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A study on socio-economic status and buying behaviour of hybrid maize farmers using Nuziveedu seeds

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Abstract

Agriculture continues to serve as a major pillar of India's economy, especially in rural areas where farming supports employment, income generation and food security. Among the various cereal crops, maize has gained increasing importance because of its adaptability, higher yield potential and wide applications in food processing, livestock feed and industrial production. The present research focuses on analysing the socio-economic characteristics and behavioural patterns of hybrid maize farmers with special reference to Nuziveedu Seeds Ltd. in Sri Sathya Sai District of Andhra Pradesh. The study is based on primary information collected from 120 farmers using a structured interview schedule. Various statistical techniques, including percentage analysis, mean, median, mode, variance and standard deviation, were employed to interpret the collected data.

The study findings indicate that the largest share of respondents belongs to the 31–40 years age category, showing strong involvement of economically active farmers in maize cultivation. A majority of the farmers fall under small and medium landholding groups, highlighting the prevalence of small-scale farming in the region. Educational analysis reveals that most respondents possess only basic or secondary-level education, while comparatively fewer farmers have higher educational qualifications. The study also shows that many respondents have considerable farming experience and cultivate maize on limited land areas. Income distribution analysis demonstrates that most farmers belong to lower and middle-income groups, although variations in earnings are evident across the sample. Regarding financial practices, farmers mainly rely on their own savings and informal borrowing sources such as moneylenders, whereas dependence on institutional credit sources remains relatively low.

Keywords: Hybrid maize use, Farmer behavior, buying decisions, social-influence, extension services, sustainable agriculture, marketing, production practices, uncertainties, higher yields, opportunities, adaptability, policymakers, seed varieties, decision making, respondents

Introduction

Agriculture remains a crucial sector in India's economic structure, particularly in rural regions where it serves as the primary source of employment and livelihood. A significant portion of the population depends on farming and related activities for sustaining income and maintaining food security. Over the years, the agricultural sector has experienced major changes through the introduction of improved technologies, high-yielding seed varieties and advanced cultivation methods, especially in commercially important crops like maize.

Maize has become one of the leading cereal crops in India because of its ability to grow under diverse climatic conditions and its extensive applications in human consumption, animal feed and industrial manufacturing. The rising demand from poultry industries, starch processing units and food processing sectors has encouraged farmers to expand maize cultivation. Andhra Pradesh has emerged as a major maize-producing state where the adoption of hybrid seed technology has increased significantly, helping farmers achieve better yields and higher economic returns.

Private seed companies have played an important role in encouraging the use of hybrid maize seeds among farmers. In this regard, Nuziveedu Seeds Ltd. has gained recognition for supplying hybrid maize seed varieties suitable for local farming conditions. Farmers' decisions regarding the adoption of hybrid seeds are shaped by various socio-economic aspects, including age, educational background, size of landholding, farming experience, income level and availability of credit support.

A detailed understanding of the socio-economic conditions of farmers is essential for analysing their cultivation practices, purchasing decisions and challenges associated with hybrid maize farming. Therefore, the present study attempts to examine the socio-economic profile of maize growers in Sri Sathya Sai District of Andhra Pradesh with special reference to Nuziveedu Seeds. The research seeks to understand demographic characteristics, farming experience, income distribution, operational landholding and financial behaviour of farmers. The findings of the study are expected to contribute to the formulation of effective agricultural policies and strategies aimed at

improving maize productivity and farmer welfare.

According to a study on the determinants influencing seed purchasing preferences in rural Gujarat, key socio-demographic traits of farmers, including age, operational landholding and agricultural Their decision to buy would be influenced by their income, location and level of education. Other important criteria that farmers in Gujarat's rural areas considered when making purchases were brand loyalty, relationships with suppliers, timely supply, proximity to the point of purchase, loan availability, cost consideration, high-quality seed material and the availability of technical assistance. (Patel *et al.* 2018) ^[9].

They have studied the factors influencing seed purchase decisions in rural areas of Gujarat. They found that age, landholding pattern, agricultural income, region and educational qualification were statically significant under the MANOVA test. (Patel and Chavda 2017) ^[8].

