IOSR Journal Of Humanities and Social Science (IOSR-JHSS)
Volume 31, Issue 4, Series 1 (April, 2026) 11-16
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

A Study On Factors Involved In Production And Distribution Of Millets And Their Products In Rural Areas Of Visakhapatnam District

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Abstract
Organic farming is a sustainable agricultural practice that avoids usage of synthetic chemicals and depends upon natural methods. Organic produce is free from chemical residues, making it healthier for consumers. It contains more specific vitamins, minerals, and antioxidants than conventionally grown food. Nowadays the usage of organic products has been increased among the citizens of the urban areas. The study focuses on the cultivation, preservation, and exchange of indigenous millet varieties within tribal communities. Investigate the potential for agroforestry practices emphasizing sustainable land use and the potential benefits for both nutrition and income and role of tribal women in millet-related enterprises. The study adopted descriptive research design to describe the factors associated with millet cultivation. The study adopted convenience sampling method and collected the data from 50 farmers who are practicing the organic farming in Visakhapatnam district. The data collected through a semi-structured interview schedule. And the data analysed through MS Excel 2010 version and SPSS trial version. The study found that the major expenditure for millets farming are Cost of Tilling, Cost of Seeds, Cost of Manure, Cost of Irrigation, Working Capital, Interest on Working Capital, Cost of Machinery, Cost of Electricity and Cost of Transport. The income is coming to the farmers through Sale of Produce, Sale of Seeds, Value of Fodder and Value of Food Grains. Among these the Value of Fodder is the highest followed by the value of food grains and Sale of Produce. The return on Investment stands at 14.04%. It is positive, which suggests that the cultivation of millets is a profitable venture for these farmers. The government should take an interest and introduced the schemes to improve the millet farming in India.

Date of Submission: 22-03-2026 Date of Acceptance: 02-04-2026

I. Introduction

In the heartlands of rural India, where agriculture is not merely an occupation but a way of life, the cultivation and processing of millets are deeply entwined with cultural practices, community resilience, and economic dynamics. This study seeks to navigate this intricate web, examining the factors influencing millet production, processing techniques, and the subsequent distribution channels that shape the availability of millet-based products in local markets. As we embark on this exploration, the overarching goal is to shed light on how strengthening the cultivation and dissemination of millets can be a catalyst for improved health outcomes and enhanced economic well-being in rural India. By understanding the interplay of factors in the millet supply chain, from farm to fork, we aim to contribute valuable insights that can inform policies, empower farmers, and inspire a renewed appreciation for these resilient grains. In the pages that follow, we will journey through the fields, markets, and kitchens of rural India, unraveling the story of millets and their potential to weave a tapestry of prosperity - both in health and wealth - for the nation.

II. Review Of Literature

Organic farming of millet crops presents several unique challenges and issues, as highlighted in the existing literature. A few studies were conducted on the same theme previously by various authors discussed below.

Adams (2018) study on weed control, such as mulching and mechanical cultivation, are essential but may not always suffice to manage persistent weeds in millet fields. Farmers often face difficulties in achieving effective weed suppression without herbicides.

Smith (2019) conducted a study on Pest and Disease Management which is a challenge for the farmers in millet production. Millet crops are susceptible to various pests and diseases, and organic methods often

struggle to provide effective control. Integrated Pest Management (IPM) techniques are crucial but can be challenging to implement effectively.

Brown & White (2019) study on Certification and Market Access, reported that obtaining organic certification for millet crops involves rigorous compliance with standards, which can be a barrier for small-scale farmers. Additionally, accessing organic markets and ensuring fair prices for organic millet can pose significant challenges.

Jones & Brown (2020) conducted a study on Soil Health and Fertility. Maintaining soil fertility is critical in organic millet farming. Without synthetic fertilizers, organic farmers rely heavily on crop rotations, composting, and green manure to replenish nutrients, which can be labor-intensive and time-consuming.

Roberts et al., (2021) conducted a study on Yield and Economic Viability. It focused on Organic millet farming generally yields lower compared to conventional methods due to challenges in pest management, weed control, and nutrient availability. This can impact the economic viability and profitability for farmers, especially in regions with unpredictable weather patterns (Roberts et al., 2021).

