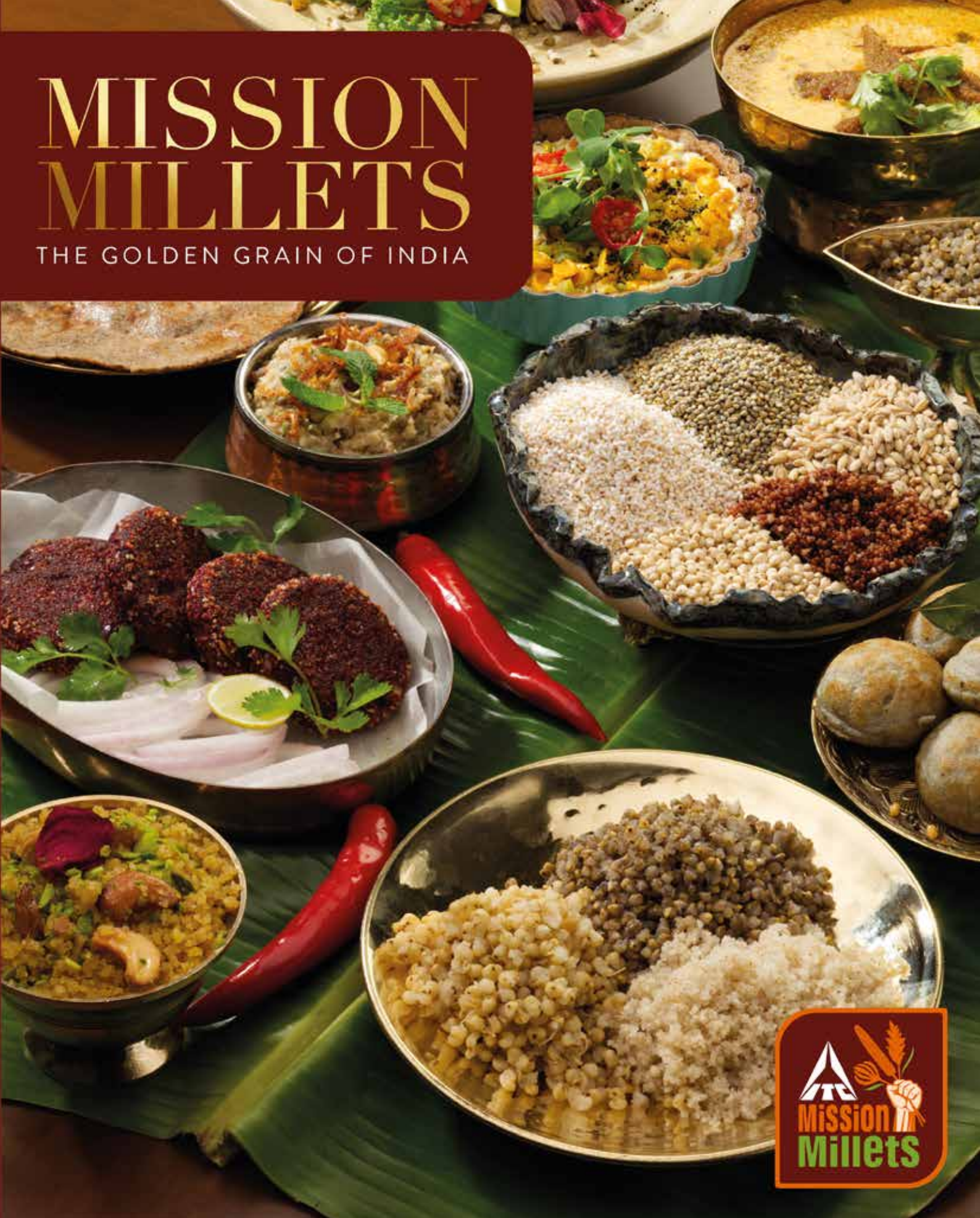


MISSION MILLETS

THE GOLDEN GRAIN OF INDIA





Marvellous Millets

Superfoods for conscious living

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CHAPTER ONE

On A Time Machine

Travelling back in time to trace the history of the mighty millet

The story of millets is a story of rare endurance. An odyssey of being lost in time and eventual comeback, their journey since their first appearance on this planet is nothing if not fascinating.

Millets are small edible seeds that came from grasses growing in rainless wild terrains that were domesticated as staple cereals almost 10,000 years ago in China and later in India.

Hardy and resilient, these ancient grains have survived the ravages of time and are still grown around the world. Millets are known for their superior nutritional profile that can compete with other cereals like rice and wheat.

What is more, they have been a crucial means for survival during droughts and famines in different cultures. After sinking into oblivion for years they are now back - as a superfood.

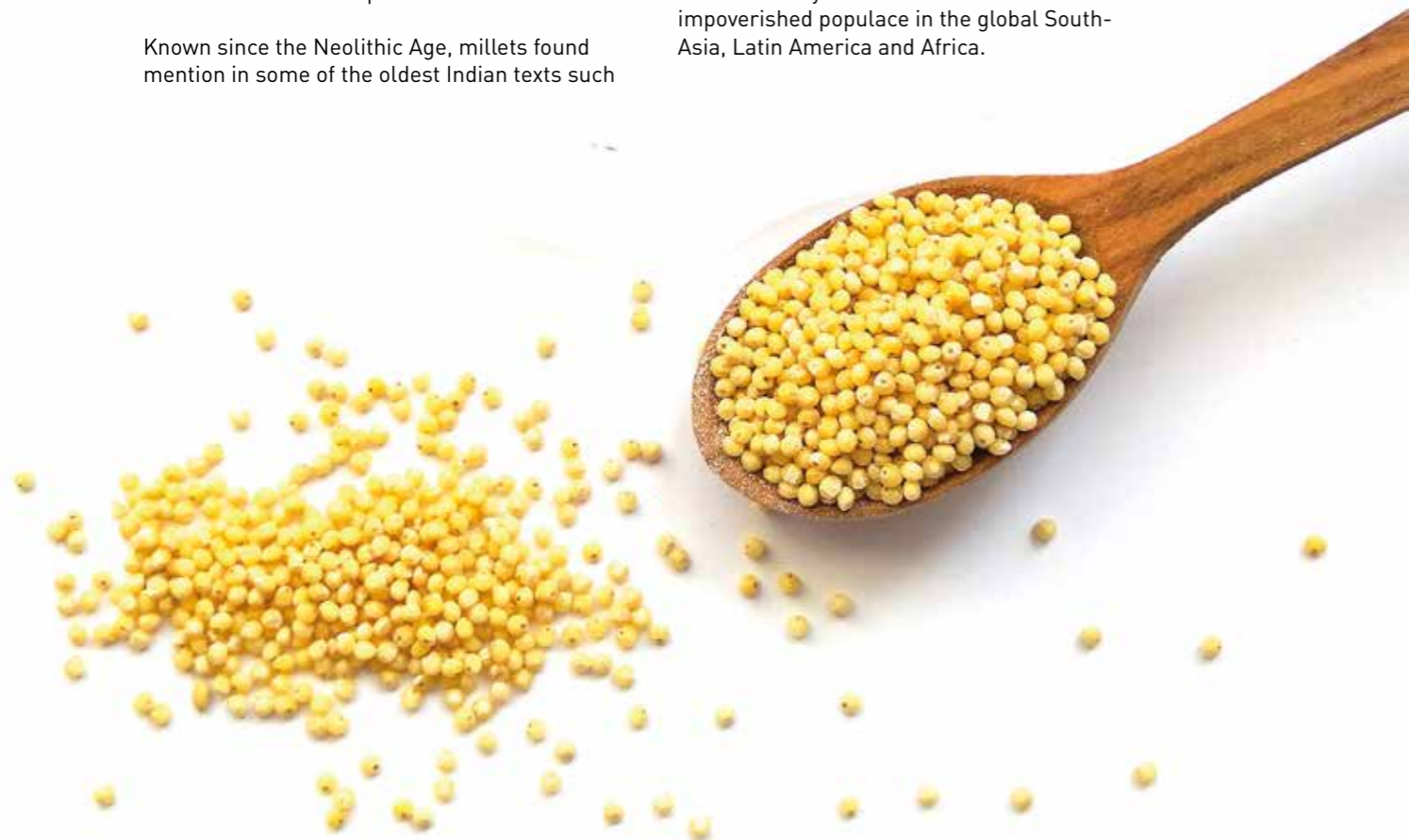
Known since the Neolithic Age, millets found mention in some of the oldest Indian texts such

as the Yajurveda. They also featured in the accounts of Megasthenes who travelled from Greece to the court of Chandragupta Maurya (302-298 BC), and in the verses of Abhigyan Shakuntalam written by Kalidasa (4th-5th Century). These texts demonstrate how millets were treasured by our ancient ancestors as healthy and auspicious.

Millets spread out from China and travelled westwards and then south to reach Thailand and southern India, particularly Karnataka, where it has survived in the form of ragi until today. Crop remains of the proso millet have also been found in Gujarat during first half of second millennium BC.

Archaeological evidence point to millets being grown in Africa and suggest a thriving trade between Africa and Saurashtra from where some African varieties reached other parts of the sub-continent. Mexico and Brazil in Latin America have also been known to grow and eat millets since ancient times.

With the coming of European colonialism and their discovery of spices, these indigenous grains were marginalised even in the far-flung colonies where they were once staples. Rice, wheat and maize replaced millets as staples and eventually millets became food for the impoverished populace in the global South-Asia, Latin America and Africa.



A Moment for Millets



A large body of scientific research recognises millets as superfoods.

Nutritionally dense, naturally gluten free and a fighter against 21st century lifestyle conditions (such as diabetes and heart disease), their reputation is soaring and with good reason.

Millets are back today, with their stocks rising rapidly. The dramatic change of fortune and the moment that millets are having now is not a sudden unexplained windfall. It is the result of years of research and science-backed data coming together and proving their true worth. A large body of scientific research recognises millets as superfoods. They are also acknowledged as crops ideally suited for our ravaged, overheated planet. Nutritionally dense, low in calories and a fighter against 21st century lifestyle conditions (such as diabetes and heart disease), their reputation is soaring and with good reason. That they are gluten-free and have a low-glycaemic index have created a genuine excitement about millets in the US and Europe and urban India, where vegan and gluten-free diets are now trendy.

This ancient grain is now revered by nutritionists and medical experts; conscious eaters and food producers alike. In fact, millets have now united researchers, green crusaders and agriculturalists passionate about sustainability and conscious eating too. This smart crop is good for the consumer, farmer and above all the planet, being resistant to climate-change and its challenges. Millet cultivation requires very little water and the hardy crop thrives in high temperatures too. Also, the ease of storing these small grains is simply unsurpassed. Not surprising that they are currently hailed as the panacea for most of our troubles.



Gluten Free



Vegan



Nutrient Rich

Link Between Foraging & Farming



We always knew that human settlements came up along the basins of great rivers and flood plains, where water was abundant, ideal for food crops. This theory has been challenged, with a series of startling revelations by experts. And the bridge between prehistoric humans and their transition from hunter-gatherer to farmers seems to be the protagonist of our story - the millet.

Studies have shown that millet was the earliest crop to be grown in the foothills of northern China almost 10,000 years ago. Turns out they were the perfect crop to be transported by nomadic hunter-gatherers to the Western world along a 'hilly corridor' where they became part of organised farming. Thus, they were the missing piece in the puzzle of transition of prehistoric humans from hunter-gatherers to farmers.

For hundreds of years, traders and horsemen carried millets from China through different

routes to sell them in faraway lands in exchange for other goods. These horsemen travelled along the bleak, rugged mountain terrains of the Silk Route, which passed through India, to reach West Asia and Europe. Experts suggest that nomadic tribes along the way were able to combine cultivating millets with hunting and foraging. Millets were eventually mixed with other crops by farmers across generations. This 'multi-crop' system was a gift—it prolonged the growing seasons and provided food security during times of scarcity.

Through the processes of radiocarbon dating and isotope analysis on charred millet grains from archaeological sites, as well as genetic analysis of modern millet varieties the researchers concluded that this 'domestication' of millets took place over thousands of years.

Millets in India

In India the millet is traced back to the Yajurveda, which is said to have mentioned the foxtail millet (priyangava), barnyard millet (aanava) and black finger millet (shyaamaka), popular foods pre-dating the Indian Bronze Age (4,500 BC).

The finger millet was said to be the staple of Karnataka in the Neolithic Era. It has been traced back to approximately 2300 BC Hallur, which indicates connections of the people of this area with Africans. African millets (found in the area) arrived in South India and Indian cultivars found their way to Africa. The pearl millet, sorghum and finger millet also reached western India from the African shores in the later 3rd millennium BC. Pearl millet was known to be prevalent in Saurashtra and moved to South India, where it was found around 1800 BC. However, the millet surfaced in Ayurvedic texts only since the 14th Century AD.



Millets showed up during archaeological excavations in the Indus Valley area as well. Traces of the ancient grain found in the area suggested that the people of Mohenjodaro and Harappa were used to a diet of millets, 5000 years ago, along with wheat and barley. There is evidence that in some regions of the civilization small millets were the primary cereals.

There was, in fact, a thriving millet culture in India even later, chronicled in travelogues and literature (see box). From the times of Chandragupta Maurya (321-297 BC), and the age of the Vishnu Purana (450 AD) and Varaha Purana (10th Century) down to the Vijayanagar kingdom (1336-1646), the millet has been traced as a staple. It was also found in India during the Mughal rule, particularly that of Akbar (1556-1605) and Jehangir (1605-1627).

