The Pharma Innovation Journal 2022; SP-11(9): 1930-1933

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(9): 1930-1933

www.thepharmajournal.com
Received: 16-06-2022
Accepted: 26-07-2022

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Adoption of organic farming practices among farm women in Udaipur district Rajasthan

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Abstract
The present study was planned to study the adoption of organic farming practices by farm women. The study was conducted in purposively selected Badgaon and Girwa Panchayat Samiti of Udaipur district, Rajasthan. Total 4 villages were selected on basis of random sampling technique. A sample of 30 farm women from each village were selected for the study. The total sample of study consisted of 120 farm women. For accomplishing the present investigation, interview technique was used to collect information from the rural women. The results regarding adoption of the organic farming practices by the respondents belonged to medium level category of adoption with 62.46 MPS consisting of 64.17 percent respondents. Therefore, 18.33 percent of respondents belonged to high category of adoption. Thus, 17.50 percent of the respondents belonged to a low level of adoption category with an overall MPS scale of 37.86 respectively.

Keywords: Farm women, organic farming, adoption

Introduction
Organic farming is a new system of farming or agriculture that repairs, maintains, and improves the ecological balance. Organic products are grown under a system of agriculture without the use of chemical fertilizers and pesticides with an environmentally and socially responsible approach. This is a method of farming that works at grass root level preserving the reproductive and regenerative capacity of the soil, good plant nutrition, and sound soil.
Indian agricultural sector is in distress with reducing profitability due to rising cost of inputs and stagnant output prices. These twin problems of agricultural can be effectively tackled by the wider adoption of organic agriculture. Study of women issues assumed great importance in a global context. However, research on participation of women in organic farming practices, especially in this region is still very limited. Farm women in Udaipur district play a significant role in cultivation of different fruit and vegetables through organic farming. They are actively participating in all range of organic farming practices. Since large number of women work force are engaged in organic farming and many emphasis is also given by the government and non-government organization to make them aware about organic farming practices and their adoption. Till now no systematic research efforts have been made to know the adoption level of farm women regarding organic farming practices. Therefore, it becomes essential to assess adoption of organic farming practices by farm women's.

Methodology
The present study was conducted in Udaipur district of Rajasthan. Two Panchayat samities were selected purposively from the district. For selection of sample, two villages from each panchayat samiti i.e. Sabalpura and Brahmano ki Hundar from Badgaon panchayat samiti and Pai and Peepalawas from Girwa panchayat samiti were selected randomly. A list of farm women was prepared separately for each village with the help of Krishi Vigyan Kendra (KVK), Badgaon. From the list, 30 farm women from each village were selected for the study. The total sample of the study consisted of 120 farm women. To collect the required information the personal interview technique was used by the researcher. After establishing good rapport with the respondents, data were collected by the researcher with the help of developed interview schedule in an informal manner using local dialect.

Results and Discussion
Adoption of a technology is a mental process through which an individual passes from first hearing about an innovation to final adoption.

Adoption of a technological innovation in agriculture should be regarded as a process, taking place over a period of time. In the present investigation, an effort was made to find the adoption of organic farming practices among respondents. The results pertaining to this aspect have been presented in Table 1 to Table 5.

Table 1: Distribution of the respondents on the basis of duration of practicing organic farming n=120

S. No	Duration	f	%
1.	Less than 1 years	33	27.50
2.	1 to 2 years	41	34.17
3.	2 to 3 years	27	22.50
4.	More than 3 years	19	15.83

Cursory of Table 1 reveals that more than one third of the respondents (34.17 %) doing organic farming practices from 1-2 years followed by 27.50 percent of the respondent have been doing organic farming from less than 1 year, whereas only 15.83 percent of the respondents were doing organic farming from more than 3 years.

