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Quarterly | July - September 2022

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Millets **the** Superfoods and their Processing



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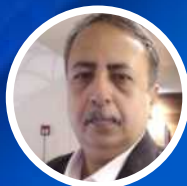
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Advisors Note

Greetings from CASMB HQ Mumbai.

Dr Prakash Kondekar

Advisor, CASMB.



Two years of Pandemic threat due to COVID 19, is almost over now." Purnabrahma" magazine also one plus year old now. Most of us got Vaccinated and some of us had booster dose even. Our SMBs who had tough time during initial period of Pandemic, now trying to work with full energy and enthusiasm. We are sure that they will break the ice soon and will be successful in their efforts.

India has lot many cultures and different climatic zones hence food also differs from place to place. This is also applicable for SMBs and FBOs. People have now realised that immunity enhancement are the key words for overall health and Food plays major role in it. In this regard it will better to see International scenario also.

Year 2016 was declared as the International Year of Pulses by the sixty eighth session of the United Nations General Assembly on December 20, 2013. The Food and Agriculture Organization (FAO) of the United Nations has been nominated to declare a year for pulses, more commonly known as legumes. They are suppose to be Superfoods, for ages.

The aim of the IYP was to raise public awareness of the nutritional benefits of pulses as part of sustainable food production aimed towards improving food security and nutrition. More specifically, it highlighted the role of pulses in balanced and healthy diets, their contribution to soil fertility and the environment, as well as research needs relating to nutritional content, processing and consumption of pulses.

The slogan was, "Nutritious Seeds for a Sustainable Future". The following key messages accompanied this slogan:

- Pulses are highly nutritious.
- Pulses are economically accessible and contribute to food security at all levels. Pulses have important health benefits.
- Pulses foster sustainable agriculture and contribute to climate change mitigation and adaptation.
- Pulses promote biodiversity. There was not much cognizance taken by the people, then. But after Pandemic all are looking for healthy and Nutritious foods **and the consumption of Pulses has gone up.**

Pulse research-Strengthen national and international research on pulses and create synergies among ongoing initiatives in line

with the 2030 Agenda and follow up to the 2014 Second International Conference on Nutrition. Encourage and support training programmes on the value of pulses, particularly for schoolchildren, farmers, FBOs and extension personnel.

- Provide adequate support to policy and programme development by strengthening the evidence basis on pulses. I, personally had opportunity to talk to more than 2000 school and college students and gave them many talks in 2016.

"Nutrition seeds for a sustainable future " (FAO, 2016), is a cookbook, which has not only recipes but also a large amount of information about pulses. Committee on Commodity Problems (CCP), members acknowledged the contribution of pulses to enhancing food security, improving nutrition and increasing environmental protection.

Another, healthy news is forthcoming in "2023, The International Year of Millets" All

Millets can be called as Super Foods. The U.N. General Assembly recently adopted a resolution, sponsored by India and supported by more than 70 countries, declaring 2023 as the International Year of Millets. The resolution is intended to increase public awareness on the health benefits of millets and their suitability for cultivation under tough conditions marked by climate change. The main intention behind the initiative is to help Indian millet farmers get decent revenues by capitalising on their crop getting international recognition. But they cannot get such a benefit unless people play a proactive role. Millets have three different dimensions of climate, nutrition and cultural quotient. "This is because they are climate-resilient and suit dry land farming. Similarly, they have high nutritional value. They are also related to culture since they are an integral part of food habits since hundreds of years.



There are many other superfoods, we will see a few of them from the point of health of SMBs and FBOs.

For body detox in general and liver in particular, Beetroot, Carrots, Broccoli, Green-Tea, Lemons, Cabbage, Cauliflower, Avacado, Spinach and Turmeric, are useful.

