

**ADOPTION OF NATURAL FARMING PRACTICES BY THE FARMERS****R. M. Patel<sup>1</sup>, J. K. Patel<sup>2</sup> and L. R. Dubey<sup>3</sup>**

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**ABSTRACT**

*Natural farming is a system where the laws of nature are applied to agricultural practices. This method works along with the natural biodiversity of each farmed area, encouraging the complexity of living organisms, both plants and animals that shape each particular ecosystem to thrive along with food plants. The Agricultural Technology Management Agency (ATMA) at district level played a vital role in dissemination of natural farming practice. The Mehsana district was randomly selected for the study. The Mehsana district has 10 talukas, all the taluks were selected randomly for the study. A list of farmers who were done natural farming obtained from ATMA Office. Five villages were selected from each talukas on the basis of highest number of Natural Farming adopter farmers. Out of these 50 villages from all selected talukas total 300 farmers were selected randomly with the use of snow ball techniques to constitute a sample of 300 farmers. The results revealed that the Knowledge about natural farming practices was found to be high to moderate. Majority of respondents had adopted low to medium level natural farming practices. In practice wise adoption of natural farming shows that cent per cent farmers had adopted Jivamrut, crop rotation, Khati chhas and Gaumutra in their farm. While majority of the farmers had adopted intercropping, neemastra in pest/ disease management. The major constraints were; low yield during conversion period, inadequate marketing facilities, required natural products are not available at reasonable price, and farmers think that chemical fertilizers are more effective than natural products. The major suggestion given by respondents were; more training are necessary for different natural farming practices, government should provide subsidy during conversion period, method demonstration are required for making different natural farming inputs and government should provide regular technical information about Natural farming.*

**Keywords :** *natural farming, constraints, global warming, green revolution*

**INTRODUCTION**

Natural Farming builds on natural or ecological processes that exist in or around farms. Natural Farming can be defined as “chemical- free farming and livestock based”. Natural Farming offers a solution to various problems, such as food insecurity, farmers’ distress, and health problems arising due to pesticide and fertilizer residue in food and water, global warming, climate change and natural calamities (Chand and Singh, 2023; Gamit and Vinaya, 2024). The farmers have adopted recommended agricultural technologies and increase the production since green revolution. It has been observed that over/abuse use of recommendations resulted in economical loss of the farmers (Gamit and Vinaya, 2022). In this situation, many farmers have started natural farming. The Govt. of Gujarat has also started dissemination of various methods of natural farming based on indigenous cow (Kankrej and Gir). The government is also providing monetary incentives to the natural farming farmers having indigenous cow on monthly basis. The Agricultural Technology Management Agency (ATMA) at

district level played a vital role in dissemination of natural farming practice. Nearly 20000 farmers are receiving monetary incentives for natural farming in Mahesana. It has been observed that many farmers have adopted natural farming on their field.

**OBJECTIVES**

- (1) To Study the profile of the farmers
- (2) To know the knowledge level of farmers regarding natural farming practices
- (3) To study the extent of adoption of natural farming practices by the farmers
- (4) To ascertain relationship between independent variables and their adoption of natural farming practices

**METHODOLOGY**

The Mehsana district has 10 talukas, all the taluks were selected randomly for the study. A list of farmers who

were done natural farming obtained from Project Director, ATMA, Mehsana Office. Five villages were selected from each talukas on the basis of highest number of Natural Farming adopter farmers. Out of these 50 villages from all selected talukas total 300 farmers were selected randomly with the use of snow ball techniques to constitute a sample of 300 farmers. The Multistage random sampling technique and “ex-post facto research design was used for the study. The appropriate statistical tools were used for the study.

## RESULTS AND DISCUSSION

### Profile of the farmers

Adoption of natural farming by the farmers of

Mahesana districts is influenced by different characteristics i.e. personal, socio-economic, and communication etc. The findings in these regards have been presented in the Table.1

The data presented in Table 1 shows that tow third (68.34%) of the farmers were from the middle age group, were educated up to high school level (43.67%), had small size of family (55.00%), having marginal to small land holding (74.34%), were growing natural farming crops up to 1 ha. of land (80.67%), had high annual income (71.67%) i.e, above Rs. 1,90,000/-, had possessed farming & animal husbandry as a occupation (72.33%), cent percent farmers possessed deshi cow, had membership in more than one organization (77.67%) and having high mass media exposure (73.34%).