Table 2: Adoption of use of organic manures and crop residues by the respondents n=120

S. No.	Practices	f	%
1	Use of FYM	120	100
2	Application of FYM or compost in any crop.	70	58.33
3	Preparation of FYM at home	120	100
4	Crop residue incorporation in the soil	86	71.67
5	Steps in the preparation of organic/solid waste	96	80
6	Sowing time in green manuring	58	48.33
7	Stage of incorporating green manure crop in their field	68	56.67

Regarding use of farmyard manure all the respondents adopted the FYM technique and preparing it at their home (Table 2). Regarding the steps in preparing organic solid waste 80 percent respondents adopted organic solid waste management and followed all the steps in preparing organic solid waste. Study by Singh and Sharma (2019) [4] revealed that more than half of the farmers (55%) belonged to medium adoption category followed by high (25%) and low adoption category (20%).

Data presented in Table 2 indicates that 71.67 percent respondents adopted the crop residue incorporation in the soil and knew that tillage prior planting and no-tillage farming are the two methods of incorporation of crop residue in the soil whereas 58.33 percent of the respondents make farmyard manure themselves and knew the appropriate method of making it. Majority of the respondents (56.67%) incorporates green manure crops in their field and also knew that green manure crop always incorporate at pre flowering stage in the field. Regarding the sowing time in green manuring, 48.33 percent respondents adopted green manuring and also knew that proper sowing time in green manuring is March to April.

Table 3: Adoption of bio-fertilizers by the respondents n=120

S. No.	Practices	f	%
1	Application of bio-fertilizers in main crop	102	85
2	Seed treated with bio-fertilizer for vigour growth/disease control	75	62.50
3	Seedlings dipped in bio-fertilizer solution	70	58.33
4	Purchasing bio-fertilizers from authorized source	120	100

Data presented in Table 3 indicates that all the respondents (100%) purchased bio fertilizers from authorized source, majority of the respondents (85%) apply azotobacter, azolla, rhizobacteria, azospirilium and blue green algae (BGA) bio-fertilizers in their crops. Regarding seed treatment, majority of respondents (62.50%) adopted it with bio-fertilizer for vigour growth/disease control and 58.33 percent of the respondents have been practicing dipping seedlings in bio-fertilizer solution. Singh *et al.* (2021) [5] conducted a study with 120 randomly selected farmers in six villages of Saharsa district of Bihar and found that majority of the farmers (60%) have lack of awareness regarding knowledge of bio-fertilizes. The others major constraints noticed were lack of technical support, non-availability of biofertilizers and lack of awareness regarding crop specific usages of bio-fertilizers.

Table 4: Adoption of vermi-compost by the respondents n=120

S. No.	Statements	f	%
1	Use of vermi-compost in crops	86	71.67
2	Steps for preparation of vermi-compost	114	95
3	Use of precautions while managing vermi-compost	112	93.33
4	Quantity of applying vermi-compost in crops	116	96.67
5	Maintenance of vermi-compost pit	111	92.50
6	Making vermiwash at home	116	96.67
7	Use of vermiwash	101	84.17

Data presented in Table 4 indicates that most of the respondents (96.67%) making vermiwash themselves at home and applied appropriate quantity of vermi-compost in crops, followed steps for the preparation of vermi-compost (95%), use of precautions while managing vermi-compost (93.33%) and 92.50 percent of the respondents maintained vermi compost pit properly and follow the particular rules which are necessary to follow while maintaining vermi-compost pit that feed of earth worms avoid bad foods, add carbon such as paper, cardboard etc, neutralize the pH level (acidity) of the worm bin, regulate bin temperature, keep the bedding moist, keep the bin dark, address worm farm problems e.g. remove any harmful pests, empty excess liquid (worm farm leachate) and change over trays when full (harvest worm castings). Motiwale *et al.* (2020) [2] conducted a study to know the adoption level of organic farming practices by the farmers and the study revealed that 50 percent of respondents were fall in the medium level adoption category whereas 29 respondents were fall in low adoption category. Only 11 respondents were adopted at high level.