They studied on farmer purchasing behaviour. Farmers in middle Gujarat bought cotton seed from either a single supplier or a combination of sources. Seed traders were the main source of cotton seed purchases. When buying cotton seed, cotton growers favoured local suppliers or those within a 20-kilometre radius. Cotton growers were also influenced by timely availability, price comparison with other sources, the number of visits required to complete the transaction and the source's proximity to the farm. (Shankar *et al.* 2016) ^[11].

They study on farmers' cotton seed purchasing habits in northern Karnataka showed that private dealers dominated the market for cotton seeds in the study region. Almost sixty-two due to the availability, proximity of the stores, high-quality seed material and technical assistance offered by private dealers in the study area, 16 percent of the farmers sourced their seeds from cooperatives, while KSDA accounted for 28 percent. (Benakatti *et al.* 2014) ^[2].

An empirical investigation of consumer purchasing was carried out by behaviour with regard to FMCG goods in order to determine the elements influencing customers' decisions to buy the product. The study's conclusions showed that demographic characteristics including age, income, Profession, brand loyalty, retailer trust and retail shop distance impacted purchasing choices. (Katiyar *et al.* 2014) ^[5].

They investigated the preference of consumers for foreign brands over domestic ones. The 100-person sample for this study is drawn from Rawalpindi and Islamabad. It was discovered that if a customer is If he is pleased with a product, he will repurchase it, show loyalty and eventually form a bond with the company. Consumer purchasing decisions are influenced by a number of factors. A key factor in a consumer's brand selection is the brand's pricing. A brand's price is a good indicator of its quality and other factors that affect buyers include family. (Attiya 2011)

They examined Thai consumers' inclinations and purchasing standards for jasmine rice. Factor analysis of consumer purchases four elements emerged from the decision criteria: marketing activities 26.8 percent, quality 13 percent, price 10.5 percent and country of origin 7.7 percent. Customers were divided into three groups based on their preferences and marketing tactics were suggested. (Prisana and Anita 2010)

They compared the milk consumption of consumers in rural

and urban areas. Compared to rural customers, urban shoppers tended to favour branded goods. The most accessibility, quality, door delivery, consistent supply and payment method were important elements influencing purchasing decisions. (Kubendran and Vanniarajan 2005) ^[4].

He studied on purchasing behaviour of customer and found that family members, other consumers and personal experiences had the biggest impact on purchase decisions. The two most important factors influencing purchasing behaviour were the product's quality and accessibility. (Nagaraja 2004) ^[6].

They investigated consumer preferences for milk in Hissar and discovered that milk quality, availability, desired supply quantity, flavour, colour, freshness and payment methods all had a significant impact on consumer satisfaction. (Singh *et al.* 1995) ^[10].

He studied on the marketing and information flow to farmers and found that friends played a major role in providing information for purchase. Advertising and dealers' promotion was found as secondary source of information. About 52 percent of the respondents considered dealers as an influential one. (Goyal 1986) ^[3].

Materials and Methods

Sampling Design

Stratified random sampling design was employed in the present study.

Sampling Procedure

Selection of district

Sri Sathya Sai district in Andhra Pradesh was deliberately chosen for the study to examine farmers' purchasing behaviour related to maize, as the district is recognized for its substantial cultivated area. Among the different crops grown in this region, paddy, maize and cotton were considered, with primary emphasis placed on maize due to its growing significance and extensive adoption by farmers.

Selection of mandals

In the second stage, the sampling process focused on selecting mandals within Andhra Pradesh. Areas with the largest extent of land under maize cultivation were first identified. Based on this, mandals such as Hindupur, Chilamathur, Kadiri and Nambulipulikunta were intentionally chosen, as they have substantial maize-growing areas and provide a suitable basis for examining farmers' behaviour related to maize.

Selection of farmers

Maize growers from the selected mandals were listed and 30 farmers from each mandal were randomly selected for the survey. Thus, a total sample size of 120 farmers was constituted for the study.

Collection of Data

The data pertaining to the present study were obtained through survey method and enquiries were made with the help of pre-tested schedules. The present study was related to the agricultural year 2025-26.