**Table 1: Profile of the natural farming farmers**

(n=300)

Sr. No.	Characteristics	Category	Frequency	Per cent
1	Age	1. Young (up to 35 years)	40	13.33
		2. Middle (36 to 50 years)	205	68.34
		3. Old (above 50 years)	55	18.33
2	Education	1. Illiterate	0	0.00
		2. Primary school	57	19.00
		3. Middle school	71	23.67
		4. High school	131	43.67
		5. College/Graduation/above	41	13.66
3	Size of family	Small (Up to 4 members)	165	55.00
		Medium (5 to 7 members)	109	36.34
		Large ( 8 and above members)	26	08.66
4	Land holding	1. Marginal (up to 1.00 ha)	103	34.34
		2. Small (1.01 to 2.00 ha)	132	44.00
		3. Semi-medium (2.01 to 4.00 ha)	49	16.34
		4. Medium (4.01 to 10.00 ha)	11	03.66
		5. Big (Above 10.00 ha)	05	01.66
5	Area under natural farming	Up to 1 ha	242	80.67
		1.01 to 2.0 ha	38	12.67
		2.01 to 4.0 ha	15	05.00
		4.01 to 10.0 ha	05	01.66
		More than 10.0 ha	00	01.30
6	Annual income	Low (up to ₹ 96,000/-)	14	04.66
		Medium (between ₹ 96,001/- to ₹ 1,90,000/-)	71	23.67
		High (above ₹ 1,90,000/-)	215	71.67
7	Occupation	Farming	31	10.33
		Farming + Animal husbandry	217	72.33
		Farming + Animal husbandry + Business	52	17.34
		Farming + Business	00	0.00

Sr. No.	Characteristics	Category	Frequency	Per cent
8	<b>Animal possessed</b>	Desi cow	300	100
		Other cow	188	52.67
		Buffalow	255	85.00
		Other animal (Goat, Buffalow etc.)	31	10.33
9	<b>Social participation</b>	No membership	05	1.66
		Membership in one organization	233	77.67
		Membership in more than one organization	51	17.00
		Membership with holding position	11	3.67
10	<b>Mass media exposure</b>	Low mass media exposures (9.20)	21	7.00
		Medium mass media exposures (> 9.20 to < 15.72)	59	19.66
		High mass media exposures (> 15.72)	220	73.34

**Knowledge level of the farmers about natural farming practices**

Knowledge index for each of the natural farming adopter was calculated and they were categorized into four groups on the basis of arbitrary methods. The data pertaining to level of knowledge are presented in Table 2

**Table 2: Distribution of the respondents according to their level of knowledge about natural farming practices (n = 300)**

Sr. No.	Categories of knowledge level	Number	Per cent
1	<b>Low</b> (Up to 7 score)	31	10.33
2	<b>Medium</b> (8 to 14 score)	49	16.33
3	<b>Moderate</b> (15 to 21 score)	71	23.67
4	<b>High</b> (>21 score)	149	49.67

It is evident from the Table 2 that majority (49.67%) of the farmer’s possessed high knowledge followed by 23.67 and 16.33 per cent moderate and medium level of knowledge about natural farming practices, respectively. Only 10.33 per cent farmers had low level of knowledge. It is concluded that half of the farmers possessed high level of knowledge followed by medium knowledge because of most of the farmers got training from the ATMA agency through shibir and farmers meeting. These finding is in line with finding of Kalsariya *et.al* (2022).

**Extent of adoption of management practices of natural farming**

The level of adoption of natural farming practices was worked out by using the teacher made test developed for the purpose. The practice-wise adoption was calculated and presented in Table.3

**Table 3: Distribution of the respondents according to Practice-wise adoption of natural farming practices (n = 300)**

Sr. No.	Natural farming practices	Number	Per cent
1	<b>Crop Management</b>		
	Inter cropping	192	64.00
	Mixed cropping	41	13.67
	Crop rotations	300	100.00
	Mulching with crop residue	92	30.67
	Water management	169	55.67
2	<b>Nutrient management</b>		
	Use of Jivamrut	300	100.00
	Use of GhanJivamrut	109	36.33
	Use of GauMutra	257	85.67
	Use of Saptadhanyankur	95	31.66
	Use of Cow milk + Jaggery	31	10.33
3	<b>Pest / disease management</b>		
	Seed treatment with Bijamrut	62	20.66
	Use of herbal plants for control of pests	97	32.33
	Use of cow urine	136	45.33
	Use of Neemastra	192	64.00
	Use of Brahmastra	115	38.33
	Use of DashaparniArk	65	21.66
	Use of Khatichas	300	100.00
	Preparing live hedge	21	07.00
	Sowing trap crop	34	11.33
	Hand picking of insects	45	15.00
	Use of Sunthastra	30	10.00
	Use of bio Vavdingastra	26	08.66
	Use of SapatparniArk	39	13.00
Use of Agniastra	42	14.00	

In practice wise adoption of natural farming reveals in Table 3 that cent per cent respondents had adopted Jivamrut,

crop rotation, Khati chhas in their farm. While majority of the farmers had adopted Gaumutra (85.67%) and equal number of (64.00%) respondent had adopted intercropping and neemstra in pest/ disease management.