Regarding the way to use vermiwash, majority of the respondents were (84.17%) using vermiwash in their field properly and knew that vermiwash must be diluted 5 to 10 times with water and then applied, the diluted vermiwash can be treated as pesticides or fertilizers on the crop plant or on the soil and it can also be mixed with cow's urine and diluted for use as foliar spray and pesticide with the quantity of 1 liter of vermiwash and 1 liter of cow's urine. About 71.67 percent of the respondents well using vermi-compost in their crops regularly (Table 4).

Table 5: Adoption of pest management practices by the respondents n=120

S. No.	Practices	f	%
1	Practiced summer ploughing	96	80
2	Clean seed bed/bunds from crop debris and stubbles incorporated	100	83.33
3	Maintained proper spacing to check pest/disease population	110	91.67
4	Crop residue managed properly to check major pest and diseases	109	90.83
5	Ploughed field after harvest	111	92.50
6	Sown resistant varieties for pest/disease control	110	91.67
7	Flooding and draining fields controls larvae	110	91.67
8	Installed light traps/pheromone traps to kill adult pests	110	91.67
9	Bio agents/predators adopted for pests control	110	91.67
10	Bio pesticides like BT and plant extracts use	111	92.50
11	Follow crop rotation for pests controls	109	90.83
12	Removal of weed to control pest/diseases	112	93.33
13	Installing fishtail palm/wild saccharin for predatory birds	110	91.67
14	Adopted indigenous/traditional methods for proper storage	109	90.83
15	Collected and destroyed eggs larvae and pupae of crop pests	109	90.83

Data presented in Table 5 revealed that most of the respondents adopted pest management practices by removing weeds to control pest/diseases (93.33), use of bio pesticides like BT and plant extracts ploughed field after harvest (92.50%). About 91.67 percent of the respondents followed practices i.e. installing fishtail palm/wild saccharin for predatory birds, bio agents/predators adopted for pests control, installed light traps/pheromone traps to kill adult pests, flooding and draining fields controls larvae, sown resistant varieties for pest/disease control and maintained proper spacing to check pest/disease population.

The data given in table 5 shows that 90.83 percent of the respondents managed crop residue properly to check major pest and disease, follow crop rotation for pests controls, adopted indigenous/traditional methods for proper storage and collected and destroyed eggs larvae and pupae of crop pests. Respondents explained that they were using indigenous/traditional methods for proper storage such as platforms in heaps, in woven baskets and in jute bags or in silos. Clean seed bed/bunds from crop debris and stubbles incorporated by 83.33 percent of the respondents and 80 percent of the respondents practicing summer ploughing.

Component wise adoption of organic farming practices

Component wise adoption of the respondents was assessed and the extent of adoption possessed by the respondents in different components related to organic farming practices is presented in three categories i.e. low, medium and high.

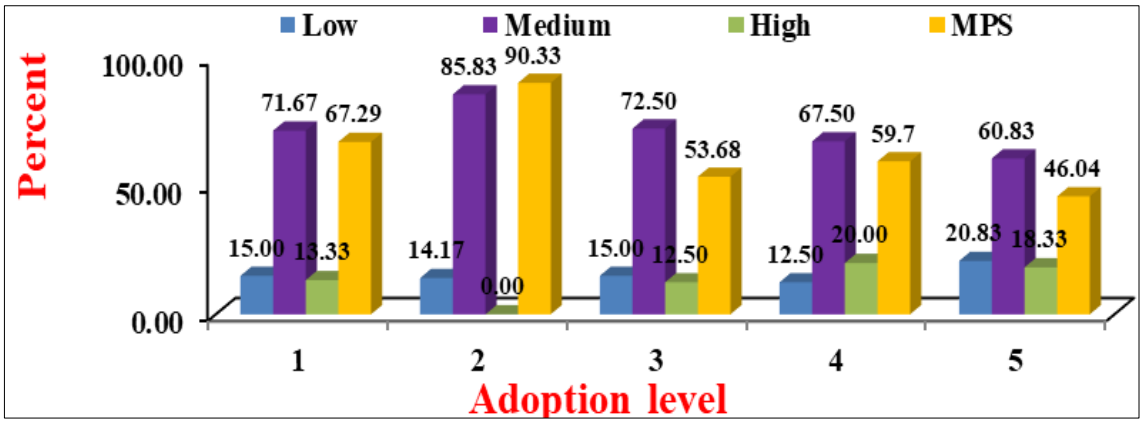
Table 6: Distribution of the respondents by their component wise adoption of organic farming practices n=120

