



# A STUDY ON KNOWLEDGE ABOUT ORGANIC FARMING PRACTICES POSSESSED BY THE FARMERS AND THEIR ADOPTION IN SELECTED BLOCKS OF BALAGHAT DISTRICT (M.P.)

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## Abstract

The research work has been undertaken with a point of view to determine the knowledge and extent of adoption of organic farming practices by the farmers in the villages selected for popularizing and diffusing the organic farming technology to reduce the increasing cost of chemical fertilizers and pesticides. It has therefore, become imperative to examine the adoption of recommended organic farming practices and factors affecting it, keeping this in view the investigation was planned and carried out in the year 2010-11 with the specific objectives. The sample of the study were selected by multi stage sampling method in two blocks were purposively selected out of the total 10 blocks of Balaghat District. Four villages were selected with the help of cluster sampling method. 120 respondents were selected on the basis of simple random sampling method from the selected villages. The data were obtained through pre-tested structured schedule with the help of the interview. The collected data were quantified, classified, tabulated and presented on frequencies and percentages. In order to know the association between independent and dependent variables, the chi-square test was applied. From the above it can be concluded that major constraints reported by the respondents in adoption of organic farming technology were, lack of knowledge in the use of amrit pani, ipomiya, neem khali, Ha NPV/Bt, bio-fertilizers, amrit sanjivani, neem oil, difficult method for preparation of tobacco decoction and organic farming is a slow process. Well planned strategy to overcome the above constraints would help in popularizing the organic farming technology. Some useful suggestions were given by the respondents. They suggested to provide training about use of neem oil, amrit sanjivani, Ha NPV/Bt, amrit pani, neem khali and also to devise easy method for preparation of tobacco decoction which can help them to increase their knowledge and adoption of organic farming technology.

**Key words:** Organic farming practices, Farmer, Knowledge, Adoption.

## Introduction

In real perspective, organic farming is an ancient art of Indian agricultural practices, which is relevant even in this modern era of chemical dominated agriculture. The art of organic farming aims at judicious and scientific use of natural phenomena and resources for not only immediate gain but also for preserving them for the posterity.

Organic farming is indispensable and plays an important role in the maintenance of soil productivity and in improving physical condition of soil for sustainable and better plant growth. Continuous uses of chemical fertilizers lead to decline in soil fertility and productivity besides causing deficiency and imbalance of micronutrients. A judicious use of both organic and

inorganic fertilizers is necessary for sustaining the productivity of agricultural lands. It has got due importance though lately, considering the sustainability issues of agricultural production systems.

It is estimated that India has a potential of about 67 million tones of composts, which could provide 10 million tones of plant nutrients. Promotion of organic farming does not mean total replacement of the use of chemical fertilizers and pesticides. In fact, organic manures and fertilizers should be used to supplement chemical fertilizers in increasing crop production and for maintaining health of the soil in totally. The approaches of Integrated Nutrient Management (INM), Integrated Pest and Disease Management (IPDM) and Integrated Soil and Water Management (ISWM) are advocated for sustainable agriculture production.

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On this basis, the research work had been undertaken with a view to assess the behavior of farmers in terms of adoption level of farmers with regards to organic farming technology in selected 2 blocks of Balaghat district (M.P.) with the following objectives : to know the socio-economic, communication and psychological attributes of the farmers, to study the level of knowledge of farmers about organic farming practices, to find out the extent of adoption of organic farming practices by the farmers, to know the association between independent and dependent variables and to determine the constraints faced by the farmers in adoption of organic farming practices and suggest ways for improvement.

### Materials and Methods

This chapter deals with the background information about the study area, hypothesis, variables and their measurement, methods and procedure adopted for the collection of the data required for the study. It also describes the methods used for analysis of data and test applied. For better comprehension this chapter has been divided into the following sub-heads:

#### Background information about the study area

The total geographical area of Balaghat district is 9,24,500 hectares. Out of these total area under organic farming is 10415 hectares. The major crop of the district is paddy and arhar in Kharif and wheat, gram and linseed in Rabi season.

