P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating: 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 7; Issue 8; August 2024; Page No. 254-258

Received: 23-05-2024
Accepted: 30-06-2024

Indexed Journal
Peer Reviewed Journal

Adoption of improved French bean cultivation practices by the farmers of Bishnupur district of Manipur

[1]Ripujit Lairikyengbam and [2]Syed H. Mazhar

[1]PG Scholar, Department of Agriculture Extension and Communication, SHUATS, Prayagraj, Uttar Pradesh, India

[2]Associate Professor, Department of Agriculture Extension and Communication, SHUATS, Prayagraj, Uttar Pradesh, India

DOI: https://doi.org/10.33545/26180723.2024.v7.i8d.921

Corresponding Author: Ripujit Lairikyengbam

Abstract

The main purpose of the study was to ascertain the extent of adoption of improved French bean cultivation practices by the farmers of Bishnupur District of Manipur. The research took place in Bishnupur block of Bishnupur District during the period 2023-2024. This study utilized a descriptive research design. The main information was gathered from 120 participants through face-to-face interviews utilizing a predetermined interview schedule. Farmer adoption was assessed through a series of 16 questions related to the cultivation of French beans. The results indicated that 40.00 percent of the participants exhibit a low level of adopting French bean cultivation, with 39.17 percent displaying a medium level of adoption and 20.83 percent showing a high level of adoption in French bean cultivation. All eleven independent variables, such as age, education, occupation, annual income, land holding, farming experience, mass media exposure, source of agriculture information, risk bearing capacity, economic motivation, and innovativeness, were found to have a positive and significant correlation with farmers' adoption of improved French bean cultivation practices.

Keywords: French bean, adoption, improved cultivation practices

Introduction

The French bean (*Phaseolus vulgaris* L.) is one of the most popular and widely cultivated vegetables in India and belongs to the family Leguminosae. It is also referred to as the common bean, green bean, dry bean, kidney bean, and navy bean (Singh *et al*., 2021) [4]. Globally, French beans are cultivated primarily in American and European countries, including the United States, England, Poland, Brazil, Mexico, Myanmar, China, and India. In 2016, global production of green beans reached 23.6 million tons, with China accounting for 79% of the total output. In 2016, the global production of dried beans was 26.8 million tons, with Myanmar, India, and Brazil accounting for the majority of this output. In India, over 90% of the total pulse production has been contributed by 10 states: Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh, Karnataka, Andhra Pradesh, Gujarat, Jharkhand, Tamil Nadu and Telangana (Singh *et al*., 2021) [4].

French bean is a significant pulse crop, exhibiting a high degree of productivity in comparison to gram and pea. In the hilly region, French bean is cultivated during the Kharif season (June to October), while in the lower hills it is sown as a spring crop (March). In the northeast regions, it is cultivated during the rabi season, which spans from November to May. French bean is a traditional vegetable crop of the North-Eastern region, and its cultivation is profitable in crop farming. Additionally, this crop is relatively less prone to pest and disease problems, which is an added advantage. As a self-pollinated crop, French bean seed production and maintenance of its purity is much easier than that of other vegetable crops. The tender pods are used as a vegetable, while the mature seeds are consumed as dal (Tongbram *et al*., 2021) [5]. In India, fresh pods utilised as a vegetable are termed 'faras', whereas dried pods are known as 'rajmash'. The dried seeds of rajma have been found to contain 60.6% carbohydrates, 22.9% protein and 1.3% fat. Additionally, 100 g of seeds contains minerals, including calcium (260 mg), phosphorus (410 mg) and iron (5.8 mg) (Vidyakar *et al*., 2017) [6].

French beans are a highly popular foodstuff due to their favourable quality, nutritional balance and higher biological efficiency. This vegetable plays a pivotal role in the sustenance of the global population (Panchbhaiya *et al*., 2017) [3]. The green pods are a rich source of thiamine (vitamin B1), which is essential for the optimal functioning of brain cells (Singh *et al*., 2021) [4]. French beans are a water-efficient crop that enhances soil health and productivity, thereby constituting a climate-smart practice (Nasar *et al*., 2023) [2].