As Natural antibiotics, Ginger, Turmeric, Onion, Garlic, Raw Honey, Apple Cider Vinegar, works wonderfully. Some of the Natural painkillers or pain healers, are Garlic for Earache, Apple Cider Vinegar, for Heartburn, Cherries for Joint pains, Peppermint for sore Muscles, Water for Injury pain, Cloves for Toothache, Turmeric for Chronic pain, Pineapple for Bloating, Blueberries for Urinary Tract Infections and Horse Radish for Sinus Pain. Some foods are unique, superfoods like, Ginger. It helps to relieve from Digestive issues, Relieves tooth pain, fights Cold and Flu, promotes detoxification, help to protect against Cancer, Lowers Blood pressure, gives relief from menstrual cramps, improves blood circulation. However all these uses of superfoods to be done under expert medical advice.

Happy monsoon, full of productivity. ■



Milletts and their processing

Milletts can potentially be a solution for India's chronic disease burden as they are high in dietary fibres, gluten free, rich in proteins, high in antioxidants and polyphenols, rich in micro nutrients such as calcium, iron and phosphorus and vitamins.

Milletts have been the nitty-gritty of the daily diet for many communities across the world. One finds many millet preparations in traditional cuisines. Cereal grains are the most important source of world's food. These primitive grains packed with nutrition are endorsed as super foods.

India is the only country where many types of milletts are grown. Growing milletts is proven to be beneficial for farmers as it is easy to grow and can withstand drought. As one of the most important drought resistant crops, millet is widely grown in semi arid tropics of Africa and Asia.

UN has declared 2023 as the international year of milletts.

We have introduced two new corner articles in our upcoming issues: "*Her corner as well as Nutri-Ahar corner*".

The current issue on milletts the superfood and their processing, is adorned with noteworthy article of

Mr. Swadheen Kshatriy, Ex State Chief Commissioner for right to service on the topic Maharashtra right to service act 2015. In our lead article Dr. Naikare has beautifully explained millet processing, milletts nutrition and process flow of production. Samruddhi Agro group has used millet processing into healthy products. Dr. Deepali Kothekar has nicely explained about treasure of nutrition in buckwheat and how they are processed from buckwheat. Mr. Prashant Deshmukh has brought out revolution in making golgappa food pellets and multigrain food pellets. Dr. Rita Patil came with a new concept of food tourism about its scope and approaches in *Her Corner* article. Technical article by Mahesh Londhe threw light on every stage of millet processing. In *Nutri-Ahar* corner Mrs. Mrunalini Sant has so nicely explained how milletts are package of nutrients and how diseases can be controlled by incorporating them in our regular diets. Story of Vishuddham and My story are good examples of how millet processing can be a good business model.

Because of important contribution to national food security and potential health benefits, millet grain is receiving an increasing interest from food scientists, technologists and nutritionists. Processing technologies used for improving the edible and nutritional characteristics of milletts and to promote millet utilisation as food for large and growing population is the need of hour.

Let's come together to make awareness about milletts the superfoods and to celebrate milletts international year in 2023.

Thank you!



Mrs Rupa Kanvinde
Chief editor

Subeditor's desk

Hello Readers!

If you could ask your genes to say what kinds of foods are best for your health, they would have a simple answer- Millets! Millets are genetically apt for South Asians because they've always been available locally. When we eat what makes our genes happy, it unlocks the possibilities of our bodies in a way that isn't otherwise possible.



Millets are one of the oldest foods known to humankind and this good-old grain, packed with nutrition, is backed as an indigenous superfood that improves our health. In times when several parts of the country are battling drought, growing millets can come as blessing in disguise for farmers with smallholdings as it is easy to grow and requires less water. It even reduces atmospheric carbon dioxide and thus contribute in mitigating the climate change. Highly nutritious, millets can potentially be a solution for India's chronic disease burden as they are gluten-free, high in dietary fibre and micronutrients.

The integration of millets in our day-to-day lives by opting for healthier choices and even the mid-day meals for children through collaboration between the Centre and state's respective departments of agriculture would be mutually beneficial for people of all ages and farmers. While children will get highly nutritious food, farmers will have an incentive to opt for these indigenous crops instead of opting for commercially-viable crops which need a lot of water. This, in turn, will reduce their cost of farming, and boost their income and livelihood.

