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Socio-economic profile characteristics of the members of farmer producer company with reference to potato production in Assam

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Abstract

The present investigation was conducted with the objective to know the socio-economics profile characteristics of the members of the farmers producer company with reference to potato production in Assam. The study was conducted in Assam with the members of Satbhani Potato Producer Company limited, Sonitpur district and Sankar Azan Agro Producer Company limited, Nagaon district of Assam were chosen purposively due to the presence of two Farmer Producer Companies (FPCs) that are associated with the commercial potato production in Assam. An *Ex-post-facto* research design along with multi-stage sampling method was employed in the study. A comprehensive list of the beneficiary potato growing members of each farmer producer company was obtained. From this list, six villages were selected randomly for each of the FPC and thus all total 12 villages were selected. A total of 25 members were selected randomly from each villages constituting the sample size of 300 potato growing members. The results of the study indicated that the majority of the farmers belonged to middle age category (56.34%) with middle level school education (46.34%), nuclear family type (61.33%), had a middle level of potato farming experience (59.33%), cultivation as a primary source of occupation (70.00%) with marginal land holdings (38.66%), high annual income (52.00%). Whereas (85.33%) of respondents have membership of one organization as a social participation, with medium level of Scientific orientation (69.66), risk orientation (67.66%), economic motivation (64.33%) and degree of information exposure (55.00%). Majority of the respondents have no training exposure (51.67%), partial level of adoption (64.00%) and medium level of knowledge on potato production practices (71.34%) were found in the study area.

Keywords: Socio-economic, profile characteristics, farmers producer company, potato

1. Introduction

Potato (*Solanum tuberosum* L.) popularly known as 'the king of vegetables' is one of the major food crops produced in the world (Nyunza and Mwakaje 2012) [12]. It is world's most important non-cereal, high yielding horticultural food which is Cultivated worldwide in more than hundreds of countries. On the basis of production after maize, rice, and wheat it is the fourth most important food crop in the world (Naz *et al.* 2011) [11]. Without potatoes, an Indian vegetable basket would be incomplete. Potato is considered to be one of the main staple crops for ensuring food security (Knapp, 2008) [9], providing more calories, vitamins and nutrients per unit area than any other staple crop (Sen *et al*. 2010) [16]. The total potato production in the world is about 376 million tonnes (mt). India holds the second position in global production with 54 million tonnes after China with 94 million tonnes the largest potato producing countries in 2021. FAO figures indicate that the *total area* harvested globally in 2021 was 18,132,694 hectares – a world average of about 21 tonnes per hectare. (FAOSTAT, 2023) [6]. In Assam potato is cultivated in an area of 103.44 thousand hectares during 2021-22 with a production of 761.80 thousand tonnes and productivity 7,365 Kg/hectare (Ag. Stat. at a glance 2022) [1]. The potato crop possesses the capacity to play a substantial role in facilitating food accessibility within households as well as generating income for small-scale farmers. Consequently, it contributes to the economic sustainability of agricultural systems in developing nations (Thompson and Scoones, 2009) [19]. Despite having a good productivity, a significant area under potato cultivation, it is not enough to fulfill the state potato requirement. This study was taken up to evaluate the profile characters of the farmers members of the Potato FPCs and to provide valuable insights for devising suitable policy interventions to promote large-scale adoption of the best production technologies, to achieve the required production level of potato through higher productivity.

2. Materials and Methods

In this study, an *Ex-post-facto* research design was adopted.

The study was conducted in 2023 in the Sonitpur and Nagaon district of Assam were chosen purposively due to the presence of two Farmer Producer Companies (FPCs) that are associated with the production of commercial potatoes in those two districts. These two FPCs were Satbhani Potato Producer Company limited from the Sonitpur district and Sankar Azan Agro Producer Company limited from the Nagaon district. The decision was made to choose six villages at random from each of the operational areas of the two chosen FPCs, taking into account the nature of the study. In total, twelve villages were chosen for the study: Pub Gingia, Pachim Gingia, Uttar Gingia, Rotua, Solmari, Tengabari in the Sonitpur district and Bengena-Ati, Sologuri, Pothia Chapori, Rajabari, Bilotia and Aauniati satra No. 3 in the Nagaon district. Then, from each of the chosen villages, the farmer members of the FPCs were selected randomly using the equal allocation method to get a sample size of 300 farmer members. The data from respondents was collected using pre-tested, standardized and well-structured interview schedule.