Primary data: The primary data regarding socio-economic

profile of sample farmers, variety of maize seeds and their companies, source of information regarding seeds, factors influencing buying behaviour of farmers towards hybrid seeds and constraints faced by the farmers in purchasing process of seeds were collected using interview schedule.

Tools and Techniques

Descriptive Statistics

Descriptive Statistics is a branch of statistics that deals with collecting, organizing, summarizing and presenting data in a meaningful way. It helps us understand the basic features of a dataset without making predictions or generalizations beyond the data.

1. Measures of Central Tendency

These describe the “center” or typical value.

- Mean (Average) Formula: $\text{Mean} = \frac{\sum x}{N}$
- Median: Middle value after arranging data in order
- Mode: Most frequently occurring value

Example

Data: 3, 5, 7, 7, 9

- Mean = 6.2
- Median = 7
- Mode = 7

2. Measures of Dispersion (Spread)

These show how data values vary.

- Range = Maximum – Minimum
- Variance = Average of squared deviation from mean
- Standard Deviation = $\sqrt{\text{Variance}}$

Low spread = data is close together

High spread = data is widely scattered

Results and Discussion

Age group particulars of sample farmers

Table 1: Age group and their frequency

Age Group	Midpoint (x)	Frequency (f)	Cumulative frequency (cf)
Below 30 years	25	31	31
31–40 years	35	51	82
41–50 years	45	26	108
Above 50 years	55	12	120

Table 1. shows the grouped age distribution of the respondents based on class intervals and their corresponding frequencies. It is observed that the majority of respondents (51) belong to the 31–40 years age group, making it the most dominant category in the sample. The below 30 years group accounts for 31 respondents, indicating a considerable share of younger participants. The 41–50 years age group comprises 26 respondents, representing a moderate level of middle-aged individuals. In contrast, the above 50 years category has the least representation with 12 respondents, showing that older age groups form a relatively small portion of the sample.

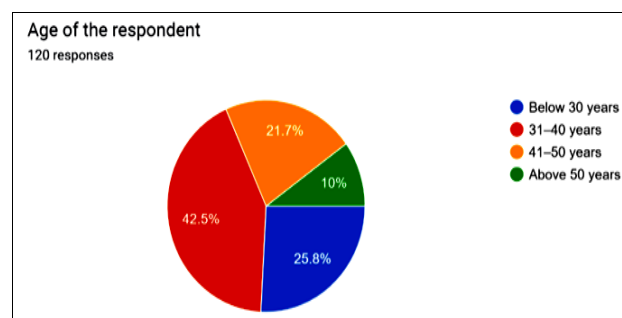


Fig 1: Age group of particulars sample farmers

Figure 4.1.1 illustrates the age-wise distribution of the 120 respondents across four categories. The largest proportion of respondents, (42.5%), falls within the 31–40 years age group, showing that middle-aged individuals form the dominant segment of the sample. This is followed by (25.8%) of respondents who are below 30 years, indicating a significant presence of younger participants. The 41–50 years age group accounts for (21.7%), representing a moderate share of experienced respondents. Overall, the data indicates that the sample is mainly concentrated among young and middle-aged individuals.

Mean Age (Approximate)

$$\bar{x} = \frac{\sum fx}{\sum f}$$

$\sum fx$ = sum of total outcomes

x = midpoint

$\sum f$ = number of observations

f = frequency

$$= \frac{(31 \times 25) + (51 \times 35) + (26 \times 45) + (12 \times 55)}{120}$$

$$= \frac{775 + 1785 + 1170 + 660}{120} = \frac{4390}{120} \approx 36.6 \text{ years}$$

Mean age ≈ 36.6 years

The above calculations present key statistical measures describing the age distribution of respondents. The mean age is approximately 36.6 years, indicating that, on average, respondents fall within the mid-30s age range.

Median Age Group

- Total respondents = 120
- Median position = $120 / 2 = 60$ th value
- From cumulative frequency:
 - Up to 30 years = 31
 - Up to 40 years = 82

The 60th respondent falls in 31–40 years

Median group = 31–40 years

The median age group is 31–40 years, as the 60th respondent lies within this category, showing that half of the respondents are below and half are above this range.