The tiny grains that once adorned the Indian kitchens, disappeared after the advent of government's green revolution because the consumption of wheat, rice and refined flour had started to gain centre stage. Even the influence of the western food habits cannot be neglected. This had serious health effects and the current situation is no better. As the public is becoming more health conscious, millets are perched on the cusp of revival.

Through the current issue of *Purnabrahma*, with our efforts,

we aim to popularise millets that will aid in rekindling the values of these grains. This also offers research and innovation opportunities for agriculture scientists and start-up communities. Article by *Mr. Mahesh Londhe* highlights the policy support needed for the establishment of decentralized processing infrastructure, required for the revalorization of small millets. *Dr. Deepali Kothekar* has intricately highlighted strategies of earning money in exchange of making India healthy by utilizing the underutilized millet crop- Buckwheat. Further, various other articles, are dedicated to promoting this super-food for its nutritional benefits, their processing techniques and sustainable production. On the other side, article by *Dr. Rita Patil* talks about promoting Food Tourism that will lead to employment and entrepreneurship surge and contribute to the country's economic growth.

Positioning of millets in the form of value-added minimally processed products will pave way for *Swasth Bharat*. The positive attributes of this power packed nutri-cereals will also keep at bay, silent killers like diabetes and hypertension. For those who are still sceptical about the taste factor, may be trying out products from the ones in millet product manufacturing may help things along! It's time we incorporate this powerhouse of nutrition into our diet. After all, only mindful food choices can help you lead a healthy life!

In the long term, it will be a win-win situation resulting in the revival of the indigenous superfood.

Thank you!

A handwritten signature in blue ink, appearing to read 'Ritika'.

Dr. Ritika Joshi
Sub editor

Maharashtra Right to Public Service Act 2015

Ex State Chief Commissioner for Right to Service, Shri Swadheen Kshatriy, speaks to CASMB Advisor, Dr. Prakash Kondekar.



Shri Swadheen Kshatriya IAS (retd.), M.A., M. Phil., LLB, LLM.

He was selected as an IAS officer in 1980 Batch. Chief Secretary Maharashtra State from 2014- 2017. After his retirement, was appointed as First State Chief Commissioner Maharashtra Right to Public Services Commission 2017-2022 (Five Years). He has held several important assignments like Collector Nanded, Commissioner, Mumbai Municipal Corporation, Commissioner Sales Tax, and General Manager BEST. In Govt. of India worked in Ministries of Home Affairs, Steel, and Energy.

Dr. PK: Sir, Can you tell us about the genesis of Right to Public Services Act?

Shri SK: The Maharashtra Right to Public Services Act 2015 was enacted to provide for delivery of transparent, efficient and timely public services to the eligible persons in the State of Maharashtra and to bring transparency and accountability in the Departments and agencies of the Government and other Public Authorities which provide public services to the eligible persons and for matters connected therewith.

Dr. PK: Which part of India comes under this Act?

Shri SK: It extends to the entire State of Maharashtra.

Dr. PK: Which services of the State Govt fall under the purview of this act?

Shri SK: The services provided by the State Govt. which are notified under Section 3 of the Act. About 500 services have been notified.

Dr. PK: Our CASMB members would be happy to know about some of the important provisions of this act. Can you highlight them?

Shri SK: In my opinion, every entrepreneur and businessman/woman should go through this act. However, I shall explain about the few provisions of RTPS Act 2015.