3. Results and Discussion

Socio-economic profile characteristics of the members of Farmer Producer Company with reference to potato production in Assam. The respondent descriptions were based on personal, socio-economic, psychological and communication characteristics. The frequency and distribution of potato grower respondents according to selected independent variables has been presented as under:

1. Age

Table 1: Distribution of the respondents according to their age

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Young Age (Below 35 years)	56	18.66
2.	Middle Age (35 to 50 years)	169	56.34
3.	Old Age (51 years and above)	75	25.00
Total		300	100

The above Table 1 reveals that majority of the respondents 56.34 percent belonged to middle age group (35-50 years) followed by (25.00%) of respondents belonged to old age group (51 years and above) and only (18.66%) of respondents belonged to the young age group (Up to 35 years), respectively. From the above findings it is observed that the middle aged categories of the people are more engaged in potato farming in the study area. The probable reason for such distribution might be that the majority of middle age group were enthusiastic and more dynamic in performing various socio-economic activities and in growing commercial potato cultivation. The results are in corroboration of findings of Kharde *et. al*. (2023) [7].

2. Education Level

Table 2: Distribution of respondents based upon Education level

Sl. No.	Category	Respondents	
		Frequency	Percentage
A.	Illiterate	17	5.66
B.	Literate	283	94.34
1.	Can read only	6	2.00
2.	Primary School (upto 5th Standard)	16	5.33
3.	Middle School (6th-7th Standard)	139	46.34
4.	High School (8th-10th Standard)	68	22.66
5.	Higher Secondary (11th-12th Standard)	40	13.34
6.	Graduate / diploma and above	14	4.67
Total		300	100

The Table 2 reveals that the majority of the respondents 94.34 percent were literate and 5.66 percent were illiterate. The findings were 46.34 percent of the potato growers had middle level of school education followed by high school (22.66%), higher secondary, (13.34%), primary school (5.33%), Graduate/diploma and above (4.67%) and (2.00%) of the respondents can read only. The presence of the schools in nearby localities and government initiatives to promote basic education have clearly had an impact, allowing many to complete at least primary or middle school levels might be the reason. However, the number of illiterate farmers reminds us of the challenges rural communities still face. Many respondents probably had to prioritize work and helping the family farm over school when they were young. The smaller percentages of more highly educated farmers suggest that while some were bringing advanced knowledge to the fields, traditional farming methods still hold strong in the community. These findings align with Shivam *et. al*. (2017) [17] who revealed the same trend in the education level of potato growers.

3. Family Type

Table 3: Distribution of respondents based upon Family Type

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Nuclear Family type	184	61.33
2.	Joint Family type	116	38.67
Total		300	100

The Table 3 shows that nuclear families were more in number than joint families. In terms of percent 61.33 percent respondents belonged to nuclear families, while, remaining (38.67%) belonged to joint families. The similar findings were also reported by Kumar *et. al.* (2024) [10].

4. Potato Farming Experience

Table 4: Distribution of respondents based upon Potato Farming Experience

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Short Term Potato Farming Experience (Upto 10 years)	66	22.00
2.	Medium Term Potato Farming Experience (11 to 27 years)	178	59.33
3.	Long Term Potato Farming Experience (28 years and above)	56	18.67
Total		300	100

Mean = 18.33, S.D. = 8.50

From the Table 4 it was found that the 59.33 percent of the potato growers had medium term potato farming experience followed by short term potato farming experience (22.00%) and long term potato farming experience (18.67%). However, more than half of the farmers belong to medium term potato farming experience. The probable reason might be that experience is directly associated with age of the farmers, old aged farmers have more farming experience than young aged farmers. Thus, it helps to an individual to think better way and makes a person more mature to take right decision. The results were in conformity with the findings of Patel AS *et. al.* (2023) [13].

5. Occupational Status

Table 5: Distribution of respondents based upon Occupational Status

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Only Cultivation	210	70.00
2.	Cultivation + Skilled Labour	20	6.66
3.	Cultivation + Business	63	21.00
4.	Cultivation + Service	7	2.34
Total		300	100

From the results in the Table 5 it can be observed that 70.00 percent of respondents have found their occupation in only cultivation followed by cultivation + business (21.00%), cultivation + skilled labour (6.66%) and cultivation + Service (2.34%). The probable reason for this high concentration in farming suggests that cultivation remains the most viable and accessible livelihood for most respondents. The minimal engagement in farming combined with service reflects limited diversification due to possibly insufficient time and access to information. The above findings were in line with the findings of Khuvung *et al.* (2022) [8] and Swaroop *et al.* (2024) [18].

6. Land Holding

Table 6: Distribution of respondents based upon Land Holding

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Marginal Farmers (Less than 1 ha)	116	38.66
2.	Small Farmers (1 to 2 ha)	76	25.34
3.	Semi – medium farmers (2 to 4 ha)	51	17.00
4.	Medium Farmers (4 to 10 ha)	48	16.00
5.	Large Farmers (Above 10 ha)	9	3.00
Total		300	100

The Table 6 shows that 38.66 percent of respondents were having less than 1 ha of land who belonged to marginal farmers category. Respondents belonged to small and semi-medium categories were (25.34%) and (17.00%) respectively. Data also shows that (16.00%) respondents were having medium farmers and only (3.00%) of respondents were having large land holding farmers. Therefore, it may be said that the small and marginal farmers were mostly there in the study area. It might be due to fragmentation of the family. The similar findings were also reported by Kumar *et. al.* (2024) [10].