#### The problem

Continuous uses chemical fertilizers lead to decline in soil fertility and productivity besides causing deficiency and imbalance of micronutrients. The major emphasis of agriculture department today is on transfer of technologies of organic farming to the farmer and getting accepted and adopted by them. Looking to this an attempt has been made to conduct this research study.

#### Selection of area and respondents

For the study, Balaghat district was selected purposively. There are 10 blocks, out of which 2 blocks namely Balaghat and Kirnapur blocks have been selected. From each selected blocks, 2 villages were selected randomly. Therefore total 4 villages namely Badhgaon, Saletka, Navegoan and Bagdara has been selected. From the 4 selected villages a list of farmers practicing organic farming was prepared villages-wise and from each villages 30 farmers were selected by random sampling method. Thus, a total of 120 respondents spread over 4 villages were selected for this study and were interviewed.

#### Variables and their measurement:

S. No.	Variables	Measurement
<b>(A) Independent variables</b>		
<b>(a) Personal and socio-economic variables</b>		
1.	Age	Actual chronological age
2.	Education	Varkataramaiah and Senthuro, (1983)
3.	Size of land holding	Trivedi and Pareek, (1963)
4.	Annual income	Structure schedule
5.	Livestock possession	Number
<b>(b) Communicational variables</b>		
1.	Information seeking behavior	Nandapurkar, (1982)
2.	Change agent contact	Structure schedule
3.	Exposure to training	Structure schedule
<b>(c) Psychological variables</b>		
1.	Innovativeness	Maulik, (1965)
2.	Management orientation	Samantha, (1977)
3.	Scientific orientation	Supe, (1969)
4.	Attitude towards improved technology	Singh, (1990)
5.	Knowledge of organic farming practices	Self scoring
<b>(B) Dependent variable</b>		
1.	Extent of adoption towards organic farming	Structure schedule

The following practices were selected:

**Integrated plant nutrient management:** In situ incorporation of crop residues, selection of good seeds, seed inoculation, application of FYM/Nadep compost, vermi compost, raising green manure and incorporation, use of biogas slurry, amrit pani, amrit sanjeevani, matka khad, litter, khali khad, press mud, poultry manure, tank silt, cow horn manure and neem khali.

**Integrated pest management:** Summer ploughing, hand weeding, use of neem oil, leaf extract, tobacco decoction, light trap/pheromone trap, cow urine, rotated/fermented curd milk, ipomiya (beshram), trichoderma, chilli/garlic, installation of bird/perches before flowering, spray of Ha NPV/Bt at early infestation stage.

#### Instrument of data collection

The data were collected with the help of interview schedule which was prepared on the basis of objectives of the study.

#### Method of data collection

The data was collected through a well structured and pre-tested interview schedule. The researchers personally met the respondents and explained to them about the purpose of this study.

**Table 1:** Distribution of respondents according to their level of knowledge about component wise organic farming practices.