- "Competent Authority" means the Disciplinary Authority or the Controlling Officer, as the case may be; "Designated Officer" means an officer who is required to provide public services to the eligible person
- "Eligible person" means a person who is eligible

for obtaining a public service and also includes a legal person. "Local authority" means any authority, Municipal Corporation, Municipal Council, Nagar Panchayat, Industrial Township, Planning Authority, Zilla Parishad, Panchayat Samiti and Village Panchayat and other local self-Governments constituted by law; and also includes Development Authorities or other statutory or non-statutory bodies

- "Public Authority" means, (a) any Department or authorities of the Government; (b) any organization or authority or body or corporation or institution or a local authority, established or constituted (i) by or under the Constitution of India, in the State; (ii) by any other law made by the State Legislature; (iii) by notification issued by the Government; (c) and includes, (i) an institution, a co-operative society, a Government Company or an authority owned, controlled or financed by the State Government; or Short title, extent, commencement and application. Definitions, Public services, Designated Officers, Appellate Authorities and stipulated time limit to be notified. Monitoring status of application or any non-Governmental organization receiving financial assistance from the State Government
- Right to services, means right of an eligible person to obtain the public services within the stipulated time limit as notified by the Public Authority, from time to time
- The Public Authority shall display or cause to be displayed on the notice board of the office and also on its website or portal, if any, the list of the public services rendered by it alongwith the details of the stipulated time limit, form or fee, if any, Designated Officers, First Appellate Authorities and Second Appellate Authorities
- Subject to the legal, technical and financial feasibility, every eligible person shall have a right

to obtain public services in the State in accordance with this Act, within the stipulated time limit

- Every eligible person having applied for any public services shall be provided with unique application number by the concerned Public Authority so that he can monitor status of his application online, where such system is in operation
- Every Public Authority shall be duty bound to update the status of all applications regarding public services online, where such system is in operation
- Any eligible person, whose application is rejected under subsection (2) of section 5 or who is not provided the public service within the stipulated time limit, may file an appeal before the First Appellate Authority within the period of thirty days from the date of receipt of, order of rejection of the application or, the expiry of the stipulated time limit
- Before issuing any order, the First & Second Appellate Authority shall give an opportunity of being heard to the Appellant as well as to the Designated Officer or any of his subordinate duly authorized for this purpose
- The First Appellate Authority and Second Appellate Authority while deciding an appeal under this section, shall have the same powers as are vested in civil court while trying a suit under the Code of Civil Procedure, 1908.
- If the Chief Commissioner or the Commissioner is of the opinion that the First Appellate Authority had repeatedly failed to decide the appeal within the specified time without any sufficient and reasonable cause, or unduly tried to protect the erring Designated Officer, then he shall impose a penalty on the First Appellate Authority which shall not be less than rupees

five hundred, but which may extend to rupees five thousand, or of such amount as may be revised by the State Government, from time to time, by notification in the Official Gazette.

- The Appellate Authority concerned or the Commission shall communicate to the Designated Officer or the First Appellate Authority, as well as to the Public Authority about the amount of penalty imposed in writing. The Designated Officer or the First Appellate Authority, as the case may be, shall pay the amount of penalty within a period of thirty days from the date of receipt of such communication, failing which the Competent Authority shall recover the amount of penalty from the salary of the concerned Designated Officer or the First Appellate Authority, as the case may be.
- The State Government shall consider the recommendations made by the Commission under clauses (c), (d) and (e) of sub-section (1) of section 16 and sent information to the Commission of action taken within a period of thirty days or such time thereafter as may be decided in consultation with the Commission.
- If an eligible person deliberately gives false or frivolous information in the application or submits false documents along with the application and obtain the public services under this Act on the basis of such information or documents, in that case an action shall be taken against him under the relevant provisions of the penal law in force.
- No civil court, tribunal or other authorities shall have jurisdiction in respect of any matter which the Commission and the Appellate Authorities are empowered by or under this Act to determine.
- There are hundreds of services provided by the state Govt. of Maharashtra but only five

hundreds are notified under this act. All this information is also available on "Aaple Sarkar" portal made by Shri Kshatriy saheb. More than 11 crores have been availed of the services since inception of this Act, around 96 % disposable needs to be highlighted.

