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## Study on knowledge of farmers about pesticides use in agriculture

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#### Abstract

The Present study entitled “study on Knowledge and Opinion of Farmers regarding Pesticides’ use in Agriculture and its effects on Human health in Fatehpur district (U.P)” was undertaken in the year 2022-2023 with objective to measure the “study on Knowledge of farmers about pesticides’ use in agriculture” in Ashothar and Bahua blocks of Fatehpur, From each block six villages were selected randomly 25 farmers were selected from two blocks twelve villages randomly. A total number of 300 farmers were selected. Out of total farmers 39.0 percent of farmers belonged to 30-40 years age group, 67.7 percent of farmers depend upon agriculture and their main occupation of farmers was mainly as agriculture. The maximum number of farmers were having knowledge keep the pesticide bottle along with food items, change the clothes immediately after spraying pesticides, awareness about store the pesticides and farm equipment outside the house, knowledge about store the pesticides insides the house, knowledge about seek any suggestions from agriculture officers/experts about the dilution of pesticides.

**Keywords:** Food-items, equipment, knowledge, officers/experts, pesticides

#### Introduction

Agriculture is one of the most important occupation of the rural community and it is the backbone of the economy of many countries. In India Agriculture is the primary source of income for more than 58 percent of rural households. Naturally, the practices and procedures of cultivating different crops have been changing from time to time. Our fore fathers had followed all practices which contained only organic materials as inputs. But later researches on the use of chemicals and fertilizers got impetus and it was considered a boon for the sector. In India after green revolution, use of agricultural chemical got momentum and it rose by many folds. As these were used more unscientifically, they started showing negative impact on the soil, water and as a whole on the environment just like pollution.

Pesticides are considered a vital component of modern farming, playing a major role in maintaining high agricultural productivity. However, concerns over pesticides' effects on human health and the environment have grown in recent years. As a result, it is critical that everything possible is done to ensure that pesticides are used correctly in order to provide the greatest benefit while posing the fewest risks to humans and the environment. Careless handling of pesticides usually due to ignorance, lack of information or lack of training can pose a serious health risk for farmers, who are the major pesticide users and are regularly exposed to pesticides in their day-to-day life.

#### Research Methodology

To complete the above objective, by employing the appropriate research methodology, the study was conducted in district Fatehpur during the year 2022-2023. Two blocks were selected randomly Bahuwa and Ashothar in this study area. From these blocks twelve villages were selected. 25 respondents were selected randomly from each village. Thus, in all 300 farmers were selected randomly. Dependent variables, namely awareness, opinion, health effects, and constraints of farmers about pesticides use in agriculture and independent variables namely Age, gender, education, caste and religion, occupation, type of family, size of family, annual income etc. were undertaken. The data so collected were subjected to analyses for which statistical tools, such as percentage, average, weighted mean, median rank, standard deviation, Variance, Cronbach's alpha, Levene's test and correlation coefficients were used.

#### Results and Discussion

Table 1 reveals that the highest 39.0 percent of farmers belonged to 30 to 40 years with mean

age 35 years and standard deviation 2 years. It is followed by 36.7 percent of farmers belonging to age group of 50 years and above with mean age 57 years and standard deviation 3 years. The 14.3 percent farmers belonged to age group of 40 to 50 years with mean age 47 years and standard deviation 3

years whereas only 10 percent of respondents in age group of up to 30 years with mean age 28 years and standard deviation 2 years. The overall of 300 farmers mean age was found to be 44 years and standard deviation 8 years in the research study area.

**Table 1:** Distribution of farmers according to age group.

Age Group	Frequency	Percent	Mean age (Years)	S.D. (Years)
Up to 30 Years	30	10.0	28	2
30 to 40 Years	117	39.0	35	2
40 to 50 Years	43	14.3	47	3
50 years and above	110	36.7	57	3
Total	300	100.0	44	8

**Table 2:** Distribution of farmers according to occupation.

Occupation	Frequency	Percent
Agriculture	203	67.7
Service Govt./Private	6	2.0
Business	12	4.0
Agriculture labour	75	25.0
Caste based occupation	4	1.3
Total	300	100.0

Table: 2 reveals that the 67.7 percent of farmers depend upon agriculture followed by 25.0 percent of farmers were work doing as agriculture labour, 4.0 percent of farmers were doing business whereas, 2.0 percent of respondents were found be in

government and private services. Minimum 1.3 percent of farmers were engaged caste based occupation in research study area.

**Table 3:** Distribution of respondents according to General knowledge about pesticides use. (n=300)

S. No.	Knowledge of farmers about pesticides	Symbol	Yes	No	Mean Score	S.D.	Rank
1.	Knowledge about pesticides toxicity level	A	73.0	27.0	1.73	1.21	IX
2.	Know about any side effects of pesticides on the environment	B	85.0	15.0	1.85	1.30	VI
3.	Knowledge about read and understand the label on the pesticide container	C	79.0	21.0	1.79	1.26	VII
4.	Aware about eating and drinking or smoking while spraying pesticides	D	89.0	11.0	1.89	1.33	III
5.	Knowledge about take bath right after spraying pesticides in your field	E	87.0	13.0	1.87	1.32	IV
6.	To change the clothes immediately after spraying	F	90.0	10.0	1.90	1.34	II
7.	Keep the pesticide bottle along with food items.	G	92.0	8.0	1.92	1.36	I
8.	Wash the sprayer/bottle in the pond/canal/rivers/others	H	77.0	23.0	1.77	1.24	VIII
9.	Attended any training/workshop/discussion on pesticides use and care.	I	46.0	54.0	1.46	0.96	X
10.	Knowledge about purchasing pesticides from certified agro-chemical shop.	J	86.0	14.0	1.86	1.31	V
11.	Any community health camps run by the government or NGOs among you for your health hazard assessment	K	45.0	55.0	1.45	0.95	XI

