



An Assessment of Socio-Personal and Landholding Characteristics of Millet Farmers in Varanasi District of Uttar Pradesh

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ABSTRACT

Millets are climate-resilient, nutrient-rich cereal crops that play a significant role in ensuring food and nutritional security, particularly in resource-constrained regions. Despite increasing policy attention toward millet promotion in India, understanding the socio-economic profile of millet growers remains essential for designing effective interventions. The present study was conducted in Varanasi district of Uttar Pradesh to examine the socio-personal and farm-related characteristics of millet-growing farmers. Four blocks, namely Kashi Vidyapeeth, Baragaon, Cholaipur, and Arajilina, were selected randomly, and 120 millet farmers were identified through snowball sampling and selected randomly for the study. Data were collected through a structured interview schedule and analyzed using descriptive statistics such as frequency and percentage. The findings revealed that a majority of the respondents (45.0%) belonged to the older age group (>50 years), while males constituted 87.5 percent of the sample. In terms of education, 36.7 percent had completed secondary education, followed by 29.2 percent graduates, indicating a relatively educated farming community. Most respondents (65.0%) possessed medium farming experience (8–42 years). Regarding landholding, 64.17 percent were marginal farmers and 25.83 percent were small farmers, reflecting the predominance of small-scale agriculture in the study area. Furthermore, 75.0 percent of the respondents cultivated millets on medium-sized plots (0.02–0.30 ha), indicating that millet cultivation is primarily practiced on limited land resources. The study highlights the need for policies promoting youth participation, women's involvement, and enhanced support for marginal farmers to strengthen millet-based farming systems and ensure sustainable agricultural development. The findings provide useful insights for policymakers, extension agencies, and researchers engaged in millet promotion and rural livelihood enhancement.

Keywords: Millet Farmers; Socio-economic Profile; Sustainable Agriculture; Landholding; Farming Experience

INTRODUCTION

Millets are a group of small-seeded cereal crops that have been cultivated for thousands of years and have played a vital role in ensuring food and nutritional security, particularly in arid and semi-arid regions of the world. Originating mainly in Africa and Asia, millets are uniquely adapted to harsh agro-climatic conditions such as low rainfall, high temperatures, and poor soil fertility. Their resilience to drought and climate variability makes them highly suitable for sustainable agriculture, especially in the context of increasing climate change-induced stresses.

Owing to these characteristics, millets have historically served as staple foods for marginal and resource-poor farming communities.

Taxonomically, millets belong to the family *Poaceae* and the subfamily *Panicoideae*. Major cultivated millets include pearl millet (*Pennisetum glaucum*), finger millet (*Eleusine coracana*), proso millet (*Panicum miliaceum*), foxtail millet (*Setaria italica*), and barnyard millet (*Echinochloa utilis*). Nutritionally, millets are superior to many major cereals as they are rich in dietary fiber, proteins, complex carbohydrates, essential minerals such as iron and

magnesium, and B-complex vitamins. Being naturally gluten-free, millets are especially beneficial for individuals suffering from celiac disease and gluten intolerance. In addition to their nutritional benefits, millets have long been used in traditional medicine, and several studies have documented their antioxidant, anti-inflammatory, and anti-diabetic properties.

Globally, millet cultivation is concentrated mainly in developing countries, particularly in Asia and Africa. According to Food and Agriculture Organization, countries such as India, Nigeria, China, and Niger are the leading producers of millets. India emerged as the largest millet-producing country in 2019, contributing more than half of the global production. Although millets are largely consumed in the regions where they are produced, there has been a growing international demand, especially in developed countries, where they are promoted as health foods and gluten-free alternatives to wheat. Despite relatively lower trade volumes compared to rice and wheat, global millet exports have shown a steady increase in recent years.

In India, millets have traditionally been an integral part of the food system, particularly in semi-arid and tribal regions. However, their cultivation and consumption declined over the decades due to policy emphasis on rice and wheat and changing dietary preferences. Nevertheless, data from the National Sample Survey Office indicate that millets remained a primary food source for a substantial proportion of rural households. Recognizing their importance, the Government of India has launched initiatives such as the National Food Security Mission and the National Millet Development Programme to promote millet cultivation and consumption. In this backdrop, understanding farmers’ perspectives, practices, and constraints related to millet cultivation becomes crucial for strengthening millet-based sustainable agriculture and enhancing rural livelihoods.