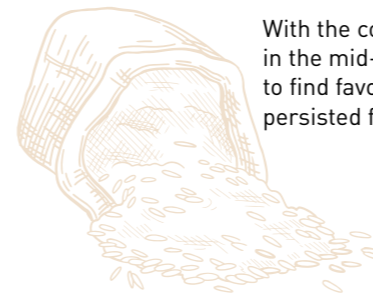
In South India, Purandara Dasa, the Kannada poet from the 15th century, celebrated the popularity of finger millet (ragi) in his verses. Hyder Ali (1720 -1782), the Sultan of Mysore, was known to consume a roti made from of sorghum, apparently a staple for his subjects.

How the Millet was Lost

After colonizers arrived in India they manipulated agricultural production to suit their business interests. They sourced spices, cotton, indigo and other commercial crops from India and sold them in Europe. And so from the 17th to the 20th century, the productivity of food grains including millets did not rise in India. Millets almost disappeared from large parts of India hereafter. Nineteenth century documents suggest that millets were used only during famines or as secondary crops, while rice, wheat, barley and other grains grew in popularity and demand.

With the coming of the Green Revolution in India in the mid-1960s, long grained cereals continued to find favour from the government, which persisted for the next few decades. Millets, that

were once staple in India, were pushed down in the pecking order of grains by a model of agriculture that relied on chemicals and nutrients with cash crops such as rice, wheat and barley. Millets were now consumed by small groups where they were grown, mainly by the poor or those who belonged to tribal communities. Over a period, the diversity of small millets shrunk as did the area of cultivable land allocated to them. So from being a common food crop in the olden times, millets ended up being relatively minor or forgotten crops.



Foods of the Future

The tide has now turned. If millets were our first food, they are now seen by the scientific community as foods of the future. What is most exciting about the new research on millets is that the humble grain, emerged as the answer to modern food security. Experts are unanimous in their belief that the millet may have a role to play in protecting us against crop failure, scarcity and famine. It may be the most resilient of crops at a time when global warming is a looming spectre. The awareness and education on millets, therefore, is critical in transforming our futures.

Fortunately, there are efforts under way on multiple levels to restore millets to their rightful place. The government has taken up programmes to push their demand in India and globally, launching campaigns to educate consumers to change their mindsets. There are efforts to educate farmers about better varieties and growing techniques. The corporate sector is also an active partner in the process—food manufacturers and the hospitality industry have taken up the task of promoting millets through their products and menus.

ITC, which has health and sustainability built into its mission, has played a prominent role in this sphere. As a responsible organisation, it has been ITC's constant endeavour to support the National Nutritional priorities emanating from India's commitments towards the UNSDG 2030 and Mission Poshan 2.0.

ITC's efforts overall are in sync with the Seven Sutras put in place by the Government of India. In the run up to the International Year of Millets 2023, a charter has been rolled out by the concerned ministries and departments:

- 1** Enhancement of production and productivity
- 2** Nutrition and health benefits
- 3** Value addition, processing and recipe development
- 4** Entrepreneurship, start-ups & collective development
- 5** Awareness creation including branding, labelling and promotion
- 6** International outreach
- 7** Policy interventions for mainstreaming millets.



ITC's Foods Business Division, as a part of its core commercial strategy continues to build a model that has food offerings that are healthy and sustainable. The company sees millets as a transformative tool and has taken on the mission to build a culture of millet consumption through its own product portfolio. The consumer giant now produces staples, noodles, vermicelli, flours, biscuits, confectionery and snacks using millets. This is in keeping with its core purpose of 'Help India Eat Better'.

ITC's Food and Agri businesses are harnessing their energies in creating awareness and understanding about millets among farmers, growers and end consumers. ITC has made it its mission to work closely with farmers to create new robust cultivars of millets and also educate them about the benefits of growing them. Farmers working with ITC's Agri division now see millets as a climate resilient crop and witness their potential for yielding higher incomes.

The company's goal has been to educate the public on every aspect of these superfoods—varieties, nutritional benefits and their role as a sustainable, smart crop. ITC also works closely with media platforms to spread awareness on the role of millets as a conscious food. The aim is also to build consciousness about how farmers benefit from cultivating and selling millets.

ITC Hotels proudly promotes millet based dishes as an integral part of its culinary repertoire.

Millets Over Centuries

THE LEGEND OF RAGI AND RICE AT LOGGERHEADS

It is believed that Lord Indra, while traversing through the fields one day, came across akki (rice) and ragi (finger millet) at loggerheads with each other, over who was superior. So the Lord asked both to go and work. When he finally summoned them back, he was surprised to see ragi looking fresh and bright, while akki was in shambles.

This story is often recounted to those unaware of the benefits of ragi.





CHAPTER TWO

Meet The Millets

An introduction to the diversity of the golden grain of India



- 
Foxtail Millet
- 
Finger Millet
- 
Barnyard Millet
- 
Browntop Millet
- 
Little Millet
- 
Kodo Millet
- 
Pearl Millet
- 
Proso Millet
- 
Sorghum

This map is only for representation purposes

India is the leading producer of millets worldwide. The top five states in the country that produce a major proportion of it are Rajasthan, Maharashtra, Karnataka, Andhra Pradesh and Madhya Pradesh. The smaller millet producing states include Bihar and Uttar Pradesh.

While millets were put on the backburner for years, there has been a reevaluation of these small grains and their relevance subsequently. Eminent scientists have been stressing the importance of millets for years, pointing out that they are a winning proposition both in terms of food security and fulfilling the nutritional goals of Indians.

Also, in the recent years the beneficial effects of millets are being harnessed in fitness diets and therapeutic uses, to not only treat nutrient deficiencies but also as a regular part of a healthy, nutritionally balanced meal. These superfoods are

being studied to reintroduce them into the Indian diet as vehicles to curb nutritional deficiencies like protein energy malnutrition, iron deficiency anaemia and many other micro and macronutrient deficiencies specifically in certain vulnerable groups—pregnant and lactating women, for example and children under the age of five years.

When India celebrated the Year of Millets in 2018, the Government organised programmes and extended assistance, incentives and subsidies to millet farmers. Alongside, mass education and awareness programmes have also been launched through different channels since then. Different ministries and departments of the Central Government have undertaken programmes and activities to promote millets around the country. The Government of India continues to encourage millet production and consumption through its inclusion in the

Public Distribution System (PDS) and Mid-day Meal Programmes (MDM) in certain states.

States such as Odisha, Maharashtra, Karnataka and Telangana have also undertaken initiatives for millet development at their own level. As India enters the International Year of the Millet, the growth story of millets and their popularity is expected to boom.

It is important to first understand and identify different varieties of millets—the way they look, their local names and what they have to offer—before we can embrace them and incorporate them in our diets more regularly. This, precisely, is the focus of this chapter.

Here is a ready reckoner that will be useful for you to know millets better.





Do you know your millets?

According to the Food Safety and Standards Authority of India (FSSAI), millets are classified into Major Millets and Minor Millets based on their grain size. Major millets include sorghum, pearl millet and finger millet. Barnyard, kodo, foxtail, little and proso are the minor millets. There is another class of millets—the pseudo millets—which are nutritionally similar and must be acknowledged as valuable in this context. They are called so because they are not part of the Poaceae botanical family, to which the 'true' grains belong. Buckwheat and Amaranth, which do not scientifically belong to the millet family but contain many essential nutrients, are examples of pseudo millets.



MAJOR MILLETS



Sorghum Millet

Scientific name:
Sorghum Bicolor

Hindi name: Jowar

Called the great millet or Indian millet globally, in India sorghum is called cholam or jonna in different parts of the country. Sorghum kernels appear in white, red, brown and black.

Sorghum is the world's fifth most important cereal, in terms of both production and area planted. Roughly 90% of the world's sorghum area and 95% of the world's millet area lie in developing countries, mainly in Africa and Asia, where it constitutes a major source of calories and protein for millions of people. Sorghum is a staple food for about 300 million people worldwide.

It is the highest produced millet in India, commonly cultivated in arid regions as it requires high temperatures for a good harvest. These crops are primarily grown in areas with scanty rainfall and those that are drought-prone, where other grains are unsuitable for the production unless irrigation is available.

Rich in nutrients like potassium, phosphorous and calcium, it also contains significant amounts of iron, zinc and sodium. With an abundance of micronutrients it is drawing attention worldwide as a millet with the potential to treat malnutrition.

Sorghum is generally used to make rotis and other Indian breads. It is sometimes ground into a meal and consumed as porridge. The stalks of this grass are used as fodder and building material.



Pearl Millet

Scientific name:
Pennisetum Glaucum

Hindi name: Bajra

This greenish grain is one of the most popular millets and is grown in Rajasthan, Haryana and Uttar Pradesh. In the South it is also known as kambu, sajjalu, sajja or sajje.

Pearl millet is a crop suitable for cultivation in drought-prone areas with low soil fertility and high temperatures. This millet is essentially known for its high content of phytochemicals and minerals like magnesium, copper and zinc. It also contains unsaturated fatty acids which are considered to be good fats.

A lot of communities in India eat bajra rotis as part of their daily diet. Many healthy eaters make khichdi and porridge out of it.



Finger Millet

Scientific name:
Eleusine Coracana

Hindi name:
Mandua/Ragi

Finger millet or Ragi is the most common millet consumed in the state of Karnataka. Popular in Karnataka as ragi and in Maharashtra as nachni, it is mostly grown in the southern parts of India and is called ragalu, madhuka, keppai, nagli and marwa in different languages. This red-coloured grain is a healthy substitute for rice and wheat and is high in protein and is highly filling.

It is rich in amino acids, vitamin A, and vitamin B and phosphorous, its high fibre content is known to be beneficial for those with constipation, high blood pressure and cardiovascular diseases.

Ragi balls or mudde are very popular in Karnataka and are said to be highly nutritious. Also made into cookies and halwa, it is ideal for growing kids as it is the richest source of calcium and minerals and also boosts brain development.

MINOR MILLETS



Foxtail Millet

Scientific name:
Setaria Italica

Hindi name: Kangni

Foxtail millet is among the oldest cultivated millets. Known as kakum, korralu, kora, kangni or navane in different languages, it is available in the form of semolina or flour and is considered one of the most easily digested of millets.

Its high protein content makes it a nutritional powerhouse—it has high protein content (12%). Foxtail millet has a unique flavour and is also known for its hypoallergenic properties. It is loaded with minerals such as calcium, iron and copper, making it a nutritious option for pregnant women and malnourished children for strength and immunity.



Barnyard Millet

Scientific name:
Echinochloa Utilis

Hindi name: Sanwa

Barnyard millet is also called shyama, khira and udalu in different regions. It is nutritionally dense, packed as it is with iron and a high fibre content. Sanwa is rich in calcium and phosphorous, which helps in bone building. Those looking to improve their blood lipid profile can also try this millet as the antioxidants in it are useful for this purpose.



Proso/Broomcorn Millet

Scientific name:
Panicum Miliaceum

Hindi name: Chena

Proso millet is used widely used as birdfeed. Also called bari, variga, cheeno, baragu, etc. in different states, it is amongst the oldest of millets. Proso is also a rich source of vitamins and minerals such as iron, potassium, phosphorus, zinc, magnesium, vitamin B-complex, niacin and folic acid. Rich in calcium, proso is essential for bone growth and maintenance. The grass of this millet is used to make brooms, hence the name broomcorn.



Little Millet

Scientific name:
Panicum Sumatrense

Hindi name: Kutki

Little millet also goes by names such as same, kuri, saamalu and sama in India. Its grains are smaller in size compared to the other millets, hence the name little. Used in several traditional dishes in south India it is often served as a substitute for rice.

Little millet is commonly grown throughout India. It is a nutraceutical rich in fibre and other essential vitamins and minerals. The nutritional value of little millet is comparable to other cereals and millets, though it is richer in iron and antioxidants. These days a number of products have been prepared using the little millet to leverage its diverse health benefits.



Kodo Millet

Scientific name:
Panicum Sumatrense

Hindi name: Kodon

Kodo millet, also called kodon, hadra, varagu or arika, it is easy to digest and can be beneficial for infants and geriatrics.

Kodo is a millet that was domesticated in India 3000 years ago. It is known for its highest fibre content compared to all other millets. The high amounts of lecithin in it is particularly advantageous to strengthen the central nervous system. It also contains high mineral content specifically beneficial for post-menopausal women. Kodo millet is useful for controlling high blood pressure and lowering the risk of cardiovascular diseases and high cholesterol levels.

PSUEDO MILLETS



Amarnath

Scientific name:
Amaranthus

Hindi name: Rajgira

Also known as ramdana and cholai beej, amaranth is gaining in popularity as a breakfast cereal and snack among health-conscious Indians. This millet is light and puffy and can be both dark and light in colour. Amaranth is high in protein and is also rich in calcium, iron, magnesium, phosphorus, potassium and other minerals.



Buckwheat

Scientific name:
Fagopyrum
Esculentum

Hindi name: Kuttu

Buckwheat is one of the most popular millets in India and is often used during the fasting period of the Navratras in India. Rich in vitamin B1, C and E, it is also rich in polyunsaturated essential fatty acids, such as linoleic acid and is a rich source of polyphenol compounds.

Buckwheat is generally ground into a fine powder to make bread, puris and cheelas.





CHAPTER THREE

Enter The Smart Crop

Millets make us future-safe in times of climate and crop crises



Food for generations of Indians, millets have been considered healthy and auspicious by farmer communities in this country for generations. From the Harappa and Mohenjodaro sites, to Hindu Vedic scriptures such as Sathapatha Brahmana and 'Shakuntala' by Kalidas, there is evidence of millet farming in India for eons.