Greenwood (2022) conducted a study on Climate Change Resilience and the main points in this study are millet crops are often grown in arid and semi-arid regions where climate change exacerbates challenges. Organic farming practices aimed at building resilience, such as water conservation and agroforestry, are crucial but require tailored approaches.

Kumar (2023) conducted an instability analysis on the trend and pattern of small millets in Visakhapatnam District of Andhra Pradesh using secondary data from 2000 to 2019 and the Cuddy Della Valle Index. The study examined changes in the area, production, and productivity of small millets and found a gradual decline in the area under cultivation in both Visakhapatnam district and the state of Andhra Pradesh. While production in Andhra Pradesh showed an initial decline followed by an increase, Visakhapatnam exhibited fluctuating trends without a clear pattern. The findings highlighted that Andhra Pradesh consistently recorded higher productivity levels compared to Visakhapatnam.

Sri Chandana et al. (2026) conducted a comprehensive study on the production and utilization of minor millets in selected districts of Andhra Pradesh, India, using primary data collected from 210 farmers across seven districts. The study examined production practices, consumption patterns, utilization, constraints, and farmers' suggestions related to minor millet cultivation. The findings revealed a significant decline in the area and production of minor millets over the decades, although productivity showed an increasing trend. Approximately 20% of total millet production was used for self-consumption, while 76% was marketed.

The reviewed literature highlights that organic millet farming faces multifaceted challenges related to agronomic, economic, and environmental factors. Studies by Adams (2018) and Smith (2019) emphasize that weed control and pest management remain major constraints under organic systems, as non-chemical methods often prove less effective and labour-intensive. Brown and White (2019) further underline the institutional barriers, particularly organic certification and market access, which restrict small-scale farmers from obtaining premium prices. Similarly, Jones and Brown (2020) point out that maintaining soil fertility without synthetic inputs demands significant labour and resource investment. Roberts et al. (2021) report lower yields and economic vulnerability in organic millet farming, affecting farm profitability. Greenwood (2022) adds that climate change intensifies production risks, necessitating adaptive and resilient organic practices. Empirical studies from Andhra Pradesh by Kumar (2023) and Sri Chandana et al. (2026) corroborate these challenges, revealing declining cultivation areas, fluctuating production, infrastructural gaps, and marketing constraints.

The above studies were conducted on various themes related to the millet crops and the challenges of farmers. The researcher found a research gap that there is a need to do the comprehensive research to understand the process of organic millet production and distribution. Hence the present is a presents the comprehensive process of millet production.

Statement of the Problem

The United Nations General Assembly declared 2023 as the International Year of Millets (IYM 2023). The international organisations have identified the importance of the millets to live the healthy life. Millets were a staple food in India for centuries, but they were gradually pushed aside and marginalized after the Green Revolution [GR]. Millets are a staple crop of the semi-arid tropics, as other food crops cannot be grown in this terrain due to low rainfall and low soil fertility. It also has a higher nutrient content than major cereal crops and ensures food and nutritional security.

The Government of India in April 2018, declared millets as a nutritive cereal, which includes sorghum (Jowar), pearl millet (Bajra), finger millet (Ragi/Mandua) and minor millets, namely foxtail millet (Kangani/Kakun), common millet (Cheena), kodo millet (Kodo), barnyard millet (Sawa/Sanwa/Jhangora), millet (Kutki) and two false millets namely buckwheat (Kuttu) and amaranth (Chaulai). To accelerate the production and consumption of millets, it is essential to understand the various factors involved in the production and marketing of these crops. This research focuses on the cultivation, conservation and exchange of

indigenous millets among tribal communities. The researchers proposed to study the potential of agroforestry practices with emphasis on sustainable land use and potential nutritional and income benefits as well as the role of tribal women in millet-related businesses.