Research

METHODOLOGY

The present study was conducted in the state of Uttar Pradesh, which was selected purposively due to its significant role in millet cultivation and its relevance to the objectives of the research. The selection was further justified by the researcher’s affiliation with Banaras Hindu University, Uttar Pradesh, which facilitated access to local resources, institutional support, and nearby farming communities, thereby ensuring efficient and context-specific data collection. Among the 75 districts of Uttar Pradesh, Varanasi district was purposively selected owing to the researcher’s familiarity with the area and the convenience it offered for systematic data collection, as approved by the research committee. Varanasi district consists of eight blocks, out of which four blocks—Kashi Vidyapeeth, Baragaon, Chalapur, and Arajiline—were selected randomly. Based on consultations with local stakeholders, community leaders, and Krishi Vigyan Kendra (KVK) officials, fifteen gram panchayat-cum-villages were purposively selected where millet cultivation was practiced. These villages included Jamunipur, Khajuri, Marui, Puran Patti, Payagpur, Rajatalab, Todarpur, Kaniyar, Bela, Parana Patti, Khannao, Madhopur, Nuwao, Ramana, and Tikari. The inclusion of multiple villages enabled comparative analysis across locations. To select respondents, the snowball sampling technique was employed to identify millet-growing farmers, ensuring the inclusion of relevant and information-rich respondents for the study. 120 respondents were selected randomly from the villages.

RESULTS AND DISCUSSIONS

This part will provide us with information on the social and personal traits of the farmers in the study region. A thorough analysis of several factors was conducted below, based on the survey data. Table displays information regarding the ages of the respondents, measured in years and classified into three segments: youth (below 35 years), middle-aged (between 36 and 50 years), and elderly (over 50 years).

Table 4.1. Distribution of Respondents according to Age (n=120)

S.No.	Category of respondents based on their Age	Frequency	Percent
1	Young (18–35 Yrs.)	30	25
2	Middle (36–50 Yrs.)	36	30
3	Old (Above 50 Yrs.)	54	45
	Total	120	100

Based on the findings, the most common group is "Old (Above 50 Yrs.)" with 45% of the responses, indicating a

considerable proportion of senior people in the sample. The "Middle (36-50 Yrs.)" group comes in second at 30%,

suggesting that middle-aged respondents make up a sizable portion of the sample. Last but not least, the smallest section, comprising 25% of respondents, is "Young (18-35 Yrs.)", which indicates a smaller but significant share of the sample that consists of younger people. These results might have historical roots in the migration of younger people to

surrounding cities for higher education, leaving older and middle-aged populations behind in the villages where their livelihoods depended on agriculture and related industries. Gender This pertains to the biological distinctions among the respondents. The frequency and proportion of male and female respondents have been computed and presented in the table below.

Table 4.2. Distribution of respondents according to Gender (n=120)

S. No.	Category of respondents based on Gender	Frequency	Percent
1	Male	105	87.5
2	Female	15	12.5
	Total	120	100

Table 4.2 presents data on the distribution of respondents based on gender. It reveals a substantial gender imbalance in the sample, with males comprising the majority at 87.5%, while females make up a significantly smaller portion at just 12.5%. This could be explained by the historical trend of males owning farm holdings instead of women. Women have typically been thought of as agricultural workers rather than as actual farmers.

EDUCATION

Education is crucial for success in today's society. It was important since it was used to solve the majority of problems in life. Knowledge gained via education opened up a world of possibilities for a better life. Table 4.3 shows the results of the respondents' educational backgrounds. According to their educational attainment, the respondents were divided into six categories. We computed the frequency and percentage.

Table 4.3. Distribution of respondents according to Education (n=120)

S. No.	Category of respondents based on their Education	Frequency	Percent
1	Illiterate	6	5.0
2	Preparatory (Class 1-5)	14	11.7
3	Middle (Class 6-8)	10	8.3
4	Secondary (Class 9-12)	44	36.7
5	Graduation	35	29.2
6	Post Graduation	11	9.2
	Total	120	100

The information shows the respondents' varied educational backgrounds. Of the respondents, the greatest percentage, or 36.7%, falls into the "Secondary (Class 9-12)" group, indicating a sizable majority that has finished secondary school. The "Graduation" category, at 29.2%, comes in second, suggesting a significant proportion of people with college degrees. With 11.7% of the total, the "Preparatory (Class 1-5)" category follows, comprising a substantial portion of the primary school population. The minority of people who have continued their education after completing their undergraduate degrees is represented by the "Post Graduation" group, which has the second lowest

number (9.2%). Finally, the proportion of "Illiterate" respondents in the sample is 5.0%, suggesting a lesser but still significant presence of those without a formal education. A large number of farmers are well educated. The proximity of the city may be the main cause of this.

