



# INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact Factor: 6.078

(Volume 10, Issue 5 - V10I5-1226)

Available online at: <https://www.ijariit.com>

## The Economic Impact of Millet Consumption: Exploring Consumer Trends and Market Potential

Adhira Shekar

[adhirashekar@gmail.com](mailto:adhirashekar@gmail.com)

The Shri Ram School Aravali, Gurgaon

Vishal Upadhaya

[vishal.upadhaya@tsrs.org](mailto:vishal.upadhaya@tsrs.org)

The Shri Ram School Aravali, Gurgaon

### ABSTRACT

*The article makes a persuasive case for re-examining millet production's role in India's economy. Historically significant and environmentally resilient, millet presents a promising option for sustainable agriculture in water-scarce regions. Its low input requirements highlight its potential as an economically viable crop. However, despite these benefits, millet has become neglected in the 21st century. Investigating the causes of this decline and exploring ways to revive millet production is essential. The article provides an economic analysis, using secondary data, to elucidate the economic dynamics of millet production. This analysis reveals the challenges and opportunities in reintegrating millet into India's agricultural sector. By understanding millet's economic potential and addressing cultivation and consumption barriers, policymakers can leverage this ancient grain to promote sustainable farming practices and spur economic growth.*

**KEYWORDS:** Cost, Consumption, Millet, Economic Development, Green Revolution, Sustainability

### INTRODUCTION

Millets are a group of small-grained cereal crops renowned for their drought tolerance and ability to thrive in extreme weather conditions. These crops require minimal chemical inputs, such as fertilizers and pesticides. Most millets originate from India and are often referred to as Nutri-cereals due to their rich nutrient content, essential for the human body's normal functioning. Millets are categorized into Major Millets and Minor Millets based on grain size. Pseudo millets, although not part of the Poaceae botanical family like true grains, are nutritionally similar and used in comparable ways.

The Ministry of Agriculture and Farmers Welfare has acknowledged the significance of millets, designating various types—including Sorghum (Jowar), Pearl Millet (Bajra), Finger Millet (Ragi/Mandua), Minor Millets like Foxtail Millet (Kannani/Kakun), Proso Millet (Cheena), Kodo Millet (Kodo), Barnyard Millet (Sawa/Sanwa/Jhangora), Little Millet (Kutki), Brown Top Millet, and pseudo millets such as Buckwheat (Kuttu) and Amaranth (Chaulai)—as Nutri-Cereals for production, consumption, and trade.

Millets are gluten-free and non-allergenic, making them suitable for a wide range of diets. Their consumption reduces triglycerides and C-reactive protein levels, thereby preventing cardiovascular diseases. Additionally, all millets are high in dietary fiber, which has waterabsorbing and bulking properties. This fiber increases the transit time of food in the gut, helping reduce the risk of inflammatory bowel disease and acting as a detoxifying agent in the body.

Millet, with its historical significance dating back to ancient civilizations and its inherent environmental resilience, indeed offers a promising avenue for sustainable agriculture in regions with limited water resources. The fact that millets require minimal inputs underscores their potential as economically efficient crops.

The Global food diversity has dwindled significantly, with wheat, rice, and maize dominating approximately 89% of total cereal production worldwide. In response to this concerning trend, the United Nations, in collaboration with India's recommendations,

designated 2023 as the International Year for Millets. This initiative aims to revitalize millets and raise awareness about their environmental and nutritional advantages (Naik 2024).

Millets are often referred to as smart food (www.smartfood.org), which is “good for the individual” (nutritious and healthy), “good for the planet” (environmentally sustainable), and “good for the farmer” (resilient). Millets are recognized for their resilience, ability to survive under high temperatures and in degraded soils, and minimum requirements of water, pesticides, and fertilizers (Saleh et al., 2013). Their farming methods leave a lower carbon footprint than the major staples that are grown with greater use of fertilizers and pesticides. (Kane-Potaka, et al. 2021)

## METHODOLOGY

The study used both primary and secondary data on millet.

- Analysis of Survey Results: Gender Differences in Millet Consumption

### 1. What is your gender?

[More Details](#)

Male	62
Female	64
Prefer not to say	0



The analysis of the survey results reveals a balanced gender distribution among the participants, with 62 males and 64 females out of a total of 128 respondents. This nearly equal representation allows for a meaningful comparison of millet consumption patterns between men and women.

## IMPLICATIONS FOR POLICY AND PRACTICE

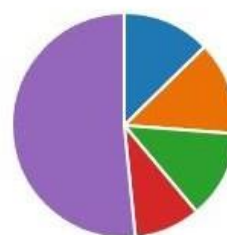
Understanding these gender differences is crucial for designing targeted interventions to promote millet consumption. For example, nutrition education programs could be tailored differently for men and women, addressing specific barriers and motivations. Additionally, marketing strategies for millet products could leverage these insights to appeal more effectively to each gender.

- Analysis of Survey Results: Age Distribution and Millet Consumption

### 2. How old are you?

[More Details](#)

Under 18	16
18-24	17
25-34	16
35-44	12
45+	65



## DEMOGRAPHIC INSIGHTS

### a) Younger Age Groups (Under 18 and 18-24):

- Under 18 (16 respondents): This age group represents a segment of younger individuals who might still be in school and are likely influenced by parental dietary choices and educational programs promoting health and nutrition. Their consumption patterns could provide insights into the impact of family habits and school meal programs on millet consumption.
- Ages 18-24 (17 respondents): This group consists of young adults, many of whom may be students or early-career professionals. Their dietary choices might be influenced by convenience, affordability, and awareness of health trends. This group is critical for understanding the adoption of millet as a healthy alternative in a fastpaced lifestyle.

### b) Middle Age Groups (25-34 and 34-44):

- Ages 25-34 (16 respondents): Individuals in this age range are often balancing careers and family responsibilities. Their consumption patterns might reflect a combination of health consciousness and the need for quick, nutritious meal options for themselves and their families.
- Ages 34-44 (12 respondents): This group likely includes individuals who have established family routines and are more conscious of long-term health benefits. Their dietary habits could provide insights into the role of millets in maintaining a healthy lifestyle during mid-life.

c) **Older Age Group (45+):**

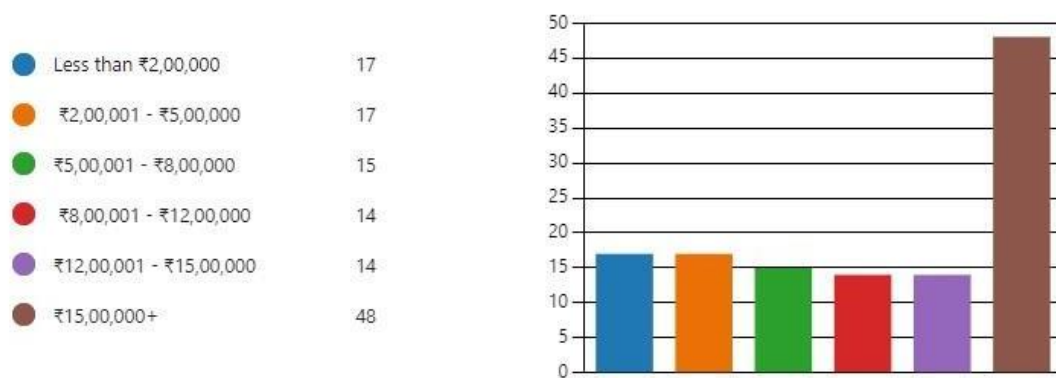
- **Agers 45+ (65 respondents):** This is the largest group in the survey, encompassing individuals who may be more focused on health management and preventing age related diseases. Their higher representation suggests a significant interest or reliance on traditional and health-promoting foods like millets. This group provides valuable data on the acceptance and integration of millet in diets aimed at supporting overall well-being and managing chronic conditions.

**IMPLICATIONS FOR POLICY AND PRACTICE**

- Understanding age-related differences in millet consumption can help tailor nutritional interventions and marketing strategies. For example:
- For Younger Age Groups: Programs in schools and colleges can promote the health benefits of millets and provide easy-to-prepare recipes that fit into a busy lifestyle.
- For Middle Age Groups: Worksite wellness programs and family-oriented marketing campaigns can highlight the convenience and health benefits of incorporating millets into daily meals.
- For Older Age Groups: Health campaigns targeting older adults can emphasize the role of millets in managing chronic diseases and maintaining overall health. Cooking classes and community programs can promote traditional recipes and new ways to enjoy millets.
- Analysis of Survey Results: Household Income Distribution and Millet Consumption

3. What is your approximate annual household income in rupees?

[More Details](#)



**INCOME DEMOGRAPHICS INSIGHTS**

**1.1 Lower Income Groups (Less than ₹200,000 to ₹500,000):**

- Less than ₹200,000 (17 respondents): This group represents households with lower incomes, where affordability and cost-effectiveness may significantly influence dietary choices. Millets, known for their affordability and nutritional value, might be more appealing options for these households.
- ₹200,001-₹500,000 (17 respondents): Similarly, this income bracket indicates households with moderate income levels. While they may have slightly more financial flexibility, factors like budget constraints and health consciousness could drive the consumption of cost-effective yet nutritious foods like millets.

**1.2 Middle Income Groups (₹500,001 to ₹1,500,000):**

- ₹500,001-₹800,000 (15 respondents): These households have a moderate income level, allowing for greater flexibility in food choices. Millets may be perceived as a healthy and sustainable dietary option, particularly among individuals seeking to balance health considerations with budget constraints.
- ₹800,001-₹1,200,000 (14 respondents): This income range signifies a slightly higher financial capacity, potentially resulting in increased spending on health-conscious food choices. Millets, with their nutritional benefits and versatility, could be a preferred option for households aiming to maintain a balanced and wholesome diet.

**HIGHER INCOME GROUPS (₹1,200,001 AND ABOVE):**

- **1.3 ₹1,200,001-₹1,500,000 (14 respondents):** These households belong to the higher income bracket, where dietary choices may be driven more by health considerations and lifestyle preferences rather than budget constraints alone. Millets could be perceived as a premium yet worthwhile investment in health and well-being.

- **1.4 ₹1,500,000 and above (48 respondents):** The largest group in the survey, households in this income category likely have a significant degree of financial freedom. Millets might be incorporated into their diets as part of a broader emphasis on healthconscious living and culinary experimentation with diverse and nutritious ingredients.

**IMPLICATIONS FOR POLICY AND PRACTICE**

Tailoring interventions and marketing strategies to address the diverse needs and preferences of different income groups can enhance the promotion of millet consumption:

- a. For Lower Income Groups: Affordable millet products and educational programs on the nutritional benefits of millets can encourage consumption among households with limited financial resources.
- b. For Middle Income Groups: Emphasizing the cost-effectiveness and health benefits of millets through targeted campaigns

and cooking demonstrations can appeal to healthconscious consumers in this segment.

- c. For Higher Income Groups: Highlighting the premium quality, gourmet options, and culinary versatility of millets can attract discerning consumers seeking innovative and nutritious dietary choices.
- By understanding the unique motivations and preferences of each income group, policymakers, nutritionists, and food marketers can develop effective strategies to promote millet consumption and foster healthy dietary habits among diverse populations.
  - The consumption pattern of ragi over various income decile groups of the population for both rural and urban population of the major states, as well as All India were presented in the Figures I and II. Decile denotes dividing the population into ten groups with equal number of persons.
  - It could be seen from Figure I that for rural population of India, the consumption of ragi was increasing from lower decile to upper decile in the earlier survey rounds. But, in the recent year, it was increasing till certain upper decile group, after which the consumption was found reducing. The same pattern was very much observed in urban population of India over all time periods (Figure II). This might be due to the reason that people eat outside home at higher levels of income. (Kumar, Sivaramane and Rao 2020).

