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## Study on consumer preference of fungicide with special reference to custodia (fungicide) in Bijnore district of Uttar Pradesh

**Shailendra Singh Rathour, Amit Kumar, Dr. Mukesh Kumar Maurya, Dr. Ameesh Joh Stephen and Dr. Anupriya Paul**

### Abstract

Agriculture is the most important sector of the economy in India as it provides food and livelihood and security. The industrialization of agriculture favored the use of plenty of agrochemicals including fertilizers, pesticides, micro nutrients, and plant growth regulators in the agricultural fields. Pesticides are an integral part of modern agriculture. The use of pesticides in agriculture is obvious for the prevention of crop-damaging pests, fungus, unwanted plants (weeds) and a number of crop-eating animals like rodents etc. The present research was designed to study the perception pattern of pesticides, farmer's knowledge about the safe handling and application of pesticides and their practices on pesticide usage. In-depth field surveys were undertaken with 130 farmers and complemented with focus Group Discussions, Interview, Questionnaires, and Field Observation. The results showed that the consumption pattern of pesticides is 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. Imidacloprid, Dimethoate, Monocrotophos, Chlorpyrifos, Phorate in insecticide, Carbendazim, Mancozeb in fungicide and Pendimethalin, Atrazine in herbicide were the most frequently used pesticides.

we analyzed that 85.38% i.e 111 farmer purchase from private dealers, 5.38% i.e 7 farmers purchase from co-operative society, 6.15% i.e 8 farmer purchase from agriculture department and remaining 3.1% i.e 4 farmer purchase from agriculture depots. Hence, we can say that most of the farmers go to the private dealers for purchasing.

As per the sample size of 130 farmers, according to which 24.61% farmer go with same brand with quantity, 43.03% farmer go with same brand with reduce quantity and 32.3% farmer go with low price brand or another brand.

It was also observed that the farmers have knowledge of handling and spraying of pesticides. Safety measures while spraying of pesticides were being practiced by the farmers. 50.8% read the labels, 60.8% were orally educated, 94.6% waprayed in morning and evening, 58.5% attended trainings, workshops and 48.5% did not eat or drink during spraying pesticides. Some of the farmers were found smoking and chewing tobacco while spraying pesticides some of the respondents claimed immediate health hazards after pesticide application. There is no safe chemical, but there are safe ways to use chemicals.

**Keywords:** Hernia, buffalo bull, umbilical, herniorrhaphy

### Introduction

Fungicides are biological chemical compounds that are used to kill parasite fungi or its spores. Fungi cause serious damage in agriculture results in critical loss in yield, quality and ultimately profit. Fungicides are either of contact or of systemic. Contact fungicides are not taken up by the plant tissue and it functions only on the part sprayed. Whereas systemic fungicides redistributes the fungicide from the upper, sprayed leaf surface to the lower, unsprayed surface. Systemic fungicides are taken up and redistributed through the xylem vessels. Few fungicides move to all parts of the plant. Some are locally systemic, and some move upwardly. ADAMA India entered the Indian market as Makteshim-Agan India in year 2009 and within a span of 5 years it ranked among the top 3 companies in this sector in India. The company was the Indian subsidiary of Makteshim Agan group now known as ADAMA Agricultural solutions which is headquartered in Israel. Makteshim-Agan transformed its name to ADAMA India pvt. Ltd. In 2014. ADAMA works hand in hand with farmer learns about the problems and brings apt solutions.

**Need of Fungicides.**

Diseases are a common occurrence on plants, often having a significant economic impact on

yield and quality, thus managing diseases is an essential component of production for most crops. Broadly, there are three main reasons fungicides are used: (a) To control a disease during the establishment and development of a crop. (b) To increase productivity of a crop and to reduce blemishes. Diseased food crops may produce less because their leaves, which are needed for photosynthesis, are affected by the disease.

