



Knowledge Level and Adoption Behaviour of Farmers towards Organic Farming Practices in Mokokchung District of Nagaland

Manen Longkumer^{a*++}, Dipak Kumar Bose^{a#} and Jahanara^{a†}

^a Department of Agricultural Extension and Communication, Sam Higgingbottom University of Agriculture Technology and Science, Prayagraj, Uttar Pradesh-211007, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

In this modern world, where every sector tends to adopt scientific and innovative techniques; agriculture turns out to be a distinct sector by adopting traditional organic farming practices. This implies the people's concern towards health, environment and soil health. Thus, farmers are now organic driven and there arises a need to understand the knowledge and adoption level of farmers towards organic farming practices. Descriptive research design was adopted for the study. Four villages in Longchem block of Mokokchung district of Nagaland is selected purposively. 120 organic farmers from 4 villages constitute the primary respondents of the study. Data were collected from the respondents through personal interview method with the help of pre-tested schedule. Based on

⁺⁺PG Final year;

[#]Associate Professor;

[†]Head of the Department;

*Corresponding author: E-mail: manenlkr1@gmail.com;

the findings, it was observed that higher proportion of organic farmers had medium level of knowledge (59.20%) and medium level of adoption (74.10%) respectively. Educational level, information source, risk orientation and land holding of the organic farmers had positive and significant relationship with the knowledge and adoption level of the organic farmers. Vocational training programmes should be organized and adequate marketing infrastructure should be established for input procurement and marketing of organic produce.

Keywords: Adoption level; eco-friendly technologies; knowledge level; Mokokchung district; organic farming and socio-economic profile of organic farmers.

1. INTRODUCTION

In the era of scientific world, everyone have eventually felt the consequences of prolonged and over usage of chemicals in crop production activities, which resulted in human health hazards and environmental pollution. Though, While increasing the farmers' income, green revolution technologies have degraded the land. Now, the concern rises on the food security and nutrition. As people got exposed to the ill-effects of these contaminated foods, they shifted to organic food products, increasing the demand for organic produces in the market. This shift in consumption pattern encouraged farmers to adopt organic production practices. The benefits of organic agriculture gets reflected in land preservation and sustained fertility. According to Union Ministry of Agriculture and Farmer's Welfare, in India, around 2.78 million hectare of cultivable land was under organic cultivation [1]. Kumar et.al., [2] commented that organic farming promotes and enhance the health of the agro-ecosystem.

In organic farming, the use of eco-friendly technologies are preferred and the use of chemical fertilizers and pesticides are banned to sustain the soil health, ecosystem and people. Though farmers tend to adopt organic cultivation, the emerging constraints includes yield reduction, difficulties in adoption of bio-control agents and lack of proper marketing function within domestic market. Manida and Nedumaran [3] emphasized that majority of the organic farmers were young aged with medium level of annual income. Similarly, Vijayaraje et.al., [4] observed that organic farmers possess medium level of information source utilization and earns medium level of annual income. Whereas, Suji and Sathish [5] revealed that most of the farmers had medium level of adoption of eco-friendly technologies. Upadhyay et.al., [6] reported that higher percentage of the tribal paddy growers had high level of knowledge about eco-friendly practices of paddy crop. Eventually, Suji and

Sathish [5] commented that the education and farming experience of the farmers had positive and significant relationship with the adoption level of eco-friendly technologies.

Organic farming practices, which involve the use of environmentally friendly methods to grow crops and raise livestock, have gained increasing popularity in recent years due to concerns about the negative effects of conventional farming practices on the environment and human health [7-9]. The adoption of organic farming practices by farmers is influenced by various factors, including knowledge levels [10,11], access to information [12,13], cultural beliefs [14,15], and personal experiences [16,17,18]. In this discussion, we will examine the knowledge level and adoption behavior of farmers towards organic farming practices in Mokokchung district of Nagaland.

In Mokokchung district, the adoption of organic farming practices is still in its early stages, but it is growing. A study conducted in the district found that a majority of farmers were aware of organic farming practices and the benefits associated with them. However, their knowledge of specific techniques and methods used in organic farming was limited. This is partly due to the limited availability of information and support for organic farming practices in the region, similar to that reported by studies of Olivares et al. [19]; Olivares and Lopez [20]; Olivares and Hernandez [21].

Therefore, in this context, the present study has been proposed with the following objectives:

1. To assess the socio economic profile of the respondents.
2. To determine the knowledge and adoption organic farming by the respondent.
3. To find out the association between socio-economic knowledge and adoption of organic farmers.

2. METHODOLOGY

Descriptive research design was adopted for the study since it describes the attributes of the organic farmers. Mokokchung district of Nagaland was selected purposively since it possess maximum area under organic cultivation. In Mokokchung district, Long chemblock is selected since holds the maximum area under organic cultivation practices. Four villages namely, Saring, AoNokphu, Nokphu and Yajang B were selected from Long chem block as these villages holds the maximum number of farmers involved in organic farming. From each village, 30 respondents were selected through random sampling method. Thus, from four villages a total of 120 organic farmers were

selected as primary respondents for the study. Data were collected from the respondents through personal interview method with the help of pre-tested schedule. The collected data were categorized, tabulated and analyzed with suitable statistical tools.