Table 2: Calculation of mean deviation

x	f	(x - $\bar{x}$)	(x - $\bar{x}$) ²	f (x - $\bar{x}$) ²
25	31	-11.6	134.56	4171.36
35	51	-1.6	2.56	130.56
45	26	8.4	70.56	1834.56
55	12	18.4	338.56	4062.72
Total	120	—	—	10199.20

Mode (Most Frequent Group)

- Highest frequency = 51

Mode = 31–40 years

Similarly, the mode is also 31–40 years, as it has the highest frequency, confirming that this is the most common age group among respondents.

X = midpoint

f = frequency

(x - $\bar{x}$) = mean deviation

N = number of outcomes

Variance (σ^2)

$$\sigma^2 = \frac{\sum f(x - \bar{x})^2}{N}$$

$$= \frac{10199.20}{120} \approx 84.99$$

Variance ≈ 85.0

Standard Deviation (σ)

$$\sigma = \sqrt{\sigma^2}$$

$$\sigma = \sqrt{84.99} \approx 9.22$$

Standard Deviation ≈ 9.22 years

Table 2. shows the calculation of variance and standard deviation based on the age distribution of respondents. The

table includes midpoints (x), frequencies (f), deviations from the mean ($x - \bar{x}$), squared deviations and the product $f(x - \bar{x})^2$.

The total of $f(x - \bar{x})^2$ is 10199.20, which is used to compute the variance ($\sigma^2 \approx 85.0$). This indicates the degree to which respondents' ages vary from the mean. The standard deviation ($\sigma \approx 9.22$ years) shows that the ages are moderately spread around the average age.

Overall, the table reveals a moderate variation in age distribution, with most respondents clustered around the mean while still showing some dispersion across different age groups.

Operational land holding of sample farmers

Table 3: Operational land holding of sample farmers

Landholding Category	percentage	Frequency (Count)
Small (Up to 2 hectares)	45.8	55
Medium (2–5 hectares)	37.5	45
Large (Above 5 hectares)	16.7	20
Total	100	120

Table 3. presents the classification of landholding sizes among 120 respondents, grouped into small, medium and large categories. The results show that nearly half of the respondents, 45.8 percent (55 individuals), belong to the small landholding group of up to 2 hectares, indicating that small-scale farming is the most common pattern, often associated with limited resources and subsistence-oriented agriculture. Medium landholders, owning between 2 and 5 hectares, account for 37.5 percent of the sample (45 respondents). This group generally has comparatively better capacity to adopt improved agricultural practices and generate surplus production, although they may still face challenges related to input access and market conditions. Large landholders, with more than 5 hectares of land, represent the smallest proportion at 16.7 percent (20 respondents). However, this category typically enjoys greater access to capital, modern technologies and commercial farming opportunities.

Overall, the findings indicate that 83.3 percent of the respondents are small and medium farmers, highlighting the dominance of small-scale agriculture in the study area.

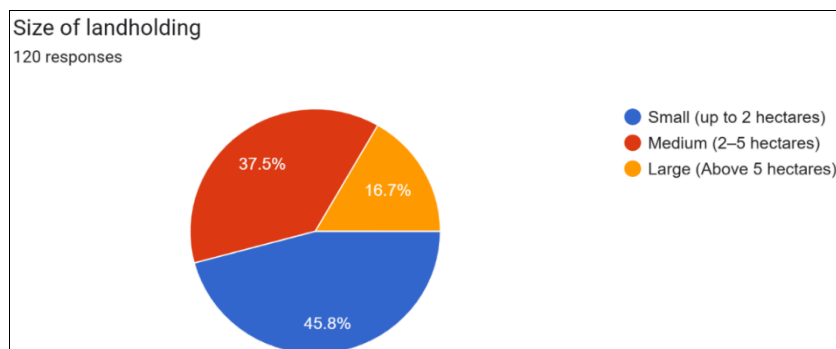


Fig 2: Operational land holding of sample farmers

Figure 2, titled “Size of Landholding,” illustrates the distribution of land ownership among the 120 respondents. The landholdings are categorized into three groups: small (up to 2 hectares), medium (2–5 hectares) and large (above

5 hectares). The analysis shows that the small landholding category forms the largest share, accounting for 45.8 percent of the total respondents. The medium landholding group follows with 37.5 percent, making it the second-largest

category. In contrast, the large landholding group represents the smallest proportion at 16.7 percent. Overall, the findings reveal that a dominant majority of respondents, 83.3 percent in total, fall under the small and medium landholding categories. This indicates that most farmers in the study area operate on limited to moderate land sizes, while only a small fraction manage large agricultural holdings.