## ANALYSIS OF SURVEY RESULTS: GEOGRAPHIC DISTRIBUTION AND MILLET CONSUMPTION

The survey data reveals a diverse geographic distribution of respondents, with participants hailing from various states across India:

Maharashtra: 29 respondents Tamil Nadu: 43

respondents Haryana: 15 respondents

Kerala: 12 respondents

Telangana: 6 respondents

Karnataka: 5 respondents

Delhi: 2 respondents Geographic Insights

### I. Maharashtra (29 respondents):

- Maharashtra, being a large and economically diverse state, shows a significant representation in the survey. This state's varied demographics can provide insights into millet consumption patterns influenced by both urban and rural populations. Maharashtra's traditional cuisine includes millets like jowar (sorghum) and bajra (pearl millet), which may reflect in the consumption habits of the respondents.

### II. Tamil Nadu (43 respondents):

- Tamil Nadu has the highest number of respondents in the survey. This state has a strong tradition of consuming millets such as ragi (finger millet) and kambu (pearl millet).

### III. Haryana (15 respondents):

- Haryana, with its smaller sample size, offers insights into millet consumption in a primarily agricultural state. The dietary habits in Haryana might be influenced by local farming practices and the availability of millets, providing a perspective on how agricultural economies impact food choices.

### IV. Kerala (12 respondents):

- Kerala, known for its unique cuisine and emphasis on health and wellness, has 12 respondents. The state's preference for traditional grains and a health-conscious population might reflect higher millet consumption. Insights from Kerala can highlight the role of cultural preferences in dietary habits.

## IMPLICATIONS FOR POLICY AND PRACTICE

- Understanding geographic differences in millet consumption can guide targeted interventions and promotional strategies:
  - a. State-Specific Campaigns: Tailoring nutrition education and marketing campaigns to resonate with the cultural and traditional practices of each state can enhance the effectiveness of these initiatives.
  - b. Supply Chain Improvements: Addressing regional supply chain issues can ensure consistent availability of millets in states with high demand, such as Tamil Nadu and Maharashtra.
  - c. Health Promotion Programs: States like Kerala and Karnataka, known for their healthconscious populations, can benefit from programs that emphasize the nutritional benefits of millets and provide easy-to-prepare recipes.
- By analyzing these patterns, we can identify state-specific trends and preferences, allowing for more targeted and effective strategies to promote millet consumption. Understanding regional differences is crucial for developing tailored interventions that address the unique needs and cultural practices of each state, ultimately fostering healthier dietary habits nationwide.
- Though they are accorded a relatively lower importance among cereal crops by the Indian farmers, they assume high importance from the food security point of view at household level in certain regions of the country, especially tribal belts as they can be grown even under poor natural resource base. (Kumar, Sivaramane and Rao 2020).

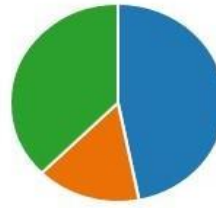
## ANALYSIS OF SURVEY RESULTS: MILLET CONSUMPTION HABITS

5. Do you or your family consume millets regularly?

[More Details](#)

[Insights](#)

Yes	60
No	20
Occasionally	48



- The survey data reveals varied responses to the question, "Do you or your family consume millets regularly?" among the 128 respondents:
- Yes: 60 respondents
- No: 20 respondents
- Occasionally: 48 respondents

### 1. Regular Consumers (60 respondents):

- A substantial portion of the respondents (47%) indicated that they or their families consume millets regularly. This group likely includes individuals who recognize the health benefits of millets and have integrated them into their daily diets. Regular consumption suggests a high level of awareness and acceptance of millets, possibly influenced by traditional dietary practices, health consciousness, or specific dietary needs.

### 2. Occasional Consumers (48 respondents):

- Another significant segment (37%) reported consuming millets occasionally. This group might include individuals who are aware of the benefits of millets but do not incorporate them consistently into their diets. Factors influencing occasional consumption could include taste preferences, availability, cooking convenience, or cultural habits.

### 3. Non-Consumers (20 respondents):

- A smaller group (16%) indicated that they do not consume millets regularly. This group could represent individuals who are either unaware of the benefits of millets, do not prefer them due to taste or texture, or find them less accessible or convenient compared to other staples.

## IMPLICATIONS FOR POLICY AND PRACTICE

### Promotional Strategies:

- Education Campaigns:** Tailored educational programs highlighting the health benefits and nutritional value of millets can convert occasional consumers to regular consumers and attract non-consumers.
- Recipe Development:** Providing easy and tasty millet-based recipes can appeal to occasional and non-consumers, making millets more attractive for regular inclusion in meals.

### Accessibility and Availability:

- Supply Chain Improvements:** Ensuring that millets are easily accessible in local markets can address availability issues, particularly for occasional consumers who might struggle to find millets regularly.
- Affordability Programs:** Subsidies or price reductions for millets can make them more affordable, encouraging regular consumption among lower-income groups.

Millets can be consumed in a variety of ways, each offering different textures and flavors. Here are some common methods of consuming millets:

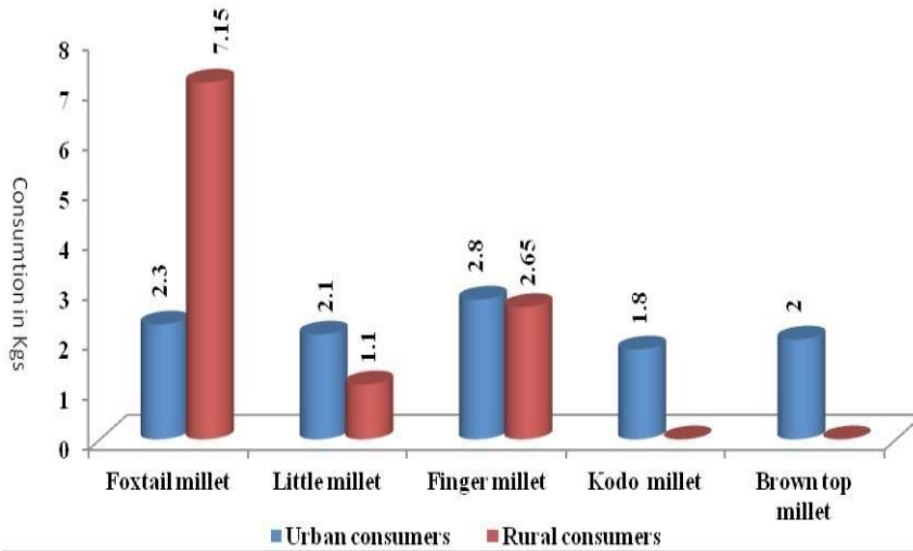
- Whole Grains:** Cooked and served as a side dish, similar to rice or quinoa. Whole millets like pearl millet (bajra) and foxtail millet can be boiled or steamed.
- Flour:** Ground into flour for baking or making traditional flatbreads like jowar bhakri (sorghum) and bajra roti (pearl millet). Millet flour is used to make various types of bread, pancakes, and other baked goods.
- Porridge:** Cooked with milk or water to make a warm, nutritious porridge. This can be a breakfast dish or a dessert, often sweetened with honey or fruit.
- Snacks:** Incorporated into snacks like millet-based bars, crackers, or chips. These products are gaining popularity for their health benefits.
- Fermented Products:** Used in traditional fermented foods such as idli and dosa (from finger millet, ragi) in South Indian cuisine. Fermentation enhances the nutritional value and digestibility of millets.
- Salads:** Cooked and added to salads for extra texture and nutrition. Millet salads can be a hearty addition to a meal.



providing a filling, protein-rich option.

- Soups and Stews:** Added to soups and stews as a thickening agent or to add substance. This method works well with grains like pearl millet and foxtail millet.

The monthly average consumption of millets by local and rural consumers is shown in fig.1:

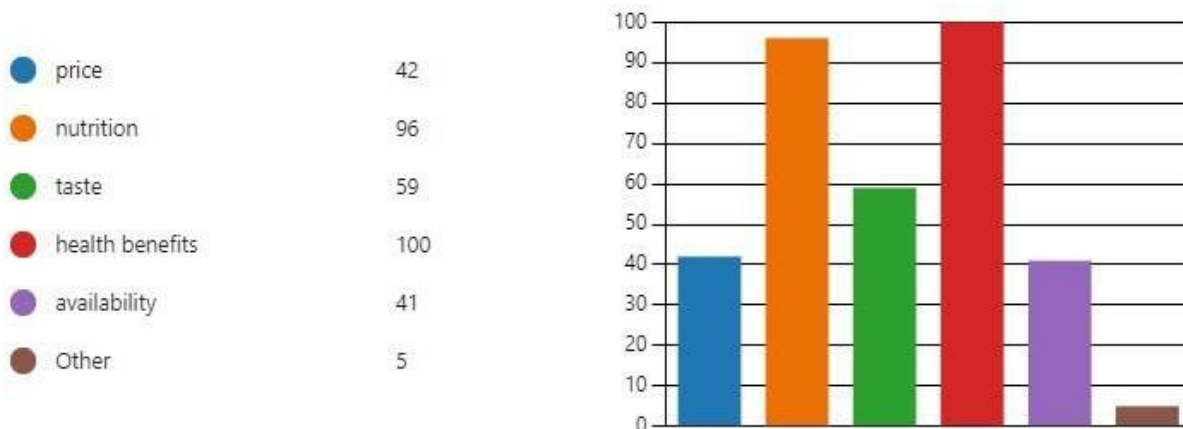


Monthly Average Consumption of Millet (Fig. 1)  
Source: (Durgad, Joshi and Hiremath 2021)

### ANALYSIS OF SURVEY RESULTS: FACTORS INFLUENCING FOOD PURCHASING DECISIONS

6. What factors influence your family's food purchasing decisions? (Choose all that apply)

[More Details](#)



The survey asked respondents to identify the factors influencing their family's food purchasing decisions, with the option to choose multiple factors. The responses were as follows:

Health Benefits: 100 respondents  
Price: 42 respondents  
Nutrition: 96 respondents  
Taste: 59 respondents  
Availability: 41 respondents  
Other: 5 respondents

#### Key Insights

- Health Benefits (100 respondents):**

Health benefits are the most influential factor, chosen by 78% of respondents. This highlights a strong preference for foods that contribute positively to health, indicating a high level of health consciousness among the survey participants. Families are prioritizing foods that they perceive as beneficial for their overall well-being, which could be driven by increasing awareness of diet-related health issues and the importance of preventive health care.

- Nutrition (96 respondents):**

Closely following health benefits, 75% of respondents cited nutrition as a key factor in their food purchasing decisions. This shows a substantial overlap between health benefits and nutrition, suggesting that respondents consider these aspects closely related. The high importance placed on nutrition indicates that families are looking for foods that provide essential nutrients and support their

dietary needs, reflecting a growing trend towards informed and balanced eating habits.

- **Taste (59 respondents):**

Taste was identified by 46% of respondents as an important factor. This signifies that while health benefits and nutrition are critical, the sensory appeal of food remains a significant consideration. Families are not only looking for healthy and nutritious options but also those that are enjoyable to eat. This balance between taste and health can be crucial in maintaining long-term dietary habits.

- **Price (42 respondents):**

Price is an influential factor for 33% of respondents. This highlights the economic considerations that families consider when purchasing food. For a significant portion of the population, affordability plays a critical role, indicating that cost-effective options that do not compromise on health or nutrition are likely to be favoured.

- **Availability (41 respondents):**

Availability was cited by 32% of respondents, underscoring the importance of accessibility. If healthy and nutritious food options are not readily available, families may have to compromise on their dietary preferences. This factor is particularly relevant in regions with limited access to diverse food products, emphasizing the need for improved supply chains and distribution networks.

- **Other (5 respondents):**

A small number of respondents (4%) indicated other factors influencing their food purchasing decisions. This category might include aspects such as convenience, brand loyalty, or ethical considerations (e.g., organic, locally sourced, or sustainably produced foods).