S. No	Organic Framing Technology	Number of respondents (N=120)					
		FK	%	Pk	%	NK	%
(A)	<b>Integrated Plant Nutrient Management</b>						
1.	In situ incorporation of crop residues	66	55.00	43	35.83	11	9.16
2.	Selection of good seed	65	54.16	40	33.33	15	12.50
3.	Seed inoculation	78	65.00	31	25.83	19	9.17
4.	Application of FYM/Nadep compost	100	83.33	20	16.66	0	0
5.	Raising green manure and incorporation	46	38.33	54	45.00	20	16.66
6.	Application of vermicompost	55	45.83	46	38.33	19	15.83
7.	Use of biogas slurry	37	30.83	61	50.83	22	18.33
8.	Use of amrit pani	18	15	54	45.00	50	41.67
9.	Use of amrit sanjivani	8	6.66	62	51.66	50	41.67
10.	Use of marka khad	21	17.50	79	60.83	20	16.67
11.	Use of litter	36	30.00	62	51.66	22	18.33
12.	Use of khali khad	20	16.66	53	44.17	49	40.83
13.	Use of press mud	43	35.83	60	50.00	17	14.16
14.	Use of poultry manure	47	39.16	60	50.00	13	10.83
15.	Use of tank silt	30	25.00	67	55.83	23	19.17
16.	Use of sing khad	28	23.33	66	55.00	26	21.66
17.	Use of neem khali	23	19.16	48	40.00	49	40.83
(B)	<b>Integrated Pest Management</b>						
18.	Summer Ploughing	80	66.66	34	28.33	6	5.00
19.	Hand weeding	86	71.66	29	24.17	5	4.16
20.	Use of neem oil	34	28.33	38	31.67	48	40.00
21.	Use of neem leaf extract	47	39.16	63	52.50	10	8.33
22.	Use of tobacco decoction	8	6.66	54	45.00	58	48.33
23.	Use of light trap/pheromone	57	47.50	45	37.50	18	15.00
24.	Installation of bird perches before flowering	20	16.66	66	55.00	34	18.33
25.	Spray of He NPV/Bt at early infestation stage	9	7.50	40	33.33	71	69.16
26.	Use of com urine	39	32.50	59	49.11	22	18.33
27.	Use of rotated fermented curd milk	25	20.83	67	55.83	28	23.33
28.	Use of ipomiye (beshram)	23	19.16	52	43.33	45	37.50
29.	Tricoderma	42	35.00	65	54.17	13	10.83
30.	Use of chilli / garlic	41	34.16	54	45.00	25	20.83
Note: Fk = Full knowledge, Pk = Partial knowledge, Nk = No knowledge.							

### Statistical analysis of data

Collected data were tabulated and presented in the form of tables and charts. After tabulation, percentage and chi-square test were determined.

### Hypothesis

There is no association between age, education, size of land holding, annual income, livestock possession, information seeking behavior, change agent contact, exposure to training, innovativeness, management orientation, scientific orientation, attitude towards improved technology and knowledge of the respondents and their level of adoption of organic farming technology.

### Results and Discussion

The results of the study have been presented here

along with the discussion to draw generalization and they were presented as per the objectives of the study.

### Socio-economical, communication and psychological attributes of respondents

Fifteen socio-economical, communication and psychology attributes of selected respondent of Kirnapur and Balaghat blocks were selected in the study and after reviewing the result on the basis of information gained, conclusion can be derived that the maximum percentage of respondents (51.66) were from young age group (18-35), (33.34%) had educated upto middle level, in size of land holding percentage of respondents is equal (33.33%), most of the respondents (38.33%) had low annual income, maximum (48.34%) had low livestock possession. Out of total sample respondents (45.00%) had low information

**Table 2:** Distribution of respondents according to their level of adoption about component wise organic farming practices.

S. No	Organic Framing Technology	Number of respondents (N=120)					
		FA	%	PA	%	NA	%
<b>(A)</b>	<b>Integrated Plant Nutrient Management</b>						
1.	In situ incorporation of crop residues	65	54.16	27	22.50	28	23.33
2.	Selection of good seed	59	49.16	46	38.33	15	12.50
3.	Seed inoculation	66	55.60	32	26.66	22	18.33
4.	Application of FYM/Nadep compost	71	59.16	42	35.00	7	5.8
5.	Raising green manure and incorporation	35	29.16	52	43.33	33	27.50
6.	Application of vermicompost	56	46.66	36	30.00	28	23.33
7.	Use of biogas slurry	25	20.83	52	43.33	43	35.83
8.	Use of amrit pani	31	25.83	17	14.16	72	60.00
9.	Use of amrit sanjivani	7	5.8	35	29.16	78	65.00
10.	Use of matka khad	14	11.66	69	57.50	37	30.83
11.	Use of litter	36	30.00	57	47.50	27	22.50
12.	Use of khali khad	25	20.83	39	32.50	56	46.66
13.	Use of press mud	45	37.50	54	45.00	22	18.33
14.	Use of poultry manure	41	34.16	55	45.83	24	20.00
15.	Use of tank silt	57	47.50	26	21.66	37	30.83
16.	Use of sing khad	31	25.83	59	49.16	30	25.00
17.	Use of neem khali	9	7.50	45	37.50	66	55.00
<b>(B)</b>	<b>Integrated Pest Management</b>						
18.	Summer Ploughing	78	65.00	24	20.83	18	15.00
19.	Hand weeding	64	53.33	13	10.83	43	35.83
20.	Use of neem oil	17	14.16	37	30.83	66	55.00
21.	Use of neem leaf extract	41	34.16	34	28.33	45	37.50
22.	Use of tobacco decoction	10	8.33	42	35.00	68	56.66
23.	Use of light trap/pheromone trap	50	41.66	31	25.83	39	32.50
24.	Installation of bird perches before flowering	8	6.66	58	48.33	54	45.00
25.	Spray of Ha NPV/Bt at early infestation stage	7	5.8	35	29.16	78	65.00
26.	Use of cow urine	40	33.33	49	40.83	31	25.83
27.	Use of rotated fermented curd milk	23	19.16	65	54.16	32	26.66
28.	Use of ipomiya (beshram)	29	24.16	35	29.16	56	46.66
29.	Tricoderma	45	37.56	51	42.50	24	20.00
30.	Use of chilli/ garlic	40	33.33	49	40.83	31	25.83
Note: FA = Full adoption, PA = Partial adoption, NA = No adoption.							