Justification of the study

The results of the present study will assist farmers in the Bishnupur district of Manipur in the adoption of improved French bean cultivation practices. This will facilitate an investigation into the most appropriate methodology for identifying the constraints in the utilisation of recommended safe plant protection measures and knowledge for more effective crop management and enhanced productivity with

regard to improved French bean cultivation.

Objectives

1. To assess the socio-economic profile of the respondents.
2. To find the adoption level of improved French bean cultivation practices by the respondents.
3. To establish the relationship between the selected independent variables with adoption of improved French bean cultivation practices.

Research Methodology

The study was conducted in Bishnupur District, Manipur. The present study employed a descriptive research design, which is appropriate for studies that aim to describe the characteristics of a phenomenon. A multi-stage sampling methodology was employed in order to select the requisite samples for the present study. Manipur is comprised of 16 districts, of which Bishnupur was selected for inclusion in the study. Bishnupur district is subdivided into three blocks: Bishnupur, Nambol and Moirang. Bishnupur block was selected purposively based on the rationale that it encompasses the greatest area under French bean cultivation. Toubul and Khoijuman Khullen were selected from Bishnupur block, and a total of 120 respondents were randomly selected on a proportional basis, in accordance with the extent of French bean cultivation in each area.

Methods used for Data Collection

A pre-tested structured interview schedule, designed to collect data aligned with the objectives of the study, was developed. A survey method of data collection was employed, utilising a pre-structured interview schedule. The data were then classified, tabulated and subjected to analysis in order to ascertain their relevance to the stated objectives.

Statistical Analysis of Data

The data obtained from the respondents was transformed into a three-point Likert scale and subsequently tabulated. The data was evaluated and the relationship between the independent and dependent variables was determined using mean, frequency, percentage and correlation.

Results and Discussion

Socio Economic Characteristics of the Respondents

Table 1: Characteristics of the respondents. (N=120)

Sl. No.	Attributes	Characteristics	Frequency	Percentage
1	Age	Young (Below 30 years)	29	24.17
		Middle (31-50 years)	58	48.33
		Old (Above 50 years)	33	27.50
2	Education	Illiterate	8	6.67
		Can read and write	19	15.83
		Primary School	26	21.67
		High School	34	28.33
		Higher Secondary School	29	24.17
		Graduate and above	4	3.33
3	Occupation	Agriculture only	51	42.50
		Agriculture + Labor	20	16.67
		Agriculture + Business	33	27.50
		Agriculture + Service	16	13.33
4	Annual Income	Up to Rs. 50,000	33	27.50
		Rs. 50,001 – Rs. 1,00,000	52	43.33
		Above Rs 1,00,000	35	29.17
5	Land holding	Marginal (Up to 0.5 acre)	32	27.50
		Small (0.6 – 1 acre)	57	43.33
		Medium (Above 1 acre)	31	29.17
6	Farming Experience	Up to 5 years	29	24.17
		6 – 10 years	58	48.33
		11 years and above	33	27.50
7	Mass Media Exposure	Low	33	27.50
		Medium	53	44.17
		High	34	28.33
8	Sources of Agriculture information	Low	36	30.00
		Medium	51	42.50
		High	33	27.50
9	Risk Bearing Capacity	Low	34	28.33
		Medium	49	40.83
		High	37	30.83
10	Economic motivation	Low	31	25.83
		Medium	56	46.67
		High	33	27.50
11	Innovativeness	Low	37	30.83
		Medium	48	40.00
		High	35	29.17