## IMPLICATIONS FOR POLICY AND PRACTICE

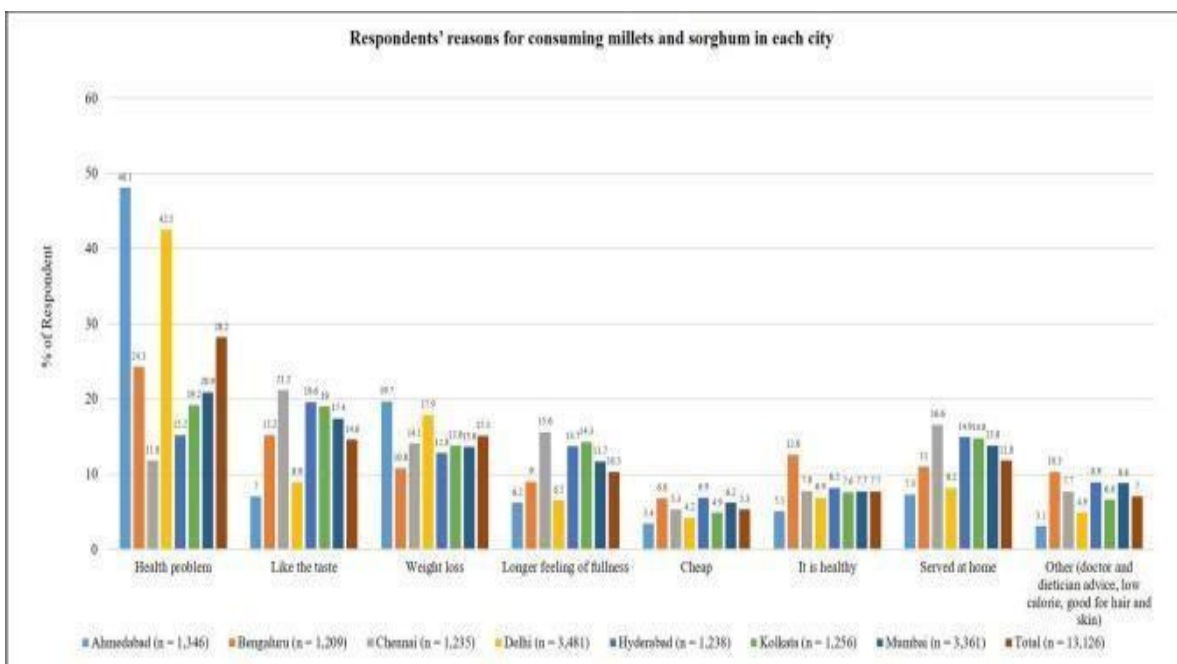
### Product Development and Marketing:

- Highlighting Health and Nutrition: Food producers and marketers should focus on communicating the health benefits and nutritional content of their products. This could include clear labeling, informative packaging, and educational campaigns that align with the priorities of health-conscious consumers.
- Balancing Taste and Health: Developing products that are both nutritious and tasty can cater to a wider audience. Innovations in food technology and recipe development can help achieve this balance, making healthy options more appealing.
- Affordability Initiatives: Introducing pricing strategies that make healthy foods more affordable can attract price-sensitive consumers. This could involve discounts, promotions, or partnerships with retailers to provide cost-effective healthy options.
- Improving Availability: Ensuring that healthy and nutritious food products are widely available is crucial. Efforts to enhance distribution networks, particularly in underserved areas, can help meet the demand for accessible healthy foods.

### Policy Recommendations:

- Subsidies and Support for Healthy Foods: Government policies that subsidize the production and sale of nutritious foods can help reduce prices and make them more accessible.
- Educational Campaigns: Public health campaigns that educate consumers about the health benefits and nutritional value of different foods can help influence purchasing decisions positively.
- Enhanced Supply Chains: Investments in supply chain infrastructure to improve the availability of nutritious foods in all regions can address availability concerns.

According to another research, the reasons for consuming millets and sorghum in each city are as follows:



reasons for consuming millets and sorghum. (Fig 2) [8]

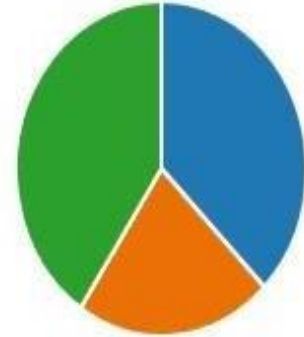
Source: (Kane-Potaka, et al. 2021)

## ANALYSIS OF SURVEY RESULTS: PERCEPTION OF MILLET AFFORDABILITY COMPARED TO OTHER STAPLE FOODS

### 7. Are millets more affordable compared to other staple foods in your region?

[More Details](#)

● Yes	48
● No	28
● Maybe	52



The survey explored the perception of millet affordability compared to other staple foods in the respondents' regions, with the following results:

Yes: 48 respondents (37%)

No: 28 respondents (22%)

Maybe: 52 respondents (41%)

#### Key Insights

- **Perception of Affordability (Yes - 48 respondents):** A significant portion of the respondents (37%) believes that millets are more affordable compared to other staple foods in their region. This perception could be driven by several factors:
  - Local Production: Regions where millets are locally produced may see lower prices due to reduced transportation costs and local abundance.
  - Market Prices: In some areas, the market prices for millets might be lower compared to rice, wheat, or other staples, making them a cost-effective alternative.
  - Government Support: Subsidies or government programs promoting millets could also contribute to their perceived affordability.
- **Perception of Non-Affordability (No - 28 respondents):** A smaller group (22%) feels that millets are not more affordable than other staples. This could be due to:
  - Limited Supply: In regions where millet production is low or millets are not commonly grown, prices might be higher due to supply constraints.
  - Market Demand: Higher demand for millets as a health food might drive up prices in some areas, making them more expensive than traditional staples.
  - Lack of Subsidies: Absence of government subsidies for millets compared to other staple foods could result in higher market prices.
- **Uncertainty About Affordability (Maybe - 52 respondents):** A substantial portion of respondents (41%) is unsure about the affordability of millets relative to other staples. This uncertainty might be influenced by:
  - Lack of Information: Respondents might not have sufficient information about millet prices compared to other staples.
  - Price Fluctuations: Inconsistent pricing of millets in the market could lead to uncertainty about their affordability.
  - Regional Variability: Differences in prices across regions might make it difficult for respondents to generalize about millet affordability.

#### IMPLICATIONS FOR POLICY AND PRACTICE

##### Enhancing Affordability:

- Subsidies and Incentives: Government policies providing subsidies for millet production and distribution can help lower prices and make millets more competitive with other staple foods.
- Supporting Local Production: Encouraging local millet farming through training and resources can increase supply and reduce prices.

##### Addressing Regional Disparities:

- Targeted Interventions: Implementing targeted interventions in regions where millets are perceived as less affordable can help address specific barriers. This might include improving supply chains or offering regional subsidies.
- Monitoring and Evaluation: Regularly monitoring millet prices across regions can help identify trends and inform policy decisions to ensure consistent affordability.



**Millets are often more expensive in the market despite being easier and cheaper to produce for several reasons:**

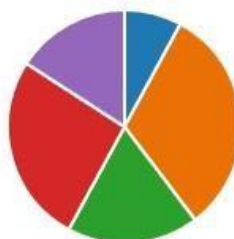
- 1. Lower Demand and Supply Chain Issues:** Millets, while relatively easy to cultivate, have lower consumer demand compared to more popular staples like rice or wheat. This lower demand means that fewer farmers grow millets on a large scale, leading to smaller production volumes. The lack of an extensive and efficient supply chain for millets can lead to higher costs in distribution and marketing.
- 2. Limited Market Availability:** Since millets are not as widely consumed, they may not be readily available in all markets. In some regions, they are treated as niche or specialty products, often resulting in higher prices due to limited availability and a lack of economies of scale in production and distribution.
- 3. Processing and Packaging Costs:** Millets often require additional processing, such as de- husking, which adds to production costs. Furthermore, millet-based processed products like flour, snacks, or breakfast items can be priced higher due to the specialized machinery and packaging required, which raises the retail price.
- 4. Perception and Market Positioning:** In urban areas, millets are increasingly marketed as a health-conscious or premium product. The perception of millets as a nutritious, gluten- free, and ancient grain has led some companies to price them higher to target health- conscious consumers, even though the raw production costs may be lower.
- 5. Lack of Government Support and Subsidies:** Unlike rice and wheat, which benefit from significant government subsidies and support under programs like the Public Distribution System (PDS), millets do not always receive the same level of backing. Without these subsidies, the market price of millets remains higher, as farmers and sellers need to cover their production and distribution costs without the cushion of government assistance.

**ANALYSIS OF SURVEY RESULTS: AWARENESS OF GOVERNMENT POLICIES PROMOTING MILLET CULTIVATION AND CONSUMPTION**

8. What is your awareness of government policies promoting millet cultivation and consumption in your region?

[More Details](#)

Very Aware	10
Somewhat Aware	40
Neutral	23
Not Very Aware	33
Not Aware at All	20



The survey examined respondents' awareness of government policies promoting millet cultivation and consumption in their region. The distribution of responses is as follows:

- Very Aware: 10 respondents (8%)
- Somewhat Aware: 40 respondents (31%)
- Neutral: 23 respondents (18%)
- Not Very Aware: 33 respondents (26%)
- Not Aware at All: 20 respondents (16%)

**Key Insights**

- High Awareness (Very Aware - 10 respondents):** A small segment (8%) of the respondents reported being very aware of government policies promoting millet cultivation and consumption. These individuals are likely to have a strong interest in agricultural policies or may be directly involved in the agriculture sector. Their awareness could stem from active participation in community programs, attendance at agricultural seminars, or access to detailed information through government communications.
- Moderate Awareness (Somewhat Aware - 40 respondents):** A significant portion (31%) of respondents indicated they are somewhat aware of these policies. This suggests a moderate level of engagement and knowledge about millet-related policies. These respondents are aware of the government's efforts but may not be fully informed about all details.
- Neutral Awareness (Neutral - 23 respondents):** 18% of respondents reported a neutral level of awareness, indicating they neither feel well-informed nor completely unaware. This neutrality suggests a general lack of detailed knowledge or strong opinions about the policies.
- Low Awareness (Not Very Aware - 33 respondents):** 26% of respondents stated they are not very aware of government policies related to millet promotion. This significant portion of the population has limited exposure to or engagement with information on millet policies.

This group might not have access to effective information channels or may not prioritize staying informed about agricultural policies.

- Minimal Awareness (Not Aware at All - 20 respondents):** 16% of respondents are not aware of such policies at all. This lack of awareness highlights a gap in the dissemination of information and indicates that current outreach efforts may

not be effectively reaching all segments of the population.

## IMPLICATIONS FOR POLICY AND PRACTICE

### 1. Enhancing Information Dissemination:

- Targeted Campaigns: Implement targeted awareness campaigns to reach those who are not very aware or not aware at all. These campaigns could use various media channels, including radio, television, social media, and community events, to disseminate information effectively.
- Educational Programs: Develop educational programs and workshops to inform the public about the benefits of millet cultivation and consumption, as well as the specifics of government policies supporting these practices.

### 2. Leveraging High Awareness:

- Community Champions: Utilize individuals who are very aware of the policies as community champions or peer educators. They can help spread information and educate others within their communities.
- Feedback Mechanisms: Create feedback mechanisms where those who are very aware can provide insights and suggestions for improving policy implementation and outreach efforts.

### 3. Addressing Regional Differences:

- Regional Focus: Focus on regions with lower awareness levels by conducting localized studies to understand the specific barriers and needs. Tailor communication strategies to address the unique challenges faced by these regions.
- Resource Allocation: Allocate resources effectively to areas with the greatest need for awareness and information dissemination to ensure a broader and more equitable reach of government policies.

## Comparative Analysis of Government Policies

India has promoted millet cultivation through initiatives like the National Food Security Mission and the International Year of Millets. However, examining policies from other countries provides additional insights.

1. **Niger and Nigeria:** Both countries support millet through food security programs and partnerships with organizations like the FAO. These policies focus on improving productivity and resilience against climate change, keeping millet as a staple food.
2. **China:** The Chinese government promotes millet with subsidies and modern agricultural practices. Millet's nutritional benefits are highlighted in public health campaigns, boosting its consumption in both rural and urban areas.
3. **United States and Europe:** In these regions, millet is marketed as a gluten-free grain, benefiting from broader organic and sustainable agriculture policies. This has increased demand for imported millet, providing opportunities for exporting countries.

