2: Types of Farmer

Category	Types of Farmer	Land holding
Size-1	Marginal farmer	<1 ha
Size-2	small farmer	1-2 ha
Size-3	semi medium farmer	2-4 ha
Size-4	medium farmer	4-10 ha
Size-5	large farmer	>10 ha

Table 3: Sampling structure for farmer.

Name of district	Name of block	Name of villages	No. of respondents selected
Sitamarhi	Pupri (janakpur road)	Sahu tikai	20
		Awapur	20
		Balha	20
		Birauli	20
		Belmohan	20
		Garha	15
		Pupri	15
Grand total			130

4. Analytical tools

Results were expressed as mean and average. find out the percentage of responded using a percentage formula are following: -

[Percentage= (Value/Total Value) ×100]. The market share of different brands was calculated by index of market efficiency.

5. Result and Discussion

1. To analyse the farmer perception regarding different product in different size of farm.

1.1(a) Land holding status. (Size of farm)

Table 4: Details description of land holding of different types of farmers (based on farm size)

Si.no.	Farmer status (based of farm size)	No. of respondents	Percentage of respondents
1.	Marginal farmer (<1 ha)	32	24.6
2.	Small farmer (1-2 ha)	78	60
3.	Semi-medium (2-4ha)	16	12.3
4.	Medium(4-10ha)	4	3.1
5.	Large(>10ha)	0	0
	Grand total	130	100

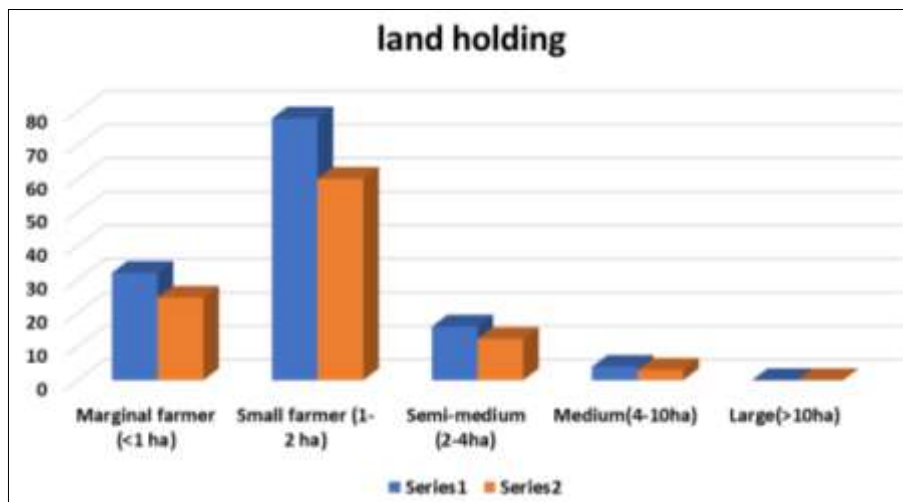


Fig 1: Graphical form of land holding of different types of farmers (based on farm size)

From above chart and table, we analyzed that in survey area 24.6% farmers are marginal, 60% farmers are small, 12.3% farmers are semi medium, 3.1% farmers are medium and 0% farmers are large. Hence, we can say majority of farmers have

1-2 ha. Land.

1.1(b) Perception of farmers’ type on the basis of their output. (Produce)

Table 5: Details description of Perception of farmers’ type on the basis of their output. (Produce)

Si.no.	Type of farmer	High satisfied	satisfied	moderate	Dis satisfied	Highly dis-satisfied	Grand total
1.	Marginal farmer (<1 ha)	13(10)	11(8.5)	6(4.6)	2(1.5)	0(0)	32(24.6)
2.	Small farmer (1-2 ha)	9(6.9)	49(37.7)	15(11.5)	5(3.9)	0(0)	78(60)
3.	Semi-medium (2-4ha)	3(2.3)	9(6.9)	3(2.3)	1(0.8)	0(0)	16(12.3)
4.	Medium(4-10ha)	2(1.5)	1(0.8)	1 (0.8)	0(0)	0(0)	4(3.1)
5.	Large(>10ha)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)