### Types of Fungicides and Definitions

#### Mobility in a plant: contacts or systemics

Contact fungicides (also called protectants) remain on the surface of plants. Many contacts are potentially phytotoxic (toxic to plants) and can damage the plant if absorbed. Systemics (also called penetrants and mobile fungicides) are absorbed into plants. Most systemics move very short distances from the site of application, such as across a leaf blade from one surface to the other (local systemic or translaminar). Some fungicides are weakly systemic and can move further from the application site than local systemics, reaching all parts of the leaf the fungicide is deposited on. A few systemics move more extensively because they are mobile in xylem tissue. When applied to the root zone, these are absorbed by roots and then move upward through the plant with the transpiration stream (xylem-mobile systemic).

#### Role in protection: preventive or curative

Contacts are products suited for preventive (prophylactic) use as they work by contact action on the surface of the plant to which they have been applied. Repeated applications are needed to protect new growth of the plant and to replace material that has been washed off by rain or irrigation, or degraded by environmental factors such as sunlight. Sometimes contacts are referred to as "residual" products because the deposited fungicide remains on the plant surface, occasionally as a visible residue, for several days. Due to their ability to penetrate plants, some systemics possess both preventive and curative (eradicator or kick-back) activity, thus affecting the pathogen after infection.

#### Breadth of activity: single-site or multi-site

Single-site fungicides are active against only one point in one metabolic pathway in a pathogen or against a single critical enzyme or protein needed by the fungus. Since single-site fungicides are highly specific in their toxicity, having little effect on most organisms, they can safely be absorbed into plants, thus these fungicides tend to have systemic properties. As a result of this specific activity, fungi are more likely to become resistant to the fungicide because a single mutation in the pathogen usually allows it to overcome the action of the fungicide, such as by preventing it from binding to the active site in the fungus.

#### Mode of action

Fungicides kill fungi by damaging their cell membranes, inactivating critical enzymes or proteins, or by interfering with key processes such as energy production or respiration. Others impact specific metabolic pathways such as the production of sterols or chitin. For example, phenylamide fungicides bind to and inhibit the function of RNA polymerase in oomycetes, while the benzimidazole fungicides inhibit the formation of beta tubulin polymers used by cells during nuclear division.

Some recently developed products are unique in that they do not directly affect the pathogen itself. Many of these elicit a response from the host plant known as "systemic acquired resistance" (SAR). These SAR inducers basically mimic chemical signals in plants that activate plant defense mechanisms such as the production of thicker cell walls and anti-fungal proteins.

#### Breadth of activity: narrow-spectrum or broad-spectrum

Narrow-spectrum fungicides are effective against only a few usually closely related pathogens. These usually have single-site activity and are often systemic. Broad-spectrum fungicides can often control a wide range of unrelated pathogens. These usually are contacts with multi-site activity, but some have single-site activity. Several fungicides have activity that places them on a continuum between narrow- and broad-spectrum fungicides.

### Product Profile

#### General Info

Custodia is a Broad spectrum fungicide for the control of many fungal pathogens & diseases.

Custodia has very good preventive & curative properties which provides flexibility & broad window of application.

It has a dual mode of action; hence it works at multiple stages of fungal development.

Custodia impacts positively on the physiological activity of the applied crop by improving the yield & quality of the produce thus fetching better price.

Custodia is available in the pack sizes of 50ml, 100ml, 250ml, 500ml and 1ltr.

- Trade name: Custodia
- Common name: Custodia
- Active ingredient: Azoxystrobin 11% + Tebuconazole 18.3% W/W SC
- Formulation: Suspension Concentrate (SC)
- Packaging: 100ml, 250ml, 500ml, and 1000 ml.
- Rate of application: 750ml/ha.

**Table 1:** Fungicides used by farmers in study area

S. No.	Name of product	Category
1.	Azoxystrobin	Fungicide
2.	Tebuconazole	Fungicide
3.	Propiconazole	Fungicide
4.	Carbendazim	Fungicide
5.	Captan	Fungicide
6.	Mancozeb	Fungicide
7.	Triazole	Fungicide

### 2. Review of Literature

Akash daroi (2017) <sup>[1]</sup>: This data indicates price is the most important factor considered in mind by the farmers during purchase of products of various kind of herbicide/pesticide after that Availability, Effectiveness, Pest and diseases, Brand. Thus, for increasing market share of herbicide and pesticide, companies functioning in the district should produce and marketed good quality product at reasonable price to the farming community.