The data presented in Table 1 indicated that 48.33 percent of the respondents are middle age (31-50 years), 27.50 percent old age (above 50 years) and 24.17 percent of the respondents are of young age (below 30 years). It also reported that 28.33 per cent of the respondents were educated up-to High School level of education, 24.17 per cent of the respondents had Higher Secondary School education, 21.67 per cent of the respondents had Primary School education and 15.83 per cent of the respondents can read and write without any formal education, 6.67 per cent of the respondents were illiterate and 3.33 per cent were Graduate and above. It was revealed that 42.50 per cent of the respondents were engaged in agriculture only, 27.50 per cent of the respondents were engaged in agriculture and business, 16.67 per cent of the respondents were engaged agriculture and labor, followed by 13.33 per cent of the respondents were doing service beside agriculture. It showed that 43.33 per cent of the respondents' income was between 50,001 to 1 lakh rupees, 29.17 per cent of the respondents' income was above 1 lakh and 27.50 per cent of the respondents' had income up to 50,000 rupees. It revealed that 43.33 per cent of the respondents' land holding was between 0.5 – 1 acre, 29.17 per cent of the respondents' land holding was above 1 acre and 27.50 per cent of the respondents had land holding up to 0.5 acre. It indicated that majority (48.33%) of the respondents had 6 - 10 years of farming experience, 27.50 per cent of the respondents had 11 years and above of farming experience, followed by 24.17 per cent of the respondents who had up to 5 years of farming experience. It showed that majority (44.17%) of the respondents had medium level of mass media exposure, 28.33 per cent of the respondents had high level of mass media exposure, followed by 27.50 per cent of the respondents had low level of mass media exposure. It also showed that 42.50% per cent of the respondents had medium level of source of agriculture information, 30.00 per cent of the respondents had low level of source of agriculture information and 27.50 per cent of the respondents had high level of source of agriculture information. It indicated that majority (40.83%) of the respondents had medium level of risk bearing capacity, 30.83 per cent of the respondents had high level of risk bearing capacity and 28.33 per cent of the respondents had low level of risk bearing capacity. It reported that majority (46.67%) of the respondents had medium level of economic motivation, 27.50 per cent of the respondents had high level of economic motivation and 25.83 per cent of the respondents had low level of economic motivation. It revealed that majority (40.00%) of the respondents had medium level of innovativeness, 30.83 per cent of the respondents had low level of innovativeness and 29.17 per cent of the respondents had high level of innovativeness.

Adoption of Improved French Bean Cultivation Practices

Table 2: Distribution of respondents based on adoption level towards improved French bean cultivation practices. (N=120)

Sl. No.	Statement	Response					
		Fully adopted		Partially adopted		Not adopted	
		f	%	f	%	f	%
1	Recommended field preparation	48	40.00	63	52.50	9	7.50
2	Sown in a suitable soil	51	42.50	48	40.00	21	17.50
3	Recommended seed rate	43	35.83	49	40.83	28	23.33
4	Recommended spacing between seed to seed	52	43.33	46	38.33	22	18.33
5	Seed treatment before sowing	10	8.33	35	29.17	75	62.50
6	Utilize any type of manure	35	29.17	73	60.83	12	10.00
7	Recommended amount of FYM	37	30.83	77	64.17	6	5.00
8	Utilize any fertilizer supplement	33	27.50	83	69.17	4	3.33
9	Optimum dose of fertilizer	38	31.67	75	62.50	7	5.83
10	Time of weeding performed	25	20.83	86	71.67	9	7.50
11	Used any specific tools and techniques for weeding	30	25.00	84	70.00	6	5.00
12	Utilize any disease control method for plant protection against diseases	12	10.00	67	55.83	41	34.17
13	Practice any cropping pattern	37	30.83	70	58.33	13	10.83
14	Recommended harvesting time	47	39.17	65	54.17	8	6.67
15	Yield of tender pods	38	31.67	64	53.33	18	15.00
16	Practice any post-harvest management	14	11.67	27	22.50	79	65.83