Despite their elevated status once, the withdrawal of millets from the Indian food basket took place over a period of time—starting with the 19th Century to begin with and then again with the coming of the Green Revolution in the 1960s, in spite of its bounties.

The consumption of finger millets in India declined by 47%, while the intake of other small millets fell by 83% in the past five decades, according to experts. On the farm front, the cultivation of small millets declined from 7.22 million hectare to 2.2 million hectare between 1961 and 2009.

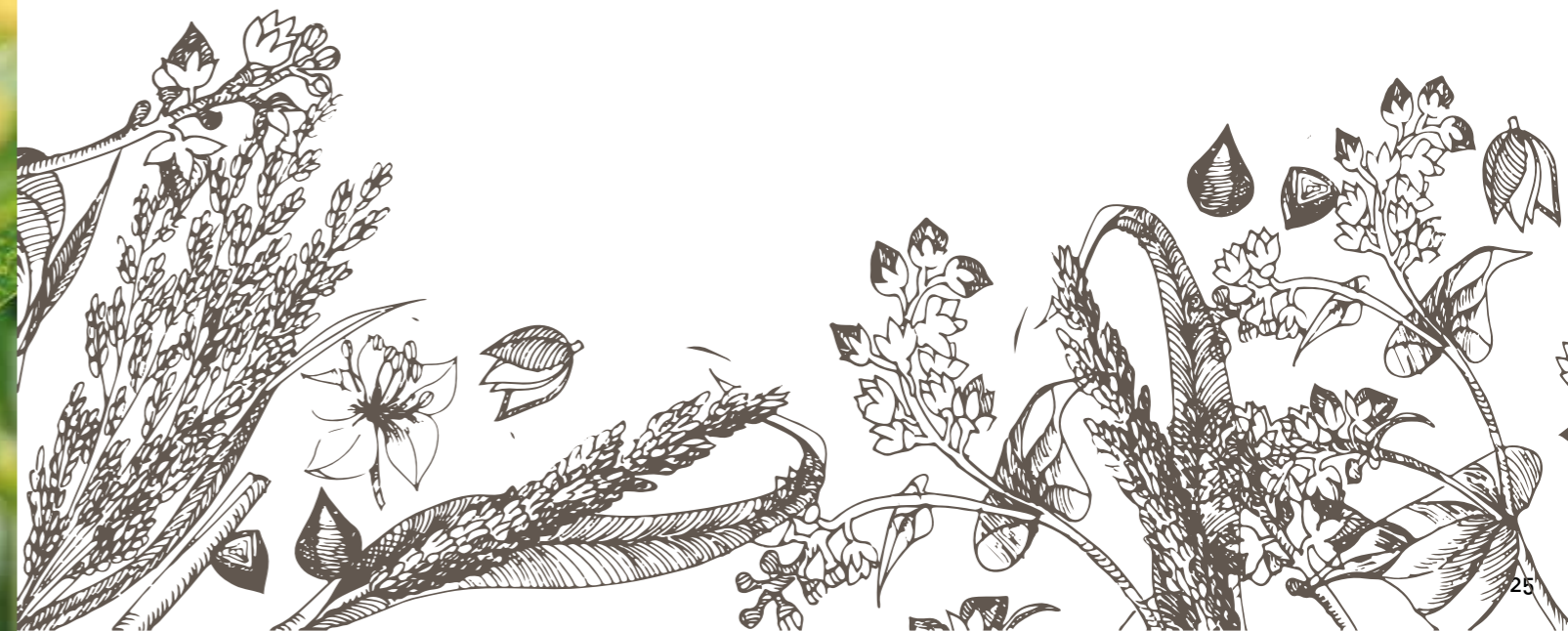
Factors for Declining Growth

The reasons for this massive decline are manifold. The area, production and consumption of millets in India have shrunk in recent decades both due to

demand and supply side factors. On the demand side, millet consumption has fallen owing to consumer preference for finer cereals, the low status of millets and policy issues. On the supply side, the limited productivity of crops, their growing environments and the lack of post-production facilities such as processing units in the vicinity of farms have been responsible.

Also, millets were not remunerative for farmers compared to other crops—it was much more profitable for them to grow crops like rice or wheat due to favourable government policies. The lack of input subsidies and price incentives also added to the apathy towards millets. On the other hand, the subsidized supply of fine cereals through the PDS shaped consumer preferences in their favour and affected the demand of millets. Other cash crops benefited at the cost of these small grains. This trend also changed food habits radically towards finer grains during 1961-2009.

Inadequate investments on both development of high-yield cultivars and better production technology also impacted their growth. Greater knowledge and awareness about millets in our daily diet could have removed the existing barriers against them.



Winds of Change

India's scientific community has now emphasized the versatility and durability of this crop in the face of dry spells and the growing stretches of fallow agricultural land. Millets have also been proved to be nutritional powerhouses that could change India's health scenario. It is encouraging that governments in recent times have responded constructively to these valuable inputs.

Central and state administrations are now proactive in supporting the cultivation of millets as well as reaching them to consumers. With an all-round effort to bring millets back to our farms and plates, the productivity of these small grains has gradually picked up. The adoption of high-yielding varieties of millets and improved production technologies have also been a powerful driver of this new growth. Today millet production has increased from 14.52 million tonnes in 2015-16 to 17.96 million tonnes in 2020-21.

Faced with acute agrarian and nutritional challenges, moving towards millets is an imperative for India today. Agricultural lands with irrigation facilities have already been exploited to the full in this country, leading to nutrient-deficient saline soils and lowering of water beds. The need of the hour is to find newer landmasses that can support increased grain production. However, the only land available today is parched and infertile, which cannot produce high-quality grains in sufficient quantities. This is where millets can be saviours. Being climate-change resistant, they score over other grains, such as wheat and rice, both with surviving adverse growing conditions and their high nutritional value.

Millet cultivation can keep dry lands productive and ensure future food and nutritional security. In India millets thrive in arid and semi-arid soil, where rainfall is low and water tables have been depleted. However, these resilient small grains retain their excellent nutritional character under such stressful conditions and continue to thrive. No wonder they have acquired the reputation of being 'smart nutri-cereals'.

At a time when the planet is warming up steadily and its water reserves are dwindling, millets remain resistant to droughts, photo-sensitivity and high temperatures, making them 'climate-smart'. These nutri-cereals are loaded with vitamins, minerals, essential fatty acids, phyto-chemicals and antioxidants that can help prevent and mitigate emerging lifestyle conditions and address multiple nutritional deficiencies. Millets are a powerful tool in building better public health today.

How can the food processing sector that lies in the intersection of agriculture and industry leverage the gift of the millet? This sector has the potential to transform agriculture and generate livelihoods in many agriculture-based economic activities. The availability of more hygienic and nutritious food makes it possible to diversify farm production in interesting directions, with new varieties of valuable crops. ITC has been catering to this very need by crafting unique wellness-focused packaged food products. Millets are now an important category for the group and leading food brands such as Aashirvaad and Sunfeast, play a significant role in anchoring a sustainable millet value chain, while empowering Indian farmers.



Production Share of Millets in India

India is the leading producer of millets and ranks top among ten millet producing countries. However, the yield of millets in India still remains low. Most of the cultivation is carried out in resource-poor soils in rain-fed conditions with least or no inputs. Moreover, the land allocated for the production of millets remains inadequate.

Crop	Area (000 ha)	Production (000 tons)	Yield (kg/ha)	% of world production	World production rank
Barnyard Millet	146	151	1034	99.9	1
Finger Millet	1138	1822	1601	53.3	1
Foxtail Millet	73	50	691	2.2	3
Kodo Millet	200	84	419	100	1
Little Millet	256	120	469	100	1
Pearl Millet	7129	10280	1442	44.5	1
Proso Millet	31	20	645	1.4	9
Sorghum Millet	5650	4410	781	6.9	6
Total	14622	12532	857		

Table 1: Contribution of India to Global Millets Production during 2016

Source: The Story of Millets, published by ICAR Indian Institute of Millets Research, Hyderabad (2018)

Except for sorghum and pearl millet, other kinds of millets are grown in smaller areas and in fewer countries across the globe. While finger millet is grown mainly in South Asia, India and East Africa, foxtail millet is confined to China, Myanmar and India. Proso millet is grown in 36 countries, but only in limited regions. Barnyard, little and kodo millet are mostly confined to India with no significant cultivation elsewhere in the world.



Millet Farming in India

This graph below will demonstrate the growth story of millets in India. After lagging for many years and remaining static, there has been an uptick in their production since 2009. Today India is the leading producer and consumer of millet crops and their products. People in arid and semi-arid regions of the country grow and consume millets as staple food.

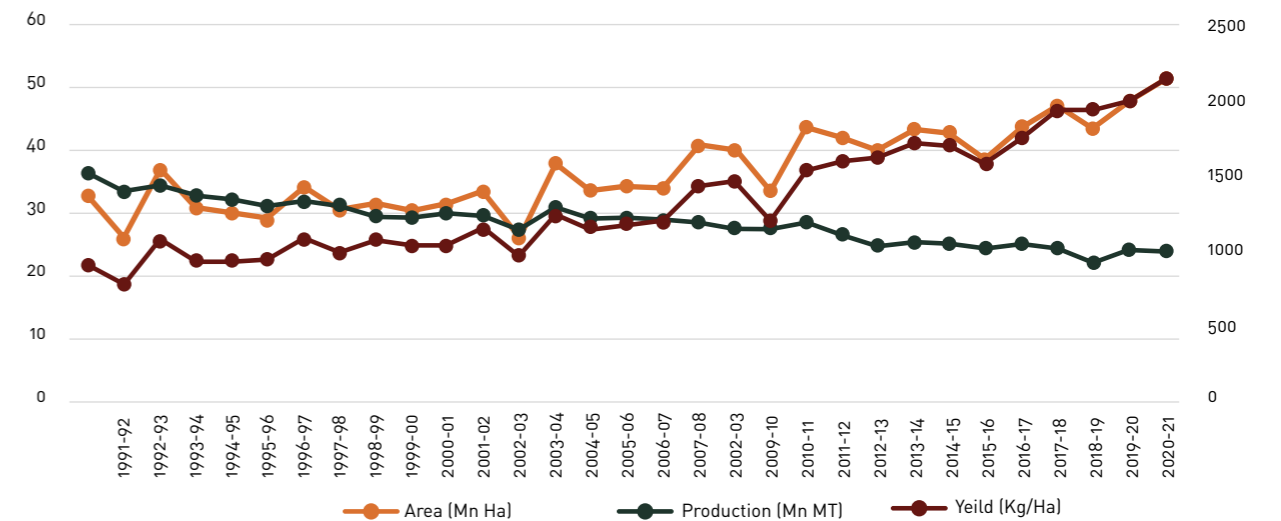


Figure 1: Trend of Millet (Nutri/Coarse Cereals) Production & Yield in India*

State	2020-21				
	Area (Mn Ha)	% to all India	Production (Mn MT)	% to all India	Yield (Kg/Ha)
Rajasthan	6.15	25.8	8.3	16.3	1355
Karnataka	3.45	14.5	7.7	15.1	2243
Maharashtra	3.89	16.3	6	11.7	1540
Madhya Pradesh	2.01	8.4	4.6	9.0	2309
Uttar Pradesh	2.02	8.4	4.5	8.9	2266
Tamil Nadu	0.99	4.1	3.6	7.1	3721
West Bengal	0.37	1.5	2.4	4.8	6563
Andhra Pradesh	0.51	2.1	2.4	4.7	4805
Bihar	0.67	2.8	2.2	4.3	3367
Telangana	0.37	1.5	1.9	3.8	5212
Gujarat	0.91	3.8	1.7	3.3	1906
Haryana	0.62	2.5	1.4	2.7	2300
Others	1.88	7.8	3.9	7.7	2108
Total	23.83	100	51.1	100	2146

Table 2: Millets or Nutri/Coarse Cereals : Area, Production and Yield during 2020-21 in major Producing States*

*Source: Agricultural Statistics at a Glance 2021, Ministry of Agriculture & Farmers Welfare, GoI

The Crop of the Future

Millet for sustainable farming

Millets provide the best option to our farmers for achieving the triple objectives of farming—profitability, adaptability and sustainability. Millet-based farming systems have numerous advantages: they are highly tolerant to high temperatures, frequent droughts and floods and can be cultivated in dry zones and rain-fed areas. The water required for its cultivation is nominal, compared to other crops as well. That they can be grown in the sand dunes of Rajasthan is a testament to the minimal needs of the millet as a crop and how well it can perform under lack of resources. Whereas 5,000 litres of water is required to grow one kilogram of rice, millets barely need 250-300 litres for producing the same quantity (see chart). Pearl and finger millet can suffice with merely 28% of paddy's rainfall needs. This makes it a great alternative to commercial staple crops with low input and better nutritional value.

Believe it or not, millets are also resistant to pest attacks. This characteristic comes in handy when planning mixed crop farming using non-pesticide management techniques. A few rows of millets separating rows of more susceptible leguminous crops are a common practice in farms today.

The storage life of millets is also comparatively high—2 years or beyond—compared to other

crops and are excellent contingency crops. Millets allow multiple farm-revenue streams—they can be food, fodder, source of sugar production and even biofuels. As a crop that is highly resilient to climatic stress, pests and diseases, it requires very low maintenance and therefore useful in bringing down the overall cost of growing, increasing profitability.