seeking behavior. Most of the respondents (48.33%) had medium change agent contact, out of the total respondents (48.33%) had medium exposure to training maximum respondents, most of the respondents (48.33%) had high innovativeness. Out of the total respondents (48.34%) had medium management orientation, maximum respondents (48.33%) had low scientific orientation, maximum respondents (46.67%) had high attitude towards improved technology, (38.33%) had medium level of knowledge maximum respondents and (46.67%) respondents had medium level of adoption. The finding is supported by Kanel, (2005) and Singh, (2005).

#### Association between attributes of respondents and their adoption level of organic farming technology

The association between various attributes of

respondents like socio-personal, psychological and communicational attributes with the adoption level were worked out which showed that there was no significant association between age, size of land holding, change agent contact, exposure to training, innovativeness and attitude towards improved technology. While all the other remaining attributes of respondents were found to be significantly associated with respondents, education, annual income, knowledge of organic farming practices, livestock possession, information seeking behavior, management orientation and scientific orientation. The finding is supported by Kushwaha, (2003); Kanel, (2005) and Singh, (2005).

#### Distribution of respondents according to their level of knowledge about component wise organic farming practices

**Table 3:** Constraints faced by the farmers in adoption of organic farming practices.

S. No.	Constraints	Frequency	Percentage	Rank order
1.	Lack of knowledge about use of neem oil	66	55.00	VIII
2.	Lack of knowledge about use of Ha NPV/ Bt	72	60.00	IV
3.	Lack of knowledge about use of Amrit Sanjivani	69	57.50	VI
4.	Different method for preparation of tobacco decoction	67	55.83	VII
5.	Organic farming is a slow process	63	52.50	IX
6.	Lack of knowledge about use of Amrit Pani	90	75.00	I
7.	Lack of knowledge about use of Neem Khali	75	62.50	III
8.	Lack of knowledge about use of Ipomiya (Beshram)	80	66.66	II
9.	Lack of knowledge about use of Biofertilizer	70	58.33	V

The knowledge of all respondents about organic farming practices were combined together to determine the overall knowledge. It was found that majority of them had knowledge in significant percentage of practices like in situ incorporation of crop residues, selection of good seed, seed inoculation, application of FYM/Nadep compost, raising green manure and incorporation, application of vermi compost, use of biogas slurry, use of amrit sanjivani, use of matka khad, use of litter, use of khali khad, use press mud, use of poultry manure, use of tank silt, use of sing khad, use of neem khali, summer ploughing, hand weeding, use of neem oil, use of neem leaf extract, use of tobacco decoction, use of light trap/pheromone trap, installation of bird perches before flowering, use of cow urine, use of rotated/fermented curd milk, use of ipomiya (beshram), trichoderma, use of chili/garlic, except two practices *i.e.* in case of use of amrit pani and in case of spray of Ha NPV/Bt at early infestation stage (Table 1). N. Loganandhan and P. Singh, (2009) in their study revealed that education was found to be the strongest contributing factor for a farmer to adopt organic farming.