S. No.	Components	Low		Medium		High		MPS
		f	%	f	%	f	%	
1.	Duration of adopting organic farming	18	15	86	71.67	16	13.33	67.29
2.	Use of organic manures and crop residues	17	14.17	103	85.83	0	0.00	90.33
3.	Use of bio-fertilizers	18	15	87	72.50	15	12.50	53.68
4.	Use of vermi-compost	15	12.50	81	67.50	24	20	59.70
5.	Pest management practices	25	20.83	73	60.83	22	18.33	46.04

Data in Table 6 depicts that majority of the respondents (85.83%) had average adoption of organic manures and crop residues with overall MPS 90.33, whereas 14.17 percent of the respondents were fall in low adoption category and none of the respondents were found in high adoption category. Majority of them (72.50%) were in medium level of adoption for use of bio fertilizers followed by 15 percent of the respondents were in low level of adoption and only 12.50 percent of the respondents were in high level adoption category with overall MPS 53.68. Sahoo *et al.* (2021) [5] assessed the level of adoption of respondents with regard to bio-fertilizer and bio-pesticides and found that majority of the respondents (77.5%) are at medium level of adoption in the context of bio-fertilizers whereas 67.5 percent of the

respondents are at medium level of adoption when bio-pesticides are concerned.

With regard to duration of adopting organic farming, Table 6 shows that respondents had medium adoption with overall MPS 67.29. This is further depicted by categorization of the respondents in various adoption categories highlights that majority of them (71.67%) were found in average adoption category followed by 15 percent of them were in low adoption category and only 13.33 percent of the respondents were in high adoption category. It is clearly apparent from the table that 60.83 to 67.50 percent of the respondents were in the category of medium level of adoption of pest management practices and use of vermicompost.



- Period since they opted for organic farming
- Use of organic manures and crop residues
- Use of bio-fertilizers
- Use of vermi-compost
- Pest management practices

Fig 1: Distribution of the respondents by their component wise adoption of organic farming practices

Overall adoption of organic farming practices

To find out overall adoption of organic farming by the respondents, mean percent score was calculated and on the basis of MPS the respondents were categorised into three adoption categories *viz*. high, medium and low. The results are presented in Table 7.

Table 7: Distribution of the respondents according to overall adoption of organic farming n=120

S. No.	Categories	f	%	MPS
1.	Low	21	17.50	37.86
2.	Medium	77	64.17	62.46
3.	High	22	18.33	91.46

Distribution of the respondents in different adoption categories reveals that majority of them (64.17%) were in category of medium level of adoption of organic farming with 62.46 MPS whereas, 18.33 percent respondents belonged to high adoption category and 17.50 percent respondents were found in low adoption category with MPS 37.86 (Table 7). In a research study conducted by Malviya *et al.* (2020) [1] on a sample of 100 organic farmers of Madhya Pradesh found that 56 percent of the organic farmers had medium adoption level regarding organic farming practices.

Conclusion

From the research findings it divulge that all the respondents had average adoption regarding organic farming practices. Therefore, it can be concluded that the respondents were pre-dominance of the inorganic farmers in the locality along with lack off or poor cooperative societies at local level. Hence, there is a need to pay more emphasis on organic farming during the trainings. For exposure to new technologies, regular visitis of women should be organized at KVK and ATIC center, etc.

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