Most millet-growing regions in India utilize both the Rabi and Kharif seasons for their cultivation, which is an added advantage for producers. With the development of newer and better varieties, this property can further be explored to provide round-the-year income for farmers, simplifying cropping patterns and maximising outputs in terms of profits and income.

Dedicated programmes with proper training and capacity-building initiatives that urge farmers to move away from loss-making crops and towards diversification via millets are essential. It is also a tactical method to pull farmers in certain regions away from agricultural distress. Millet farming is also an emerging opportunity to strengthen and empower women farmers and promote entrepreneurship opportunities with skill and product development. There are many inspirational stories emerging from different parts of India of millets changing lives and livelihoods.

Crop	Water requirement to produce 1 kg yield (Litre)	Amount of fertilizer used – NPK total (kg/ha)	No. of plant protection sprays
Barnyard Millet	5000	145 - 195	4 - 7
Finger Millet	750	125 - 225	1 - 3
Foxtail Millet	750	175 - 280	3 - 4
Kodo Millet	833	100 - 215	0 - 2
Little Millet	667	100 - 175	0 - 1
Pearl Millet	1000	115 - 200	0 - 2
Proso Millet	1111	55	0

Table-3: Water, Fertilizer and Plant Protection requirements for Millet Crops
Source: The Story of Millets, published by ICAR Indian Institute of Millets Research, Hyderabad (2018)

Climate-resilient crop

Millets are one of the most essential crops in India's agricultural scenario today. They have evolved to survive in extremely harsh conditions without any need for human intervention. Most varieties of millets have preserved this characteristic and thrived in fairly diverse environments. With adverse conditions brought on by climate change, these features of adaptability have brought millets back on the radar of researchers and policy makers as a more sustainable food system.

Essentially, the environmental footprint of millets is a tiny fraction of paddy or wheat, which makes millets a main player among climate resilient crops. Millets being rain-fed, do not require standing water in their fields. Moreover, some distressingly unsustainable farming features—deployment of big dams, forest flooding by reservoirs and elaborate canal systems to transport water to the farms—are unnecessary for millets. Also, the need for synthetic fertilizers

and pesticides for millet cultivation is low compared to other commercial crops. Millets can be the answer to streamlining initiatives to boost the economy while protecting nature.

Millets have also played an important role in nurturing soils and improving their fertility and texture, thereby increasing yields and returns to the farmer. Once the root system is established, millets can survive many dry weeks. After the rains arrive, the crops jump back to life and produce yields by the end of the season. Millets are thus fairly effective at aggregating nutrients. If our agriculture systems must be conscious about closing the nutrient loop locally, there can be a manifold increase in soil health with millets.

Last but not least, millets keep the air clean. They fall under the group of C4 cereals, which absorb more carbon dioxide from the atmosphere and convert it to oxygen, thus reducing atmospheric carbon dioxide and contributing in mitigating the effects of climate change.

Millets in Indian Rituals and Festivals

Although they were lost to us for long, many millets have magically survived in India. Ancient rituals and festivals helped preserve them in the farms and kitchens of India. Our diverse and multi-racial communities valued millets and their richness. These communities have cultivated millets and made it part of their daily lives. Even today, millet festivals are celebrated across India.

In Madhya Pradesh, madiya (ragi) is mixed with turmeric and applied on the bodies of the bride and the groom during wedding ceremonies.

Millet seeds are also used to ward off 'evil spirits' in certain tribal communities: the Pahadi Korwa tribe of Chhattisgarh hangs millet stalks in their courtyards to ensure good hunting and a bountiful harvest.

For people in certain parts of northern Andhra Pradesh, it is mandatory to eat ragi pancakes before entering their homes after celebrating Diwali.

The tradition of preparing ragi still continues during the festival of the snake god (Nagula Chavithi) in parts of Andhra Pradesh and Tamil Nadu.



Photo Credit: By Sumathysk - Own work



CHAPTER FOUR

Millets As Superfoods

Amazing Health Benefits of the Golden Grain

Millets have earned the reputation of being 'nutri-cereals' as they provide most of the nutrients required for normal functioning of the human body. The energy, proteins, good fats, minerals and vitamins that millets provide makes them a superfood. High in fibre, naturally gluten-free and known to induce a low-glycaemic response, they help mitigate different lifestyle conditions. They are also recommended for the well-being of infants, pregnant and lactating mothers, the elderly and convalescents in various suitable forms.

Millets can grow without the need for too much attention and care and thrive without fertilizers and pesticides. In that sense, they are a great choice for clean and organic food enthusiasts—eating millets allow us to minimize chemicals and pesticides from our diets.

Genuine nutritional powerhouses, millets are rich in carbohydrates—but not simple carbohydrates. Instead, millets contain complex carbohydrates, resistant starch and slowly digestible starch that release sugar in the body over a longer time. This also makes them high energy foods which keep you full for longer.

Millets pack in the power of protein – they mostly contain amino acids in a balanced proportion that is beneficial for the body. Protein is essential in all life stages to sustain and develop a healthy body.

Naturally, millets have become the cereal of choice for those who prefer a gluten-free, vegan diet. The fats in millets are mostly unsaturated and thus good fats such as PUFA (Poly Unsaturated Fatty Acids), with a slew of health benefits: they help in lowering bad cholesterol and increase good cholesterol, which can potentially mitigate the risks of heart disease or stroke. They also work to maintain your body's cells and fight inflammation, owing to their anti-oxidative and anti-inflammatory properties.

Millets are high-fibre foods with water absorbing and bulking properties. They are a source of slow digestive fibre, which are good for the gut. They increase the transit time of food in the gut, which reduces the chances of inflammatory bowel disease and improve gut health in general. Millets bind bile acid and steroids, which make them a fighter against bad cholesterol as well. Some millets are also an excellent source of prebiotic fibre.

All small millets show excellent anti-hyperglycaemic activity. Hence millet-based foods are considered an excellent choice for diabetics. Being a source of plant-based protein and fibre, millets can be excellent weight-loss foods when consumed as part of a diversified balanced diet, in the right portion sizes. They are a good source of antioxidants too, which may help support the body's ability to resist oxidative stress, a factor in illness and ageing.



Millets and their Health Benefits



New research has shed light on the potential use of millets in therapeutic diets. Millets also contain several bioactive phytochemicals including feraxans, lignans, β -glucan, inulin, resistant starch, sterols and phenolic compounds (e.g., ferulic acid, caffeic acid and quercetin). Studies have supported the role of polyphenols in antioxidant, anti-carcinogenic, anti-inflammatory, antiviral and neuroprotective activities, which have shown to be beneficial against cardiovascular disease, diabetes, high blood pressure, high cholesterol, inflammatory diseases, metabolic syndrome. Here is how millets can be therapeutic in certain lifestyle diseases.

Diabetes

India has the second highest prevalence of diabetes only after China with approximately 77 million Indians affected by it. Lifestyle modifications with dietary intervention is key in managing type 2 diabetes. The high fibre content in millets aid in slow release of sugars into the blood stream maintaining a low post prandial glucose level. The B vitamins in millets support better carbohydrate utilization and ultimately millets serve as a low glycaemic food, especially effective for type 2 diabetes.

Cardiovascular Disease

According to the Indian Council of Medical Research and Registrar General of India, India accounts for almost 60% of the world's heart disease burden. Millets contain significant amounts of magnesium, known to reduce the

effects of heart attacks. The antioxidant nature of millets are known to help reduce oxidative stress and the fibre in them helps minimize the accumulation of bad cholesterol (LDL) and increase good cholesterol (HDL). Fibre in millets also aid in delaying the absorption of cholesterol, dietary fat and glucose, thus contributing to heart health.

Hypertension

According to the National Family Health Survey-5, 24% of men and 21% of women over the age of 15 years in India are hypertensive. High blood pressure is a risk factor for heart diseases and stroke. The DASH diet (Dietary Approaches to Stop Hypertension) promotes consumption of high fibre whole foods. Research suggests the benefits of millet consumption in controlling hypertension. Millets are rich in dietary fibre and contain certain antioxidants and micronutrients like magnesium and calcium that are effective in maintaining normal blood pressure. They also ensure a good serum lipid profile.

Celiac disease

Gluten intolerance is seen in those with gastrointestinal disorders like Celiac disease. Gliadin in wheat, horedein in barley, secalin in rye and avenin in oats are from the family of gluten proteins that cause inflammation on the inner lining of the intestine in gluten intolerant people. Being naturally gluten free millets serve as an excellent replacement for cereal grains in those suffering from Celiac disease.

Millets for Different Life Stages

Infants & Toddlers

Millets like ragi and jowar are traditional weaning foods in many Indian homes. These millets are traditionally malted, fermented or sprouted to prepare gruels for toddlers. The cooking process makes essential nutrients in millets such as iron and protein more bioavailable and digestible, the various nutrients present help in overall physical and cognitive growth and development along with building a good gut health in children. The Ministry of Women and Child Development also recommends feeds such as malted ragi mix, jowar food mix jowar khichri, etc. for supporting optimum growth and development of infants.

Children & Adolescents

Childhood and adolescence are periods of critical growth and development. The growth spurts in children need to be supported by adequate nutrition backed with all vital nutrients. It is also important to combat micronutrient deficiencies at this time and prevent malnutrition from setting in. Millets contain essential nutrients like iron for maintaining haemoglobin levels, calcium for bone health, zinc for immunity and growth and protein for strength. Millets serve as an ideal food source for fulfilling the nutritional needs of children. They have been introduced in the PM POSHAN scheme that takes up the provision of mid-day meals for school children. These nutri-cereals have also been identified as prominent sources of nutrients like protein and iron. Being energy dense, they are the most preferred food for this vulnerable age group. Millets, therefore, add to the nutritional value, maintain food security and aid in prevention of malnutrition.

Pregnancy & Lactation

Pregnancy demands specialised nutritional requirements for the mother

to maintain good health and aid in proper growth and development of the foetus. Special foods, such as traditional millet-based laddus, are prepared for expectant mothers for essential micronutrients at this time. Millets are known to help increase blood production, nourish the spleen and stimulate appetite during pregnancy. Millets like sorghum are encouraged for pregnant and lactating women in many parts of India due to their rich mineral and vitamin content (like copper and iron) contributing to immunity. Mothers who are breastfeeding can take advantage of these nutrient-dense cereals.

Adults

Adulthood is most demanding in terms of time and energy, hence attention towards health and well-being at this time is critical. Millets can be introduced into adult diets as a high-fibre, nutrient-dense, energy-providing foods that make up a large portion of our food plates. With changing lifestyles, it is critical for all adults to consume diets that are balanced, rich in essential macro and micro nutrients. This not only enables the body to go through daily wear and tear but also help in laying a strong foundation for the ageing process. Being such a versatile grain, millets can be consumed in many forms—snacks, main meals or small meals—very easily.

Senior Citizens

Energy-dense foods rich in protein and micronutrients are necessary for this group. Ageing leads to the slowing down of many processes. Hence ensuring a diversified-balanced diet, which is easy to digest, becomes critical at this time. Millets are good sources of healthy fats and fibre and are essential for maintaining good health in the elderly. Older people also experience disturbances in gut health and need easily digestible foods—millets

can help with this. They also serve to prevent constipation, common among the elderly. The non-starch polysaccharides found in millets form a major part of dietary fibre, which produce short-chain fatty acids by fermentation of resistant starch and serve as excellent prebiotics, thus supporting the growth of good gut bacteria.

Abundant supplies of phytonutrients and radical scavenging activities of antioxidants delay the onset of lifestyle disorders like diabetes and dyslipidaemia. Many people are susceptible to developing food intolerances in their old age, which call for dietary choices that contain adequate nutritional value and are hypo allergenic, like millets.

Women

Women's bodies are often subjected to change throughout their lifespan and to adapt to these changes nutritional interventions are necessary at every stage. Millets are powerful superfoods that cater to these requirements as they are energy dense and contain all essential amino acids important for women's health. Millets are rich sources of many essential nutrients for women including calcium, iron and magnesium—preventing anaemia, benefiting hormonal health and building immunity. Millet-rich diets have been recognized to be advantageous for women in maintaining regular menstrual cycles and for those diagnosed with PCOS. The consumption of millets is especially beneficial for postmenopausal women, protecting against arthritis, cardiovascular diseases and high cholesterol levels. Regular intake of high protein and mineral-rich millets help in maintaining body weight by adding bulk to the diet contributing to satiety.



Millets & their Unique Benefits

Even with their overall goodness, the nutritional character of millets and the way they are beneficial differs. You should consider including them in your diet for a powerful health boost. However, we recommend that you consult your medical caregiver or a qualified nutritionist, in case you are suffering from a metabolic disorder or any other condition, which requires special and/or specific dietary interventions.



Sorghum

Sorghum is rich in a variety of nutrients, including B vitamins (thiamine, riboflavin, niacin, folic acid and beta carotene), which play an essential role in metabolism, nerve cell development and boosting health of hair and skin. Sorghum is rich in antioxidants such as flavonoids, phenolic acids and tannins. Eating a diet rich in these antioxidants can lower oxidative stress and inflammation in your body. It also contains the goodness of iron that is important for immunity, energy and overall vitality.

Also known as jowar, sorghum is a rich source of carbohydrates and can be an excellent source of energy. It also has about 10 % protein—the protein in sorghum is prolamin (kaffirin), which has a unique feature of lowering digestibility upon cooking. This may be a health benefit for certain dietary groups. A great source of plant-based protein, it provides as much of it as quinoa, known for its high protein content. Protein as we know is essential for healthy growth and development.