Lokesh. P., Manoj P., Samuel and Seema. 2015: To find out the most significant factor which influences the farmer that is effective control of pests, price of the product and brand image, dealer's recommendation, ready availability, promotional campaign and credit facility, safety and

packaging. Dealers are the most important functionary in the market channel of pesticide business. Like the farmers, dealers also consider various factors while stocking a particular brand of pesticides.

P. Bharatharaj (2012): From the results of empirical survey, it is inferred that majority of dealers survey have said that their farm customers' seek consultancy supports from them to gather information against specific symptoms of diseases that may be controlled by the proper usage of pesticides. spraying techniques, pesticide management techniques, purpose of usages, level of frequency, problems faced by them while purchasing pesticide, purchasing capability, the factors that influences in the quantity of pesticide, farmers satisfaction level, their marketing practices, relationship with dealers and dealers' role in marketing the product.

**3. Materials and Methods**

**3.1 Selection of District**

There are 75 districts in state of Uttar Pradesh. Out of these Bijnore district of Uttar Pradesh was selected purposively as it was required for the study. Bijnore district occupies an area of 4049 square kilometre. It is situated in doab area. Bijnore was detached from Moradabad in 1817 but known as Nagina district but it relocated to Bijnore and in 1837 it became a separate district.

- Total population: - 3,682,713
- Density :- 910/km<sup>2</sup> (2,400/sq mi)

**3.2 Selection of Block**

There are 12 blocks in district. Out of which Afzalgarh is selected purposively for the study. Afzalgarh block was selected as Paddy, Wheat and Sugarcane were grown here in considerable area and the farmers were using plant protection measures like Fungicides, Insecticides that's why this block was selected purposively for the study.

**3.3 Selection of Village**

In Afzalgarh block 188 villages. After selection of block, out of which only 7 villages were selected randomly from block. Complete list of villages of this was taken from village development office of the concerned block. From each village, farmers who used pesticide was selected randomly.

**3.4 Selection of Respondents**

A village wise list of all the respondents having farm and using Fungicides 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. About 5% of farmers was selected randomly. The farmers were categorized as marginal, small, semi medium, medium and large farmers for the study purpose. The size of land holding of the farmer decided that in which category the farmer was to be taken.

**Table 2. A (Table): - 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. B (Table): Sampling structure for farmer**

Name of district	Name of block	Name of villages	No. of respondents selected
Bijnore	Afzalgarh	Rehar	25
		Garhi	25
		Dahlawala	17
		Kehripur	14
		Kalluwala	23
		Hasanpur	15
Grand total			130

**4. Analytical Tools**

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

[percentage % = (Value/Total Value)\*100]

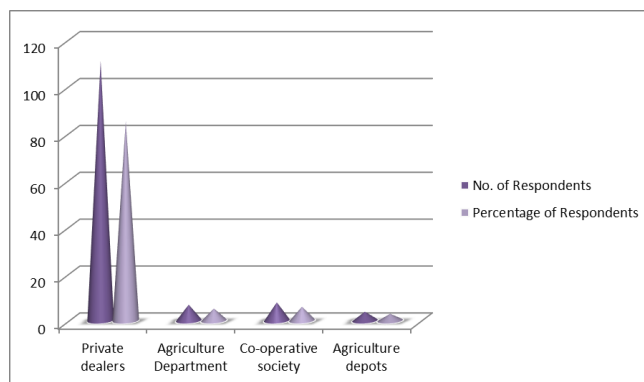
The market share of different brands was calculated by the index of market efficiency

**5. Results and Discussion**

1. To identify different marketing strategy i.e 4 P's (place, product, price, promotion) of Fungicide in study area.

**Table 4(a): state of level of Source where farmer purchase their product**

Variables	No. of respondents	Percentage of respondents
Private dealers	111	85.38
Agriculture department	7	5.38
Co-operative society	8	6.15
Agriculture depots	4	3.1
Grand total	130	100



**Fig 1:** shows graphical representation

Table 4 and fig 1 shows graphical representation, we analyzed that 85.38% i.e 111 farmer purchase from private dealers, 5.38% i.e 7 farmers purchase from co-operative society, 6.15% i.e 8 farmer purchase from agriculture department and remaining 3.1% i.e 4 farmer purchase from agriculture depots. Hence, we can say that most of the farmers go to the private dealers for purchasing.