The data presented in Table 2 indicated that majority (52.50%) of the respondents partially adopted the recommended field preparation for French bean cultivation, 40.00 per cent of the respondents fully adopt and only 7.50 per cent of the respondents did not adopt. It was observed that majority (42.50%) of the respondents fully adopt suitable soil for French bean cultivation, 40.00 per cent of the respondents partially adopt and 17.50 per cent of the respondents did not adopt. It shows that majority (40.83%) of the respondents partially adopt the recommended seed rate of French bean, 35.83 per cent of the respondents fully adopt and 23.33 per cent of the respondents did not adopt the seed rate of French bean cultivation. It recorded that majority (43.33%) of the respondents fully adopt the spacing between seed to seed of French bean, 38.33 per cent partially adopt and 18.33 per cent of the respondents did not adopt. It indicated that majority (62.59%) of the respondents did not adopt treatment of French bean seeds before sowing, 29.17 per cent partially adopt and only 8.33 per cent of the respondents fully adopt. It was found that majority (60.83%) of the respondents partially adopt the use of manure in French bean cultivation, 29.17 per cent of the respondents fully adopt and 10.00 per cent of the respondents did not adopt. It was observed that majority (64.17%) of the respondents partially adopted the amount of FYM used, 30.83 per cent of the respondents fully adopted and 5.00 per

cent of the respondents did not adopt. It indicated that majority (69.17%) of the respondents partially adopted the fertilizer supplement used, 27.50 per cent of the respondents fully adopted and only 3.33 per cent did not adopt the fertilizer supplement used. It reveals that majority (62.50%) of the respondents partially adopt the dose of fertilizer for French bean cultivation, 31.67 per cent fully adopt and 5.83 per cent of the respondents did not adopt the dose of fertilizer for French bean cultivation. It showed that majority (71.67%) of the respondents partially adopt the stage when weeding for French bean cultivation is done, 20.83 per cent of the respondents fully adopt and 7.50 per cent of the respondents did not adopt. It reported that majority (70.00%) of the respondents partially adopt weeding method, 25.00 per cent fully adopt and 5.00 per cent of the respondents did not adopt weeding method. It was observed that majority (55.83%) of the respondents partially adopt disease control for French bean, 34.17 per cent did not adopt and 10.00 per cent of the respondents fully adopt disease control for French bean. It was found that majority (58.33%) of the respondents partially adopt cropping pattern, 30.83 per cent fully adopt and 10.83 per cent of the respondents did not adopt cropping pattern. It recorded that majority (54.17%) of the respondents partially adopt the harvesting time for French bean, 39.17 per cent fully adopt and 6.67 per cent of the respondents did not adopt the harvesting time for French bean. It showed that majority (53.33%) of the respondents partially adopt the recommended yield of tender pods of French bean, 31.67 per cent fully adopt and 15.00 per cent of the respondents did not adopt the recommended yield of tender pods of French bean. It also recorded that majority (65.83%) of the respondents did not adopt post-harvest management, 22.50 per cent of the respondents partially adopted and 11.67 per cent of the respondents fully adopted the post-harvest management of French bean.

Table 3: Overall adoption level of the respondents towards improved French bean cultivation

Sl. No.	Adoption level	Response	
		Frequency	Percentage
1	Low (16-32)	48	40.00
2	Medium (33-38)	47	39.17
3	High (39-42)	25	20.83
Total		120	100.00

The data presented in Table 3 revealed that majority (40.00%) of the respondents have low adoption level, 39.17% of the respondents have medium level of adoption and 20.83% of the respondents have high adoption level. Similar findings were also reported by Kumbhani et. al., (2017) [1].