7. Area under Potato Cultivation

Table 7: Distribution of respondents based upon Area under Potato Cultivation

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Less (Up to 0.80 ha)	169	56.34
2.	Medium (0.81 to 2.40 ha)	54	18.00
3.	More (Above 2.40 ha)	77	25.66
Total		300	100

Mean = 1.57, S.D. = 0.79

The data in Table 7 revealed that over 56.34 per cent of respondents had less area for potato crop followed by more area i.e. above 2.40 ha with (25.66%) and medium area ranges between (0.81 to 2.40 ha) with only (18.00%) respectively. Thus, it may be said that small and medium farmers are more than others in the study area.

8. Annual Income from Potato

Table 8: Distribution of respondents based upon Annual Income from Potato

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Low Annual Income (Up to Rs. 80892)	95	31.66
2.	Medium Annual Income (Rs.80893–173542)	49	16.34
3.	High Annual Income (Above Rs.173542)	156	52.00
Total		300	100

Mean = 127217, S.D. = 46325

It was operationally defined as the total income the respondent farmer earned from commercial potato production. The results in the Table 8 revealed that, 52.00 percent of the potato farmers belonged to the high income category followed by low (31.66%) and medium (16.34%). The observed income distribution among potato growers can be attributed to several factors. Firstly, potato was considered as a commercial cash crop and fetches a good price. Additionally, most of the farmers having medium to high potato farming experience. These combined factors contribute to a stable income to the potato growers, enabling a significant portion of farmers to achieve a high-income status.

9. Social Participation

Table 9: Distribution of respondents based upon Social Participation

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Member of one Organization	256	85.33
2.	Member of more than one Organization	33	11.00
3.	Office bearer of one Organization	10	3.34
4.	Office bearer of more than one Organization	1	0.33
Total		300	100

The data in Table 9 reveals that majority of the respondents 85.33 percent were member of one organization, followed by (11.00%) respondents having membership with more than one organization. About (3.34%) respondents were under office bearer of one organization category and (0.33%) respondents were under office bearer of more than one organizations. The organizations/ institutions which respondents belonged to as members included NGOs, SHGs, members of the religious organizations, Farmers co-operative societies, village panchayats, etc. The above findings were in line with the findings of Barman M. (2021) [2].

10. Scientific Orientation

Table 10: Distribution of respondents based upon Scientific Orientation

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Low Scientific Orientation (6 to 24)	41	13.67
2.	Medium Scientific Orientation (25 to 33)	209	69.66
3.	High Scientific Orientation (34 to 42)	50	16.67
Total		300	100

Mean = 28.92, S.D. = 4.43

The Table 10 reveals that the majority of the respondents 69.66 percent had medium level of scientific orientation followed by (16.67%) respondents with high level of scientific orientation and (13.67%) respondents with low level of scientific orientation. In the study area, KVK, Research station, ATMA, various NGOs and FPO are working. Therefore, potato growers had more chances to contact extension personnel to obtain information regarding potato. This might be the reason for this finding. The results were in conformity with the findings of Patel AS *et. al.* (2023) [13].

11. Risk Orientation

Table 11: Distribution of respondents based upon Risk Orientation

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Low Risk Orientation (6 to 18)	53	17.67
2.	Medium Risk Orientation (19 to 33)	203	67.66
3.	High Risk Orientation (34 to 42)	44	14.67
Total		300	100

Mean = 25.69, S.D. = 7.23

It was operationally defined as the degree to which the respondent was willing to accept risk and uncertainties and face the problems regarding the commercial potato cultivation with courage. An overview of findings in the Table 11 revealed that, majority of the respondents 67.66 percent respondents take medium risk followed by low risk orientation (17.67%) and (14.67%) respondents belongs to high risk orientation category. The prevalence of high and medium risk orientations among respondents might be due to majority of the respondents being in the middle-age category, which often correlates with a greater propensity for moderate to high risk-taking behaviors. These findings were in accordance with the findings of Devi (2019) [5] and Bhavani *et al*. (2023) [3].