## ANALYSIS OF SURVEY RESULTS: FAMILIARITY WITH THE NUTRITIONAL BENEFITS OF MILLET COMPARED TO OTHER STAPLE GRAINS

9. How familiar are you with the nutritional benefits of millet compared to other staple grains (e.g., rice, wheat, corn)?

[More Details](#)

[Insights](#)

very familiar	43
somewhat familiar	67
unfamiliar	18



The survey assessed respondents' familiarity with the nutritional benefits of millet compared to other staple grains such as rice, wheat, and corn. The responses were as follows:

Very Familiar: 43 respondents (34%)

Somewhat Familiar: 67 respondents (52%)

Unfamiliar: 18 respondents (14%)

### Key Insights

- **High Familiarity (Very Familiar - 43 respondents):** A substantial portion of respondents (34%) reported being very

familiar with the nutritional benefits of millet. These individuals likely have a strong understanding of millet's advantages, such as its high fiber content, rich nutrient profile, and potential health benefits, including better digestive health and lower glycemic index compared to other grains. This group may include health-conscious consumers, nutritionists, and those actively seeking information about healthy diets.

- **Moderate Familiarity (Somewhat Familiar - 67 respondents):** The largest segment of respondents (52%) indicated they are somewhat familiar with millet's nutritional benefits. This suggests a general awareness but possibly lacking in-depth knowledge. These respondents may recognize millet as a healthy option but may not be fully aware of specific benefits compared to other staple grains. This group represents a significant opportunity for targeted educational initiatives to enhance their understanding and appreciation of millet.
- **Low Familiarity (Unfamiliar - 18 respondents):** A smaller group (14%) stated they are unfamiliar with the nutritional benefits of millet. This indicates a lack of awareness and understanding, which could stem from limited exposure to information about millets or a stronger cultural and dietary preference for more commonly consumed staples like rice, wheat, and corn. **Implications for Policy and Practice**

### 1. Enhancing Educational Outreach:

**Targeted Education Campaigns:** Develop targeted educational campaigns to enhance the knowledge of those who are somewhat familiar and unfamiliar with millet's nutritional benefits. Use engaging formats such as workshops, webinars, informative brochures, and social media campaigns to reach a broader audience.

- **Nutritional Labeling:** Encourage food producers to include detailed nutritional information on millet products, highlighting their benefits compared to other staple grains. This can help consumers make informed choices at the point of purchase.

### 2. Leveraging High Familiarity:

- **Community Ambassadors:** Utilize individuals who are very familiar with millet's benefits as community ambassadors to spread knowledge. They can organize local health talks, cooking demonstrations, and informational sessions to educate their communities.
- **Success Stories:** Share success stories and testimonials from those who have experienced health benefits from incorporating millets into their diets. This can motivate others to explore and adopt millets.

### 3. Addressing Information Gaps:

- **Introductory Education:** Focus on providing basic information about millets to those unfamiliar with their benefits. Simple, easy-to-understand materials can be distributed through community centers, schools, and local events.
- **Accessible Resources:** Ensure that information about millets is available in multiple languages and accessible formats to cater to diverse populations, including those with limited literacy skills.

India houses the largest undernourished population in the world. According to the Global Hunger Index, 2021 India is ranked 101st out of 116 countries with a score of 27.5 depicting serious levels of hunger. Millets contain 7-12% protein, 2-5% fat, 65-75% carbohydrates and 15-20% dietary fibre and are also a natural source of iron, zinc, calcium and other nutrients that are essential for tackling the problem of malnutrition and anaemia in India. Millets can also help in several lifestyle diseases like obesity, diabetes, cardiovascular diseases and cancer due to the presence of slow digestible starch (SDS) which prolongs digestion and absorption of carbohydrates. (Ipe and Satyasai 2022)

Millets offer various health benefits:

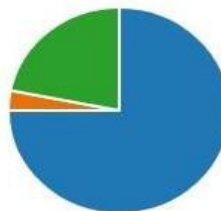
1. **Diabetes Control:** Millets, particularly finger millet, have a low glycemic index due to their high fiber content and enzyme-inhibiting properties. This helps regulate blood sugar levels and supports wound healing. Studies indicate that consuming millets can lower blood glucose levels and aid in diabetes management.
2. **Cancer Prevention:** Millets are rich in polyphenols, tannins, and phytic acid, which may reduce the risk of cancer. These compounds are effective in preventing cancer initiation and progression, and certain millets have anti-carcinogenic properties.
3. **Heart Disease Reduction:** The magnesium found in millets supports heart health by lowering cholesterol levels and preventing cardiovascular diseases. Millets also help manage hyperlipidaemia and hypertension, contributing to overall cardiovascular well-being.
4. **Celiac Disease Prevention:** Being gluten-free, millets are a suitable alternative for individuals with celiac disease. They help reduce irritation caused by gluten in other cereals.
5. **Antioxidants:** Millets are rich in phytochemicals such as phenolics and carotenoids, which provide antioxidant benefits. These antioxidants help reduce the risk of chronic diseases and may slow the aging process.
6. **Osteoporosis Prevention:** Finger millet is an excellent source of calcium, crucial for bone health. Its high calcium content supports bone mass development and helps prevent osteoporosis. (Chaurasia and Anichari 2023)

## ANALYSIS OF SURVEY RESULTS: SUPPORT FOR GOVERNMENT POLICIES ENCOURAGING MILLET CULTIVATION AND CONSUMPTION

10. Do you think government policies should encourage the cultivation and consumption of millet?

[More Details](#)

Yes	96
No	4
Maybe	28



The survey sought respondents' opinions on whether government policies should encourage the cultivation and consumption of millet. The responses were as follows:

Yes: 96 respondents (75%)

No: 4 respondents (3%)

Maybe: 28 respondents (22%)

### Key Insights

- Strong Support (Yes - 96 respondents):** A significant majority of respondents (75%) believe that government policies should encourage the cultivation and consumption of millet. This overwhelming support indicates widespread recognition of the benefits associated with millet, including its nutritional value, environmental sustainability, and potential to enhance food security. Respondents in this group likely see millet as a valuable crop that can contribute to healthier diets and more sustainable agricultural practices.
- Limited Opposition (No - 4 respondents):** A very small fraction of respondents (3%) are against government policies promoting millet. This minimal opposition could be due to various factors such as personal dietary preferences, lack of awareness about millet's benefits, or skepticism about the effectiveness of such policies. Understanding the reasons behind this opposition can help in addressing concerns and misconceptions.
- Uncertainty (Maybe - 28 respondents):** A notable portion of respondents (22%) expressed uncertainty about whether government policies should promote millet cultivation and consumption. This group represents individuals who might need more information about the benefits and potential impacts of such policies.

### IMPLICATIONS FOR POLICY AND PRACTICE

#### 1. Enhancing Policy Support:

- Educational Campaigns:** Implement widespread educational campaigns to raise awareness about the benefits of millets and the positive impact of government policies promoting their cultivation and consumption. These campaigns should highlight health, environmental, and economic benefits.
- Stakeholder Engagement:** Engage with various stakeholders, including farmers, nutritionists, environmentalists, and community leaders, to build a broad base of support for millet-friendly policies.

#### 2. Addressing Opposition and Uncertainty:

- Feedback Mechanisms:** Create channels for feedback where individuals can express their concerns and ask questions about millet-related policies. Addressing these concerns transparently can help reduce opposition and uncertainty.
- Pilot Programs:** Implement pilot programs in select regions to demonstrate the benefits of millet cultivation and consumption. Successful pilot programs can serve as proof of concept and build broader support for scaling up such initiatives.

#### 3. Policy Development and Implementation:

**Incentives for Farmers:** Develop policies that provide incentives for farmers to cultivate millet, such as subsidies, access to better seeds, and technical assistance. This can encourage more farmers to adopt millet cultivation.

- Market Support:** Create market support mechanisms to ensure that farmers have access to markets where they can sell their millet produce at fair prices. This can include establishing procurement programs, promoting millet-based products, and supporting value-added processing.
- There are efforts to come out with high yielding varieties along with traits of drought resistance through All India Coordinated Project on Small Millets in India, which should be continued. There should be sincere efforts by the government to protect the price risk faced by the farmers by developing the markets for exclusively for millets which are scattered and



small at present. In Karnataka finger millet is among the ‘climate smart’ crops that figures high on the agenda of the government. The state has included finger millet in its flagship mid-day meal scheme called ‘ANNA BHAGYA YOJANA to supply this grain at free of cost to Priority Household families, which includes Antyodaya Anna Yojana (AAY) scheme beneficiaries and Below Poverty Line (BPL) families across the State. (Kumar, Sivaramane and Rao 2020)

- When farmers decide what crops to grow, they consider various factors, including soil suitability, climate, market demand, and government policies such as MSP. If the opportunity cost of growing millet is high, meaning farmers could potentially earn more by growing rice instead, they may choose to allocate their resources to rice production. Millet indeed typically has lower productivity per hectare compared to paddy rice, and if the market price, as represented by the MSP (Minimum Support Price), is lower for millet than for rice, it can make millet farming less profitable. (Naik 2024)
- While millets are gaining popularity among consumers, the actual consumption is not increasing, and supply cannot match it if large sections start consuming millets. Hence, we need two-pronged strategies to manage supply and demand-side issues. Recently the University of Agricultural Sciences, Raichur & NABARD organized a “Millet Conclave” on 26 and 27 August 2022 at Raichur where several important issues have been discussed. On that occasion, the Union Finance Minister announced the “Millet Challenge” for start-ups, to be jointly organized by Atal Innovation Mission and the University of Agricultural Sciences, Raichur. A few important suggestions culled from the Conclave<sup>11</sup> and other sources have been listed below:

#### A. Promoting consumption

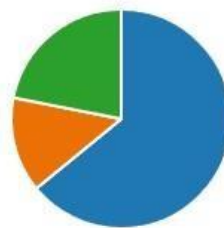
- Awareness campaigns involving celebrities and on the lines of those used for eggs in
- 1980s- ‘Sunday ho ya Monday roz khao ande’
- Serving millet-based food and snacks on flight and premium trains
- Include millets in flagship schemes of the government such as Mid-Day Meal Programme and the Integrated Child Development Services (ICDS) scheme
- Including millets in PDS (GoI issued guidelines and states like Karnataka implemented)
- Need to improve value chains and provide processing/value addition facilities so that consumers can get tasty and cheaper millet-based food. Indian Institute of Millets Research and other agencies have developed technologies for millet- based products and incubating entrepreneurs. They need to be scaled up. Ready to Eat and Ready to Cook millet products should be promoted for better acceptability among bachelors and youngsters
- Urban consumers should be primary target and use of social media can be a game changer (Ipe and Satyasai 2022)

### ANALYSIS OF SURVEY RESULTS: INCLINATION TO CONSUME MILLET WITH AVAILABILITY OF PROCESSED MILLET PRODUCTS

11. Would you be more inclined to consume millet if there were a variety of processed millet products available, such as millet flour, snacks, or breakfast items?

[More Details](#) [Insights](#)

Yes	82
No	18
Maybe	28



The survey asked respondents whether they would be more inclined to consume millet if there were a variety of processed millet products available, such as millet flour, snacks, or breakfast items. The responses were:

Yes: 82 respondents (64%)

No: 18 respondents (14%)

Maybe: 28 respondents (22%)

#### Key Insights

- **Strong Positive Response (Yes - 82 respondents):** A significant majority (64%) indicated that they would be more inclined to consume millet if there were a variety of processed millet products available. This suggests a high potential demand for value-added millet products. These respondents likely appreciate the convenience and variety that processed products can offer, making millet more accessible and easier to incorporate into their daily diets.
- **Moderate Uncertainty (Maybe - 28 respondents):** 22% of respondents were unsure if they would be more inclined to consume millet with the availability of processed products. This group represents a segment of the population that might be open to the idea but needs more information or convincing. They could be influenced by factors such as product quality, taste, price, and marketing.
- **Low Negative Response (No - 18 respondents):** A small portion (14%) stated they would not be more inclined to



consume millet even if a variety of processed products were available. This indicates a segment of the population with strong preferences for other staple foods or possible aversions to millet. Their resistance might stem from dietary habits, taste preferences, or lack of awareness about millet's benefits.