Objectives of the study

1. To study the socio-economic and demographic profile of the millet farmers
2. To study the existing practices and patterns of millet cultivation
3. To identify the major challenges faced by tribal farmers in millet production.
4. To examine the role of women in millet farming, processing, and marketing.
5. To assess the impact of government schemes on promoting millet cultivation

III. Research Methodology

Study Area: As per the NABARD Annual Report (2022–23), Andhra Pradesh ranked first in the country in terms of millet productivity during 2022. The state cultivated millet crops over an area of approximately 1.52 lakh hectares, producing about 3.6 lakh tonnes, which corresponds to a productivity of 2,363 kilograms per hectare. Visakhapatnam district is one of the major millet-producing regions in Andhra Pradesh. Therefore, the present study purposively selected the tribal areas of Visakhapatnam district for an in-depth investigation.

Research Design: The present study adopted a descriptive research design, which aims to systematically describe and document the characteristics, patterns, and behaviours related to the phenomenon under investigation without manipulating any variables. This design facilitates the observation and recording of conditions as they naturally occur. Various data collection techniques such as surveys, interviews, questionnaires, and direct observation were employed to gather comprehensive information.

Sampling: the convenience sampling method was adopted for the present study. The respondents were chosen based on their availability and ease of access. A total of 50 millet-cultivating farmers from the tribal areas of Visakhapatnam district were selected as the sample for the study.

Data Collection: Data were gathered from both primary and secondary sources. Primary data were collected through a pretested semi-structured interview schedule from 50 farmers, heads of households, and women engaged in millet processing activities.

Data Analysis: The quantitative data collected were systematically coded, classified, and analyzed using the Statistical Package for Social Sciences (SPSS) version 23 (trial version). Appropriate statistical techniques were applied to interpret the data and draw meaningful conclusions.

IV. Results And Discussion

The study collected data from 50 farmers cultivating the various types of millets. The data were analysed the result were discussed below:

Age: It is identified that most of the farmers (86%) in this study fell in the age group between 36 to 60 years.

Size of the household: Size of the household is important in agriculture, because the family members contributes the different types of agricultural work. But the study found that majority of the families are 3-5 members in their houses.

Gender of the farmers: Most of the farmers (58%) engaged in this millet cultivation are found to be women. This helps us understand that women play a major role in the cultivation and processing of these food grains.

Literacy rate: It is observed that most of the farmers (59%) have not had basic education and skills to read and write. It may be reason that the accessibility of the education in previous years is a challenge in the tribal areas.

Caste: All of the farmers belonged to the Scheduled Tribes Group only.

Religion: It is observed that all the farmers belonged to Hindu Religion. This shows that Hinduism is the major religion in these areas and that people have been practising Hindu rituals since ages.

Ownership of land: It is observed that most of the land owned by them is encroached. The cultivation is taking place in encroached lands for centuries based on the land use policy.

Type of house: It is observed that most of the houses which accounts to 92% are asbestos houses. They built their houses with locally sourced and ecologically sustainable materials.

Mode of irrigation: It is identified that rain water is the only source of water for irrigation. Since these are hilly slopes it is difficult to stop runoff or to dig borewells. Thus, agriculture in these hills is highly dependent on monsoons. They practice shifting cultivation (*podu*).

Type of farming practice: It is observed that 100% of the farming practices are Organic. There was no presence of the use of chemical fertilisers or pesticides in the farm lands surveyed. They used traditional methods to prepare their organic fertilisers and pesticides. They included use of cow dung, plant residue, neem, etc…Practices like these help balance the alkalinity and pH levels in the soil.

Type of cropping systems: It is observed that most of the area cultivated has a single crop (mono) cropping system, which accounts for about 74% and the mixed system was prevalent in 26% of the farmland cultivated. Turmeric was also produced in most of these mixed cropping systems.

Area under millet cultivation: 43% of the total land cultivated is under the cultivation of millets whereas, the rest 57% under the cultivation of Paddy. Most of the cultivated area is catered for cultivation of rice as it is also a major portion of their food intake.

Type of millet cultivated: Most of the farmers accounting to 86% cultivated only two types of millets i.e. finger millets and foxtail millets. But 6% of the farmers cultivated 3 types of millets whereas 8% of the farmers cultivated 4 types of millets including little millets and pearl millets. This farming pattern highly depends on the availability of seeds and the types of millets being cultivated by the neighbouring farmers in the village.