Educational Status of the Farmers

Table 4: Educational Status of the Farmers

Education Level	Percentage	Frequency (Count)
Primary school	33.3	40
High school	23.3	28
Illiterate	17.5	21
Intermediate	13.3	16
Graduate & above	12.5	15
Total	100	120

Table 4. presents the educational background of 120 respondents divided into five categories. The data indicates that the largest proportion of respondents, 33.3 percent (40 individuals), have primary-level education, followed by 23.3 percent (28 individuals) who have completed high school. This suggests that a majority of the respondents possess only basic to secondary education. Illiterate respondents account for 17.5 percent (21 individuals), reflecting a significant group without formal schooling. Those with intermediate education constitute 13.3 percent (16 individuals). The smallest category is graduates and above, comprising 12.5 percent (15 individuals), although this group represents the highest level of educational attainment in the sample. Overall, the distribution shows that most respondents fall within lower to moderate education levels, with relatively fewer individuals having higher education qualifications.

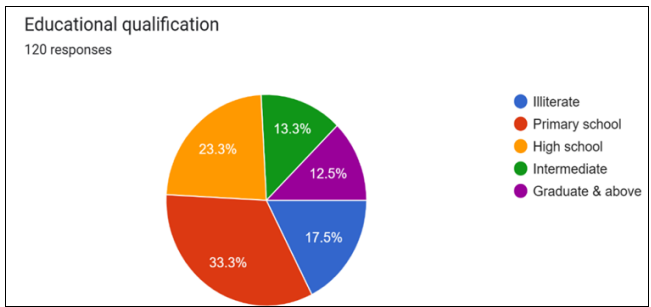


Fig 3: Educational Status of the Farmers

Figure 3, titled “Educational Qualification,” presents the distribution of educational levels among 120 respondents. The data is grouped into five categories, reflecting different levels of academic attainment within the sample. The highest proportion of respondents belongs to the primary education group, accounting for 33.3 percent of the total. This is followed by those who have completed high school, who make up 23.3 percent. Together, these two categories constitute more than half of the surveyed population, indicating that most respondents have only basic or secondary education. The remaining distribution shows that 17.5 percent of

respondents are illiterate. Those who have studied up to the intermediate level represent 13.3 percent of the sample. The smallest share is held by graduates and above, comprising 12.5 percent of the respondents. This indicates that a relatively small portion of the population has attained higher education qualifications.

Area under maize cultivation

Table 5: Area under maize cultivation

Land Area (Acres)	Frequency (Count)	Percentage
2.5 Acres (approx.)	36	30.0
2 Acres(approx.)	32	26.7
3.5 Acres (approx.)	17	14.2
1 Acre (approx.)	16	13.3
4.5 Acres (approx.)	8	6.7
All others (0.8 percent - 1.7 percent each)	11	~9.1
Total	120	100

The data presents the distribution of landholding sizes among 120 respondents, showing a clear predominance of small landholdings. The largest group consists of farmers owning 2.5 acres, accounting for 30.0 percent of the sample, followed closely by those with 2 acres at 26.7 percent. Together, these two categories indicate that more than half of the respondents possess land between 2 and 2.5 acres. Other landholding sizes include 3.5 acres, representing 14.2 percent and 1 acre, comprising 13.3 percent of the respondents, further confirming that most farmers operate on relatively small plots of land. Only a limited share of respondents owns larger holdings, such as 4.5 acres, which accounts for 6.7 percent, while the remaining 9.1 percent fall under other minor variations. Overall, the pattern highlights the dominance of small-scale landholdings in the study area.