3. RESULTS AND DISCUSSION

The socio-economic profile of the organic farmers were studied under various characteristics like age, educational level, monthly income, type of family, size of family, caste, land holding, sources of information, innovativeness and risk orientation. The findings are presented in Table 1.

Table 1. Socio-economic profile of the organic producing farmers (n=120)

S. No.	Socio-economic profile	Characteristics	Response	
			Frequency	Percentage
1	Age	Young	31	25.83
		Middle	48	40.00
		Old	41	34.17
2	Educational level	Illiterate	21	17.50
		Intermediate	24	20
		Primary	53	60.00
		High school	22	18.33
		Graduate & above	5	4.17
3	Monthly income	Low	28	23.30
		Medium	59	49.20
		High	33	27.50
4	Family type	Joint family	34	28.30
		Nuclear family	86	71.70
5	Family size	Small	48	40.00
		Medium	43	35.80
		Big	29	24.20
6	Caste	ST/SC	81	67.50
		OBC	26	21.67
		General	13	10.83
7	Land holding	Below 1 hectare	57	47.50
		1-2 hectare	24	20.00
		2-3 hectare	22	18.30
		Above 3 hectares	17	14.20
8	Sources of information	Low	22	18.30
		Medium	72	60.00
		High	26	21.70
9	Innovativeness	Low	21	17.50
		Medium	54	45.00
		High	45	37.50
10	Risk orientation	Low	25	20.80
		Medium	73	60.90
		High	22	18.30

From Table 1, it can be seen that majority of the organic farmers were middle aged (40%), followed by old aged (34.17%) and young aged (25.83%). More than half of the farmers had primary level of education (60%), followed by high school (18.33%), primary (17.50%) and graduate and above (4.17%) level of education. Half of the respondents earns medium level of monthly income (49.20%), followed by high (27.50%) and low (23.30%) level of monthly income. Higher proportion of the organic farmers possessed nuclear family (71.70%), followed by 28.30 per cent of organic farmers had joint family. Majority of the farmers had small size of family (40%), followed by 35.80 per cent had medium family size and remaining 24.20 per cent had big family size.

Meanwhile, it can be seen that higher percentage of the organic farmers belong to general (10.83%), followed by OBC (21.67%) and SC/ST (67.5%). Less than half of the organic farmers had below 1 ha (47.50%) of land holdings, followed by 20 per cent had 1-2 hectares of land holdings, 18.30 per cent had 2-3 hectares of land holdings and only 14.20 per cent had above 3 hectares of land holdings respectively. Most of the organic farmers had medium level of sources of information (60%), followed by high (21.70%) and low (18.30%) level of information sources respectively. Nearly half of the organic farmers had medium level of innovativeness, followed by high (37.50%) and low (17.50%) level of innovativeness respectively. Higher proportion of the organic farmers had medium level of risk orientation (60.90%), followed by low (20.80%) and high level (18.30%) of risk orientation respectively.

Most of the farmers involved in organic farming were middle and old aged farmers those who were inspired by health benefits of organic produces and the attractive prices for the organic produce. Greater proportion of the organic producing farmers had primary level of education, as they were not able to complete school education because of lack of awareness and their family situation. As most of the farmers had less than 1 ha of land holding for cultivation and depends on agriculture as their sole income, they earn middle level of income. Most of the farmers had nuclear family as the other members migrated to urban areas for occupation and they had small size of family. They had medium level of information sources like mass media, progressive and neighboring farmers, government officials, etc to gather agricultural

information; thus justifies their medium level of innovativeness in organic farming.

In addition to this, as most of the farmers depend on agriculture, they don't prefer to take risk, thus their risk orientation is also medium. Similar studies by Vijayarajeet.al., [4] observed that organic farmers possess medium level of information source utilization and earns medium level of annual income. While, Manida and Nedumaran [3] emphasized that majority of the organic farmers were young aged with medium level of annual income.

The knowledge level of the organic farmers was studied and presented in Table 2.

Table 2. Knowledge level of the organic farmers (n=120)

Knowledge level	Frequency	Percentage
Low	24	20.00
Medium	71	59.20
High	25	20.80

From Table 2, it can be seen that most of the organic farmers had medium level of knowledge (59.20%), followed by high (20.80%) and low (20%) level of knowledge respectively. Most of the farmers were involved in agriculture from their childhood, which indicates their farming experience and knowledge base in organic farming. Eventually, Upadhyayet.al., [6] pointed out similar findings among the tribal paddy growers indicating that the respondents had high level of knowledge about eco-friendly practices of paddy crop.

The adoption level of the organic farmers was studied and presented in Table 3.