### IMPLICATIONS FOR POLICY AND PRACTICE

- **Product Development and Marketing: Diverse Product Range:** Develop a range of processed millet products to cater to different tastes and preferences. This can include millet flour, snacks, breakfast cereals, ready-to-eat meals, and more.
- **Marketing Campaigns:** Implement marketing campaigns highlighting the benefits of millet and the convenience of processed products. Use testimonials, cooking demonstrations, and nutritional information to attract different demographic groups.

#### 2. Addressing Uncertainty:

- **Taste Tests and Samples:** Offer taste tests and free samples to allow uncertain consumers to try processed millet products without commitment. Positive experiences can convert uncertainty into regular consumption.
- **Educational Campaigns:** Provide information on the nutritional benefits and versatility of millet through various media channels, cooking shows, and health programs.

#### 3. Overcoming Resistance:

- **Addressing Barriers:** Identify and address the specific barriers that prevent certain groups from adopting millet. This could include offering recipes, cooking tips, and highlighting millet's compatibility with traditional dishes.
- **Engagement and Feedback:** Engage with the negative respondents to understand their concerns better and gather feedback. This can inform product improvement and more targeted communication strategies.

The reasons that influenced the purchase of foxtail and little millets for consumption are mentioned as follows:

Particulars	Urban consumers (n=30)		Rural consumers (n=30)	
	Numbers	Percentage	Numbers	Percentage
Delicious taste	08	26.67	—	—
Nutritional and health conscious	29	96.67	19	63.33
Suggested by friends and relatives	06	20.00	—	—
Own production	—	—	24	80.00
Traditional staple food	—	—	28	93.33
Advice from doctors	16	53.33	—	—

#### Reasons Influencing for the Purchase of Foxtail and Little Millets for Consumption (Fig. 3)<sup>[4]</sup>

Source: (Durgad, Joshi and Hiremath 2021)

The most common form in which millets were eaten at the pan India level was as ready-to-eat food, as reported by 45.6% of the respondents. Breakfast porridge, which is one of the traditional forms of consumption, stood at the top at 38.3%. Ahmedabad and Bengaluru had the largest consumption of ready-to-eat food, with up to 65.7 and 63.4% of the respondents saying that this was the most common form in which they consumed millets (Kane-Potaka, et al. 2021).

Millet rice items such as palav, coloured rice, malt, upma, sweets made out of millets baked products and snacks were the different millet products consumed by both urban and rural consumers. Rice items were consumed on a daily basis by all the consumers while idli/dosa was the next form of the millet consumption by both urban and rural consumers on a weekly basis. (Durgad, Joshi and Hiremath 2021)

### ANALYSIS OF SURVEY RESULTS: WILLINGNESS TO SWITCH FROM OTHER GRAINS TO MILLET FOR HEALTH REASONS DESPITE HIGHER PRICE

12. Would you be willing to switch from other grains to millet for health reasons, even if it means paying a slightly higher price?

[More Details](#)

[Insights](#)

Yes	79
No	12
Maybe	37



The survey assessed respondents' willingness to switch from other grains to millet for health reasons, even if it means paying a slightly higher price. The responses were:

Yes: 79 respondents (62%)

No: 12 respondents (9%)

Maybe: 37 respondents (29%)

#### Key Insights

- **Strong Positive Response (Yes - 79 respondents):** A significant majority (62%) of respondents are willing to switch from other grains to millet for health reasons, even if it means paying a slightly higher price. This indicates a strong

recognition of millet's health benefits and a readiness to invest in their well-being. These respondents are likely health-conscious individuals who prioritize nutrition and are willing to allocate more of their budget to healthy food options.

- **Moderate Uncertainty (Maybe - 37 respondents):** 29% of respondents expressed uncertainty about switching to millet despite the potential health benefits and higher cost. This group represents a segment that might need more information or convincing about the health advantages and value for money that millet offers. They could be influenced by factors such as budget constraints, perceived value, and product availability.
- **Low Negative Response (No - 12 respondents):** A small portion (9%) indicated they would not be willing to switch to millet for health reasons if it means paying a higher price. This suggests a segment of the population that either does not perceive millet's health benefits as significant enough to justify a higher cost or has strong preferences for other staple grains. These respondents might be influenced by strict budget limitations or deep-rooted dietary habits.

## IMPLICATIONS FOR POLICY AND PRACTICE

### 1. Highlighting Health Benefits:

- **Educational Campaigns:** Implement educational campaigns to inform consumers about the specific health benefits of millet, emphasizing why it is worth the higher cost. Use data, testimonials, and expert endorsements to build a compelling case.
- **Health Programs:** Integrate millet promotion into public health programs, stressing its benefits for managing conditions like diabetes, heart disease, and digestive issues.

### 2. Addressing Uncertainty:

- **Cost-Benefit Analysis:** Provide clear cost-benefit analyses showing how the long-term health benefits of millet can outweigh the slightly higher immediate cost. Include comparisons with other health-related expenditures.
- **Subsidies and Support:** Explore possibilities for government subsidies or support programs to reduce the price gap, making millet more affordable while highlighting its health benefits.

### 3. Overcoming Resistance:

- **Product Development:** Ensure that millet products are developed to meet taste and convenience expectations, making the transition from other grains smoother and more attractive.
- **Engagement and Feedback:** Engage with the negative respondents to understand their concerns better and gather feedback on how to make millet a more appealing option. This can inform product improvement and targeted communication strategies.

### 4. Market Strategies:

- **Premium Positioning:** Position millet as a premium product with unique health benefits, catering to health-conscious consumers who are willing to pay more for quality.
- **Incentive Programs:** Offer incentives such as loyalty programs, discounts for bulk purchases, and introductory offers to encourage trial and adoption of millet products.
- **Analysis of Survey Results: Consideration of Food Cost in Purchasing Decisions**

13. Do you consider the cost of food when making purchasing decisions?

[More Details](#)

Yes	59
No	39
Maybe	30



The survey asked respondents if they consider the cost of food when making purchasing decisions. The responses were as follows:

Yes: 59 respondents (46%)

No: 39 respondents (30%)

Maybe: 30 respondents (24%)

### Key Insights

- **Significant Consideration of Cost (Yes - 59 respondents):** Nearly half of the respondents (46%) consider the cost of food when making purchasing decisions. This indicates that affordability is a crucial factor for a substantial portion of the population. These respondents likely manage their food budgets carefully, balancing cost with other factors such as nutritional value and taste. They

may prioritize cost-effective options and seek discounts or promotions to manage their expenses effectively.

- **Moderate Consideration (Maybe - 30 respondents):** About 24% of respondents are uncertain or sometimes consider the cost of food when making purchasing decisions. This group represents individuals who might be influenced by other factors as well, such as convenience, health benefits, and brand loyalty. Their consideration of cost might vary depending on the specific context or type of food being purchased. This group is likely flexible and can be swayed by effective marketing or promotional strategies.
- **Low Consideration of Cost (No - 39 respondents):** A notable portion of respondents (30%) do not consider the cost of food when making purchasing decisions. This group might have higher disposable incomes or place greater importance on factors such as quality, health benefits, and personal preferences. They are likely less price-sensitive and more focused on the value and benefits of the food they purchase, which could include premium or specialty products.

## IMPLICATIONS FOR POLICY AND PRACTICE

### 1. Tailored Marketing Strategies:

- For Cost-Conscious Consumers: Emphasize affordability and value in marketing campaigns. Highlight discounts, bulk purchase options, and cost-effective nutritional benefits of products.
- For Moderately Cost-Conscious Consumers: Balance messages of cost-effectiveness with quality and convenience. Showcase versatile and healthy options that provide good value for money.
- For Non-Cost-Conscious Consumers: Focus on quality, health benefits, and unique product attributes. Highlight premium features and the added value of higher-priced items.

### 2. Product Positioning:

- Affordable Options: Ensure a range of affordable products are available to meet the needs of cost-conscious consumers. This can include budget-friendly packaging sizes and promotional pricing.
- Premium Products: Develop and market premium products with a focus on unique benefits, high quality, and exclusive attributes to attract non-cost-conscious consumers.

### 3. Educational Campaigns:

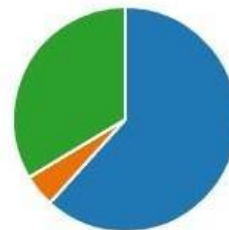
- Cost-Effective Nutrition: Educate consumers about how to achieve balanced and nutritious diets affordably. Provide tips on meal planning, shopping smartly, and making cost-effective choices without compromising on health.
- Value Proposition: Communicate the value proposition of products clearly, emphasizing long-term benefits and overall value rather than just the immediate cost.

## ANALYSIS OF SURVEY RESULTS: BELIEF IN MILLETS CONTRIBUTING TO A MORE SUSTAINABLE FOOD SYSTEM

14. Do you believe that the consumption of millet can contribute to a more sustainable food system?

[More Details](#) [Insights](#)

Yes	79
No	6
Maybe	43



The survey explored respondents' beliefs about whether the consumption of millet can contribute to a more sustainable food system. The responses were:

Yes: 79 respondents (62%)

No: 6 respondents (5%)

Maybe: 43 respondents (33%)

### Key Insights

- **Strong Positive Belief (Yes - 79 respondents):** A significant majority (62%) of respondents believe that the consumption of millet can contribute to a more sustainable food system. This strong positive response suggests that these individuals recognize the environmental benefits of millet cultivation, such as lower water requirements, resilience to climate change, and reduced need for chemical inputs compared to other staple crops. These respondents are likely aware of the broader implications of their dietary choices on the environment and support millet as a sustainable alternative.
- **Moderate Uncertainty (Maybe - 43 respondents):** A notable portion (33%) of respondents are uncertain about the impact of millet consumption on sustainability. This group represents individuals who might need more information or convincing about the environmental benefits of millet. Their uncertainty could stem from a lack of detailed knowledge about agricultural practices, sustainability metrics, or the specific advantages of millet over

other grains.

- **Low Negative Belief (No - 6 respondents):** A small fraction (5%) of respondents do not believe that millet consumption contributes to a more sustainable food system. This minimal opposition may arise from skepticism about millet's benefits, a preference for other sustainability practices, or a lack of awareness about the environmental advantages of millet.

## IMPLICATIONS FOR POLICY AND PRACTICE

### 1. Enhancing Education and Awareness:

- **Educational Campaigns:** Develop comprehensive educational campaigns to inform the public about the environmental benefits of millet. Highlight millet's lower water usage, resilience to climate change, and reduced need for chemical fertilizers and pesticides.
- **Sustainability Metrics:** Provide clear, comparative data on the sustainability metrics of millet versus other staple crops. Use infographics, videos, and expert testimonials to make the information accessible and engaging.