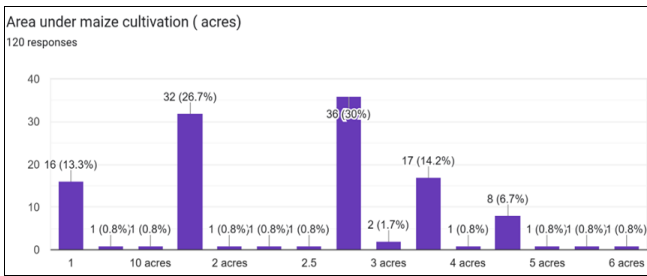


Fig 4: Area under maize cultivation

Figure 4.1.4, titled “Area under Maize Cultivation (Acres),” illustrates how land is allocated for maize farming among 120 respondents. The findings indicate a clear dominance of small-scale cultivation practices. The most common cultivated area is 2.5 acres, representing 30 percent of the respondents (36 individuals). This is followed by farmers cultivating 2 acres, who account for 26.7 percent (32 individuals). Overall, the majority of respondents cultivate maize on land ranging between 1 and 3.5 acres, showing that small farm sizes are the norm in the study area. In comparison, larger cultivation areas are uncommon. Only 6.7 percent of respondents cultivate around 4.5 acres, while very large holdings such as 10 acres appear only as rare cases, contributing less than 1 percent of the total sample.

The distribution is heavily concentrated toward smaller land sizes, indicating a right-skewed pattern where most farmers operate within a similar and limited range of land under maize cultivation.

Farming experience

Table 6: farming experience

Experience Level (Years)	Percentage	Frequency (Count)
Less than 5 years	16.7	20
5–10 years	36.7	44
11–20 years	26.7	32
Above 20 years	20	24
Total	100	120

Table 6. presents the distribution of respondents based on their farming experience among a total of 120 individuals. The results indicate that the largest proportion of respondents, 36.7 percent (44 individuals), fall within the 5–10 years’ experience group, suggesting that most participants are moderately experienced in farming activities. This is followed by 26.7 percent (32 respondents) who have 11–20 years of experience and 20 percent (24 respondents) who possess more than 20 years of experience. Together, these categories reflect a considerable share of respondents with substantial practical knowledge in agriculture.

On the other hand, the least represented group consists of farmers with less than 5 years of experience, accounting for 16.7 percent (20 respondents), indicating a smaller proportion of relatively new entrants into farming. Overall, the data shows that 83.4 percent of respondents have more than five years of experience, highlighting that the sample is largely composed of experienced farmers with strong field-based knowledge.

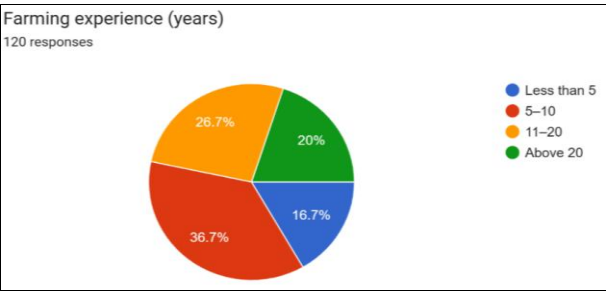


Fig 5: farming experience

Figure 5, titled “Farming Experience (Years),” presents the distribution of respondents based on their years of involvement in farming activities among 120 individuals. The data is divided into four experience categories, reflecting a predominantly experienced farming population. The largest share of respondents, 36.7 percent, falls within the 5–10 years of experience group. This is followed by farmers with 11–20 years of experience, accounting for 26.7 percent and those with more than 20 years of experience, representing 20 percent of the sample. These categories together highlight a strong presence of experienced and long-term farmers. In contrast, the least represented group

consists of respondents with less than 5 years of experience, making up 16.7 percent of the total, indicating a smaller proportion of newcomers in the sector. Overall, the findings show that more than 83 percent of the respondents have over five years of farming experience, suggesting that the sample is largely composed of knowledgeable and well-established farmers.

