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Millet Production and Exports from India

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I. INTRODUCTION

Millet, a centuries-old traditional crop crucial for dry-land farmers, is hailed as a smart food. Its integral role in regional diets has grown due to environment and lifestyle shifts, promoting reevaluation of millet's production, processing, and utilization with a modern technological approach.

A. World's Millet Production

Global millet cultivation fell 25.71% from 1961 to 2018, yet productivity rose 36%, notably in West Africa. India, the top producer (37.5% globally), faced reduced cultivation due to changing food habits. Despite a global decline in millet area, productivity increased, especially in Africa and Asia. Peak millet trade values were in 2011–2017 (imports: 155.26 million US$, exports: 127.60 million US$), reflecting shifts in agriculture, diets, and economics (www. Millet and Millet Technology)

B. India's Millet Production

India leads global millet production with varieties like Pearl Millet (Bajra) and Sorghum (Jowar), contributing 19% to world production in 2020. Rajasthan, Karnataka, Maharashtra, Uttar Pradesh, Haryana, Gujarat, Madhya Pradesh, Tamil Nadu, Andhra Pradesh, and Uttarakhand collectively contribute 98% to India's millet production. Among these, Rajasthan holds the highest share at 28.61%. Pearl Millet, Sorghum, and Finger Millet dominate India's millet production landscape. (www.APEDA 2022)

C. Tamil Nadu's Millet Production

Tamil Nadu Millets Mission: The Tamil Nadu Millet Mission (2014-15) under NADP revitalized millet cultivation for smallholders. It doubled millet production and cultivation area, enhancing soil moisture conservation by 10% and improving soil health. The mission promoted technology, post-harvest practices, and sparked consumer demand, boosting farmer income and entrepreneurship. Awarded the Krishi Karman in 2014-15, it transformed fallow land, promoted drip irrigation, introduced new millet varieties, and encouraged crop diversification towards less water-intensive options. (www.The Hindu Business line 2023)

D. Needs For Millets

For centuries, millets have been staple foods in various rural and indigenous communities in India, with around ten different varieties cultivated across regions. The millet revolution aims to bring back traditional foods, support local farmers, and empower communities. It focuses on promoting millet varieties to enhance food sovereignty and preserve local food cultures. The movement supports small-scale and women farmers by sharing sustainable farming techniques through state-led initiatives.

II. REVIEW OF LIERATURE

G Basavaraj, P Parthasarathy Rao, Shraavya Bhagavatula and Wasim Ahmed,(2010), Pearl millet (Pennisetum glaucum), valued for its resilience in challenging conditions, is extensively cultivated, particularly in developing nations, with India leading in production. Despite field surveys, a comprehensive study on industrial uses is crucial for tailored research. The findings reveal a decline in pearl millet consumption from 2000-2004 in urban and rural areas, with a minimal impact on high-income consumers. In recent years, it serves not only as a human staple but also finds utility in animal feed, adoptable alcohol, processed food, and more.

Srinivasan Nithiyanantham, Palanisamy Kalaiselvi,Mohammed Fawzi Monomodally, Gokhan Zengin, Arumugam Abirami, Gopalakrishnan Srinivasan, (2018),Millets, known for their nutrient richness and low glycemic index, offer various health benefits. Evidence suggests that their inclusion in the diet may reduce the risk of cardiovascular diseases, diabetes, and certain cancers. These high-energy foods address malnutrition and serve as a source of diverse bioactive compounds, acting as natural antioxidants.

Millets contribute to improved bone quality, preserving calcium concentration and enhancing antioxidant status, making them valuable for overall health.

K.N. Rai, C.L.L. Gowda, B.V.S. Reddy, and S. Sehgal (2008),Unrecorded rural wisdom encompasses valuable insights into the nutritional and health benefits of crops, along with diverse food product possibilities. Fermentation, a key topic, enhances nutritional quality and synthesizes vitamin B12 in sorghum through microorganisms. Additionally, dehulling, explored separately, improves sensory qualities in sorghum flat bread and reduces cooking time, enhancing volume and weight in rice-like dishes.

Pranita Patil, Sury Pratap Singh, Pankti Patel, (2023),Ragi, a versatile and resilient grain, thrives in harsh conditions, contributing to varied food supply and enhanced nutrition. Despite sensitivity in some, it's considered warming and least inflammatory. With superior nutrients, it persists mainly in specific cultivated areas.

Pradipta Banerjee and Sagar Maitra, (2020),Small millets, vital in tribal diets, serve as a staple food, during major crop fails to provide nutrition and sustainable cultivation. These nutrient-rich resources are potential nutraceutical sources, aiding in treating diabetes and obesity.