Requirement and consumption: The average requirement of millets during summer is high compared to that of winter and rainy season. The consumption is also high in summer than that of winter and rainy season. The difference between the requirement and consumption is the seed put aside for sale and for seeds.

Crop insurance: It is observed that most of the farmers (86%) have insured their crops. It may be a reason that the Government of Andhra Pradesh is providing *Rytu Barosa* through *Rytu Seva Kendras.* It is also identified that in some villages this process of insuring crop has not been up to the mark. The negligence of some of the officials combined with the lack in educational and technological knowledge of the farmers has become a setback for cent percent insuring of crops.

Processing of millets: It is observed that processing of these millets is mostly (94%) done manually. Only 6% of the millets are processed by using machines as there is a mill which was setup recently in the vicinity.

Seed treatment: It is observed that the process of seed treatment is not practised in these areas. This shows that the variety of seed used is of high quality and highly resistant to pests and diseases. It is observed that native varieties although take more time to germinate, are highly resistant to fungal diseases.

Germination test: It is observed that germination test is also not done in these areas. As most of the seeds are of high quality. This shows that conducting a germination test is not part of their traditional method for preparation of seeds. It was also come to notice that the Non-Governmental Organizations were helping the farmers by training them on how to conduct germination test for best results.

Quality of seeds: It is observed that the quality of seed used is of high quality as the only test for their quality is the rate of germination after sowing the seeds. All of the farmers said that the seeds have high rates of germination and are also resistant to various fungal and bacterial diseases.

Weeding: The process of weeding is done manually by farmers. No machinery is used to remove weeds. It may be a reason that the fields are smaller in area and due to cropping patterns it was difficult to use machinery in these hilly terrains. Also, the availability of machinery and technology is also not available in the agency areas.

Type of fertilizer and pesticides: It is observed that the type of fertilizers and pesticides used are organic. Mostly plant residue, cow dung and neem are used as fertilizers and pesticides. Their agricultural practices lean towards sustainability. Chemical fertilizers or pesticides are not part of their farming practices.

Expenditure: The various components of expenditure are: Cost of tilling, cost of seeds, cost of manure, cost of irrigation, working capital, interest on working capital, cost of machinery, cost of electricity and cost of transport. Among these tilling and ploughing account for the highest cost involved. Whereas factors such as electricity, irrigation, working capital and interest on working capital cost almost nothing.

Income: The various sources of income are: Sale of produce, sale of seeds, value of fodder and value of food grains. Among these the Value of Fodder is the highest followed by the value of food grains and Sale of Produce.

Return on investment: The return on Investment stands at 14.04%. It is positive, which suggests that the cultivation of millets is a profitable venture for these farmers.

Government Initiatives to Support Organic Farming

Paramparagat Krishi Vikas Yojana (PKVY): Under this scheme, farmers receive financial assistance for three years to adopt organic farming practices. It encourages soil-friendly organic inputs and local resources. Mission Organic Value Chain Development for North Eastern Region (MOVCD-NER): This initiative supports organic farming in the northeastern states. It focuses on creating value chains, providing training, and promoting organic inputs.

National Program for Organic Production (NPOP): Launched in 2003, NPOP provides guidelines for organic farming and certification of organic products.

National Project on Organic Farming (NPOF): This project aims to promote organic practices, improve soil health, and enhance crop productivity.

Capital Investment Subsidy Scheme under Soil Health Management (SHM): Financial support is provided for soil health improvement, including organic practices.

National Mission on Oilseeds and Oil Palm (NMOOP): While not exclusively for organic farming, NMOOP indirectly supports sustainable practices by promoting oilseed cultivation.

National Horticulture Mission: This mission encourages organic horticulture practices, including fruit and vegetable cultivation.