Annual income of farmers

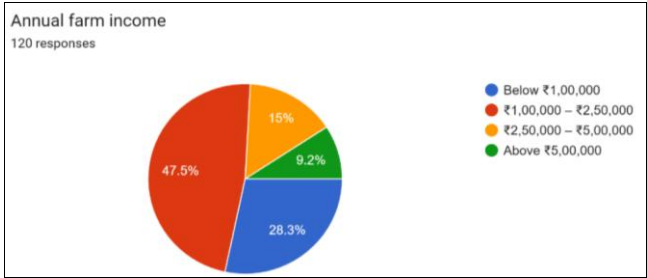


Fig 6: Annual income of farmers

Figure 6, presents the annual farm income distribution of 120 respondents, classified into four income categories. The results indicate that most farmers belong to the lower-income groups. The largest proportion, 47.5 percent (shown in red), earns between ₹1,00,000 and ₹2,50,000 per year. This is followed by 28.3 percent (shown in blue) who earn less than ₹1,00,000 annually. Together, these two categories account for more than three-fourths of the total respondents, indicating that the majority of farmers fall within the lower income range. In comparison, relatively few respondents fall into higher income brackets. About 15 percent (shown in orange) report an annual income between ₹2,50,000 and ₹5,00,000, while only 9.2 percent (shown in green) earn above ₹5,00,000, making it the smallest group.

Overall, the distribution clearly shows that most respondents have modest farm incomes, with only a small fraction achieving higher annual earnings.

Mean (Average Income)

$$\bar{x} = \frac{\sum fx}{N}$$

Table 7: calculation of mean

Group	f	x	f×x
<1L	34	50,000	17,00,000
1–2.5L	57	1,75,000	99,75,000
2.5–5L	18	3,75,000	67,50,000
>5L	11	6,00,000	66,00,000

$$\sum fx=2,50,25,000$$

F = Frequency
x = Midpoint
N= Number

$$\text{Mean} = \frac{2,50,25,000}{120} = ₹2,08,542$$

Median

Table 8: Cumulative Frequency

Group	f	CF
<1L	34	34
1–2.5L	57	91
2.5–5L	18	109
>5L	11	120

Median class = ₹1,00,000 – ₹2,50,000

Median Formula

$$\text{Median} = L + \frac{(N/2 - CF)}{f} \times h$$

- L = lower boundary = 1,00,000
- CF = cumulative frequency = 34
- f = frequency = 57
- h = range = 1,50,000

$$\text{Median} = 1,00,000 + \frac{26}{57} \times 1,50,000$$

$$\text{Median} \approx ₹1,68,421$$

Mode

Modal class = ₹1,00,000 – ₹2,50,000

$$\text{Mode} = L + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times h$$

- L = lower boundary of the modal class = 1,00,000
- f₁ = frequency of modal class = 57
- f₀ = frequency of class before it = 34
- f₂ = frequency of class after = 18
- h = class width = 1,50,000

$$\text{Mode} \approx ₹1,61,842$$

Variance

$$\sigma^2 = \frac{\sum f(x - \bar{x})^2}{N}$$

After full grouped calculation

$$\text{Variance} \approx 1.88 \times 10^{11}$$

Standard Deviation

$$\sigma = \sqrt{\sigma^2}$$

$$\sigma \approx ₹4,33,000$$

The income data of 120 respondents was examined using statistical measures such as mean, median, mode, variance and standard deviation to understand its distribution pattern. The average (mean) income is ₹2,08,542, which represents the overall income level of the sample. The median income is ₹1,68,421, indicating that half of the respondents earn less than this amount while the remaining half earn more. The

mode, or the most frequently occurring income level, is ₹1,61,842, which lies within the ₹1,00,000–₹2,50,000 income group. The comparison of mean, median and mode (Mean > Median > Mode) indicates a positively skewed distribution, suggesting that a smaller number of high-income respondents are pulling the average upward. Regarding variability, the variance is approximately 1.88×10^{11} and the standard deviation is around ₹4,33,000, showing a high degree of spread in income levels across the sample. This reflects substantial differences in earnings among respondents.

Overall, the findings suggest that most farmers fall within lower and middle-income brackets, while only a few belong to higher-income groups, resulting in a skewed and widely dispersed income pattern.