Table-1 Trend Projection of Millet Export for 2021-2023

Year	Quantity (Tonnes)	Percentage (%)	Growth Rate
2011-2012	203,603	9.81	------
2012-2013	318,142	15.34	36
2013-2014	201,938	10.17	51
2014-2015	252,715	12.18	17
2015-2016	186,189	8.97	-36
2016-2017	160,502	7.74	-16
2017-2018	148,001	7.13	-8
2018-2019	208,909	10.07	29
2019-2020	120,081	5.79	-74
2020-2021	127,310	6.14	6
2021-2022	138,199	6.66	8

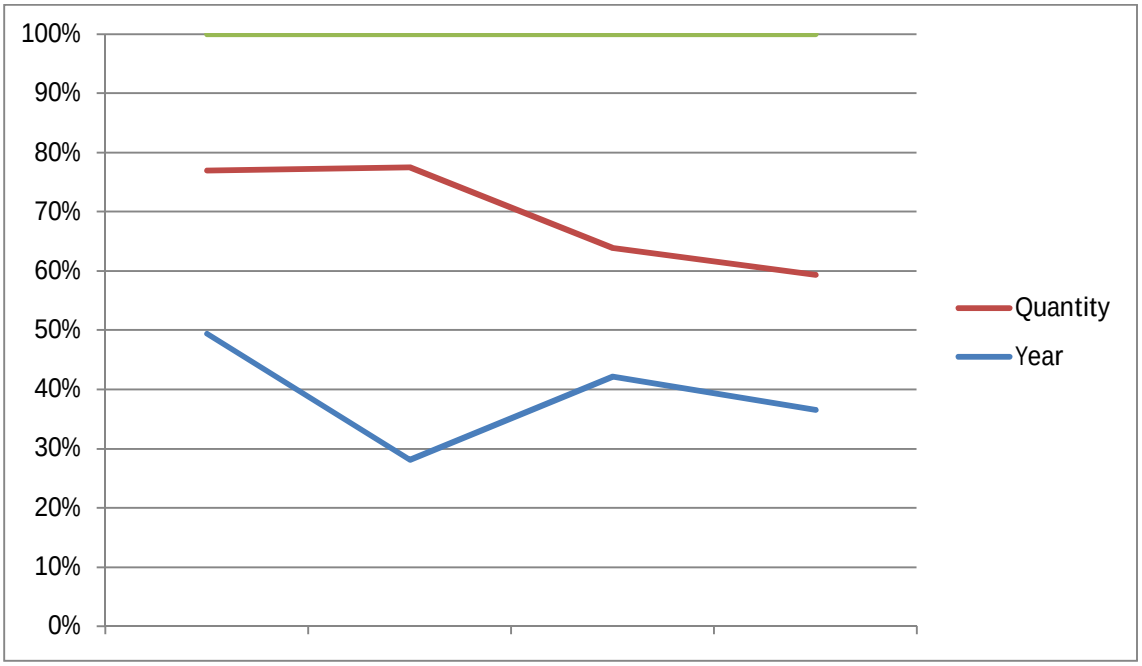
Source: (www.Millet statistics by ICAR)

Overall, in the year 2011-2012 to 2022-2023, the growth rate was 36 in the year 2013-2014, in the year 2013-2014 the growth rate has resulted to 51, and in the year 2014-2015 the growth rate has resulted in 17 and in 2015-2016 it was -36 . From 2016-2017 to 2021-2022 it resulted in -16, -8, 29, -74, 6, 8. Respectively. The growth rate of the value has resulted in a negative rate depicted.

Table 2 Trend projection of millet export from 2022-2023 to 2029-2030

Year	Quantity
2022-2023	107396
2023-2024	93862
2024-2025	80329
2025-2026	66795
2026-2027	53261
2027-2028	39727
2028-2029	26193
2029-2030	12659

Chart – I Chart of projection for Export of Millets for the years of 2023-2030



III. EXTRACTION OF CANDY SWEET FROM MILLET

Extracting candy sweetness from millet involves isolating and concentrating sugars present in the millet. You can start by milling the millet to obtain flour and then use water or other solvents to extract the sugars.

After extraction, the liquid can be concentrated and processed into candy. Keep in mind that the specific process may vary based on the type of candy you want to create and the desired characteristics.

