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Department of Food and
Nutritional Sciences
Anantapur Campus

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MILLETS

THE SUPER FOOD

A Sustainable Path
towards Food &
Nutritional Security

24th & 25th March 2023

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INTERNATIONAL YEAR OF
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2023

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Ancient Vs Modern Grains

HISTORICAL OVERVIEW

ANCIENT GRAINS:

MODERN GRAINS

Challenges:

Advantages

Examples

Millets: The Solution to a Sustainable Future

Millets as "Smart" Foods

Major and Minor Millets in India

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Ancient Vs M…

HISTORICAL OVERVIEW

ANCIENT GR… MO…

13,500-8,200 years ago
• Rice in Asia

9,000 years ago
• Maize in Mexico

8,000 years ago
• Wheat in Near East
• Millet in China

7,000 years ago
• Spelt in Europe
• Teff in Africa

6,000 years ago
• Sorghum in Africa
• Amaranth in Mexico

…,200 years ago
…s and Buckwheat in Europe

…years ago
…eh in Eastern Mediterranean

> Planted, cultivated and processed in tradi…

> Have a bit more crunch, density and a little …

> Low levels of pesticides, fertilizers, irrigation

> Not subjected to any modern breeding or selection

> Able to retain grain characteristics like individual viability, brittle

Examples:

Black barley	Durum wheat	Quinoa
Basmati rice	Einkorn, Emmer	Amaranth seeds
Red and Black rice	Millets	Buckwheat
Spelt	Oats	Chia
Teff	Freekeh	Bulgur (cracked wheat)
Khorasan wheat	Sorghum	Rye

Black rice · Durum wheat · Millets · Rye

…ges:

• Genetic erosion
• Environmental pollution
• Ecosystem degradation

Advantages:

• Less processed
• Contains more vitamins, minerals, fiber
• No use of chemical pesticides
• Improves blood sugar
• Reduces inflammation
• Reduces heart and cancer risk
• Majorly gluten-free like quinoa, millets, so… teff

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MODERN GRAINS:

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Millets: The Solution to a Susta

Importance of food security

Ensures physical and economic access to sufficient, safe and nutritious food

MILLETS 2023

Millets as "Smart" Foo

AIDS FOOD SECURITY

- Climate change and a rising global population calls for a need for versatile orphan crops like millets
- Poor man's crop due to significant contributions to a resource-limited population's diet
- Millet production has remained relatively stable over the past few years
- Genetic diversity and easy adaptability provides several opportunities for cultivation in developing countries
- Millet market expected growth at a rate of over 4.5%, with a value projection of over USD 12 billion in 2025
- Thus, will help achieve the UN 2030 Agenda for Sustainable Development

SUSTAINABLE DEVELOPMENT GOALS

(Source: United Nations, 2018)

BENEFITS THE ENVIRONMENT

- Millets are C4 crops and hence are climate change compatible
- Crops possess special features (molecular, biochemical and morphological) that allow them to thrive in adverse conditions like arid environment, high soil salinity, etc.
- Resilient to extreme conditions including high temperature and drought
- Reduce carbon footprint and helps maintain temperature

Millet Nutrition

PROMOTES NUTRIT

- Nutri-cereals: Promotes g
- A well-balanced profile of source of cysteine and me
- Rich in micronutrients lik iron, etc..
- Presence of bioactive com antioxidants and phytoche functional foods)
- Contains omega 3 and othe important fatty acids
- Gluten-free, high fiber con index
- Prevents non-communicabl type-2 diabetes mellitus and diseases
- Helps to prevent and overco malnutrition


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FSSAI STANDARDS FOR MILL


Research & Development Highlights
Dr CV Ratnavathi
Principal Scientist
Biochemistry
ICAR-Indian Institute of Millets Research, Hyderabad, India
ratnavathi@millets.res.in


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Balasubramanian Singathirulan
M
Mrs. M Thabusum, Senior Technical Assistant,
You
:17 AM | Conference invite link: Day 2 "Millets-The S...


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Why millets...?
Because of
▪To save water, mother earth, reduce chemical fertilizers with high productivity and nutrients more similar diets
▪" globalised diet
composed of big
ops like wheat, rice, potato and sugar.
includes crops th
portant 50 years ago wheat has long
been a staple
food in more than 97 per cent of
countries
▪Health and w
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Adoption and Incorporation of Millets in Nutritional Programmes an
Public Distribution Systems across India
Millets, recently renamed as the Nutri cereals/Smart food, have the potential to address India's food and nutrition security. The challenge of micronutrient deficiency can be tackled by incorporating them in nutrition programs and public distribution systems.
NITI Aayog promoted the need for the introduction of millets in the Mid-day meal programme
Karnataka
Karnataka became the first state to include jowar and ragi in PDS in July 2015 in accordance with recommendations in the National Food Security Act, 2013.
Telangana
Telangana is taking steps to include millets in public diets by introducing them in (ICDS).
Planned to distribute millet packets among tribal women and children in Khammam region through Anganwadi centres to enhance nutrition in their diets.(2023)
Odisha
Millets will be included in the midday meal programme in schools and will also be made available to people through public distribution system in the state of Uttar Pradesh
(Agriculture minister UP 2023)
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DEFINITION
PURPOSE
FUTURE PROSPECTS
FABULOUS

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BIO-FORTIFICATION OF MILLETS
BIO-FORTIFIED MILLETS
BENEFITS
FUTURE PROSPECTS
REFERENCES
BIO-FORTIFYING AGENCIES
HarvestPlus (CGIAR), IIMR, ICAR, ICRISAT, Africa Harvest Biotechnology Foundation International
➢Easy accessibility of diverse and nutri source.
➢Eradication of malnut and deficiencies.
➢Mitigation of hunger.
➢Ensures food security.
➢Helps to promote sustainable agro-ecosystem.

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FSSAI STANDARDS FOR MILLETS

- India introduced an international brand name for millet "SHREE ANNA" during the budget, 20
- The Food Safety and Standards Authority of India has issued standards for millets, which are
  from September 2023.
- Earlier, India had only individual standards for sorghum, bajra, and ragi. Now, FSSAI has issue
  types of millets with 8 quality parameters i.e. m imum li its for moisture content, uric acid co
  matter, other edible grains, defects, weevilled g ture and shrivelled grains, so as to en
  of good quality (standardized) millets in dom arkets

Newly introduced standards:

re than 13% by mass.

ble limit of extraneous matter to be 1% by mass (mineral
mineral impurities of animal origin < 0.10%).

dible grains < 2% by mass.

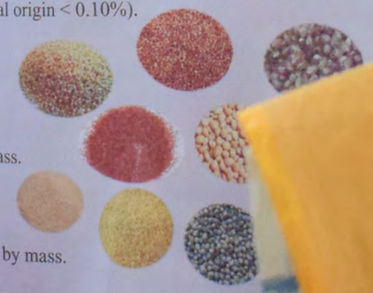
is with serious defects < 1%.

ains with slight defects < 7% by mass.

weevilled Grains < 4% by count.

7.Immature and shrivelled grains < 5% by mass.

8.Uric acid content < 100mg/kg.



Newly included millets i
standard list:

1. Amaranthus (Chaulai)
2. Barnyard Millet (Jhango
3. Brown top (Kora
4. Buckwhe
5. G

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food and nutrition secu

Stop sharing

tus Scientist

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Thank You
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Mrs. M Thabusum, Senior Technical Assistant, Multimedia Learning ...
S
Sudha ML
Conference invite link: Day 2 "Millets-The S...