Source of income

Table 9: Source and frequency of income

Source of Credit	Percentage	Frequency (n)
Own savings	46.7	56
Money lenders	29.2	35
Banks	20.0	24
Cooperative societies	3.3	4
Others	0.8	1
Total	100	120

Note: Percentages for Cooperative societies and Others are estimated based on the remaining 4.1 percent visible in the pie chart segments.

Table 9. presents the distribution of respondents based on their sources of credit. The results indicate that the most common source is personal savings, which accounts for 46.7 percent of the total sample (56 respondents), showing a strong reliance on self-financing. The second major source is moneylenders, used by 29.2 percent (35 respondents), reflecting continued dependence on informal credit channels. Banks contribute 20.0 percent (24 respondents), indicating a comparatively lower but still significant role of formal financial institutions. A very small share of respondents depends on cooperative societies, representing 3.3 percent (4 respondents), while only 0.8 percent (1 respondent) rely on other minor sources of credit.

Overall, the findings reveal that farmers primarily depend on personal savings and informal lending sources, whereas formal credit systems such as banks and cooperatives have a relatively limited role in meeting their financial needs.

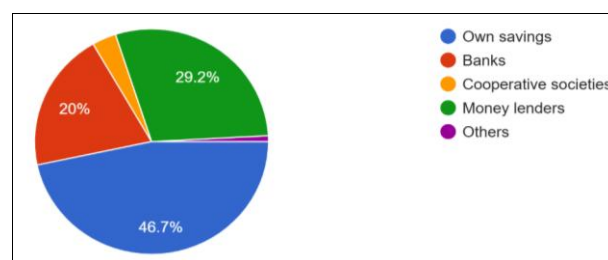


Fig 7: Source of income

Based on the survey of 120 respondents shown in the pie chart, the main source of credit is own savings, which accounts for 46.7 percent of the total sample and represents nearly half of the respondents. Among external borrowing

options, informal lending sources dominate, with moneylenders forming the second-largest share at 29.2 percent. This is followed by banks, which contribute 20 percent of the responses. The distribution highlights that informal credit from moneylenders plays a more significant role than formal banking institutions for the surveyed farmers. In comparison, cooperative societies (orange segment) and other minor sources (purple segment) together make up only a very small portion of the overall responses.

Conclusion

The study reveals that hybrid maize farming in Sri Sathya Sai District is mainly practiced by small and medium-scale farmers who possess moderate agricultural experience and comparatively limited landholdings. A large proportion of the respondents belong to the 31–40 years age category, indicating that economically active farmers are more involved in maize cultivation activities. The educational status of most respondents is confined to primary and secondary levels, showing limited access to higher education among the farming community. The findings also indicate that maize cultivation is generally carried out on smaller areas of land and that most farmers fall within low to middle-income groups.

The analysis further indicates that farmers depend more on their own savings and informal borrowing channels, such as moneylenders, than on institutional credit facilities. Even with financial and resource constraints, the use of hybrid maize seeds has helped farmers improve cultivation methods and generate better income opportunities. The study clearly demonstrates that socio-economic conditions play a major role in shaping farmers' decisions related to the adoption and use of hybrid maize seeds.

In conclusion, the research highlights the importance of strengthening financial assistance, expanding farmer education programmes, improving technical advisory services and ensuring easier access to quality agricultural inputs. Such measures can contribute significantly to increasing maize productivity, improving farm income and supporting the overall development of rural livelihoods in the study area.

Future Research

1. Future research may investigate the long-term effects of hybrid maize cultivation on farm productivity, income generation and overall profitability among farmers.
2. Comparative studies involving different hybrid seed companies could help in understanding farmer preferences, brand perception and satisfaction regarding seed performance and quality.
3. Additional research may focus on evaluating the influence of agricultural extension programmes, mobile applications and digital farming technologies on farmers' decision-making and adoption behaviour.
4. Further studies can explore the key problems encountered by maize growers, particularly in areas such as marketing facilities, access to institutional credit and availability of agricultural inputs.
5. Conducting similar research with a wider sample covering several districts of Andhra Pradesh could provide more comprehensive insights into regional variations in hybrid maize cultivation practices and

farmer behaviour.

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