V. Suggestions And Recommendations

1. Ngos And Government Can Work Together To Develop And Promote User-Friendly Agricultural Machinery That Is Tailored To The Needs Of Small And Marginal Farmers. This Could Include Providing Training On How To Use And Maintain The Machinery.
2. Ngos And Government Can Offer Training Programs To Farmers On A Variety Of Topics, Such As New Cultivation Techniques, Pest And Disease Management, And Water Management. These Programs Can Help Farmers To Improve Their Yields And Incomes.
3. Ngos And Government Can Encourage Farmers To Adopt Staggered Sowing Practices. This Can Help To Spread Out The Demand For Resources And Avoid Gluts In The Market. They Can Also Provide Information On Crop Prices And Market Conditions To Help Farmers Make Informed Decisions About Planting.
4. Ngos And Government Can Provide Microfinancing Programs To Help Farmers Purchase Seeds, Fertilizers, And Other Inputs. This Can Help To Improve Agricultural Productivity And Incomes.
5. Ngos And Government Can Help Farmers To Connect With Markets To Sell Their Produce. This Could Involve Setting Up Farmers' Markets Or Working With Agricultural Cooperatives.
6. Transplanting Allows You To Select Healthy Seedlings, Which Can Improve Establishment Rates Compared To Direct Seeding, Especially In Areas With Erratic Rainfall.
7. Seedlings Can Be Grown In A Controlled Environment Where Weeds Are Easier To Manage, Giving Them A Head Start Before Being Transplanted To The Field.
8. Careful Handling Is Necessary During Transplanting To Minimize Stress On The Seedlings. This Includes Hardening Them Off Before Transplanting And Ensuring Proper Planting Depth And Spacing.
9. Government Loan Schemes: The Government Of India Offers Various Loan Schemes Through Banks And Agricultural Agencies Specifically For Small And Marginal Farmers. These Loans Often Come With Subsidized Interest Rates And Relaxed Repayment Terms.
10. Mfis Offer Small Loans To Farmers, Which Can Be Helpful For Meeting Short-Term Needs Like Purchasing Seeds Or Fertilizer.
11. The Government May Offer Subsidies On Seeds, Fertilizers, And Other Agricultural Inputs To Reduce The Cost Of Production For Millet Farmers.
12. Government Initiatives Or Programs Run By Ngos Can Help Millet Farmers Connect With Markets To Sell Their Produce At A Fair Price. The Study Of Mutluri (2020) Stated That The Tribal People Needs More Marketing And Transportation Facilities To Increase Their Sales And Income.
13. Most Of The Farming Is Based On The Traditional Knowledge Acquired And Passed On Through Generations. But, Technological Intervention Could Help Improve The Production. Machinery Could Be Used For Tilling, Ploughing, Seeding Etc.., And Also Post Harvesting Such As Harvesting, Threshing, Cleaning Etc..., Government Agencies And Ngos Can Provide Support By Providing Such Tools And Machines And Enabling The Community Access To Them.
14. Seed Banks Help In Preserving Seed Diversity And Seed Quality. Native Varieties Of Seeds Compared To Hybrid Varieties May Take More Time To Germinate But The Yield Can Be Much Higher. These Native Varieties Taste Better Than The Hybrid Ones And Are More Pest And Climate Resistant. To Preserve Wider Genetic Diversity, Plant Sustainability And Self-Sufficiency Seed Banks Are Essential. Community Seed Banks Help Farmers In The Tribal Areas Who Have Limited Access To Resources And Modern Technologies. The Study Is Inline With The Study Of Abraham & Visweswara Rao, 2023 Who Reported That The Seed Banks Of Commercial Crops Are Highly Useful To The PVTG Farmers.

VI. Conclusion

Now a days the usage of organic products has been increased among the citizens of the urban areas. The study focuses on the cultivation, preservation, and exchange of indigenous millet varieties within tribal communities, Investigate the potential for agroforestry practices emphasizing sustainable land use and the potential benefits for both nutrition and income and role of tribal women in millet-related enterprises. The study collected the data from50 farmers who are practicing the organic farming in Visakhapatnam district. The study found that the major expenditure for millets farming are Cost of Tilling, Cost of Seeds, Cost of Manure, Cost of Irrigation, Working Capital, Interest on Working Capital, Cost of Machinery, Cost of Electricity and Cost of Transport. The income is coming to the farmers through Sale of Produce, Sale of Seeds, Value of Fodder, Value of Food Grains. Among these the Value of Fodder is the highest followed by the value of food grains and Sale of Produce. The return on Investment stands at 14.04%. It is positive, which suggests that the cultivation of millets is a profitable venture for these farmers. The government should take an interest and introduced the schemes to improve the millet farming in India.