12. Economic Motivation

Table 12: Distribution of respondents based upon Economic Motivation

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Low Economic Motivation (6 to 18)	58	19.33
2.	Medium Economic Motivation (19 to 32)	193	64.33
3.	High Economic Motivation (33 to 42)	49	16.34
Total		300	100

Mean = 25.10, S.D. = 7.32

According to Table 12 reveals that 64.33 percent majority of the respondent falls under medium level of economic motivation followed by (19.33%) respondents with low level of economic motivation and 16.34 percent respondents with high level of economic motivation. Overall more than 80.00% of the respondents have a good level of economic motivation this is might be due to majority of the potato growers were having high level of annual income from the potato cultivation which helps them to maintain a good level of economic motivation. Similar findings are reported by Shivam (2017) [17] and Chaudhary KV (2024) [4].

13. Degree of Information Exposure

Table 13: Distribution of respondents based upon Degree of Information Exposure

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	Low Information Exposure (0 to 12)	73	24.33
2.	Medium Information Exposure (13 to 20)	165	55.00
3.	High Information Exposure (21 to 26)	62	20.67

Mean = 16.29, S.D. = 4.29

It was operationally defined as the degree of information exposure from which the respondent were getting information to enhance their knowledge and advance practices regarding the commercial potato cultivation. An overview of findings in the Table 13 revealed that, 55.00 percent majority of the respondent falls under medium level of degree of information exposure followed by (24.33%) respondents with low level of degree of information exposure and (20.67%) percent of respondents with high level of information exposure. Similar results reported by Reddy (2021) [15] and Patil (2023) [14].

14. Exposure to Training

Table 14: Distribution of respondents based upon Exposure to Training

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	No Training	155	51.67
2.	1 day Training	35	11.66
3.	2 days Training	17	5.67
4.	3 days Training and Above	93	31.00

The data in Table 14 reveals that the respondents were classified based on their frequency level on each category of training exposure *viz*., No training, 1-day training, 2- day training and 3-day training and above. Majority 51.67 percent of the respondents had not attended any training programmes due to poor communication facility and farmers have very low eagerness to attend the training programmes, followed by 31.00% of the respondents attended 3-days training and above; 11.66% of the respondents attended 1-day training and only 5.67% of the respondents attended 2-day of training. In the study area most the respondents were having a good knowledge on commercial potato production it is due to their presence of peer group and progressive members of the FPCs who have attended several trainings on potato crop.

15. Adoption of improved potato production technologies

Table 15: Distribution of respondents based upon Adoption of improved potato production technology

Sl. No.	Category	Respondents	
		Frequency	Percentage
1.	No Adoption (0 to 11)	50	16.67
2.	Partial Adoption (12 to 19)	192	64.00
3.	Full Adoption (20 to 26)	58	19.33

Mean = 15.45, S.D. = 3.77

The Table 15 shows that the majority of the respondents 64.00 percent had partial level of adoption followed by 19.33% respondents with full adoption level and 16.67 per cent respondents were found with no adoption. These adoption practices are aligned with the package and practices of potato crop and from the above table it was observed that more than 80% of the members have tried to adopt most of the practices and followed them which results in majority of the respondents have high income from potato cultivation. These findings were in accordance with the findings of Chaudhary KV (2024) [4].

16. Knowledge on Potato Production Practices

Table 16: Distribution of respondents based upon Knowledge on Potato Production Practices

Sl. No.	Category	Respondents	
		Frequency	Percentage
16.	Low Level of Knowledge (0 to 21)	44	14.66
	Medium Level of Knowledge (22 to 32)	214	71.34
	High Level of Knowledge (33 to 39)	42	14.00

Mean = 26.68, S.D. = 5.20

The Table 16 shows that the majority of the respondents 71.34 percent had medium level of knowledge followed by 14.66% respondents with low level of knowledge and 14.00% respondents were found with high level of Knowledge. Respondents have gained the knowledge through potato farming experiences, majority of the members have experienced more than 10 years of commercial potato cultivation. Similar findings are reported by Chaudhary KV (2024) [4].

4. Conclusion

The study revealed prevalence of diverse profile characteristics among the members of Farmer Producer Company with reference to potato production in Assam, emphasizing several key insights. The majority of farmers belonged to the middle-aged category, possessed middle school level of education, nuclear family type, medium level of potato farming experience with marginal and small land holdings. Agriculture remains to be the primary occupation, with most potato farmers falling into the high income category. Despite a predominance of low training exposure, the majority respondents exhibited medium level of scientific orientation, risk orientation and economic orientation fostering a positive attitude towards new ideas, practices and varieties. Farmers typically seek information through accessible and trusted sources, exhibited medium level degree of information exposure and maintained majority of the respondents having membership of only one organization as a social participation. Since, the majority of the farmers of the study area showed partial level of adoption of potato production technologies and medium level of knowledge on potato production practices, with proper training and guidance there is a probability to boost their crop production. The findings also underscore the need for targeted policy interventions to enhance educational opportunities, improve training activities in the study area and facilitate greater social participation by motivating farmers to participate in extension activities will enhance potato production and economic returns to the farmers.

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