**Table 5 (b): State of farmer responses to price change in preferred brand**

Variables	No. of respondents	Percentage of respondents
Same brand same quantity	32	24.61

Same brand reduced quantity	56	43.03
Switch over to low price brand	42	32.30
Grand total	130	100

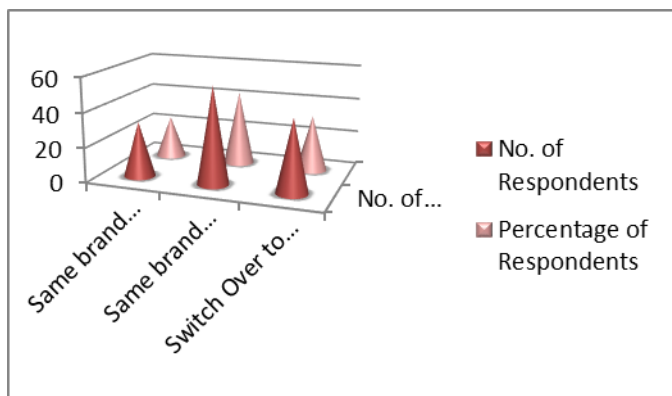


Fig 2: shows the responses of farmer to price change

Table 5 and fig 2 shows the responses of farmer to price change. As per the sample size of 130 farmers, according to which 24.61% farmer go with same brand with quantity, 43.03% farmer go with same brand with reduce quantity and 32.3% farmer go with low price brand or another brand.

Table 6 (c): State of level of farmers' brand and dealer loyalty.

Variables	No. of respondents	Percentage of respondents
Always sticking to same dealer	22	16.92
Always sticking to same brand	28	21.53
Always loyal to the brand and dealer	38	29.23
Change brand or dealer loyal according to situation	42	32.30

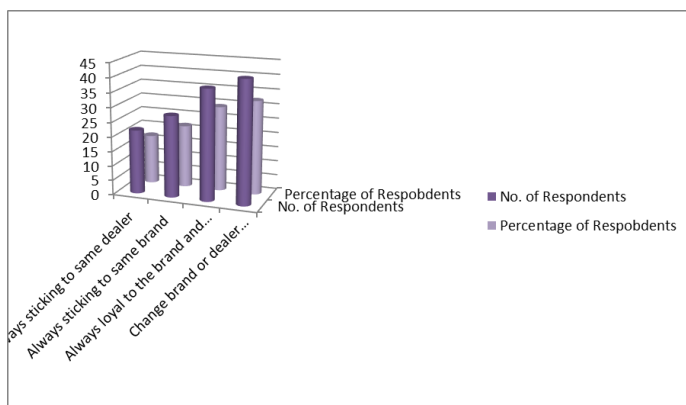


Fig 3: maximum farmers tend to change dealers

Table 6 fig 3 it is seen that maximum farmers tend to change dealers according to situation they are about 32.30% farmers. And about 29.23% were loyal to the dealers. 21.53% sticks to the same brand as of their trust over their experience and 16.92% stick to same dealer.

Table 7 (d): Cost of plant protection in crop production. (per acre)

Variables	No. of respondents	Percentage of respondents
1000-2000	35	26.92
2000-3000	54	41.53
3000-4000	36	27.69
4000-5000	5	3.84
Grand total	130	100