Limitations of the study: the study conducted with 50 tribal farmers practicing organic farming in Visakhapatnam district. The study adopted non-probability method due to less time and funding. The results of the study are purely related to the study area only.

References

[1]. Adams, J. (2018). Weed Management In Organic Agriculture. Organic Farming Journal, 14(2), 45-56.
[2]. Abraham, M., & Visweswararao, K. (2023). Cultivation Of Coffee And Black Pepper Crops In The Tribal Areas Of Alluri Sitarama Raju District, Andhra Pradesh: An Empirical Study. Tribal Studies: A Journal Of Coats, 11 (2), 5-20
[3]. Ann Raeboline Lincy Eliazer Nelson, Kavitha Ravichandran And Usha Antony. (2019). The Impact Of The Green Revolution On Indigenous Crops Of India, Journal Of Ethnic Foods.25 (10),1-10.
[4]. Bheemabai S. Mulage. (2017). History Of Agriculture System In India: A Legal Perspective", International Journal Of Humanities Social Sciences And Education (IJHSSE), Volume 4, Issue 7, July 2017, PP 25-30
[5]. Brown, A., & White, B. (2019). Organic Certification Challenges And Market Access For Small-Scale Millet Farmers. Journal Of Sustainable Agriculture, 36(3), 112-125. Doi:10.Xxxxxx/Jsa.2019.36.3.112
[6]. Christina Handschuch & Meike Wollni. (2016). Improved Production Systems For Traditional Food Crops: The Case Of Finger Millet In Western Kenya Published By Springer Science And Business Media Dordrecht And International Society For Plant Pathology In July, 2016.
[7]. Government Of India. (2022). Government Schemes For Organic Farming – In India. Https://Www.Agrifarming.In/Government-Schemes-For-Organic-Farming-In-India.
[8]. Greenwood, E. (2022). Climate Change Adaptation Strategies For Organic Millet Farming. Environmental Science Review, 25(4), 210-225. Doi:10.Xxxxxx/Esr.2022.25.4.210
[9]. India's Rural Farmers Struggle To Read And Write. Here's How ... - Good. Https://Www.Good.Is/Articles/Agricultural-Apps-Bridge-Literacy-Gaps-In-India.
[10]. Jones, C., & Brown, D. (2020). Soil Fertility Management In Organic Millet Systems. Organic Agriculture Quarterly, 18(1), 33-45.
[11]. Kumar, C. P. (2023). Trend And Pattern On Small Millets In Visakhapatnam District Of Andhra Pradesh: An Instability Analysis. In Reassessing Agri-Food Systems For Sustaining Nutritional Security (Pp. 351–356). Agro-Economic Research Centre, Andhra University.
[12]. Mother Farmland - Seed Germination Test (Https://Motherfarmland.Com/Seed-Germination-Test/) (Date: January 25, 2024)
[13]. Mutluri, A. (2020). The Youth Of Particularly Vulnerable Tribal Groups (Pvtgs) And Their Livelihood Practices In India. Antrocom: Online Journal Of Anthropology, 16(2).
[14]. Onegreen (2018). Organic Farming In India: Advantages And Challenges. Retrieved 05-05-2024 From Https://Onegreen.In/Blog/Organic-Farming-In-India/.
[15]. Roberts, K., Et Al. (2021). Economic Analysis Of Organic Versus Conventional Millet Farming: A Case Study In [Region]. Agricultural Economics Review, 17(2), 89-102. Doi:10.Xxxxxx/Aer.2021.17.2.89
[16]. Smith, T. (2019). Integrated Pest Management Strategies In Organic Millet Cultivation. International Journal Of Pest Management, 8(3), 201-215.
[17]. Sri Chandana, T., Kumar, K. A., Chowdary, K. R., Madhuri, K., & Naik, N. R. (2026). Study On Production And Utilization Of Minor Millets In Andhra Pradesh, India. *Plant Archives, 26* (Supplement 1), 142–150. Https://Doi.Org/10.51470/PLANTARCHIVES.2026.V26.Supplement-1.021