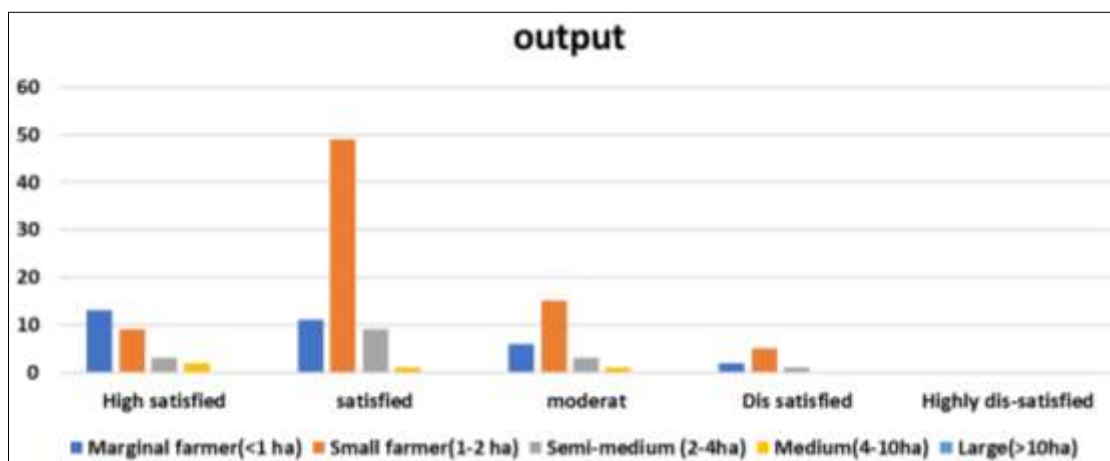


Fig 2: Graphical form of Perception of farmers’ type on the basis of their output. (Produce)

In the table: 5; 10% of marginal farmer highly satisfied regarding their production and 1.5% dis satisfied, 6.9% of small farmer highly satisfied regarding their production and 3.9% dis satisfied, 2.3% of semi medium farmer highly satisfied regarding their production and 0.8% dis satisfied and

1.5% medium farmer highly satisfied regarding their production and 0% dissatisfied.

1.1(c) Perception of farmers' type on the basis of their remunerative price. (Profit on their product)

Table 6: Details description Perception of farmers' type on the basis of their remunerative price. (Profit on their product)

Si.no.	Type of farmer	High satisfied	Satisfied	Moderate	Dis satisfied	Highly dis-satisfied	Grand total
1.	Marginal farmer (<1 ha)	7(5.4)	9(6.9)	12(9.2)	3(2.3)	1(0.8)	32(24.6)
2.	Small farmer (1-2 ha)	8(6.2)	23(17.6)	33(25.4)	11(8.5)	3(2.3)	78(60)
3.	Semi-medium (2-4ha)	2(1.5)	6(4.7)	5(3.8)	2(1.5)	1(0.8)	16(12.3)
4.	Medium(4-10ha)	0(0)	2(1.5)	1(0.8)	1(0.8)	0(0)	4(3.1)
5.	Large(>10ha)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)

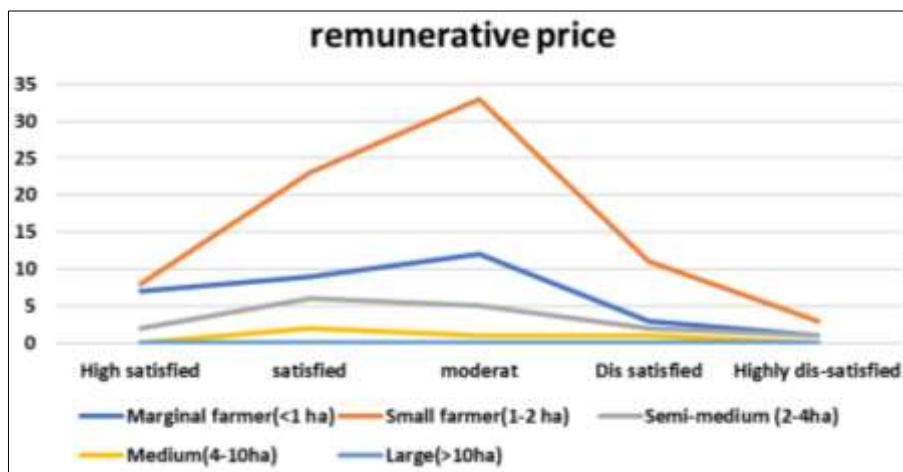


Fig 3: Graphical form of Perception of farmers' type on the basis of their remunerative price. (Profit on their product)