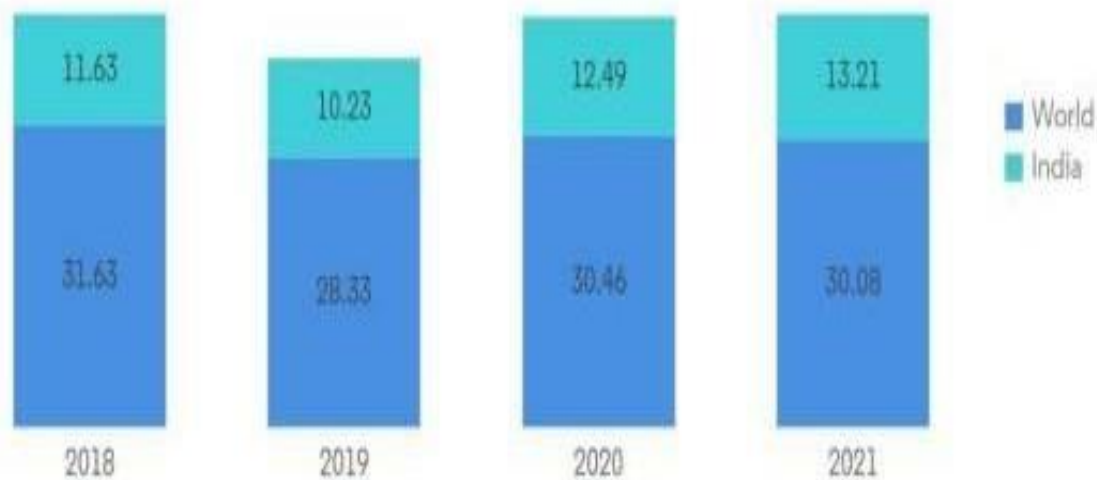
### 2. Addressing Uncertainty:

- **Information Sessions:** Organize workshops, webinars, and community events to discuss the sustainability benefits of millet. Provide platforms for experts to share knowledge and for participants to ask questions and engage in discussions.
- **Transparency and Evidence:** Share scientific studies and real-world examples of millet's positive environmental impact. Transparency in data and evidence-based communication can help build trust and understanding.

### 3. Overcoming Skepticism:

- **Targeted Communication:** Address specific concerns and misconceptions held by the skeptical respondents. Tailored communication strategies that provide counterpoints to common myths can be effective.
- **Inclusive Dialogues:** Encourage inclusive dialogues that involve skeptical individuals in discussions about sustainable agriculture. Listening to their concerns and providing balanced information can foster more open-minded perspectives.

Sreekala et al. (2022) in his study has concluded that in light of climate change, it is imperative to replace crops that require a lot of water with millet-based agriculture to provide food and nutritional security. This study calls for more millets to be produced and consumed, as well as customized product development and awareness efforts about their advantages. Millets could make a substantial contribution to food security and sustainable farming with the right policies and assistance.



Source: FAOSTAT



In order to overcome the obstacles facing millet production in India, better agricultural methods, consumer promotion, and financial and technical help for smallholder farmers are all necessary.

(Naik 2024) *Millet production, in million metric tonne, 2018-2021.*

Source: FAOSTAT (Fig. 4)

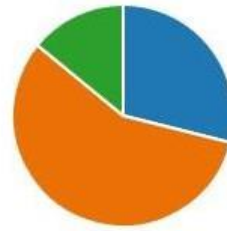
However, India remains the top millet producer around the world and has a significant millet market which can be seen as a positive sign towards the sustainability of millet in the future. Other leading millet-producing countries include Niger, Nigeria, and China. Niger and Nigeria primarily grow pearl millet, which is a staple crop in West Africa. These countries, however, produce far less than India. Niger, the second-largest producer, accounts for about 16% of global production, followed by Nigeria with 12%. China's millet production is primarily focused on foxtail millet, and it accounts for about 10% of the global millet output. ((FAO) 2021)

## ANALYSIS OF SURVEY RESULTS: AVAILABILITY OF MILLET PRODUCTS IN LOCAL GROCERY STORES OR MARKETS

15. How easy is it for you to find millet products in local grocery stores or markets?

[More Details](#)

Extremely easy	37
Somewhat easy	73
not easy	18



The survey examined respondents' perceptions regarding the ease of finding millet products in local grocery stores or markets. The responses were:

Extremely easy: 37 respondents (29%)

Somewhat easy: 73 respondents (57%)

Not easy: 18 respondents (14%)

### Key Insights

- Moderate Ease of Access (Somewhat easy - 73 respondents):** A majority of respondents (57%) perceive it to be somewhat easy to find millet products in local grocery stores or markets. This indicates a moderate level of availability of millet products, suggesting that while they may not be widely prevalent, they are still accessible to a significant portion of the population. These respondents likely have some familiarity with millet products and may have encountered them during their shopping trips, albeit not as prominently as other staple foods.
- High Ease of Access (Extremely easy - 37 respondents):** Nearly a third of respondents (29%) find it extremely easy to find millet products in local grocery stores or markets. This suggests that for a sizable portion of the population, millet products are readily available and prominently displayed. These respondents may live in areas with a higher demand for millet, have access to specialty health food stores, or actively seek out millet products as part of their dietary preferences.
- Limited Ease of Access (Not easy - 18 respondents):** A smaller but notable group of respondents (14%) find it not easy to find millet products in local grocery stores or markets. This indicates that for some individuals, accessing millet products may be challenging due to factors such as limited availability, insufficient variety, or lack of awareness about where to find them. These respondents may reside in areas with lower demand for millet or have fewer options for specialty or health-focused food retailers.

## IMPLICATIONS FOR POLICY AND PRACTICE

### 1. Market Expansion:

- Increasing Availability:** Encourage grocery stores and markets to expand their selection of millet products to meet growing consumer demand. This can involve collaborating with suppliers to ensure consistent availability and diverse product offerings.
- Prominent Display:** Advocate for millet products to be prominently displayed in-store to enhance visibility and encourage impulse purchases.

### 2. Consumer Education:

- Awareness Campaigns:** Launch educational campaigns to raise awareness about the nutritional benefits and culinary versatility of millet. This can include providing cooking tips, recipes, and information about millet's environmental sustainability.
- In-Store Demos:** Organize in-store demonstrations or sampling events to introduce consumers to millet products and showcase their taste and versatility.

### 3. Collaboration and Support:

- Partnerships:** Foster partnerships between government agencies, agricultural organizations, and retailers to promote millet cultivation and consumption. This can involve providing incentives for farmers to grow millet and offering marketing support for retailers.
- Community Initiatives:** Encourage community-based initiatives such as farmers' markets or cooperative stores to promote locally grown millet and foster a sense of community around sustainable food choices.



16. Are there any specific challenges you face in accessing millet products, such as limited availability or high prices? If yes, please specify.

[More Details](#)



### ANALYSIS OF SURVEY RESULTS: CHALLENGES IN ACCESSING MILLET PRODUCTS

The survey inquired about specific challenges respondents face in accessing millet products, such as limited availability or high prices. The responses were as follows:

Yes: 28 respondents (22%)

No: 85 respondents (66%)

Other: 15 respondents (12%)

#### Key Insights

- Limited Challenges (Yes - 28 respondents):** A minority of respondents (22%) reported facing specific challenges in accessing millet products. This suggests that while some individuals encounter obstacles such as limited availability or high prices, the majority do not perceive accessing millet products as problematic. These respondents may live in areas with less access to specialty stores or have budget constraints that affect their purchasing decisions.
- No Major Challenges (No - 85 respondents):** The majority of respondents (66%) indicated that they do not face any specific challenges in accessing millet products. This reflects a positive perception of the availability and affordability of millet products among most respondents. They likely have access to a variety of millet products in their local grocery stores or markets, making it convenient for them to incorporate millet into their diets.
- Other Challenges (Other - 15 respondents):** A small portion of respondents (12%) provided responses categorized as "Other." These responses may include challenges not explicitly mentioned in the survey options, such as issues related to product quality, lack of awareness about millet, or difficulties in preparing millet-based dishes. Further exploration of these responses can provide valuable insights into additional barriers to millet consumption.

#### IMPLICATIONS FOR POLICY AND PRACTICE

##### 1. Addressing Availability and Affordability:

- Market Expansion:** Encourage the availability of millet products in a wider range of grocery stores and markets, especially in underserved areas.
- Price Regulation:** Explore strategies to make millet products more affordable, such as subsidies for farmers, price incentives for retailers, or targeted discounts for consumers.

##### 2. Consumer Education and Awareness:

- Cooking Workshops:** Offer cooking workshops or online tutorials to educate consumers about how to incorporate millet into their meals and address concerns about preparation.
- Nutritional Benefits:** Promote awareness about the nutritional benefits of millet through educational campaigns, nutritional labeling, and endorsements from health professionals.

##### 3. Product Diversification and Quality Assurance:

- Diverse Product Range:** Encourage the development of a diverse range of millet products to cater to different tastes and preferences, including ready-to-eat meals, snacks, and convenience foods.
- Quality Standards:** Implement quality assurance measures to ensure the consistency and reliability of millet products, addressing concerns about product quality among consumers.

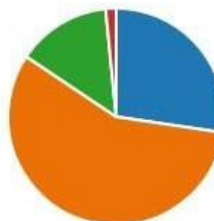
The perception of millet as a "poor man's grain" has contributed to its decreased demand, especially with the dominance of wheat, rice, and maize in the food market. The shift towards ready-to-eat and processed foods further challenges millet's market presence. (Naik 2024)

## ANALYSIS OF SURVEY RESULTS: FORESEEING THE ROLE OF MILLET IN THE FUTURE OF FOOD CONSUMPTION

17. In your opinion, how do you foresee the role of millet in the future of food consumption?

[More Details](#)

Increasing significantly	35
Increasing moderately	73
Remaining constant	18
Decreasing moderately	2
Decreasing significantly	0



The survey aimed to gauge respondents' perceptions regarding the future role of millet in food consumption. The responses were as follows:

Increasing significantly: 35 respondents (27%)

Increasing moderately: 73 respondents (57%)

Remaining constant: 18 respondents (14%)

Decreasing moderately: 2 respondents (2%)

Decreasing significantly: 0 respondents (0%)

### Key Insights

- Positive Growth Expectations:** The majority of respondents (84%) anticipate an increase in the role of millet in the future of food consumption, with 27% foreseeing a significant increase and 57% expecting a moderate increase. This reflects a positive outlook on the potential of millet to gain popularity and become more widely consumed in the coming years. These respondents likely believe in the nutritional, environmental, and culinary benefits of millet, driving their optimistic projections.
- Stable Expectations:** A smaller portion of respondents (14%) believe that the role of millet will remain constant in the future. While these individuals do not anticipate significant growth, they also do not foresee a decline in millet consumption. This suggests a degree of stability in their perception of millet's place in food consumption patterns, perhaps based on current consumption trends or market dynamics.
- Minimal Expectations of Decrease:** Only a very small number of respondents (2%) expect a decrease in the role of millet in food consumption, and none anticipate a significant decrease. This indicates a general consensus among respondents that millet consumption is unlikely to decline substantially in the future. Factors such as increasing awareness of millet's benefits, culinary innovation, and growing demand for sustainable food options may contribute to this expectation.

### IMPLICATIONS FOR POLICY AND PRACTICE

#### 1. Seizing Growth Opportunities:

- Promotion and Marketing:** Invest in promotional efforts to raise awareness about the benefits of millet and encourage its consumption among diverse consumer segments.
- Product Innovation:** Support research and development initiatives to create new millet-based products that cater to evolving consumer preferences and lifestyles.

#### 2. Sustainability Initiatives:

- Environmental Advocacy:** Advocate for policies and initiatives that promote sustainable agriculture and highlight millet's role in enhancing food system resilience and mitigating environmental impacts.
- Farmers Support:** Provide support and incentives for farmers to cultivate millet sustainably, thereby ensuring a consistent and reliable supply of high-quality millet products.