Sorghum is packed with dietary fibre (10.22%)—mainly the insoluble variety (83.1% of the total fibre) and can help lower cholesterol levels due to the presence of policosanols and protect against heart disease. The insoluble dietary fibre of sorghum and millet may reduce transit time of food in the gut and prevent gastrointestinal problems. A diet rich in fibre, it also helps to manage weight, stabilize blood sugar levels and prevent constipation. A gluten-free grain, jowar is ideal for those who show an intolerance towards gluten. It is easy to replace rice or quinoa with whole sorghum in most recipes.



Barnyard Millet

This millet is low in calorie, high in fibre and iron and nutritionally dense overall. It is the ideal millet for weight loss, being a good source of easily digestible plant protein. It has the highest proportion of fibre among all the millets, which makes it good for gut health and as a fighter of cholesterol.

Sanwa or barnyard millet is rich in calcium and phosphorous, which helps in bone building—growing children could do well with this variety of millet. It has plenty of iron, which makes it a great source of this mineral for vegetarians. Those looking to reduce their blood lipid profile can include barnyard millet in their diet. With a low-glycaemic index, barnyard millet is also a great source of nutrition for diabetics.



Pearl Millet

This gluten-free grain is low in calories and packed with healthy nutrients that may aid weight loss, improve blood sugar levels and help support healthy hair, skin and nails owing to their protein content. Bajra also helps overcome fatigue, improves digestion and is a natural detoxifier. It is said to boost bone health and may also help fight against PCOS.

This millet scores high on energy values compared to the staple cereals but have a lower proportion of carbohydrates than the others. It is high in amylose starch (20–22%), and dietary fibre (11.5 %) in it helps in exhibiting a lower glycaemic response. Hence, it is recommended that people with diabetes eat pearl millet.

Pearl millet contains 10.96 % proteins and is an excellent source of plant-based protein. Its B vitamins are particularly useful in preventing hair loss. It is naturally gluten-free, making it suitable for people with gluten sensitivity and Celiac disease. Another advantage of pearl millet is that it is loaded with omega-3 fatty acids and other nutritional fatty acids good for our heart health and general well-being. Bajra is high in antioxidants, polyphenols and phytochemicals that contribute to optimal health for humans.

Rich in micronutrients such as iron, calcium, zinc, copper, potassium, magnesium, phosphorus, manganese and B-vitamins it has the highest proportion of niacin in it among cereals. Bajra, therefore, is an excellent cereal option for a healthy diet or as a substitute for wheat. You can also blend bajra with wheat to boost its goodness.



Finger Millet

This millet is a gift for children and adults: It is non-glutinous, packed with essential amino-acids, essential B-vitamins, calcium, protein, etc. Finger millet being rich in calcium helps support bone health, can help fight anaemia due to its iron content and keeps blood sugar in check. It is a natural weight-loss agent, helps lower the risk of cardiovascular diseases and is excellent for pregnancy and lactation as it increases the production of milk. It maintains skin health, with a good supply of vitamin E. It is especially known to boost the health of infants and children.

Ragi has loads of calcium (364 mg/100 g)—almost 10 times higher than that of wheat or rice—making it particularly useful for bone growth and development and ideal for infants and children. It also restores optimum bone density in older people and is known to relieve osteoporosis symptoms.

Finger millet has a high carbohydrate content, however, these carbohydrates consist primarily of slowly digestible starch, dietary fibre and resistant starch. Thus ragi has a low glycaemic index compared to most common cereals such as rice and wheat and is ideal for those watching their blood sugar.

Finger millet contains around 7% protein, which is less than that of other millets, but it has a good proportion of amino acids and contains more threonine, lysine and valine than other millets. Finger millet is also rich in minerals such as iron, magnesium, potassium and zinc, as well as the B-vitamins, especially niacin, B6, and folic acid. Ragi is too small to be polished and can be ingested in the purest form possible, without refining.



Foxtail Millet

This millet is an excellent source of vitamin B12, essential for the heart and nervous system, supports stronger bones, improves digestion and powers weight loss. A great source of minerals like iron and calcium, foxtail millet is a great immunity booster as well. The iron in it also boosts brain development. It is also a source of healthy complex carbohydrates that can balance blood sugar and manage high cholesterol, hence beneficial for heart patients.

Among the millets, foxtail millet has the highest protein content and ensures proper functioning of the nervous system—it actually has double the quantity of protein as rice. It is also abundant in dietary fibre (good for digestion and constipation and cleans bad cholesterol), resistant starch, vitamins and essential amino acids. Though not very rich in lysine and methionine, it is richer in them than in most other cereals. It also contains a high degree of stearic and linoleic acids, which help in maintaining a good lipid profile. Of course, being naturally gluten free it is a reliable cereal for Celiac patients.



Kodo Millet

This millet is also excellent for diabetics and people with metabolic diseases. It fights many chronic ailments. Kodo millet keeps you full longer and is a food useful during weight loss. High in protein (10.36%) and fibre (2.76 %) and low in fat (0.76%) – it is ideal for all age groups.

Chock-full of minerals such as calcium, iron, potassium, magnesium and zinc it is a nutritional star. Easy to digest, it can be especially beneficial for infants and the elderly. It provides energy values similar to the other millets and staple cereals.

Kodo millet is a great source of B vitamins, especially niacin, B6 and folic acid. Being gluten-free, it is ideal for people who are gluten intolerant or have Celiac disease. When consumed regularly by postmenopausal women, it can be beneficial. It helps lower the risk of cardiovascular disease, high blood pressure and cholesterol levels in them. With the exception of the finger millet, the protein content of kodo millet is lower than that of other millets, but it contains higher amounts of lecithin and is excellent for strengthening the nervous system. It can be a sensible substitute for rice and wheat.



Proso/Broomcorn Millet

This millet fights ageing, is beneficial for the nervous system, strengthens bones with its calcium content and may potentially lower the risk of skin disease pellagra (caused by the deficiency of Vitamin B3).

Proso millet has high proportion of protein (8.92 %). It also has a higher concentration of overall nutrition when compared to staple cereals as it is rich in minerals and dietary fibre. It reduces cholesterol levels and is a heart-friendly grain. Rich in antioxidants that remove free radicals from the body, it is an anti-ageing grain

Proso is also a rich source of minerals such as iron, potassium, phosphorus, zinc and magnesium. It is a more affordable source of manganese compared to spices and nuts. High in calcium, proso is essential for bone growth and maintenance. It is also loaded with vitamin B-complex such as niacin and folic acid.

Also, products prepared from Proso millet are slower in glycaemic response than products made out of wheat and maize. Hence, it is excellent for balancing blood sugar levels.



Little Millet

Kutki or Little millet is ideally placed to fight different lifestyle conditions. Packed with polyphenols and antioxidants compared to the other millets it is a powerful anti-ageing food that also builds immunity. It stabilises blood sugar, lowers cholesterol and improves heart health. It keeps us full longer and is good as a weight-loss food. Little millet also fights inflammation. It is also known to be useful for asthma patients.

It is generally seen to induce a lower glycaemic response, as it is packed with dietary fibre (7.72 %), resistant starch and slowly digestible starch and therefore ideal for patients with metabolic disorders. This variety of millets is loaded with B-vitamins and minerals such as calcium, iron, zinc and potassium.

The nutritional value of Little millet is comparable to other cereals and millets, though it is richer in iron and antioxidants and fights age-related oxidative stress effectively. It is also loaded with good fats. It contains around 10.13% protein and balanced amino acids and it is a rich source of sulphur-containing amino acids (cysteine and methionine) and lysine, lacking in most cereals. Thus it is a good source of low-calorie protein, ideal for vegetarians.



Buckwheat

Buckwheat is good for your digestive health, managing blood sugar, preventing the risk of heart disease and aiding weight loss. Kuttu or buckwheat is rich in protein (13-15%), especially the amino acid lysine. A rich source of soluble fibre, buckwheat is diabetes-friendly and lowers blood pressure. This millet contains rutin, a bioflavonoid known to control hypertension. Kuttu is also beneficial for good cardiovascular health and should be incorporated into your diet if you wish to lose weight. Possessing anti-inflammatory properties, buckwheat particularly protects against childhood asthma. Buckwheat is rich in vitamins B1, C and E. With higher levels of zinc, copper and manganese than other cereal grains, the bioavailability of these minerals in kuttu is also quite high. It is also rich in polyunsaturated essential fatty acids, such as linoleic acid and is a rich source of polyphenol compounds.



Amaranth

This pseudo millet is bursting with antioxidants that fight free radicals and inflammation. Hence it is a great anti-ageing grain.

The high protein (13-14 %) in amaranth makes it amongst the richest sources of proteins for vegans. The natural fibre in it makes it good for the gut. It contains the amino acid lysine that is either absent or scarce in other grains; lysine helps in the absorption of calcium, building muscles and producing energy. A rich dietary source of phytosterols, it reduces cholesterol levels and the risk of cardiovascular disease. It is also high in calcium, iron, magnesium, phosphorus, potassium and other minerals. Full of antioxidants, it has anti-hypertensive properties too. Amaranth oil contains approximately 77 % unsaturated fatty acids and is high in linoleic acid. Its high protein helps build good hair health.



ITC is committed to **Help India Eat Better**. To serve its consumers and stay true to its mission, the company has put millets at the heart of its health offerings. This initiative is aligned with our credo of Nation First: Sab Saath Badhein.

This is also in consonance with the Government of India's overall focus on nutrition and its Seven Sutras to celebrate the magical golden grain in the International Year of Millets.



CHAPTER FIVE

ITC's Millet Journey

This indigenous grain forms an integral part of this Indian corporates' Sustainability goals





In many ways, ITC's multidimensional initiatives on Millets is inspired by the Company's Vision to contribute in equal measure to people, planet and profit. This Vision is embedded in the Company's credo of 'Nation First: Sab Saath Badhein'.

Bringing the benefits of digital revolution to Indian farmers, the Company's 'Phygital' ecosystem ITC MAARS (Meta Market for Advanced Agricultural Services) is delivering seamless customized agri solutions to farmers' door steps. The initiative aims to support over 10 million farmers going forward.

ITC's Sustainability Journey

As a company deeply rooted in Indian soil, ITC is committed to make a meaningful contribution to sustainable and inclusive development. ITC's sustainability programmes aim to create large-scale livelihoods, empower rural communities, replenish natural resources and address the challenges of climate change.

A global exemplar in sustainability, ITC is the only company in the world of comparable dimensions to be water, carbon and solid waste recycling positive for 20, 17 and 15 years, respectively. ITC's businesses support sustainable livelihoods for 6 million people. Reimagining sustainability to address the imperatives of the new normal, ITC has now set itself ambitious targets for the next horizon enshrined in its Sustainability 2.0 Vision that envisages scaling up its interventions in climate smart agriculture, water stewardship, Health & Nutrition, biodiversity conservation, circular economy, decarbonization, among others.

ITC's engagement in agriculture has, over the years, enhanced farm productivity and market access, whilst enabling sustainable farming and enrichment of natural resources. These interventions have empowered over 4 million Indian farmers so far. Together with farmers and local communities, ITC has implemented largescale interventions in climate-smart and sustainable agriculture that make a meaningful contribution to the Hon'ble Prime Minister's vision of doubling farmer incomes. Towards this goal, ITC also launched an integrated programme titled 'Baareh Mahine Hariyali' (maximising farm utilisation over 12 months of the year) to give a new dimension to the complex task of multiplying farmer incomes. ITC is collaborating with NITI Aayog to progressively build capacity of 2 million farmers in 27 Aspirational Districts to help enhance rural incomes. ITC's Climate Smart Agriculture initiative has already covered 15 lakh acres of land across India benefitting over 4.5 lakh farmers, helping them withstand increasing weather-related uncertainties whilst boosting their incomes. ITC's Climate Smart Village programme has demonstrated encouraging results with GHG emissions of soya and wheat reducing by upto 66%, net returns increasing by upto 99% as well as enhancement in yield by upto 38%.

ITC's Afforestation Programme has greened more than 1 million acres, creating over 180 million person days of employment. Its Biodiversity Programme has covered over 1.3 lakh acres in 10 States. The Company's Integrated Watershed Development Programme has cumulatively covered over 1.3 million acres, generating over 7.5 million person days of employment.

ITC's premium luxury hotels have the unique distinction of being LEED Platinum certified. The LEED certification is a globally recognized symbol of sustainability achievement and it is backed by an entire industry of committed organizations and individuals paving the way for market transformation. The world's first 10 LEED Zero Carbon certified hotels are also from ITC's Hotel portfolio. Certified by US Green Building Council, this certification recognizes buildings operating with net zero carbon emissions.



Millets in ITC's Sustainability Goals

Along with ITC's sustainability goals, the group has been committed to the cause of a diversified balanced diet for good health, especially when it is derived from ethnic and traditional sources. ITC's focus on millets and bringing them back to our plates is organic to this journey of sustainability and good health.

Including millets as a major cereal in your daily diet is probably one of the most natural ways of enhancing the overall nutrient quality of the food plate. Through its core purpose statement of "Help India Eat Better", ITC Foods endeavours to support and contribute towards the Government of India's initiative of International Year of Millets 2023 and help increase the awareness and consumption of various millets among consumers, whilst supporting the farmers unequivocally. Millets are extremely critical to maintain both food and nutrition security for our country.