Table 3. Adoption level of the organic farmers (n=120)

Adoption level	Frequency	Percentage
Low	11	09.20
Medium	89	74.10
High	20	16.70

From Table 3, it was evident that nearly three-fourth of the organic farmers had medium level of adoption (74.10%), followed by high (16.70%) and low (9.20%) level of adoption respectively. As most of the farmers were aware of the health benefits of the organic produce and the attractive prices they earn for organic produce, majority of the farmers had adopted organic farming

practices. Similar findings were reported by Suji and Sathish [5] revealed that most of the farmers had medium level of adoption of eco-friendly technologies.

The association level of the organic farmers with their knowledge level has been presented in Table 4.

From Table 4, it can be seen that variables age, monthly income, family type, family size and caste had non-significant relationship with the knowledge level of the respondents. Similarly, educational level, sources of information, innovativeness and risk orientation of the organic growers had significant relationship with the knowledge level of the respondents at 5 per cent level of significance, whereas land holding of organic farmers had significant relationship with the 1 per cent level of significance respectively.

Education level of the farmers gains easy access to the various information sources for the farmers. Meanwhile, increased land holding motivates the farmers to adopt new technologies; thus the farmers want to try new technologies,

which results in seeking various information sources. Meanwhile, to sustain the competition among organic producing farmers, the farmers would like to try new technologies and take risks, thus to manage the risk and assure safety crop production, farmers enrich their knowledge level towards the organic farming practices [22-25].

The association level of the organic farmers with their adoption level was presented in Table 5.

From Table 5, it can be seen that variables age, family size and caste had non-significant relationship with the adoption level of the organic farmers. Meanwhile, educational level, land holding, sources of information and risk orientation had significant relationship at 5 per cent level of significance, while innovativeness, monthly income, family type of the organic growers had significant relationship at 1 per cent level of significance. Further, Suji and Sathish [5] commented that the education and farming experience of the farmers had positive and significant relationship with the adoption level of eco-friendly technologies.

Table 4. Association between the socio-economic profile of the organic farmers with their knowledge level

Variable	r-value	Regression co-efficient	Standard error	t-value
Age	-0.141	-0.003	0.103	0.975 ^{NS}
Educational level	0.112*	0.121*	0.054*	0.028*
Monthly income	0.062	0.038	0.060	0.517 ^{NS}
Family type	-0.038	-0.002	0.060	0.963 ^{NS}
Family size	-0.070	-0.060	0.050	0.236 ^{NS}
Caste	-0.152	-0.19	0.075	0.796 ^{NS}
Land holding	0.114**	0.118**	0.064**	0.071**
Sources of information	-0.148*	-0.076*	0.031*	0.017*
Innovativeness	0.181*	0.126*	0.071*	0.078*
Risk orientation	-0.046*	-0.130*	0.062*	0.037*

(* - Significant at 5%, **-Significant at 1%, ^{NS} – Not significant)

Table 5. Association between the socio-economic profile of the organic farmers with their adoption level

Variable	r-value	Regression co-efficient	Standard error	t-value
Age	0.125	0.110	0.067	0.104 ^{NS}
Educational level	-0.112	-0.236	0.105	0.027*
Monthly income	-0.095	-0.063	0.035	0.072**
Family type	0.124	0.219	0.122	0.076**
Family size	0.148	0.125	0.0175	0.486 ^{NS}
Caste	0.175	0.120	0.026	0.563 ^{NS}
Land holding	0.013	0.099	0.057	0.028*
Sources of information	-0.168	-0.171	0.063	0.008*
Innovativeness	0.144	0.118	0.064	0.071**
Risk orientation	0.046	0.155	0.063	0.015*

(* - Significant at 5%, **-Significant at 1%, ^{NS} – Not significant)

Increased level of education facilitates easier access to various information sources and extension linkages that enriches the farmers knowledge towards organic farming practices, which in turn increases the adoption of organic farming practices. While, to try or adopt a new technology or practice, income plays a major role. Similarly, family type of farmers favors the adoption of organic farming practices. In addition to this, increased land holding of the farmers enables them to adopt or try a new technology, by which they were recognized as progressive farmers among the farming community and government officials, which motivate the farmers to adopt new technology [26-28]. Eventually, increased sources of information about a technology or a practice leads the farmers to try or innovate a new practice according to their field conditions and they were willing to take risks.

4. CONCLUSION

It can be concluded that, higher proportion of organic farmers had medium level of knowledge (59.20%) and medium level of adoption (74.10%) respectively. Similarly, educational level, information source and risk orientation and land holding of the organic farmers had positive and significant relationship with the knowledge and adoption level of the organic farmers. Vocational training programmes should be organized and adequate marketing infrastructure should be established for input procurement and marketing or organic produce. Training institutions, NGOs and extension functionaries who are in constant contact with farming community need to take into account the profile characteristics while planning and executing the agricultural development programmes as these characteristics were found to influence their knowledge about organic farming. Further, the knowledge level and adoption behavior of farmers towards organic farming practices in Mokokchung district of Nagaland is influenced by various factors, including access to information, training opportunities, and market demand. The availability of information and support for organic farming practices, as well as the recognition of the benefits of organic farming by the government, have helped to increase the adoption of organic farming practices in the region. However, more work needs to be done to improve the knowledge levels of farmers and to provide them with the support and resources they need to fully embrace organic farming practices.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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