In the table: 6; 5.4% of marginal farmer highly satisfied regarding they got remunerative price on their production and 3% dis satisfied and 0.8% highly dis satisfied, 6.2% of small farmer highly satisfied regarding they got remunerative price on their production, 8.5% dis satisfied and 2.3% highly dis satisfied, 1.5% of semi medium farmer highly satisfied regarding they got remunerative price on their production,

1.5% dis satisfied and 0.8% highly dis satisfied and 0% medium farmer highly satisfied regarding they got remunerative price on their production 1.5% satisfied and 0.8% dis satisfied.

1.1(d) Perception of farmers' type, they want to produce in their farm. (Crop)

Table 7: Graphical form of Perception of farmers' type, they want to produce in their farm. (Crop)

Si.no.	Type of farmer	vegetable	cereal	spices	Cash crop	Mix crop	Grand total
1.	Marginal farmer (<1 ha)	27(20.8)	1(0.8)	0(0)	2(1.5)	2(1.5)	32(24.6)
2.	Small farmer (1-2 ha)	29(22.3)	22(16.9)	4(3.1)	18(13.9)	5(3.8)	78(60)
3.	Semi-medium (2-4ha)	4(3.1)	9(6.9)	0(0)	2(1.5)	1(0.8)	16(12.3)
4.	Medium(4-10ha)	0(0)	2(1.55)	0(0)	2(1.55)	0(0)	4(3.1)
5.	Large(>10ha)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)

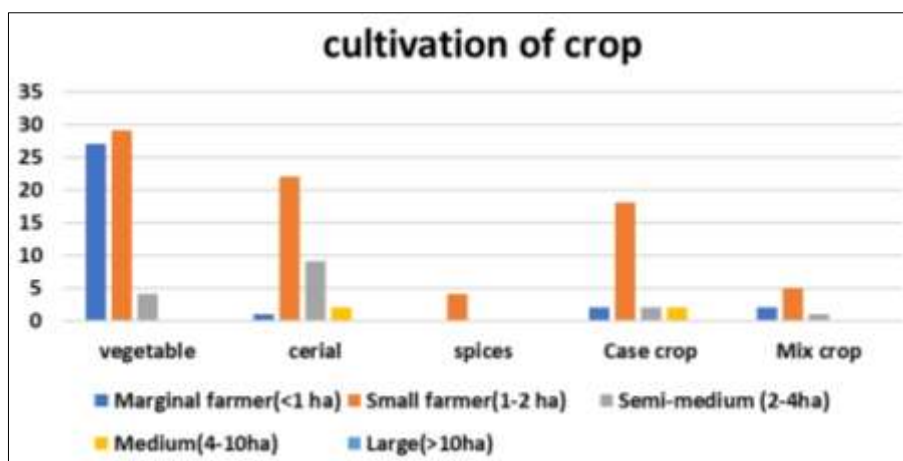


Fig 4: Graphical form of Perception of farmers' type, they want to produce in their farm. (Crop)

From the above table it was analyzed that the 20.8% marginal farmer wants to grow vegetable, 0.8% wants to grow cereal, 1.5% case crop and 1.5% mix crop; 22.3% small farmer wants grow vegetable, 16.9% cereal, 3.1% spices, 13.9% case crop and 3.8% to grow mix crop; 3.1% semi medium farmer wants to grow vegetable, 6.9% to grow cereal, 1.5% to grow cash crop and 0.8% to grow mix crop; 1.55% medium farmer

wants to grow cereal and 1.55% wants to grow cash crop. Hence, we can say that most of the farmer wants to grow vegetable crop.

1.1(e) Perception toward use of pesticide by types of farmers

Table 8: Details description of Perception toward use of pesticide by types of farmers.