At ITC, we encourage and support the production of millets as they are the cornerstone within the sustainable food ecosystem. India has 70% of rural households dependent on farming for livelihoods. Millets have been the unsung hero of our food system for years. But in recent times they have proven their might as sustainable foods for adverse farming conditions and the ongoing onslaught of climate change. Millet crops can withstand diverse environments and harsh weather conditions without the need of human interventions. Moreover, they are carbon neutral and water efficient. They do not demand standing water or the support of dams, reservoirs and canal systems that are damaging for the environment. Millets also contribute towards soil health by improving the soil texture and fertility and in turn help increase yields. Being a short-duration crop that requires minimal fertilisation, millets can help pave the way for improved equitable incomes and farming opportunities.

Millets have a nutrient superiority with abundance of micronutrients, protein and fibre quantity. They are naturally gluten free, have a low glycaemic index and are non-allergenic. There are multiple health benefits that millets

confer including regulation of blood sugar and heart health. Being rich in protein, iron and B vitamins, millets also help address undernutrition and micronutrient deficiencies. Millets, popularly known as nutri-cereals, are truly the rediscovered treasures from the past.

As we negotiate a world where we are faced with rising concerns about health and nutrition, and a climate crisis, indigenous crops and recipes have come to the rescue of human health and the planet. Millet based products are a credible solution to these consumer demands and promise healthful food choices for the next generations.

Recognising these various nutritional and environmental benefits and the importance of the millet revolution, ITC has resolved to support the production and use of traditional millets. To aid the inclusion of millets amongst major cereals, ITC has developed range of offerings including Aashirvaad Natures Super Foods Ragi flour, Gluten Free Flour, Multimillet Mix and instant meals including Aashirvaads' Instant Khatta Meetha Poha with the goodness of millets.. ITC's Sunfeast brand has also brought in a biscuit range - Farmlite 5 grain digestive that contains Ragi and Jowar. ITC will continue to explore and create more value-added products, across various formats including ready-to-cook, cookies, snacks and confectionary, etc., to provide our consumers with a variety of choice to indulge in goodness of millets.

Millets form an integral part of ITC Hotels culinary offerings in signature restaurants & various culinary programmes like Still Made Here, Local Love, Mission Millets, Forgotten Grains etc

At ITC our focus has been to create and nurture world-class Indian brands that enable consumers to make informed choices. We believe that all products, in the right portions, have a unique place in a diversified, balanced diet. Thus, ITC accords top priority to deliver a high-quality, healthful, value-added portfolio, by increasing the overall nutrient value of our products. We do this by incorporating value-added ingredients and vital nutrients, which help in addressing the key needs of consumers, especially key micro-nutrient deficiencies and malnutrition, across all levels. Integrating millet-based products as a part of our value-added portfolio showcases our commitment on providing delicious, nutritious and convenient food options to discerning consumers.





Multi Millet Noodles

Your favourite Yippee noodles is now available with the goodness of millets. It has Ragi, Jowar, Bajra and Foxtail millet, which not only improves the taste quotient of this delicious snack, but also provides the goodness of vital nutrients.





Millet Pasta

Indulge in a delicious, melt-in-your-mouth wholesome treat as your perfect evening snack with the added goodness of ancient grains such as Ragi, Jowar and Bajra.





AASHIRVAAD
Ragi Vermicelli

Ragi Vermicelli

Your favourite Vermicelli, but with a whole lot more! Made with the choicest grains of Ragi, handpicked by our experts, this tasty Vermicelli comes packed with the goodness of calcium, fibre, and a whole lot of essential minerals that give you and your family a boost of health. Cook with the delicious Aashirvaad Ragi Vermicelli and experience more goodness, more benefits!





Multi Millet Dosa Mix

It has the benefits of 5 millets – Jowar, Foxtail, Bajra, Kodo and Barnyard – is the perfect breakfast alternative. The goodness of 5 millets helps in better blood circulation and promotes gut health by increasing the dietary fibre content in your meal. Cook mouth-watering dosas instantly with Aashirvaad Multi Millet Dosa Mix!





Multi Millet Rava Idli Mix

It adds the benefits of millets in your favourite Rava Idli. With the power of 5 millets – Jowar, Foxtail, Bajra, Kodo and Barnyard, it is the perfect breakfast idea. With Aashirvaad Multi Millet Rava Idli Mix, you can now make soft and delectable Rava Idlis instantly!





Millet Sticks

It combines Tedhe Medhe's signature masterblend of masala with a millet-enriched base. Packed with the goodness of iron, protein and micro-nutrients with zero compromise on flavour and crunch – you can now have the best of both worlds.

Millet Punjabi Tadka

This first to market innovation combines one of the most popular and fastest growing snack categories with the goodness of millets. The rich crunchy, tangy, masala flavour of Punjabi Tadka that we know and love, made guilt-free with a helping of millets.





Multi Millet Cookies

Farmlite brings to you Ragi and Jowar Millet cookies that are crafted by Master Bakers at Sunfeast! Packed with iron, protein and fibre, it is available in two variants: Multi-millet cookies and Multi-millet Choco chip cookies that offer variety and great taste.

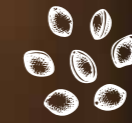


CANDYMAN Fantastik

Millet Chocostick

Wafer rolls get a nutritious twist! This first to market offering has been crafted using multi millet mix in the wafer, comprising Jowar, Foxtail, Ragi and Bajra to enhance the nutritional value, coupled with a delightful choco-crème filling. Now relish the crunchy and delightful experience in every bite. This millet chocostick is truly Fantastik.





CHAPTER SIX

Authentic Flavours. World Class Dining.

Curated by ITC Hotels' Culinary Experts





Over the years, ITC Hotels have earned a global reputation for culinary excellence. Guided by the credo of Responsible Luxury, where unparalleled luxury experiences co-exist in harmony with the planet & the society, the brand imbibes a distinct cuisine philosophy which entails decades of culinary research, time-honoured cooking techniques, resurrection of lost recipes; along with the sustainable use of local ingredients comprising over 50% of consumables at ITC Luxury Hotels being sourced locally & more.

ITC Hotels have a globally recognized repertoire of Indian and international culinary brands like Bukhara, Dum Pukht, Avartana, Royal Vega and Ottimo amongst others, all of which accentuate culinary artistry and heighten the diner's experience with signature flavours and distinctive aromas.

The humble grain on luxury plates

The focus on Millets: The Indian super-food; further exemplifies ITC Hotels' vision of using planet-friendly ingredients and bringing nutritious & delicious flavours to the palates of our discerning guests. **Mission Millet** is the latest addition to ITC Hotels' myriad culinary programmes like the Feel Good Menu, Signature Mornings, Local Love, Still Made Here etc, which endeavour to further enrich our food & beverage portfolio.

Here are some delicious & healthy Millet based recipes, curated by our culinary masters that you can make in the comfort of your homes.



Avocado and Passion Fruit Breakfast Bowl with Bajra and Ragi

ORIGIN: Global

Modern interpretation of the classic muesli, served with millets, avocado and seasonal fruits

INGREDIENTS

For the Porridge

- Bajra seeds: ½ cup
- Ragi seeds: 4 tbsp
- Milk: 2 cups
- Rolled oats: ¼ cup
- Jaggery powder: 2 tbsp

For the Topping

- Avocado (chopped): 1 cup
- Passion Fruit pulp (fresh): ¼ cup
- Banana (chopped): 1 cup
- Pomegranate pearls: ¼ cup
- Mint sprigs: 4
- Mascarpone cheese: 4 Tbsp
- Rosewood honey: 4 tbsp
- Sunflower seeds: 2 tsp
- Pumpkin seeds: 2 tsp

METHOD

- Wash millets in cold water 3-4 times and soak for 6-8 hours.
- Drain excess water from the soaked millets and transfer it into a saucepan.
- Add in milk and oats and cook well for about 20 minutes on a medium flame, stirring continuously. After 20 minutes add jaggery and cook for another 10 minutes.
- Once it is of porridge consistency transfer into a flat pan and cool. Fold in mascarpone cheese and serve with seasonal fruits, passion fruit pulp, honey, avocado & toasted seeds.

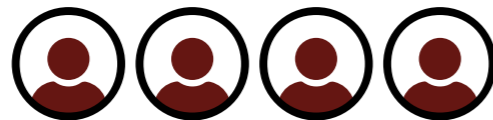
Preparation Time



Cooking Time



To Serve





▣ Pearl Millet (Bajra) and Jaggery Pancakes

ORIGIN: Global

Pearl Millet and Jaggery Pancake with the goodness of sunflower seeds

INGREDIENTS

- Pearl millet (Bajra) flour: ½ cup
- Boiled bajra: ¼ cup
- Toasted sunflower seeds: 4 tbsp
- Whole wheat flour: 1 ½ cup
- Ragi flour: ¼ cup
- Refined flour: ½ cup
- Boiled broken wheat: 4 tbsp
- Baking powder: 2 ½ tsp
- Salt: ½ tsp
- Jaggery powder: 1 tsp
- Whole eggs: 2
- Melted butter: 2 tbsp
- Milk: 1 ½ cup
- Baking powder: 2 tsp
- Baking soda: 1 tsp
- Curd: 4 tbsp

METHOD

- In a bowl mix all the ingredients together and keep the melted butter aside.
- Fold in the melted butter to make a smooth batter.
- Adjust the consistency with some milk if needed.
- Heat the griddle to medium heat with some butter and pour a ladle of the batter onto the griddle.
- Cook until golden brown on both the sides and serve with maple syrup or passion fruit jam.



Preparation Time



Cooking Time



To Serve





■ Foxtail Millet (Kangani) Paniyaram

ORIGIN: Tamil Nadu

Shallow-fried millet and lentil dumplings with traditional South Indian spices

INGREDIENTS

For the Foxtail Millet Batter

- Foxtail Millet: 1 cup
- Split white urad Dal: 1 ½ cups
- Fenugreek seeds: 1tsp

For the tempering

- Onion: 1 [chopped]
- Capsicum deseeded: 3 tbsp [chopped]
- Chana Dal [Bengal gram]: 1 tsp
- Urad Dal: 1 tsp
- Mustard Seeds: 1 tsp
- Ginger: 1 tsp [chopped]
- Green chili: 2 tsp [chopped]
- Curry leaves: 2 sprigs
- Coriander leaves: 2 sprigs
- Sesame oil: 3 tbsp
- Salt: To taste

METHOD

- Take two medium-sized bowls. Wash and soak the millets and urad dal separately along with fenugreek seeds in another. Soak for at least 8 hours.
- Drain the excess water from both the soaked millets and urad dal.
- Blend urad dal and fenugreek seeds along with just enough water to make a thick and smooth batter. Grind the Foxtail millet similarly and keep aside.
- Add this to the urad dal batter, add 2 teaspoons of salt and stir well to combine. Ferment the batter for 5 to 6 hours or overnight.
- Once the batter is fermented, gently stir so as to not release the air pockets careful to not release the air pockets.

For the Tempering

- Heat oil in a pan, add mustard seeds, let it splutter and add Bengal gram, urad dal and fry.
- Add onion, capsicum, ginger, curry leaves, green chili and sauté.
- Finally add coriander and mix well.
- Add the sautéed ingredients to the batter and stir well
- Heat the paniyaram pan (iron casting tastes better than other material) and grease with oil. Pour the batter in Paniyaram mould, cover with a lid and cook for 2 min.
- Flip over and pour 1 tbsp of oil around the paniyaram again cook for 2 minutes.
- Cut off heat, transfer to a serving plate. Serve hot with coconut chutney.

Accompaniment: Coconut chutney

Preparation Time



Cooking Time



To Serve





■ Mysore Bonda with Sorghum Flour and Coconut (Jowar and Coconut Flour Dumplings)

ORIGIN: : Karnataka

Millet and coconut dumplings with traditional spices

INGREDIENTS

- Whole urad dal: ½ Cup
- Green chili: 1
- Rice flour: ¼ Cup
- Coconut flour: 1 tbsp
- Sorghum flour: ¼ Cup
- Whole black pepper: 1 tsp
- Thinly sliced coconut bits: 1 tbsp
- Asafoetida: ¼ tsp
- Curry leaves: 1 Tsp
- Coriander leaves: 1 Tsp (chopped)
- Salt to taste
- Refined oil (for frying): 2 cups

METHOD

- Wash and soak urad dal for 30-40 minutes.
- Drain the water completely and grind to a smooth paste adding a little water. Add green chili and salt while grinding.
- Take the ground dal in a bowl, add sorghum, coconut & rice flour, whole black pepper, coconut bits, asafoetida, curry leaves and coriander leaves. Mix well.
- Heat oil in a wok and on a medium flame. Keep a bowl of water ready. Wet your fingers in the water, take a little batter, shape into a ball and gently drop it into the oil. Use thumb to gently push the ball shaped batter into the oil.
- Fry until golden brown.
- Remove it in a colander covered with kitchen towel to drain off excess oil.

Accompaniment: Coconut chutney

Preparation Time



Cooking Time



To Serve





■ Finger Millet (Ragi) Tortillas with Pulled Jackfruit and Crisp Banana Salad

ORIGIN: Global

Finger millet and BBQ pulled jackfruit tortillas with ripe banana salad

INGREDIENTS

For the Dough

- Ragi flour: 1 cup
- Jowar flour: ¼ cup
- Hot water: 1 cup
- Carom (Ajwain) seeds: ¼ teaspoon
- Refined oil: 2 tsp
- Salt: to taste

For the Filling

- Coriander leaves: 3 tbsp
- Cold-pressed coconut oil: 1tbsp
- Onion (thinly chopped): ¼ cup
- Garlic cloves (crushed): 3
- Ground cumin: 1 tbsp
- Jackfruit: 1 cup
- Barbeque sauce: 3 tbsp
- Coconut sugar: 1 tbsp
- Water: 1 cup
- Salt: to taste

For the Crisp Banana Salad

- Mexican spice powder: 1 tbsp
- Roasted cumin powder: ½ tsp
- Salt: To taste
- Raw banana Julienne: 1 cup
- Oil: For frying

METHOD

For the Tortillas

- Mix both Ragi and Jowar flour together.
- Add carom seeds, salt, warm water, oil and knead into a dough. Use a fork initially to incorporate hot water into the dough. Then slowly mix everything together using your hands.
- Roll the dough to a circle and cook on a heated pan.
- Place the cooked Ragi Tortillas in a hot pack to prevent them from drying out.