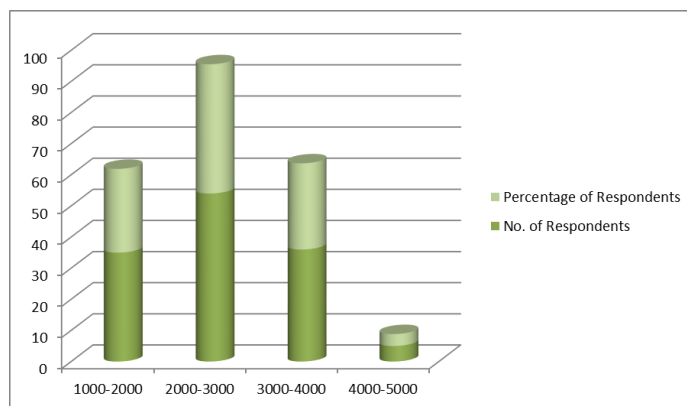


Fig 4: Analyze cost of plant protection

Table 7 and fig 4 Here we analyze cost of plant protection in crop production from above figure that is 26.92% farmers' expenditure is between Rs1000-2000, 41.53% farmers' expenditure is between Rs2000-3000, 27.69% farmers' expenditure is between Rs3000-4000 and only 3.84% farmers' expenditure >4000. Hence, we can say that most of the farmers' expenditure Rs. 2000-3000.

Table 8(e): How do you priorities the following promotional tools which influence you the most. (Rate from 1 to 4)

Activity	1 (High satisfied)	2 (satisfie d)	3(moderat e)	4 (Dis satisfied )	Grand total
Contact through company	87(66.92)	21(16.15)	13(10)	9(6.92)	130(100)
Jeep campaign	71(54.61)	27(20.76)	17(13.07)	15(11.53)	130(100)
demonstration	108(83.07)	10(7.69)	12(9.23)	0(0)	130(100)
Farmer's meeting	91(70)	14(10.76)	12(9.23)	13(10)	130(100)
Dealer's meeting	75(57.69)	33(25.38)	11(8.46)	11(8.46)	130(100)
Field day	81(62.30)	22(16.92)	15(11.53)	12(9.23)	130(100)

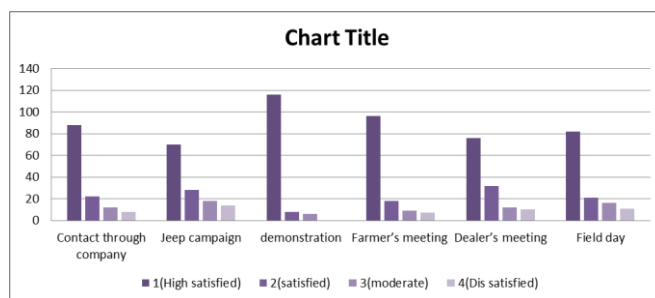


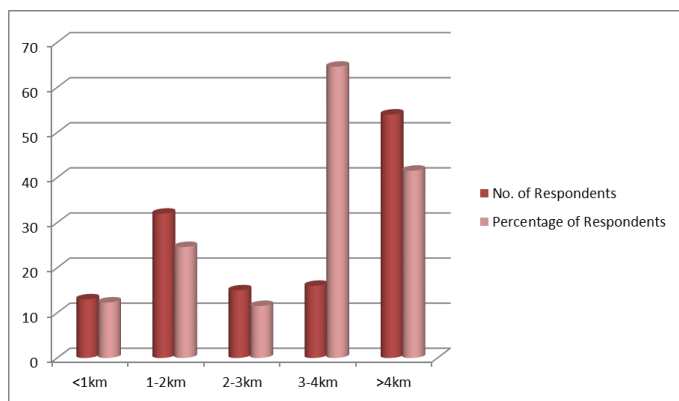
Fig 5: we analyzed that most of the farmer influence

Table 8 fig 5 we analyzed that most of the farmer influence through demonstration promotional activity, 70% farmer influence through farmers' meeting, 66.92% farmer influence

through contact through company, 54.61% farmer influence through jeep campaign, 62.20% farmer influence through field day, 57.69% farmer influence through dealer's meeting.