Si. No.	Type of farmer	Pest control	High yield	Encompassing culture	Farm based on chemical pesticides	Make economically product	Grand total
1.	Marginal farmer (<1 ha)	23(17.7)	4(3.1)	2(1.5)	2(1.5)	1(0.8)	32(24.6)
2.	Small farmer (1-2 ha)	57(43.9)	16(12.3)	0(0)	2(1.5)	3(2.3)	78(60)
3.	Semi-medium (2-4ha)	8(6.2)	7(5.4)	0(0)	1(0.8)	0(0)	16(12.3)
4.	Medium(4-10ha)	2(1.5)	1(0.8)	0(0)	1(0.8)	0(0)	4(3.1)
5.	Large(>10ha)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)

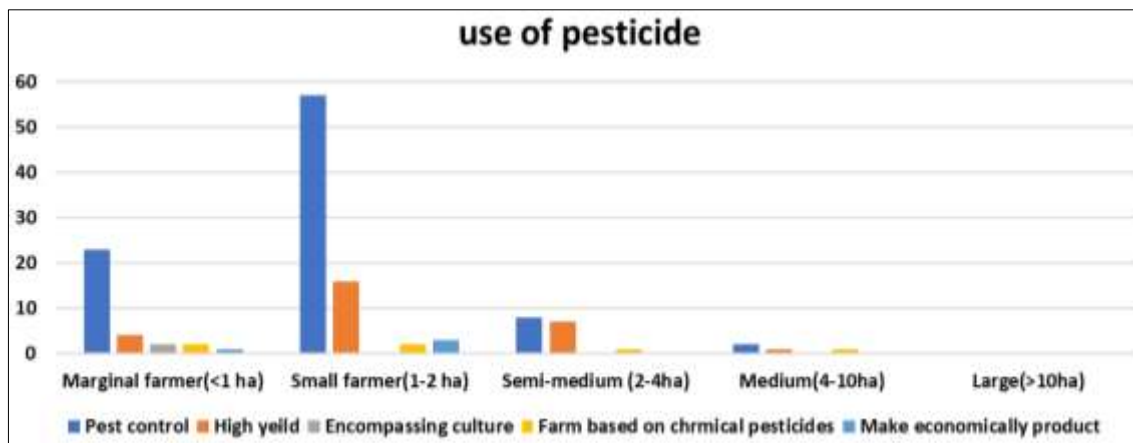


Fig 5: Graphical form of Perception toward use of pesticide by types of farmers.

Above table and figure shows the use of pesticide. As per the sample size of 130 farmers, according to which 17.7% marginal farmer, 43.9% small farmer, 6.2% semi medium and 1.5% medium farmer consumed pesticide for pest control; 3.1% marginal farmer, 12.3% small farmer, 5.4% semi medium farmer and 0.8% medium farmer consumed pesticides for high yield and only 0.8% marginal farmer and

2.3% small farmer consumed pesticides for make economically products. Hence, we can say that most of the farmer consume pesticide because of their pest control.

1.1(f) Knowledge of farmer about pest management techniques adopted in farming

Table 9: Details description of Knowledge of farmer about pest management techniques adopted in farming.

Si.no.	Variable	Very high	high	moderate	low	Very low	Grand total
1.	Knowledge of pesticide hazards	82(63.1)	31(23.8)	13(10)	4(3.1)	0(0)	130(100)
2.	Knowledge of the pest enemies	11(8.5)	25(19.2)	74(57)	18(13.8)	2(1.5)	130(100)
3.	Knowledge of using technique of pesticides	87(66.9)	18(13.8)	14(10.8)	7(5.4)	4(3.1)	130(100)
4.	Knowledge of recommended level of pesticide use	77(59.2)	22(16.9)	16(12.3)	9(7)	6(4.6)	130(100)