IV. EXPORT OF CANDY FROM INDIA

India exported Candy worth 8.46 USD million to over 13 countries in 2020-2021 (Apr-Nov), with a total volume of around 5,645,690. This reflects significant potential for Indian Candy exporters to enhance global trade. Rep. of Korea leads Candy exports globally, while India's top 5 trading partners, including China and Malaysia, contribute to 97.04% of its Candy export value. In 2018, worldwide Candy export volume was 3,431,660, underscoring the growth in this sector. (www.Connect 2 India 2022)

Table 3 Health Benefits of Millet

SL.NO	MILLETS	BENEFITS
1.	Ragi	Sources of natural calcium, high nutritional content.
2.	Sorghum	Prevent cancer and control diabetes which it offers to increase digestive health.
3.	Pearl millet	Helps to relax the body, and it fights off insomnia.
4.	Jaggery	It aids in digestion, stimulates bowel movements and relieves constipation.

V. CONCLUSION

In summary, millet-based candies offer nutritional richness, unique flavors, and contribute to sustainable food choices. These ancient grains, including pearl millet, sorghum, and ragi, present an opportunity to enhance the nutritional profile of modern treats while promoting agricultural diversity.

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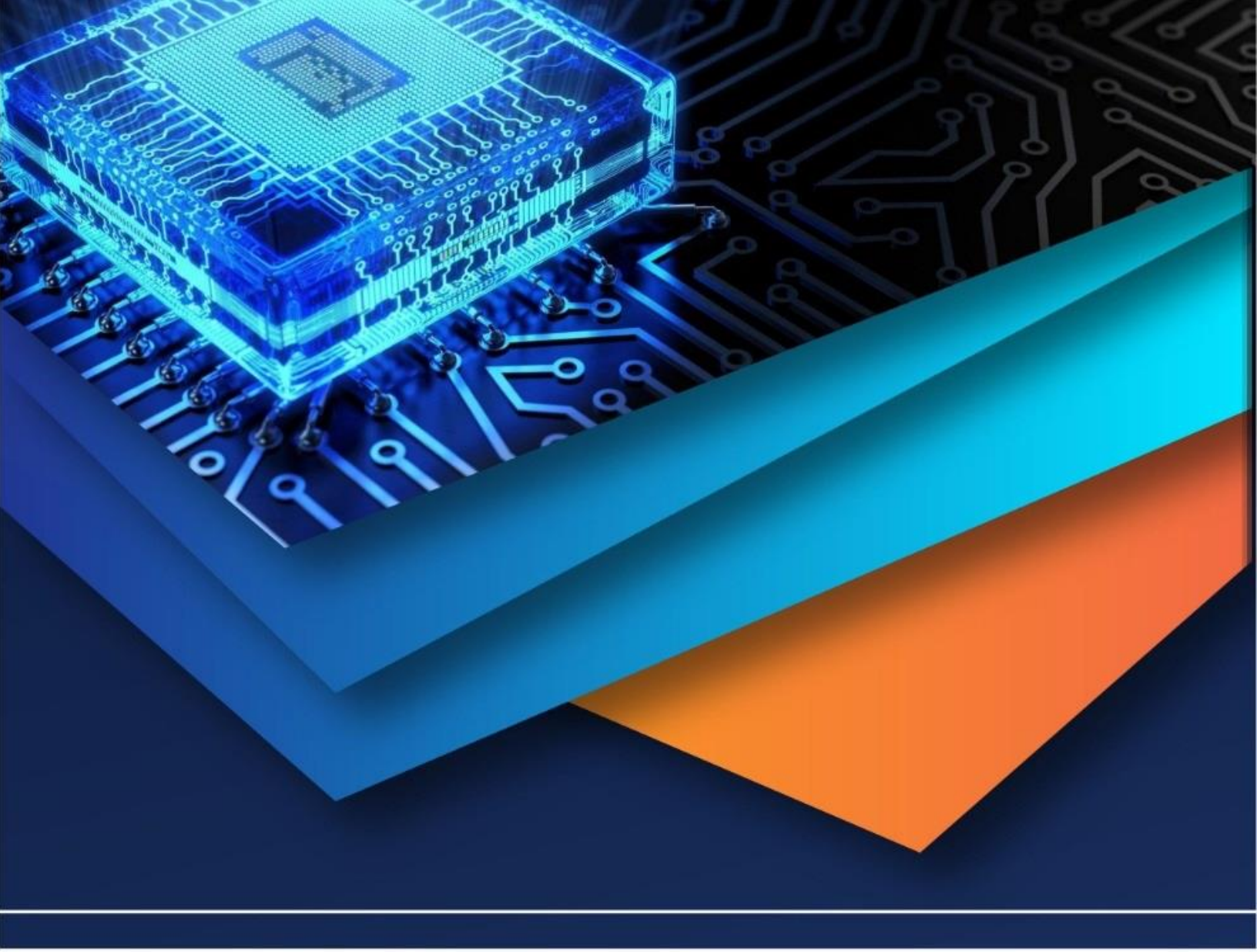

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