**Table 9(f):** How much distance of main market from your home?

Distance (in km)	No. of respondents	Percentage of respondents
<1km	13	12.3
1-2km	32	24.61
2-3km	15	11.53
3-4km	16	64.6
>4km	13	12.30
Grand total	130	100

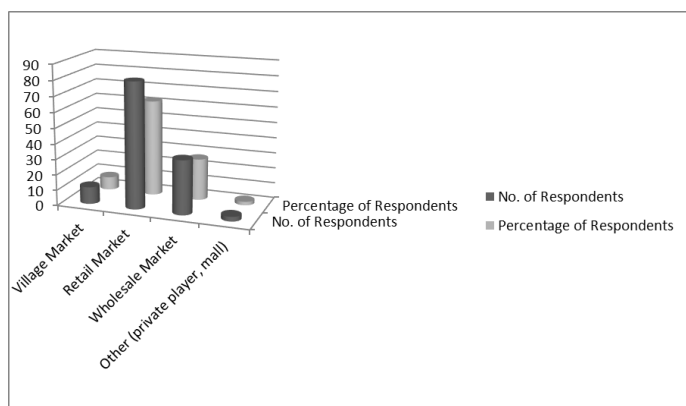


**Fig 6:** farmer distance calculate

Table 9 fig 6 represents that 41.53% farmer have <1km distance of main market from their home, 24,61% farmer have 1-2km from their home, 11.53% farmer have 2-3km distance of main market from their home, 64.6% farmer have 3-4km distance of main market from their home and 12.3% farmer have >4km distance of main market from their home. Hence, we can say that majority of farmers go to long distance to sell their product.

**Table 10 (g):** state of level of market access to the farmer for their products

Variable	No. of respondents	Percentage of respondents
Village market	11	8.46
Retail market	81	62.30
Wholesale market	35	26.92
Other (privateplayer, mall)	3	2.30
Grand total	130	100



**Fig 7:** Figure show age group of farmers

Table 10 fig 7 shows the age group of farmers. As per the

sample size of 130 farmers, according to which 8.46% of farmer sell their product in village market, 62.30% farmer sell in retail market, 26.92% farmer sell in wholesale market and only 2.30% farmer sell to the other for example private player or mall etc. hence we can say that most of the farmer have market access.

**Conclusion**

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

- analyze cost of plant protection in crop production from above figure that is 26.92% farmers' expenditure is between Rs.1000-2000, 41.53% farmers' expenditure is between Rs.2000-3000, 27.69% farmers' expenditure is between Rs.3000-4000 and only 3.84% farmers' expenditure >4000. Hence, we can say that most of the farmers' expenditure Rs.2000-3000.
- 53.07% farmer faced due to lack of credit, 14.61% farmer faced problem due to high price, 3.1% farmer faced problem due poor quality of product, 16.92% of farmer faced problem high interest on credit, 1.53% of farmer faced problem brands are not available.
- It could be concluded that Brand image Quality With better results and timely availability are the main attributes preferred by different category of farmers in the study area.
- We analyzed that most of the farmer influence through demonstration promotional activity, 70% farmer influence through farmers' meeting, 66.92% farmer influence through contact through company, 54.61% farmer influence through jeep campaign, 62.20% farmer influence through field day, 57.69% farmer influence through dealer's meeting.
- As per the sample size of 130 farmers, according to which 8.46% of farmer sell their product in village market, 62.30% farmer sell in retail market, 26.92% farmer sell in wholesale market and only 2.30% farmer sell to the other for example private player or mall etc. hence we can say that most of the farmer have market access.

The conclusion drawn from the study is maximum farmers depend upon dealers trust and believe on his words. Also many were unaware of precautionary measures that need to be taken during spraying of pesticides. Thus 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.

**References**

- 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.
- Akpagu FC, Emmanuel NV, Chukwuebuka EGI.

- Analysis of organophosphate pesticide residue on crops in Abakaliki, Ebonyi state. IOSR Journal of Applied Chemistry. 2015;8(1):26-29.
3. Anang BT, Joseph A. Factors Influencing Pesticide Use in Smallholder Rice Production in Northern Ghana. Agriculture, Forestry and Fisheries, 2015.
  4. Badhe, Dhirajkadu. farmers' perception regarding environmental risk in use of pesticides in anand district of gujarat state, 2012.
  5. Bhandari R. Pesticide residues in vegetables and fruits. International Journal of Scientific Research in Chemical Sciences, 2015, 2(1).
  6. Chandrasekhar Rao A. A study on buying behavior of farmers for indofil products in Krishna district of Andhra Pradesh.
  7. Dileep Kumar AD, D Narasimha Reddy. High Pesticide use in India: Health Implications. Health Action, 2017, 7-12.