It is concluded from the result that most of the farmers adopted Jivamrut, crop rotation, Khati chhas, Gaumutra because of easy to available from their own resources and easy to preparation of the natural product. These finding is in line with finding of Kumbar and Devakumar (2017) and Bhadu *et al.* (2021).

**Table 4 : Distribution of respondents according to overall adoption of Natural farming management practices (n = 300)**

Sr. No.	Level of adoption	Number	Per cent
1	Low (Up to 6 score)	109	36.34
2	Medium (7 to 12 score)	81	27.00
3	Moderate (13 to 18 score)	69	23.00
4	High (>18 score)	41	13.66

It is apparent from the Table 4 that maximum (36.34%) of respondent had low level adoption of natural farming practices. While, 27.00 per cent and 23.00 per cent had medium and moderate level of adoption of natural farming practices, respectively. Only 13.66 per cent farmers were adopted low level of natural farming practices.

It is evident from the finding that majority of the farmers had low and medium level of adoption because of majority of the natural farming practices were laborious and time consuming in preparation, while ingredients of product are not easily available to farmers. These finding is in line with finding of Desai *et.al* (2023); Khodifad *et al.* ( 2024); Rana and Patel (2022).

#### Relationship between independent variables and their adoption of natural farming practices

A farmer shows different degree of adoption towards various natural farming practices because of the difference in their personal characteristics. Thus, it may be stated that the degree of adoption of farmers toward natural farming differs with their characteristics. Hence, considering the importance of these characteristics, an attempt was made in this investigation to ascertain the relationship if any, between independent variables of farmers and their adoption towards natural farming practices

A statistical method of Karl Pearson's coefficient correlation (r) was used to calculate relationship between the characteristics of farmers and their perception about organic farming. The results obtained are depicted in Table 5.

**Table 5 : Relationship between independent variables and their adoption of natural farming practices (n=300)**

Sr. No.	Independent variables	'r' value
X <sub>1</sub>	Age	- 0.059
X <sub>2</sub>	Education	0.213**
X <sub>3</sub>	Size if family	0.112
X <sub>4</sub>	Land holding	0.085
X <sub>5</sub>	Area under natural farming	0.108
X <sub>6</sub>	Annual income	0.158*
X <sub>7</sub>	Occupation	0.168*
X <sub>8</sub>	Animal possessed	0.162*
X <sub>9</sub>	Social participation	0.160*
X <sub>10</sub>	Mass media exposure	0.237*

\* Significant at 0.05 per cent level of probability

\*\* Significant at 0.01 per cent level of probability

It is apparent from the data presented in Table 1 that amongst the ten selected variables in the study, education had positive and highly significant influence and five variables had positive and significant influence on adoption of farmers about natural farming practices, while four variables had non-significant relationship. The independent variables like education (0.213\*\*) had positive and highly significant relationship with the adoption of farmers towards natural farming practices, whereas variables like annual income (0.158\*), occupation (0.168\*), animal possessed (0.162\*), social participation (0.160\*) and mass media exposure (0.237\*) had positive and significant relationship with the adoption of farmers towards natural farming practices. The variables like age (-0.059), size of family (0.112) land holding (0.085) and area under natural farming (0.108) failed to show any significant influence on the adoption of farmers of towards natural farming practices.

#### CONCLUSION

The results of study shows that two third of the farmers were from the middle age group, were educated up to high school level, had small size of family, having marginal to small land holding, were growing natural farming crops up to 1 ha. of land, had high annual income, had possessed farming & animal husbandry as a occupation, cent percent farmers possessed deshi cow, had membership in more than one organization and having high mass media exposure.

Majority of the farmer's possessed high knowledge followed by moderate and medium level of knowledge about natural farming practices. In practice-wise adoption of natural farming practices cent per cent respondents had adopted

Jivamrut, crop rotation, Khati chhas in their farm, Gaumutra, intercropping and neemastra in pest/ disease management. The overall adoption of natural farming practices was low to medium level. Out of ten independent variables, five variables viz; education, annual income, occupation, animal possessed, social participation and mass media exposure were found to be influencing on adoption towards natural farming practices.

### RECOMMENDATIONS

Knowledge about natural farming practices in Mahesana district was found to be medium and level of adoption was medium to low. The farmers got low yield during initial period. Trainings are required regarding the natural farming practices and creating awareness about preparation of formulation and its use in natural farming. Government should provide marketing facilities and remunerative price for natural farming product.

### CONFLICT OF INTEREST

This is declare that there is “No Conflict of interest” among researcher.

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