FARMING EXPERIENCE

The findings about the respondents' agricultural experience are shown in Table 4.4. According to this data, the respondents' years of agricultural experience were evaluated and divided into three groups: low (less than 8 years), medium (8-42 years), and high (more than 42

years).

Table 4.4. Distribution of Respondents according to Farming Experience (n=120)

S. No.	Category of respondents based on Farming Experience	Frequency	Percent
1	High (> 42 years)	25	20.83
2	Medium (Between 8 to 42 years)	78	65.0
3	Low (< 8 years)	12	14.17
	Total	120	100

Based on their prior agricultural experience, the respondents' distribution is shown in the statistics. Significantly, 65.0% of responders fit into the "Medium (Between 8 to 42 years)" group, suggesting that there are a substantial number of people with a decent amount of agricultural experience. A smaller but considerable group with extensive agricultural experience surpassing 42 years makes up the 20.83% of the "High (> 42 years)" category.

On the other hand, just a tiny percentage of people—14.17%—fit into the "Low (8 years) Farm Size Farmers' landholdings were divided into five groups based on how the Indian government defined land: landless, marginal (< 1 ha), small (1–2 ha), semi-medium (2–4 ha), medium (4–10 ha), and large (> 10 ha). The proportion and frequency were computed.

Table 4.5. Distribution of respondents according to Land Holding (n=120)

S. No.	Category of respondents based on Land Holding	Frequency	Percent
1	Marginal Farmer	77	64.17
2	Small Farmer	31	25.83
3	Semi-medium Farmer	10	8.33
4	Medium Farmer	02	1.67
5	Large Farmer	00	0.00
	Total	120	100

Table 4.5 displays the distribution of respondents based on landholding categories. "Marginal Farmers" comprise the majority at 64.17%, followed by "Small Farmers" at 25.83%, and "Semi-medium Farmers" at 8.33%. Notably, there are no respondents categorized as "Large Farmers," while "Medium Farmers" represent a smaller percentage (1.67%), illustrating diverse landholding profiles within the sample. The explanation for this might be the generational division

of land holdings and the fact that most farmers did not own big agricultural holdings. Farm Land Used for Millet Cultivation The data categorizes respondents based on the amount of farm land they use for millet cultivation into three groups: "High (land > 0.3 ha)" for those with larger plots, "Medium (land between 0.02 ha to 0.3 ha)" for individuals with moderate-sized plots, and "Low (land < 0.02 ha)" for those with smaller millet cultivation areas

Table 4.6. Distribution of respondents according to size of farm land used for cultivation of millets (n=120)

S. No.	Category of respondents based on Farm Land Used for Millet Cultivation	Frequency	Percent
1	High (land > 0.3 ha)	24	20
2	Medium (land between 0.02 ha to 0.3 ha)	90	75
3	Low (land < 0.02 ha)	6	5
	Total	120	100

Table 4.6 categorizes respondents based on the land they use for millet cultivation. The most significant group, at 75%, comprises individuals with moderate-sized millet cultivation plots, falling into the "Medium (land between 0.02 ha to 0.3 ha)" category. Meanwhile, 20% are in the "High (land > 0.3 ha)" category, indicating a smaller but still notable presence of respondents with larger millet cultivation areas. The "Low (land < 0.02 ha)" category, at 5%, represents a relatively minor portion with smaller millet cultivation plots.

CONCLUSION

The study provides a comprehensive understanding of the socio-personal and farm-related characteristics of farmers in the study region. The findings reveal a dominance of older and middle-aged farmers, indicating limited participation of youth in agriculture, possibly due to migration for education and alternative livelihoods. A pronounced gender imbalance highlights the continued male dominance in land ownership and decision-making, while women largely remain confined to labour roles. Educational attainment among respondents is relatively encouraging, with a substantial proportion having secondary and higher education, which can positively influence technology adoption and informed decision-making. Most farmers possess medium to high farming experience, reflecting strong traditional knowledge and long-term engagement in agriculture. The predominance of marginal and small landholdings underscores structural constraints such as land fragmentation. Additionally, millet cultivation is largely practiced on small to medium land areas, suggesting its role as a supplementary or risk-mitigating crop. Overall, the results emphasize the need for targeted interventions focusing on youth inclusion, women empowerment, and support for smallholders to enhance sustainable agricultural development.

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