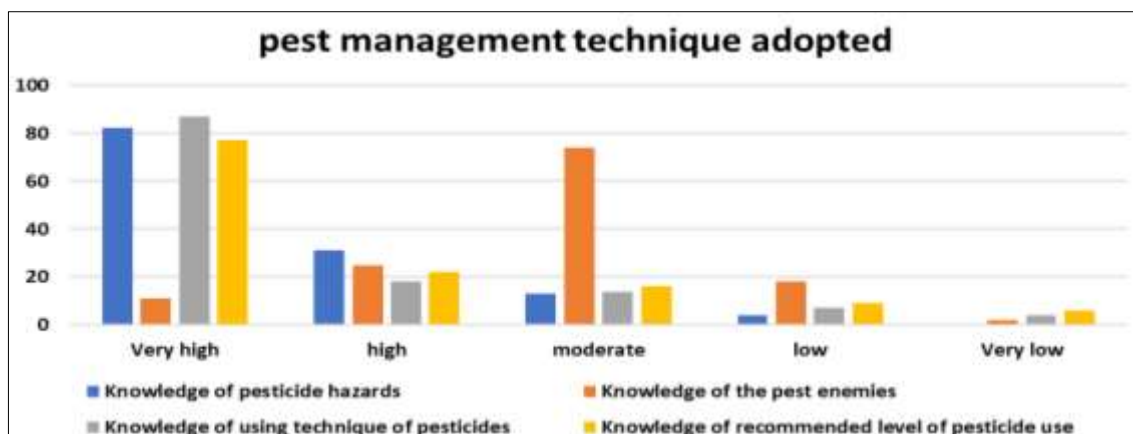


Fig 6: Graphical form of Knowledge of farmer about pest management techniques adopted in farming

From figure: 6 (Table and Fig) we analyze about pest management techniques adopted in farming by farmers. According to which we can say most the farmer adopted precaution and other technique in farming but some of the farmer not adopted.

6. Conclusion

The major crops cultivated in survey area are vegetable, cereal & followed by cash crop and properly availability of irrigation. Due to which more potential for pesticide companies is available. Strong network requires for capture market.

- 5.4% of marginal farmer highly satisfied regarding they got remunerative price on their production and 3% dis satisfied and 6.2% of small farmer highly satisfied regarding they got remunerative price on their production, 8.5% dis satisfied.
- 10% of marginal farmer highly satisfied regarding their production and 1.5% dis satisfied, 6.9% of small farmer highly satisfied regarding their production and 3.9% dis satisfied, 2.3% of semi medium farmer highly satisfied regarding their production and 0.8% dis satisfied.
- 5.4% of marginal farmer highly satisfied regarding they got remunerative price on their production and 3% dis satisfied and 0.8% highly dis satisfied, 6.2% of small farmer highly satisfied regarding they got remunerative price on their production, 8.5% dis satisfied and 2.3% highly dis satisfied, 1.5% of semi medium farmer highly satisfied regarding they got remunerative price on their production, 1.5% dis satisfied and 0.8% highly dis satisfied.
- Most of the farmer (89.2%) influence through demonstration promotional activity, 73.8% farmer influence through farmers' meeting, 67.7% farmer influence through contact through company, 53.9% farmer influence through jeep campaign, 63.1% farmer influence through field day, 58.5% farmer influence through dealer's meeting.

The conclusion of the study indicate that knowledge level is adequate among farmers but this did not reflect in their practice. There is a need for continuous pesticide safety education along with training to the farmers regarding use of personal protective devices, personal hygiene and sanitation practices during and after application of pesticides. In addition, promotion of alternative pest control strategies such as application of chemical pesticides can be introduced. This would reduce the dependency of chemical pesticides as well as their adverse impact on human health and environment.

7. References

1. Akash Daroi. Market share, Market potential and Farmers perception on Herbicide, Pesticides in Dhamtari District of Chhattisgarh with reference to Syngenta India Limited. MBA (ABM) thesis submitted to Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, 2017.
2. Anang BT, Joseph A. Factors Influencing Pesticide Use in Smallholder Rice Production in Northern Ghana. Agriculture, Forestry and Fisheries, 2015.
3. Satya Sai MV, Devi Revati G, Ramya R, Swaroop AM, Maheswari E, Kumar MM. Knowledge and Perception of Farmers Regarding Pesticide Usage in a Rural Farming Village, Southern India, 2019.
4. Partap Rahul. Farmers perception and buying behaviour

towards Chemical & Bio-pesticides in Samba District, 2020.

5. Patel Akashay S. Farmers Perception, Knowledge and Pesticide Use in Cotton in North Gujarat, 2016.
6. Pragati Nayak, Hitesh Solanki. Pesticides and Indian agriculture: A review; International Journal of Research – Granthaalayah, 2021.
7. Tiwari JB. Impact of Branding on Purchase Decision: Why Agro Chemical Firms Need to Build Brand Loyalty Amongst Farmers. Elk Asia Pacific Journal of Marketing and Retail Management, 2015.