For the filling

- Separate the coriander leaves from the stems. Set aside leaves for garnishing. Finely chop the coriander stems and keep aside.
- Add oil to a large saucepan over high heat. Add onions and sauté for 2 minutes or until softened. Add garlic, dried herbs and coriander stems and sauté for 2 minutes or until fragrant.
- Add the jackfruit, BBQ sauce and sugar to the saucepan. Reduce the heat to medium and add in water. Simmer for about 20 minutes or until the jackfruit is soft. Break the chunks of jackfruit with a spatula.
- Use for stuffing in the tortillas.

For the Banana Salad

- Thinly julienne raw banana and soak in salted water for 15- 20 minutes.
- Remove from water and dry on a kitchen towel.
- Deep fry banana and sprinkle with salt, spice mix and cumin powder.
- Assemble tortilla with jackfruit, salad leaves of choice and banana.
- Add choice of salsa & sour cream, & serve with Guacamole.

Preparation Time



Cooking Time



To Serve





■ Amaranth (Rajgira) and Mushroom Arancini

ORIGIN: Global

Amaranth and native cheese bites with wild mushrooms

INGREDIENTS

- Amaranth: ½ cup
- Button mushroom: 1 ¼ tbsp
- Shiitake mushroom: 1 ¼ tbsp
- Portobello mushroom: 1 ¼ tbsp
- Dried mushroom powder: 1 tsp
- Onions: 1 tsp
- Leeks: 1 tsp
- Celery: 1 tsp
- Garlic: 1 tsp
- Fresh cream: 15 ml
- Butter: 2 tsp
- Oil: 15 ml
- Salt to taste
- Pepper: 1 tsp
- Mozzarella cheese: 4 tsp
- Millet flour: 2 tbsp
- Amaranth flakes: ½ cup

METHOD

- Boil the Amaranth for about 5-7 Min. Strain and retain the millet water.
- Wash and chop mushrooms finely and keep aside.
- In a separate pan add oil, onion, leeks, garlic, celery and chopped mushrooms, sauté on medium low heat for 5 mins until mushrooms are slightly soft. Add the boiled Amaranth and millet water. Season with salt and pepper.
- Cook on medium low heat until mixture is dry. Finish with fresh cream and butter.
- Roll risotto into small balls until smooth, stuffed with mozzarella cheese.
- Make batter with millet flour and water, add the seasoning.
- Coat the balls with batter and crumb them with Amaranth flakes.
- Heat oil in a pan, deep fry arancini for 5 mins until golden brown. Drain on a kitchen paper before serving.

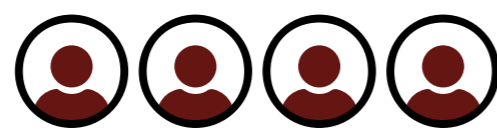
Preparation Time



Cooking Time



To Serve





■ Amaranth (Rajgira) Beetroot Kebab

ORIGIN: Uttar Pradesh

Beetroot kebabs mélange with puffed amaranth seeds

INGREDIENTS

- Amaranth seeds raw: 1 cup
- Beetroot: 3 large
- Amaranth seeds puffed: 3 tbsp
- Water: To boil
- Red chili powder: ½ tsp
- Cumin powder: 1 tsp
- Crushed coriander seeds: 1 tsp
- Garam Masala powder: 1 tsp
- Chopped coriander: 2 tsp
- Chopped green chili: 1 tsp
- Chopped ginger: 1 tsp
- Dry pomegranate powder: 2 tbsp
- Boiled potato: 1 medium sized
- Amaranth flour: 1 tbsp
- Salt to taste
- Clarified butter (Ghee): 3 tbsp

For Finishing

- Chaat Masala: 1 tsp

METHOD

- Boil the Amaranth in salted water until cooked. Strain and coarsely grind in a mixer.
- Roast cleaned beetroot in an oven for 25-30 minutes and grate thickly.
- In a large mixing bowl add boiled and mashed potato, spices, seasoning, grated beetroot, ground millet, chopped chili, coriander and flour. Mix well into a smooth dough consistency.
- Shape into small galettes and coat with thin Amaranth flour batter followed by puffed Amaranth seeds.
- Shallow fry in ghee/oil until golden brown on both sides, sprinkle chaat masala.
- Serve hot with green chutney and salad.

Preparation Time



Cooking Time



To Serve





■ Avocado Pearl Millet (Bajra) Salad

ORIGIN: Global

Fresh root vegetable and fruit salad enhanced with healthy millets

INGREDIENTS

- Steamed baby beetroots and carrot: **2-3 each**
- Ripe avocado: **1 No**
- Orange: **1 No**
- Arugula or rocket leaves: **1/2 Cup**
- Pearl Millet (Bajra), boiled: **1/4 Cup**
- Local soft cheese: **2 tbsp**
- Cold-pressed peanut oil: **2 tbsp**
- Lemon juice: **3**
- Lemon rind: **2**
- Garlic cloves: **2**
- Sea salt **to taste**

METHOD

- Clean and quarter beets. Wrap in silver-foil and roast for 30-40 minutes. Once cooked, peel and cut into wedges. Roast baby carrots and cut into halves.
- Blend salad dressing by combining lemon juice, rind, peanut oil, sea salt and garlic clove in a mixer and keep aside.
- Soak Pearl millet for 90 minutes, boil and keep aside.
- Peel and cut ripe avocado into wedges.
- Add beets, carrot, arugula and Pearl millet to the dressing bowl and toss well with dressing. Plate in a salad bowl once chilled.
- Garnish with avocado wedges, crumbled soft cheese and segments of orange.
- Any seasonal root vegetables of choice can be used.

Preparation Time



Cooking Time



To Serve





▣ Finger Millet (Ragi) and Flaxseed Loaf

ORIGIN: Global

Slow fermented bread with millets and flaxseeds.

INGREDIENTS

- Active dry yeast: 2 tsp
- Breakfast sugar: 1 tsp
- Water: 1 cup
- Millet flour: 1 cup
- Tapioca starch: ¾ cup
- Brown rice flour: 1/2 cup
- Flaxseed meal: ½ cup
- Salt: 1 tsp
- Eggs: 2
- Cold pressed Oil: 3 tbsp
- Honey: 2 tbsp
- Puffed Amaranth: 2 tsp
- Sunflower seeds: 2 tsp
- Flaxseeds: 2 tsp

METHOD

- Proof the yeast by mixing the yeast, sugar and warm water together in a small bowl or measuring cup. It will begin to get frothy after about 10 to 15 minutes.
- Combine the millet flour, tapioca starch, brown rice flour, flax meal and salt in a medium bowl.
- In a large bowl, mix together eggs, oil, and honey. Add the yeast/water mixture. Stir in dry ingredients and mix until fully combined.
- Transfer the dough to a 9-inch x 5-inch greased loaf pan.
- Cover the pan with a warm wet towel and let the dough rise. It should take between 45 and 90 minutes for the dough to reach the top of the pan.
- Preheat the oven to 180 degree Celsius.
- When the dough has risen to the top of the loaf pan, garnish with the seeds and bake for 40 to 45 minutes. The loaf should rise a bit more while baking and the top should be well-browned.
- Cool on a wire rack before removing from the pan.

Preparation Time



Cooking Time



To Serve





■ Bajra Gatte Ki Subzi (Pearl Millet Gatta)

ORIGIN: Rajasthan

Pearl millet dumplings in a sumptuous yoghurt gravy

INGREDIENTS

For the Gatta

- Bajra flour: 2 cups
- Water: 1 cup
- Baking powder: ¼ tsp
- Crushed black pepper: ½ tsp
- Coriander seed crushed: ½ tsp
- Red chili powder: ½ tsp
- Carom seeds (Ajwain): Small pinch
- Refined oil: 2 tbsp
- Yoghurt: 2 tbsp
- Salt to taste
- Refined oil to deep fry the Gatta

For the Curry

- Cashew nut: ½ cup
- Diced onion: ½ cup
- Yoghurt: 1 tbsp
- Clarified butter (Ghee): 1 tbsp
- Asafoetida: Small pinch
- Coriander seed (crushed): 1 tsp
- Cumin powder: ½ tsp
- Red Chili powder: 1 tsp
- Turmeric powder: ½ tsp
- Kasoori Methi: ½ tsp
- Salt to taste

METHOD

- To make the gatta, mix all the ingredients and knead into a tight dough.
- Shape the dough into cylinders and steam them for 15 mins, until cooked.
- Slice the cylinders diagonally into 1cm-thick slices.
- Deep fry gatta in oil, drain and keep aside.
- To make the gravy, boil the diced onion and cashew nut together. Grind into a fine paste after draining the water.
- Heat oil in a pan and temper with a pinch of asafoetida.
- Add crushed coriander seeds, cumin, red chili powder and turmeric powder and cook for half a minute.
- Add the cashew and onion paste, salt and whisked yoghurt and cook until the oil separates.
- Add fried gatta and cook for 8-10 mins on a slow flame.
- Finish with kasoori methi. Add salt according to taste.
- Garnish with julienned ginger and chopped coriander leaves.
- Serve hot with Bajra roti or Samak ke chawal (rice).

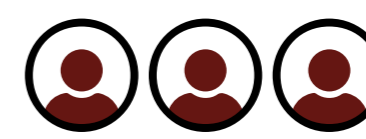
Preparation Time



Cooking Time



To Serve





■ Jowar Ki Litti (Baked Dumplings made with Sorghum)

ORIGIN: Bihar

Spiced sattu stuffed Sorghum dumplings roasted on charcoal

INGREDIENTS

Dough

- Sorghum flour: 2 cups
- Curd: 2 tbsp
- Oil: 2 tbsp
- Salt: 1/2 tsp
- Water for Kneading: 3/4 Cup

Filling

- Roasted chana dal powder: 1 cup
- Salt to taste
- Red Chili Powder: 1/2 tsp
- Ajwain: 1/4 tsp
- Achar Masala: 1 tsp
- Finely Chopped Onions: 1/4 cup
- Finely Chopped Garlic: 1 tsp
- Mustard Oil: 1 tsp
- Water: 2 or 3 tbsp

METHOD

For Dough

- In a bowl, mix Jowar Atta, salt, curd and oil. Lightly mix together to coarse texture, gradually adding water, form into a semi soft dough.

For Filling

- Mix all the ingredient sattu, onions, garlic, spices, achar masala and mustard oil. Add spoon or two of water and make a moist dough.

For Litti

- Divide the Dough into 8 equal size balls, make an indentation in each ball and press the dough.
- Place a ball of filling in it and close it from all the sides.
- Preheat the oven at 160 C.
- Bake Littis in pre heated oven for 8 to 10 minutes till they get golden in color. Rotate a few times to get even color.

Accompaniment: Aloo Chokha (seasoned mashed potato), Baigan Bharta (roasted and spiced eggplant), pickle, tomato chutney, fresh coriander chutney

Preparation Time



Cooking Time



To Serve





■ Bajra Soyta (Pearl Millet Savoury Porridge)

ORIGIN: Bihar

Traditional Rajasthani preparation of Pearl millet and spices finished with clarified butter

INGREDIENTS

- Pearl Millet grains (Bajra) : 2 cups
- Salt: to taste
- Clarified butter (Ghee): 1/3 cup
- Red chili powder: 3 tbsp
- Coriander powder: 2 tbsp
- Turmeric powder: 1 tsp
- Onions, medium, sliced : 1 cup
- Ginger, ground: 2 tbsp
- Garlic pods, coarsely ground: 2 tbsp
- Green chilies whole: 10
- Green coriander: 2 tbsp
- Ginger juliennes: 1 tbsp
- Red chilies, fried: 4-5

METHOD

- Sprinkle a little water on the millet grains and keep aside for 30 minutes.
- Lightly pound to split the grains. Pass through a sieve to remove the skin.
- Heat the clarified butter in a pan, add onion, ginger, garlic and green chilies. Now add all the dry spices. Sauté for about 10 mins.
- Add soaked bajra and cook on low flame until the bajra is soft and water is absorbed cook on a low flame until the bajra is soft and the water is absorbed.
- Garnish with chopped green coriander, ginger and red chili. Serve hot with fried onion.