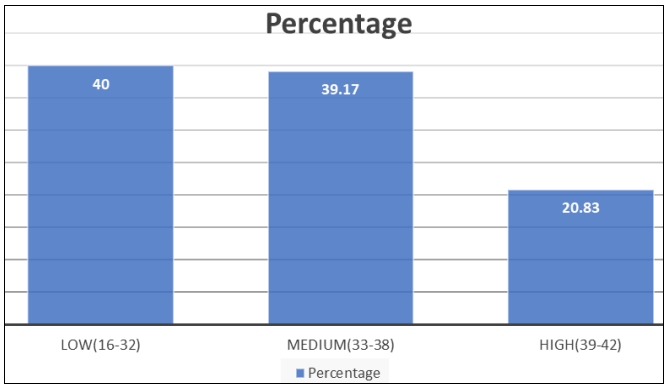

Fig 1: Overall distribution of respondents based on the adoption level of improved French bean cultivation practices.

Association between Selected Independent Variables with the Adoption of the Respondents towards Improved French bean Cultivation Practices

Table 4: Association between selected independent variables and adoption

Sl. No.	Variables	Pearson's Correlation coefficient
1	Age	0.3499*
2	Education	0.3085*
3	Occupation	0.7634
4	Annual income	0.3794*
5	Land holding	0.4960**
6	Farming experience	0.3499*
7	Mass Media Exposure	0.4266*
8	Sources of Agriculture information	0.5982**
9	Risk bearing capacity	0.2907*
10	Economic motivation	0.4014*
11	Innovativeness	0.5879**

*= Significant at p= 0.05%, **= Significant at p= 0.01%, NS= Non-Significant

The data presented in Table 4 revealed that all of the eleven independent variables, i.e. age, education, occupation, annual income, land holding, farming experience, mass media exposure, sources of agriculture information, risk bearing capacity, economic motivation and innovativeness are positively and significantly correlated with adoption of farmers towards improved French bean cultivation practices.

Conclusion

It was concluded that majority of the respondents were of middle age (31-50 years), most of the respondents had attained High School, majority of the respondents were engaged in agriculture + caste business, majority of the respondents' income were 50,001 – 1 lakh rupees, majority of the respondents had 0.5-1 acres of land with 6 - 10 years of farming experience and majority of the respondents have medium level of mass media exposure. Majority (40.00%) of the respondents have low adoption level, followed by 39.17% of the respondents having medium level of adoption and 20.83% of the respondents with high adoption level.

Subsequently, all of the eleven independent variables, i.e. age, education, occupation, annual income, land holding, farming experience, mass media exposure, sources of agriculture information, risk bearing capacity, economic motivation and innovativeness were positively and significantly correlated with adoption of farmers towards improved French bean cultivation practices. Proper training and awareness programs related to pest and diseases control and extension strategies to be followed for maximum adoption of improved French bean in the research area.

References

1. Kumbhani SR, Kavad SD, Patel GR. Adoption of improved Indian bean production technology. Young. 2017;9:15-00.
2. Nasar S, Shaheen H, Murtaza G, Tinghong T, Arfan M, Idrees M. Socioeconomic evaluation of common bean (*Phaseolus vulgaris* L.) cultivation in providing sustainable livelihood to the mountain populations of Kashmir Himalayas. Plants. 2023;12(1):213.
3. Panchbhaiya A, Singh DK, Jatav V, Mallesh S, Verma P. Studies on variability, heritability and genetic advance for yield and yield contributing characters in French bean (*Phaseolus vulgaris* L.) germplasm under tarai region of Uttarakhand. J Appl Nat Sci. 2017;9(4):1926-1930.
4. Singh OK, Singh KR, Singh NG, Ram D, Singh YC, Tongbram K. An economic analysis of French bean (*Phaseolus vulgaris* L.) production in Bishnupur district of Manipur. Asian J Agric Ext Econ Sociol. 2021;39(8):33-39.
5. Tongbram K, Singh YC, Singh OK. A study on production and marketing constraints of French bean (*Phaseolus vulgaris* L.) growers in Bishnupur district of Manipur. Asian J Agric Ext Econ Sociol. 2021;39(9):37-41.
6. Vidyakar V, Lal GM, Singh MK, Kumar A. Study on genetic diversity in French bean (*Phaseolus vulgaris* L.). J Pharmacogn Phytochem. 2017;6(6S):184-187.