The data shown in table 3 indicates that the 92.0 percent of farmers had aware about pesticides regarding keep the pesticide bottle along with food items with mean score 1.92, S.D. 1.36 and rank I followed by 90 percent farmers who had a knowledge to change the clothes immediately after spraying pesticides with mean score 1.90, S.D. 1.36 and rank II, The 89.0 Percent farmers were avoid of eating, drinking or smoking while spraying pesticides with mean score 1.89, S.D. 1.33 and rank III., the 87 percent farmers were having knowledge about the fact that taking bath right time after spraying pesticides in their field with mean score 1.87, S.D. 1.32 and rank IV. The 86 percent of farmers were known to purchase pesticides from certified agro-chemical shop with mean score 1.86, S.D. 1.31 and rank V, the 85 percent of farmers who know the any side effects of pesticides on the

environment with mean score 1.85, S.D. 1.30 and rank VI, while 79.0 percent farmers were able to read and have the knowledge about understand the label on the pesticide container with mean score 1.79, S.D. 1.26 and rank VII, the 77.0 percent of farmers were familiar with the fact that they have to wash the sprayer/bottle in the pond/canal/rivers/others with mean score 1.77, S.D. 1.24 and VIII. The 73.0 percent of farmers know about pesticides toxicity level with mean score 1.73, S.D. 1.21 and rank IX. The 46.0 percent of farmers have attended any type training/workshop/discussion on pesticides use and care with mean score 1.46, S.D. 0.96 and rank X and 45.0 percent of farmers were aware about community health camps run by the government or NGOs for their health hazard assessment with mean score, 1.45, S.D. 0.95 And rank XI in study area.

**Table 4:** Distribution of farmers according to handling practices of farmers during pesticides usage. (n=300)

S. No.	Practices of farmers during pesticides usage	Symbol	Yes	No	Mean Score	S.D.	Rank
1.	Use of agrochemicals such as pesticides can contaminate crops	A	86.0	14.0	1.86	1.31	II
2.	Take self- decision for the application of pesticides	B	45.0	55.0	1.45	0.95	VIII
3.	Awareness about store the pesticides and farm equipment outside the house	C	90.0	10.0	1.90	1.34	I
4.	Being aware of wearing a separate dress during spraying	D	80.0	20.0	1.80	1.26	IV
5.	Knowledge about store the pesticides insides the house	F	90.0	10.0	1.90	1.34	I
6.	Being aware of manually mixing pesticides with hands	G	82.0	18.0	1.82	1.28	III
7.	Use goggles while spraying	H	79.3	20.7	1.79	1.26	V
8.	Knowledge about the use of hand gloves while mixing the pesticides	I	76.3	23.7	1.76	1.24	VI
9.	Use oral–nasal mask during spraying	J	79.0	21.0	1.79	1.26	V
10.	Knowledge about use special boot during spraying.	K	70.0	30.0	1.70	1.18	VII
11.	Awareness about seek any suggestions from agriculture officers/experts about the dilution of pesticides.	L	90.0	10.0	1.90	1.34	I
12.	Knowledge about getting continuous information about mixing of two or more pesticides for application.	M	86.0	14.0	1.86	1.31	II

Table 4 indicates that 90 percent of farmers were aware about store the pesticides and farm equipment outside the house and knowledge that how to store the pesticides insides the house and they taking a suggestions from agriculture officers/experts about the dilution of pesticides with mean score 1.90, S.D. 1.34 and rank I followed by 86.0 percent of farmers who know the effects of use of agrochemicals such as pesticides which can contaminate the crops and knowledge about getting continuous information about mixing two or more pesticides for application with mean score 1.86, S.D. 1.31 and rank II, the 82.0 percent of farmers had a knowledge of manually mixing pesticides with hands with mean score 1.82, S.D. 1.28 and rank III, while 80.0 percent of farmers were having knowledge about wearing a separate dress during spraying of pesticides with mean score 1.80, S.D. 1.26 and rank IV. Further 79.3 percent of farmers were having aware about use of goggles while spraying and use of oral–nasal mask during spraying with mean score 1.79, S.D. 1.26 and rank V, followed by 76.3 percent of farmers have knowledge about the use of hand gloves while mixing the pesticides in water or other chemicals with mean score 1.76, S.D. 1.24 and rank VI. while 70.0 percent farmers have knowledge about use and wearing special boot during spraying with mean score 1.70 and S.D. 1.18 and rank VII and 45.0 percent of farmers have a knowledge about take self- decision for the applications of pesticides with mean score 1.45, S.D. 0.95 and rank VIII in the study area.

### Conclusion

Maximum number of farmers were having knowledge about the general information such as Keep the pesticide bottle along with food items, change the clothes immediately after spraying pesticides, eating, drinking or smoking while spraying pesticides as well as handling practices maximum farmers aware about store the pesticides insides the house, and they taking a suggestions from agriculture officers/experts about the dilution of pesticides, to change the clothes immediately after spraying.

### Recommendations/Suggestions

1. Awareness should be increase among farmers regarding bio- pesticide, organic farming and natural farming etc.
2. Awareness should be created in them regarding use of protective equipment at the time of spraying and spread knowledge for use goggles, oral-nasal mask and hand gloves while mixing the pesticides.
3. The govt. should provide/facilitate important advice and guidance for the farmers and al soother information related to effects of pesticides on human health.
4. Govt. should develop the training Centre at village level and improve the knowledge towards effects of pesticide

on human health.

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