Preparation Time



Cooking Time



To Serve





■ Jowar Aur Kathal Ka Haleem (Sorghum Haleem made with Jackfruit)

ORIGIN: Hyderabad

Pounded millets and lentils slow cooked with jackfruit and finished with ghee

INGREDIENTS

- Sorghum millet (whole): 1 cup
 - Raw Jackfruit: 2 cups
 - Urad Dal (without skin): ¼ cup
 - Chana dal: ¼ cup
 - Water: 5 cups
 - Milk: 3 cups
 - Turmeric powder: ½ tsp
 - Cumin seeds: ¼ tsp
 - Ginger garlic paste: 2 tbsp
 - Green chili paste: 1 tbsp
 - Red chili powder: 1 tsp
 - Coriander powder : ½ tsp
 - Whole garam masala: 1 small piece each
(Clove, Cinnamon, Mace, Nutmeg, Stone Flower, Peppercorn, Black & Green Cardamom, Kebab Chini)
 - Cashew nut: ½ cup
 - Onion (sliced and golden fried): 2 tbsp
 - Refined oil: 1 tbsp
 - Clarified butter (Ghee): 4 tbsp
 - Salt to taste
- For Garnish**
- Fried onion slices: ½ tsp
 - Chopped mint: ½ tsp
 - Chopped green chili: ½ tsp
 - Lemon wedges: 2
 - Chopped coriander leaves: ½ tsp

METHOD

- Marinate the jackfruit with half of the ginger garlic paste, green chili paste, salt and turmeric powder. Fry jack fruit in medium hot oil till cooked. Pull apart coarsely.
- In thick bottom lagan/ pan add water, milk whole spices, soaked lentils and Sorghum boil till done.
- Add cashew nuts. Cook till water is almost soaked.
- Grind it to a thick coarse paste.
- In a lagan heat oil and crackle cumin seeds add ginger & garlic paste, chili paste and cooked lentil millet paste.
- Add spice powders and adjust seasoning, cook on slow flame adding more milk if required till spices are cooked and mixtures forms a homogeneous consistency. Add the golden fried onion and ghee to finish.
- Serve garnished with fried onion slivers, chopped mint, chopped green chili, lemon wedges and chopped coriander leaves.

Accompaniment: Meal in itself

Preparation Time



Cooking Time



To Serve





■ Jowar Toor Dal Tadka (Spiced Sorghum Lentils)

ORIGIN: Maharashtra

Traditional lentil made with Sorghum

INGREDIENTS

- Sorghum: ½ cup
- Toor Dal: ½ cup
- Clarified butter (Ghee): 3 tbsp
- Cumin seeds: 1/2 tsp
- Salt to taste
- Red chili powder: ½ tsp
- Turmeric powder: ¼ tsp
- Dry red chili whole: ½ tsp
- Chopped onion: 1 tbsp
- Chopped tomato: 1 tbsp
- Finely chopped garlic: ½ tsp

METHOD

- Soak toor dal for an hour and rinse. In a pot, boil 750 ml of water and add the dal and Sorghum and cook until soft. Add salt.
- For Tempering**
- In a separate pan, warm ghee over a medium heat. Add cumin seeds and crackle. Add dry red chilies, garlic and chopped onion. Cook until light brown. Add chopped tomatoes and cook till it releases oil.
- Add red chili powder and turn off the heat.
- Temper the dal with pure ghee just before serving.

Accompaniment: Steamed rice, salad and pickle

Preparation Time



Cooking Time



To Serve





■ Balinese Curry Bowl with Barnyard Millet (Sanwa)

ORIGIN: Global

Vegetable Curry Bowl served with Kaffir lime & lemon grass flavored Barnyard millet

INGREDIENTS

Barnyard Millet

- Barnyard Millet: 2 cups
- Water: 5 cups
- Salt to taste

Curry

- Ginger Diced : 1/2 tbsp
- Garlic peeled: 4 cloves
- Chopped Spring Onions: 1 bunch
- Fresh Red Chilies: 2 No
- Cashew Nuts : 3 tbsp
- Kaffir lime leaves: 4 No
- Fresh turmeric: 1 tbsp
- Oyster mushrooms: 1 cup
- Diced peppers: ¼ cup
- Diced pock choy: ¼ cup
- Diced onion: ¼ cup
- Ripe Mangoes: 2 No, 1 cm dices
- Sunflower Oil: 1 tbsp
- Green beans Diced: 1 cup
- Lime: 1 No
- Coconut milk: 400 ml
- Chopped lemongrass: 1 stick
- Coriander Leaves chopped: 1 tbsp
- Fried Garlic: 1 tsp
- Tender Coconut Shell: 2 no slit into ½ lengthwise
- Salt to taste
- Pepper: ¼ tsp

METHOD

Barnyard Millet

- Take a heavy bottomed pan, Add two cups of water and salt.

- Add strained Barnyard millet and simmer until cooked.

Curry

- Char ginger, garlic, spring onion, chili and cashew nut in a large heavy bottomed pan. Add along with the lime leaves, turmeric, 1 teaspoon of black pepper and a pinch of salt into a blender and make a paste.
- In a heavy bottomed pan dry char mushrooms for 5 minutes till they get dark golden color and nutty in flavors.
- Remove mushrooms to keep aside. Add 1 tablespoon of oil and the cashew nut mix paste to the pan, stir and fry for 1 minute, add vegetables, mushrooms and mango and stir-fry for 5 minutes.
- Squeeze in the juice of 1 lime, pour in the coconut milk.
- Bring to the boil, then simmer for 10 minutes, stirring occasionally. Adjust seasoning.
- Spoon the cooked Barnyard millet into a plate. Pour vegetable curry on top.
- Serve hot garnished with chopped lemon grass, red chili, fried garlic & coriander.

Preparation Time



Cooking Time



To Serve





▣ Sorghum (Jowar) Crusted Fish and Chips

ORIGIN: Global

Mustard-and-thyme-marinated fish encrusted in Sorghum flakes and fried. Served with sweet potato chips

INGREDIENTS

- Fish fillet: 4 Slices (approx. 60 gm each)
- Sorghum flakes: ½ cup
- Mustard: ½ tsp
- Lemon: 15 ml
- Millet flour: 2 tbsp
- Thyme: ¼ tsp
- Eggs: 2 no
- Refined oil: For frying
- Salt: To taste
- Pepper: ½ tsp

METHOD

- Rinse and pat dry the fish fillet, set aside.
- In a bowl add lemon juice, mustard powder, salt, pepper and thyme and mix well. Soak fish fillets and marinate for an hour.
- In a separate mixing bowl mix millet flour and beaten eggs until a thin batter is formed. Add seasoning.
- Coat marinated fish fillets with batter followed by Sorghum crumbing on a platter. Press gently to ensure the Sorghum sticks well.
- Heat oil, fry the coated fillet on a medium flame until slightly golden.
- Serve hot with sweet potato wedges and Tartar sauce.

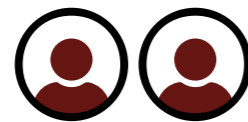
Preparation Time



Cooking Time



To Serve





Green Pea, Corn and Finger Millet (Ragi) Tartlet

ORIGIN: : Global

Sautéed peas and corn baked in finger millet tartlets.

INGREDIENTS

For the Tart

- Whole wheat flour: ½ cup
- Ragi flour: ½ cup
- Baking powder: ½ tsp
- Jaggery powder: 1 tsp
- Salted cold butter: 5 tbsp
- Refined oil: 1 tbsp
- Chilled water: 1 tbsp
- Salt: ½ tsp

For the Filling

- Spinach (boiled): ¼ cup
- Peas: ¼ cup
- Corn: ¼ cup
- Finely chopped capsicum: ¼ cup
- Cream cheese: ¼ Cup
- Crushed black pepper: ¼ Tsp
- Oregano: ¼ Tsp
- Soft cheese: 4 Tbsp
- Salt: 1 Tsp
- Refined oil: 1 Tbsp

METHOD

For the Tart

- On a working table chop the cold butter with the flour and knead it to resemble bread crumb texture.
- Add in the water and oil along with the jaggery powder and salt and knead into a rough dough.
- Chill in the refrigerator for 30 minutes.
- Roll out the dough with a rolling pin and cut into 6-inch roundels and dock it with the help of a fork.
- In a 3-inch tart ring lightly greased with butter and flour, place the cut dough and bake at 160 degrees Celsius for about 15 minutes until golden brown.

For the Filling

- In a pan, heat oil and lightly sauté the capsicum, spinach, peas, corn, black pepper, oregano and salt.
- Cool the filling and mix in cream cheese.
- Place in the tartlets and sprinkle with cheese.
- Bake the tartlets for about 10 minutes until the cheese melts at 160 degrees celsius.

Preparation Time



Cooking Time



To Serve





▣ Lapsi Foxtail Millet (Kangani) Sweet Porridge

ORIGIN: Gujarat

Traditional Gujarati sweet dish made with fox millets, clarified butter and nuts

INGREDIENTS

- Fox millet (Kangni) whole: 1 Cup
- Yellow moong dal: 1/4th cup
- Cardamom powder: 1 tsp
- Jaggery: 1/4th cup
- Clarified butter (ghee): 3 tbsp
- Cashew nut: 2 tbsp

METHOD

- Heat heavy bottom pan; dry roast yellow moong dal until it turns light brown.
- In the same heavy-bottomed pan add foxtail millet, yellow moong dal, jaggery and cardamom along with two cups of water. Cook covered with a lid, occasionally stirring the mixture.
- Once the mixture is cooked (approx. 30 mins). Keep aside.
- Heat ghee in a heavy bottom pan, add cashew nut cook until golden brown, now add to the mixture of millet and lentils.
- Stir well for 2 to 3 minutes let the mixture mix well. Best had warm garnished with cashew nut.

Preparation Time



Cooking Time



To Serve





▣ Pearl Millet & Amaranth (Bajra & Rajgira) Banana Sweet Tea Bread

ORIGIN: Global

Millet and banana baked sweet tea cake made with caramelized jaggery

INGREDIENTS

- Melted unsalted butter: ½ cup
- Refined oil: ½ cup
- Jaggery powder: 1 cup
- Brown granulated sugar: ½ cup
- Whole eggs: 4
- Vanilla extract: 1 tsp
- Yoghurt: ¾ cup
- Medium Mashed Bananas: 4
- Whole wheat flour: 1 ½ cup
- Amaranth flour: ½ cup
- Bajra flour: ½ cup
- Refined flour: ½ cup
- Salt: ½ tsp
- Baking soda: 2 tsp
- Cinnamon powder: ½ tsp
- Puffed Amaranth seeds: 3 tbsp
- Boiled Bajra seeds: ½ cup

METHOD

- Preheat the oven to 180°C. Grease and flour two 8×4-inch loaf pans and set aside.
- In a medium bowl, whisk together butter, oil, sugar, jaggery and eggs until thoroughly incorporated. Add in the vanilla, yoghurt and bananas. Set aside.
- In a large bowl, whisk together flour, salt, baking soda and cinnamon. Stir in the amaranth & bajra flour. Make a well in the center of the dry ingredients. Add the wet ingredients into the well and use a spatula to fold the batter in.
- Divide the batter between the two baking pans.
- Sprinkle with some puffed amaranth on top and bake for 50-60 minutes or until a toothpick inserted in the center of the loaf comes out clean.
- Remove the pans from the oven and cool for 15 minutes before inverting onto a wire rack to cool further and serve.

Preparation Time



Cooking Time



To Serve





▣ Millet and Berry Yoghurt Cheesecake

ORIGIN: : Global

Millet Crusted Yoghurt cheesecake with seasonal berries and Java Plum.

INGREDIENTS

For Cheese Cake Base

- Whole Wheat Flour: ½ cup
- Ragi flour: ½ cup
- Bajra flour: ½ cup
- Amaranth flour: ½ cup
- Jowar flour: ½ cup
- Sorghum flour: ¼ cup
- Baking powder: 1 tsp
- Jaggery powder: 4 tbsp
- Unsalted butter: 2 tbsp
- Whole egg: 1
- Full-Fat milk: 3 tbsp

For the Cheesecake Mixture

- Cream Cheese: 2 ¼ cup
- Yoghurt: 1/3 cup
- Caster sugar: 5 tbsp
- Refined sugar: 5 tbsp
- Eggs (separated) : 4
- Corn flour: 4 tbsp
- Lemon juice: 2 tbsp
- Vanilla extract: 1 tsp
- Salt: ½ tsp
- Double Cream(softly whipped): 1 cup

For Crust

- Puffed Amaranth: 4 tbsp
- Puffed rice flakes: 4 tbsp
- Toasted Flaxseeds: 4 tbsp

METHOD

For Base

- Preheat the oven 150°C.
- For the base, put the flour and baking powder in the food processor along with 4 tbsp of jaggery powder, soft butter and egg.
- Process for two minutes and then, with the motor running, add the milk. This is when the mixture begins to come together.
- Line the mould with the flour dough using hands or the back of a spoon and press this in to make as even a layer as possible. Bake in the oven for 10 minutes. Let it cool a little before pouring in the cheese mixture.

For Cheesecake Mixture

- Put cream cheese in a bowl and beat the sugar in followed by egg yolks. Beat in corn flour followed by lemon juice, vanilla extract and salt, and then fold in the softly whipped cream.
- In another bowl, beat the egg whites until soft peaks form and then add a ladleful to the cheese mixture and stir in vigorously. Fold the rest of the whites in more gently in 3 or 4 batches.
- Pour the filling into the dough-lined foil tray or tin, then carefully transfer to the pre-heated oven (at 160°) and leave to bake for 1 hour, by which time it will be set on top.
- Remove to a wire rack to cool, still in the baking tin. Chill the cheesecake covered, overnight in the fridge, before serving. De-mould and set onto a cake stand/round plate. Crust the sides with puffed Amaranth, flaxseeds and rice flakes mix.
- Top with in-season berries and serve with Java Jam.

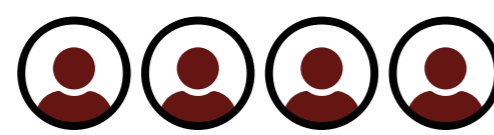
Preparation Time



Cooking Time



To Serve



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Chapter 6

Curated recipes by ITC Hotels' culinary experts





Enduring Value