#### 3. Consumer Education:

- Nutritional Awareness:** Educate consumers about the nutritional benefits of millet and its versatility in culinary applications through educational campaigns, cooking demonstrations, and nutritional labeling.
- Cooking Skills Development:** Offer cooking classes and workshops to teach consumers how to incorporate millet into their diets and prepare delicious and nutritious meals.
- The consumption of ragi has declined among rural population over the years sharply from 1,811,000 tonnes in 1993-94 to 750,000 tonnes in 2011-12 (Table 5). The state-wise perusal reveals that this sharp decline was happening in Karnataka and Andhra Pradesh. The consumption of ragi among urban population revealed that it was found continuously increasing from 235,000 tonnes in 1993-94 to 272,000 tonnes in 2011-12. (Kumar, Sivaramane and Rao 2020)
- The Green Revolution was one such initiative to boost the primary sector of the economy by increasing the productivity of with the introduction of high yielding varieties of staple crops such as wheat and rice that led to significant increase in food production. Although Green Revolution brought significant benefits in terms of increased food production,

alleviation of hunger, improved rural employment but it also had unintended consequences such as the decline of traditional crops like millet. Prior to Green Revolution 40% of the crops that were cultivated were millets which is reduced to 20% over the years ( PIB, International Year of Millets: India leading the way) the reason could be assigned to shift in focus to major cereal crops like wheat and paddy Which were seen as key factors for

- addressing the food security of the economy. Since the inception of the Green Revolution, the cultivation of millet has steadily decreased, primarily due to farmers' prioritization of profitmaximizing crops such as wheat and paddy. The Green Revolution not only generated a surge in market demand but also established an organized market structure for crops like wheat and paddy, overshadowing the economic viability of millet production. Consequently, farmers shifted their focus towards these lucrative crops, leading to a decline in the cultivation of millet.
- In terms of economic advantages, millet production offers a solution to the issue of disguised unemployment. By encouraging surplus labour currently engaged in wheat and paddy fields to shift towards millet cultivation, workers can earn rewards based on their marginal productivity rather than their average output. This transition not only leads to better resource allocation but also historically demonstrates an increase in millet yield per hectare despite a reduction in production area. While improved input utilization and farming techniques suggest progress, the continual decrease in millet production area implies that optimal millet production levels have not yet been reached.
- Leveraging India's expertise in millet production to capitalize on its export potential could substantially bolster the country's foreign exchange reserves.
- Expanding millet production and strategically focusing on export-oriented growth initiatives not only aligns with global market trends but also presents a sustainable pathway for economic development. Thus, harnessing the untapped export potential of millet production emerges as a promising avenue for India to enhance its economic standing on the global stage, the income of the individuals associated with the exporting industry can be grown by the foreign trade multiplier, which is the change in national income brought about by a change in export and investment. The overall Aggregate Demand of the economy could also increase from International Journal for Multidisciplinary Research (IJFMR) this export promotion strategy as a result farmer's income can be increased as the GDP of the economy increases.  $GDP = C + I$
- $+ G + (X - M)$
- Millets, owing to their nutritional advantages, contribute to human capital formation by addressing nutritional deficiencies and fostering a healthy and productive workforce.
- Efforts are needed to revive the demand for millets in the market. This could involve initiatives to change the perception of millets, promote their nutritional benefits, and introduce innovative millet-based products to cater to changing consumer preferences. Addressing the demand deficiency in the millet market requires strategic initiatives, such as the Odisha Millet Mission, which incentivizes farmers to grow millets and stimulates demand in retail markets. Additionally, policies that support millet production and marketing could help create a conducive environment for investment and growth in the millet sector. (Naik 2024)

## **ANALYSIS OF OPEN-ENDED RESPONSES: ECONOMIC BENEFITS OF INCLUDING MILLET IN THE DIET**

- The survey asked respondents to elaborate on whether they perceive economic benefits from including millet in their diet. The key themes from the responses include environmental sustainability, self-sustainability, cost-effectiveness, health benefits, reduced production costs, soil health, local sourcing, and improvements in farmers' conditions. Here is an analysis of these themes:

### **Key Themes and Insights**

**1. Environmental Sustainability:** Respondents highlighted that millets are environmentally sustainable. This perspective emphasizes the economic benefits that arise from sustainable agricultural practices. Millets require less water and fewer chemical inputs compared to other staple crops like rice and wheat. This sustainability can translate into lower costs for farmers and potentially lower market prices for consumers.

**2. Self-Sustainability and Economic Independence:** Some respondents mentioned that creating a market for millets could lead to self-sustainability and reduce economic dependence on other states or regions. This point underscores the potential for millet cultivation to strengthen local economies by:

- Encouraging local production and consumption, which can keep money circulating within the community.
- Reducing the need for importing staple foods from other regions, thereby decreasing transportation costs and reliance on external markets.

**3. Cost-Effectiveness of Growing Millets:** Millets are described as cheaper to grow, which presents clear economic benefits. These benefits include:

- Lower input costs due to millets' hardiness and resilience to pests and diseases.
- Reduced need for expensive fertilizers and pesticides, which can significantly lower production costs for farmers.

**4. Health Benefits and Reduced Medical Expenses:** A nutritious diet that includes millets can lead to fewer expenses on medical treatments. Respondents noted that the health benefits of millets, such as better digestion and lower glycemic index, can contribute to overall wellbeing and reduce the burden of healthcare costs. Healthier populations can result in less economic strain on both individuals and public health systems.

**5. Reduced Production Costs:** The reduced production costs associated with millets were highlighted as an economic benefit. These cost savings can stem from:

- Lower water usage, which is particularly beneficial in regions facing water scarcity.
- Lower dependency on expensive agricultural inputs.

**6. Soil Health Improvement:** Millets are more suitable for soil health, which is an important economic benefit for long-term agricultural productivity. Healthy soil can:

- Improve crop yields over time, leading to better economic outcomes for farmers.
- Reduce the need for soil amendments and chemical treatments, thereby lowering farming costs.

**7. Local Sourcing and Reduced Intermediary Costs:** Local sourcing to local consumption cuts down intermediary costs. By reducing the steps between production and consumption, the overall cost of millet can be decreased. This also promotes local economies and can lead to more stable prices for consumers.

**8. Farmer's Condition and Crop Improvement:** Improving the conditions for farmers and enhancing crop yields are direct economic benefits of promoting millet cultivation. Benefits include:

- Increased income for farmers due to lower production costs and potentially higher market prices for millets.
- Enhanced soil fertility and better crop resilience, leading to more sustainable farming practices and improved livelihoods for farmers.

## IMPLICATIONS FOR POLICY AND PRACTICE

### 1. Policy Support:

- Subsidies and Incentives: Provide subsidies for millet cultivation and financial incentives for farmers adopting sustainable practices.
- Market Development: Invest in market infrastructure to make millet more commercially available and attractive to consumers.

### 2. Educational Campaigns:

- Health Benefits: Educate consumers about the health benefits of millets and their potential to reduce medical expenses.
- Sustainable Practices: Promote the environmental and economic benefits of sustainable millet farming practices among farmers and consumers.

### 3. Research and Development:

- Crop Improvement: Support R&D initiatives focused on improving millet crop yields and resilience.
- Product Innovation: Encourage the development of new millet-based products to enhance market appeal and consumer interest.

### 4. Local Economic Initiatives:

- Local Sourcing: Facilitate local sourcing initiatives to strengthen local economies and reduce intermediary costs.
- Farmers' Cooperatives: Support the formation of farmers' cooperatives to improve market access and bargaining power for small-scale millet producers.

## ANALYSIS OF SURVEY RESULTS: ECONOMIC BENEFITS OF INCREASED SUPPORT FOR MILLET FARMERS AND BUSINESSES

- The survey responses provide detailed insights into how increased support for millet farmers and businesses could benefit the local economy. The key themes from the responses include economic benefits for farmers, self-sufficiency, local revenue generation, improved access to healthier food, and broader economic impacts. Here is an analysis of these themes:

### Key Themes and Insights

**1. Economic Benefits for Farmers:** Respondents emphasized that increased support for millet farmers would economically benefit the farmers directly. This support could lead to:

- Higher Incomes: With better support and market access, farmers can earn higher incomes, improving their standard of living.
- Lower Initial Investment: Millets typically require lower initial investment compared to other crops, making them accessible for small-scale and marginal farmers.
- Improved Livelihoods: Enhanced support can improve rural livelihoods by providing more stable and sustainable income sources for farming communities.

**2. Self-Sufficiency and Reduced Reliance on Imports:** Several respondents mentioned that increased support for millet cultivation would increase self-sufficiency and reduce reliance on imported cereal grains. Benefits include:

- Reduced Import Costs: Lower dependency on imported grains can save foreign exchange and reduce import costs.
- Local Production: Encouraging local production can ensure a steady supply of millet, reducing the need to purchase from outside sources.

**3. Local Revenue Generation:** Support for millet farmers and businesses can boost the local economy through various channels:

- Increased Demand and Cultivation: Higher demand for millet can lead to more farmers cultivating it, generating more local revenue.
  - Locally Produced Goods: Locally produced millet goods can bring in more revenue by promoting local consumption and exports.
- 4. Improved Access to Healthier Food:** Respondents highlighted that increased support for millet cultivation could make healthier food more accessible to the local community:
- Lower Prices: With economies of scale, higher production can bring down millet prices, making it more affordable for consumers.
  - Health Benefits: Access to nutritious millet can improve public health, potentially reducing healthcare costs.
- 5. Enhanced Standard of Living and Rural Livelihoods:** Support for millet farming can enhance the standard of living for many farmers:
- Economic Stability: Stable income from millet farming can improve economic stability for rural households.
  - Subsidies and Quality Seeds: Providing good quality millet seeds at subsidized rates can encourage farmers to grow multiple crops, increasing productivity and income.
- 6. Environmental Suitability:** Respondents noted that the local climate favors millet cultivation, making it a viable and beneficial crop for farmers:
- Climate Resilience: Millets are resilient to local climate conditions, reducing the risk of crop failure and ensuring consistent yields.
- 7. Local Employment and Small-Scale Industries:** Supporting millet farmers can create local employment opportunities and promote small-scale industries:
- Job Creation: Increased millet cultivation and processing can generate jobs in agriculture, processing, and related industries.
  - Small-Scale Enterprises: Promoting millet-based products like snacks and juices can boost small-scale industries and enhance economic diversity.
- 8. Economies of Scale and Lower Logistics Costs:** Higher support can lead to economies of scale, reducing production costs and logistics:
- Lower Logistics Costs: Local consumption of locally produced millet can lower logistics and storage costs.
  - Reduced Wastage: Efficient local supply chains can reduce food wastage and ensure better quality produce.
- 9. Reducing Middlemen Profits:** Respondents mentioned that direct support to farmers could reduce the profits taken by middlemen:
- Direct Farmer Benefits: Ensuring that benefits go directly to farmers rather than intermediaries can enhance their economic position.
  - Fair Market Access: Providing farmers with fair market access and reducing reliance on middlemen can improve their profitability.
- 10. Potential for Export Growth:** Supporting millet cultivation can boost the local economy through export opportunities:
- Export Revenue: Exporting millets can generate additional revenue for the local economy and enhance international trade relationships.

## IMPLICATIONS FOR POLICY AND PRACTICE

### 1. Policy Support:

- Subsidies and Incentives: Provide subsidies for quality seeds, lower production costs, and financial incentives for millet farmers.
- Market Access: Develop policies to enhance market access for farmers, reducing the role of middlemen and ensuring fair prices.

### 2. Educational Campaigns:

- Awareness: Educate farmers about the benefits of millet cultivation and the available support mechanisms.
- Health Benefits: Promote the health benefits of millet to increase local demand and consumption.

### 3. Infrastructure Development:

- Supply Chains: Invest in local supply chain infrastructure to reduce logistics costs and improve the quality of produce.
- Processing Facilities: Develop processing facilities to create value-added millet products, boosting local industries and employment.