#### **Distribution of respondents according to their level of adoption about component wise organic farming practices**

The adoption of all respondents about organic farming practices were combined together to determine the overall adoption. It was found that majority of them had adoption in significant percentage of practices like in situ incorporation of crop residues, selection of good seed, seed inoculation, application of FYM/Nadep compost,

raising green manure and incorporation, application of vermi compost, use of biogas slurry, use of matka khad, use of litter, use of khali khad, use of press mud, use of poultry manure, use of tank silt, use of sing khad, summer ploughing, hand weeding, use of neem leaf extract, use of light trap/pheromone trap, installation of bird perches before flowering, use of cow urine, use of rotated/fermented curd milk, use of ipomiya (beshram), trichoderma, use of chili/garlic, except six practices *i.e.* in case of use of amrit pani, in case of use of amrit sanjivani, in case of use of neem khali, in case of use of neem oil, in case of use of tobacco decoction and in case of spray of Ha NPV/Bt at early infestation stage (Table 2). This study has been supported by the finding of Saxena and Kushwaha, (2004).

#### **Constraints faced by the farmers in adoption of organic farming practices**

During investigation, growers expressed many reasons due to which they could not adopt recommended technologies on their farms. These factors or lack of knowledge were termed as constraints. It was observed that 55.00% of the respondents expressed problem *i.e.* lack of knowledge about neem oil, 60.00% about Ha NPV/Bt, 57.50% respondent reported lack of knowledge about amrit sanjivani, 55.83% respondent reported difficult method for preparation of tobacco decoction, 52.50% expressed their view that organic farming is a slow process, there were 62.50% respondents who reported that they had no knowledge about neem khali, 66.66% respondents reported lack of knowledge about Ipomiya (Beshram) and 58.33% respondents reported lack of

**Table 4:** Suggestion for improving adoption of organic farming practices.

S. No.	Constraints	Frequency	Percentage	Rank order
1.	Training should be provided in the use of neem oil	68	56.66	VI
2.	Training should also be organized in the use of amrit sangivani	72	60.00	IV
3.	Training be organized for Ha NPV/Bt	75	62.50	III
4.	Devise easy for preparation of tobacco decoction	90	75.00	I
5.	Training must be given in the use of Amrit pani	82	68.33	II
6.	Training has to be organized for use of neem khali.	70	58.33	V

knowledge about bio fertilizer. Well planned strategy to overcome the above constraints would help in popularizing the organic farming technology (Table 3). This finding has also been supported by Ranganatha *et al.*, (2001); Chander and Singh, (2003) and Kanel, (2005).

### Suggestions and opinion given by respondents in adoption of improved organic farming technology

The main useful suggestions were given by the respondents. They suggested to provide training about use of neem oil (56.66%), use of amrit sanjivani (60.00%), use of Ha NPV/Bt (62.50%), use of amrit pani (68.33%), use of neem khali (58.33%) and also to devise easy method for preparation of tobacco decoction (75.00%) which can help them to increase their knowledge and adoption of organic farming technology (Table 4). They also stated that RAEO should provide technical guidance frequently and timely. This is also supported by Kushwaha, (2003) and Kanel, (2005).

### Implication

1. The independent variables which have significant relationship with knowledge and adoption needs to be looked upon for better results.

2. Emphases should be given on the various aspects of practices which have partial adoption to increase the yield. Hence, attention should be paid on the organic farming to increase their adoption rate which in turn will increase the average production of the area.

3. The organic farmers face constraints i.e. difficulty/problem in use of neem oil, amrit sanjivani, amrit pani, neem khali, lack of knowledge of Ha NPV/Bt, difficult method for preparation of tobacco decoction, organic farming is a slow process, well planned strategy to overcome the above constraints would help in popularizing the organic farming technology in villages.

Finding of this study would be the feedback response about organic farming technology from respondents.

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