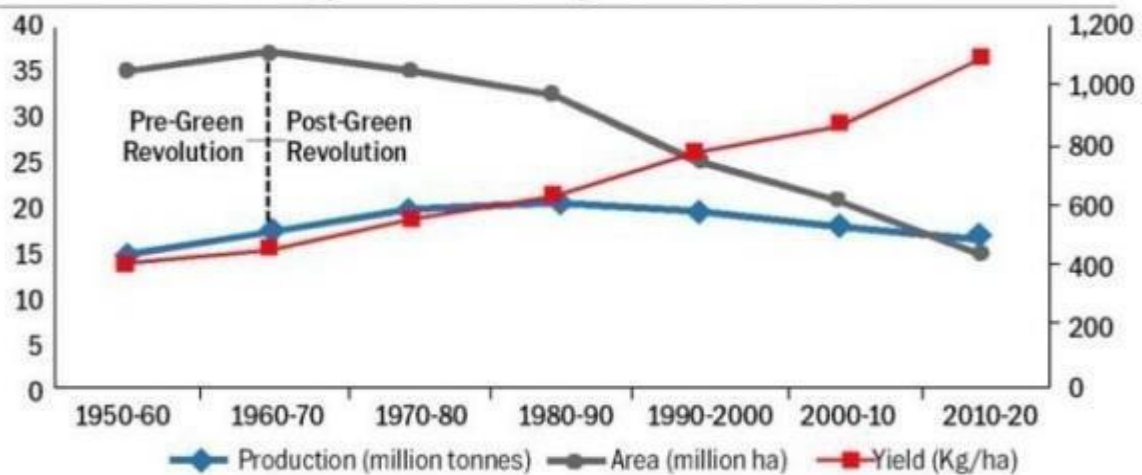
### 4. Research and Development:

- Crop Improvement: Support R&D initiatives to improve millet yields and resilience, making it a more attractive crop for farmers.
- Product Innovation: Encourage innovation in millet-based products to cater to diverse consumer preferences and increase market appeal.

According to one survey, there has been a decline in area under millet production after the 'Green Revolution', while production has mostly remained consolidated:



### Decadal mean area, production and yield of millets in India



Decadal mean area, production, and yield of millet in India. Source: *The Tribune* (Fig. 5)

### ANALYSIS OF OPEN-ENDED RESPONSES: ADDITIONAL INPUTS ON PROMOTING MILLET CONSUMPTION

- The survey collected additional inputs from respondents on promoting millet consumption. Key themes include the role of medical professionals and celebrities, government promotion, cultural significance, affordability and availability, public distribution, education on health benefits, and overcoming cultural perceptions. Here is an analysis of these themes:

#### Key Themes and Insights

##### 1. Promotion by Medical Professionals and Celebrities:

- Role Models:** Respondents suggested that medical professionals and celebrities should promote millets. This strategy can leverage the influence of trusted figures and popular personalities to raise awareness about the health benefits of millets.
- Health Advocacy:** Medical professionals can provide authoritative endorsements, emphasizing millet's nutritional benefits and recommending them as part of a healthy diet.
- Celebrity Influence:** Celebrities can create public interest and make millets trendy, appealing to a broader audience and encouraging adoption.

##### 2. Government Promotion and Awareness Campaigns:

- Government Initiatives:** There is a strong call for the government to actively promote millet production and educate people about their benefits. Government campaigns can reach a wide audience and provide the necessary support to farmers and consumers.
- Public Awareness:** Awareness campaigns should inform the public about the nutritional and environmental benefits of millets, correcting misconceptions and highlighting their importance for health and sustainability.

##### 3. Cultural Significance:

- Returning to Roots:** In regions like Maharashtra, where jowar bhakri (a type of millet) is a staple, promoting millet consumption can help reconnect people with their cultural heritage. This cultural resonance can strengthen the acceptance and integration of millets into daily diets.

##### 4. Affordability and Availability:

- Local Retail Availability:** Respondents stressed the need for millets and millet products to be readily available in local retail shops at affordable prices. Easy access to these products is crucial for increasing consumption.
- Price Sensitivity:** Making millets affordable ensures they are accessible to a broader population, particularly low-income groups. This can involve price subsidies or incentives for retailers to stock millet products.

##### 5. Inclusion in Public Distribution Schemes:

- Government Ration Schemes:** Including millets in government ration schemes (such as the Public Distribution System) can ensure that they reach economically disadvantaged populations. This can improve food security and nutritional intake among vulnerable groups.

##### 6. Education on Health Benefits and Usage:

- Combating Misconceptions:** Some respondents highlighted misconceptions, such as millets being considered a "low" type of food or difficult to digest. Education campaigns should address these beliefs, providing accurate information on how to prepare and consume millets healthily.
- Moderation and Suitability:** Educating the public on moderate consumption and the suitability of different millet types according to seasons can prevent overconsumption and related health issues.

##### 7. Overcoming Cultural Perceptions:

- Not a Poor Man's Food:** Efforts should be made to rebrand millets, shifting away from the perception of them being "poor

man's food." Highlighting their health benefits and culinary versatility can elevate their status.

- **Raising Awareness Among the Youth:** Targeting younger generations, including school children, can create long-term dietary changes. Schools can incorporate millet based meals and education on their benefits into their curricula.

#### 8. Direct Procurement from Farmers:

- **Support for Farmers:** Direct procurement from farmers can increase their income and provide consumers with fresh, high-quality millet. Awareness of production practices in specific districts can enhance consumer trust and promote local varieties.

### IMPLICATIONS FOR POLICY AND PRACTICE

#### 1. Multi-Faceted Promotion Strategies:

- **Leverage Influencers:** Engage medical professionals and celebrities in millet promotion campaigns.
- **Government Support:** Implement government-led initiatives that provide both educational and economic support for millet production and consumption.

#### 2. Cultural and Modern Integration:

- **Cultural Promotion:** Emphasize the cultural significance of millets in traditional diets.
- **Modern Rebranding:** Use contemporary marketing techniques to rebrand millets as a modern superfood.

#### 3. Education and Accessibility:

- **Comprehensive Education:** Launch comprehensive educational campaigns addressing health benefits, proper consumption, and cultural misconceptions.
- **Affordable Availability:** Ensure that millets are available at affordable prices through subsidies, public distribution schemes, and support for local retailers.

#### 4. Direct Farmer Support:

- **Direct Procurement:** Encourage direct procurement practices to support farmers and ensure quality.
- **Subsidies and Incentives:** Provide farmers with quality seeds and financial incentives to promote millet cultivation.

### CHALLENGES IN CONDUCTING THE STUDY

#### 1. Data Collection:

- **Geographic Diversity:** India has diverse geographical regions with varying dietary habits, economic conditions, and cultural practices. Collecting data from a representative sample across different states and regions can be logistically challenging and time-consuming.
- **Accessibility:** Reaching remote or rural areas where millet consumption might be higher could be difficult due to poor infrastructure and limited access to respondents.

#### 2. Respondent Participation:

- **Reluctance to Participate:** People might be hesitant to participate in surveys due to privacy concerns or lack of interest. Ensuring a high response rate can be challenging.
- **Language Barriers:** India has a multitude of languages and dialects. Creating surveys that are accessible and understandable to all respondents requires careful translation and cultural adaptation.

#### 3. Data Accuracy:

- **Self-Reported Data:** Reliance on self-reported data for dietary habits and economic conditions can lead to inaccuracies. Respondents may not accurately recall or may misreport their consumption patterns and income levels.
- **Bias:** Respondents might provide socially desirable answers rather than truthful ones, especially if they perceive certain answers as being more acceptable or favorable.

#### 4. Economic Factors:

- **Income Variability:** Income levels can vary widely, and respondents may have inconsistent definitions of income brackets. Accurately capturing economic data requires careful structuring of survey questions.
- **Inflation and Price Variability:** The cost of food items, including millets, can fluctuate due to inflation, seasonal changes, and regional price differences. This variability can complicate the analysis of economic factors.

#### 5. Cultural Sensitivity:

- **Dietary Preferences:** Dietary habits are deeply rooted in cultural and regional practices. Understanding and respecting these differences is crucial for accurate data collection and interpretation.
- **Perceptions of Millets:** In some regions, millets might be perceived as a "poor man's food" or less desirable, which could influence respondents' willingness to discuss their consumption openly.

## 6. Technological and Logistical Constraints:

- **Limited Internet Access:** In rural or underserved areas, limited internet access can hinder the distribution and collection of online surveys.
- **Survey Administration:** Administering surveys in person requires significant manpower and resources, including trained interviewers who can accurately record responses and handle language barriers.

## 7. Statistical and Analytical Challenges:

- **Complex Analysis:** Analyzing the link between economics and millet consumption involves complex statistical methods to account for various confounding factors and ensure robust conclusions.
- **Data Integration:** Integrating data from multiple sources (e.g., surveys, market data, government reports) requires careful data management and consistency checks.

## CONCLUSION

In conclusion, the study on the economic impact of millet consumption in India reveals compelling insights into its potential benefits across various dimensions. Economically, millets offer a cost-effective alternative for farmers due to their lower cultivation costs and resilience to climatic variations, potentially enhancing income stability and rural livelihoods. Moreover, their nutritional profile, rich in fiber and with a low glycemic index, suggests potential health benefits that could lead to reduced healthcare expenditures and improved public health outcomes.

From an environmental standpoint, millets stand out for their resource efficiency, requiring less water and fewer chemical inputs compared to conventional crops. This characteristic not only supports sustainable agricultural practices but also contributes to climate resilience, crucial for regions prone to climatic extremes. Culturally, promoting millet consumption can reconnect communities with traditional dietary practices, especially in regions like Maharashtra where millets have historical significance as staple foods.

Market dynamics play a pivotal role as well. Encouraging local production and consumption of millets can stimulate local economies, reduce dependency on imported grains, and lower intermediary costs. Accessibility and affordability are critical factors in increasing consumption, necessitating supportive government policies such as subsidies and inclusion in public distribution systems to ensure widespread availability at reasonable prices, particularly for economically vulnerable populations.

Moving forward, effective policy frameworks and educational campaigns are essential. Government initiatives should focus on incentivizing millet cultivation, improving market infrastructure, and raising consumer awareness about the nutritional and economic advantages of millets. Educational efforts should dispel misconceptions, promote balanced consumption, and highlight millets as a sustainable and nutritious dietary choice. By harnessing these opportunities and addressing challenges, India can harness the full potential of millets to foster economic growth, environmental sustainability, and improved public health outcomes nationwide.

## FURTHER SCOPE OF STUDY

While this study has offered valuable insights into the economic factors influencing millet consumption in India, several areas warrant further investigation. Future research could explore regional variations in millet consumption, comparing urban and rural areas to understand how availability, pricing, and cultural preferences impact consumer behaviour.

Additionally, investigating supply-side dynamics would provide a more comprehensive view, including challenges faced by millet farmers, market intermediaries, and distribution channels. Evaluating the effectiveness of government policies promoting millet through longitudinal studies could shed light on their impact over time and across regions.

Further research should also focus on quantifying the environmental and health benefits of millets, assessing their potential to reduce healthcare costs and enhance sustainability. Comparative studies between millet and other staple grains like rice and wheat could offer deeper insights into the economic and nutritional trade-offs faced by consumers.

Addressing these areas will help develop a more thorough understanding of millet's role in the Indian food system and support the creation of policies that promote sustainable agriculture and healthier diets.

## REFERENCES

- (FAO), Food and Agriculture Organization of the United Nations. 2021. "Crops and Livestock Products: Millet." *FAOSTAT*.
- Chaurasia, Dr. Rakesh Kumar, and Narola Anichari. 2023. "Nutritional and health benefits of Millets: A review." *The Pharma Innovation*.
- Durgad, Ambana Gouda, Amrutha T Joshi, and G.M. Hiremath. 2021. "Consumer Preference for Foxtail and Little Millets in North Eastern Region of Karnataka." *AESSRA*.
- Ipe, Benjamin Thomas, and K J S Satyasai. 2022. "Nutri-Cereals for a Healthy Economy." *Rural Pulse*.
- Kane-Potaka, Joanna, Seetha Anitha, Takuji W. Tsusaka, Rosemary Botha, Muralidhar Budumuru, Shweta Upadhyay, Parkavi Kumar, et al. 2021. "Assessing Millets and Sorghum Consumption Behavior in Urban India: A Large-Scale Survey." *Frontiers in Sustainable Food Systems*.
- Kumar, B. Ganesh, N. Sivaramane, and Ch. Srinivasa Rao. 2020. "ECONOMIC ANALYSIS OF PRODUCTION AND CONSUMPTION OF FINGER MILLET IN INDIA." *MULTILOGIC IN SCIENCE*.
- Naik, Ajay. 2024. "The Economics of Millets in India." *International Journal for Multidisciplinary Research (IJFMR)*.