The services are available online on Aaple Sarkar portal or RTS Maharashtra mobile app. For greater details one can pursue Annual Report of the Commission, on the portal. ❑



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Millet Processing Into Healthy Products

Prof. Dr. S. M. Naikare

Visiting Professor of
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Indian Millets : Millets are among the most ancient of the food grains and have been grown in Asian countries since 2700 BC. One-third of the world's population uses these grains as a regular component of their food. India is the largest producer of millets. They are highly resistant to agro-climatic conditions and can be grown in variety of harsh environment viz. draught, intense heat, drought prone areas, relatively infertile soil and hilly areas where other crops do not grow well. These crops are also grown as a mixed crop with other cereal crops due to its short period of growth.

Millets are rich in nutrients such as carbohydrate, protein, fibre, minerals and amino acid profile (Gupta et al. 2012). It has been a staple food for sustaining lives of millions of poorest and rural people. Besides these, millets are considered as good source of several phytochemical compounds like phenols, flavonoids, phytates, tannin, glucosides and bioactive compounds. They play an important role in human health care (Pandey et al. 2004, Rao et al. 2006). Millet grains are considered as coarse grains due to its starchy structure.

Millet Consumption in India: India is the world's largest producer of millets. In the 1970's millets were used as a staple

food among the grain consumed (Sheela et al., 2015). By the 2000s, the annual millet production had increased in India, yet per capita consumption of millet had dropped about 50 to 75%. The world total production of millet grains was 762712 metric tons, with an annual production of 334500 tons (43.85%) (Report of FAO 2012).

Types of Indian Millets grown:

1. Sorghum Millet (*Sorghum vulgare pers*) (Jawar)
2. Pearl Millet (*Pennisetumtyphoides S.& H.*) (Bajara)
3. Foxtail Millet (*SetariaitalicaBeauv*) (Rala)
4. Finger Millet (*EleusinecoracanaGaertn.*) (Ragi/ Nachani)
5. Kodo Millet (*Paspalumscrobiculatum L.*)
6. Barnyard Millet (*EchinocloaFrumetacea*) (Saava)
7. Proso Millet (*Panicummiliaceum L.*) (Vari)
8. Little Millet (*Panicummiliare Lam.*) (Sami, Kutki)

Millet proteins contain good sources of essential amino acids except lysine and threonine but relatively high quantity of sulphur containing amino acids (**methionine and cysteine**) (Karuna and Nazni, 2018). Foxtail millet (*Setariaitalicca*) is one of the minor millets containing high amounts of proteins and minerals (Pawar and Pawar, 1997). Millets are particularly high in minerals like iron, magnesium, phosphorus and potassium. Finger Millet (**Ragi**) is the richest in calcium content, about 10 times that of rice or wheat (Nirmala Y, 2014). Dietary fibre in wheat- or Millet -based diets are generally higher than in a rice based diet. Nearly 80% of the fibre content of the diets consumed in India, particularly among the low income group is, contributed by cereals. Although the fibre intake of Indians from cereal-based diets is quite adequate according to the currently recommended desirable intake, the exact composition of the individual fibre fractions in most Indian foods has not been determined (Rao & Narasinga 2003).

Nutritional Properties/Composition of Millets /100 g

Source of SPC	Common Name	Dry matter	Moisture (g)	Protein (m)	Fat (g)	Carbohydrate (m)	Crude Fibre (mg)	Minerals (g)	Energy (Kcal)	Ca (mg)	Fe (mg)
Sorghum vulgare Pers	Sorghum Millet	87.0	11.9	10.4	1.9	72.6	1.6	1.6	349	25	4.1
Pennisetum typhoides S & H.	Pearl Millet	87.6	12.4	11.6	5.0	65.5	1.2	2.3	361	42	8.0
Eleusine coracana Gaertn	Finger Millet	86.9	13.1	7.3	1.3	72.0	2.6	2.7	328	344	8.9
Setaria italica Beauv	Foxtail Millet	88.8	11.9	12.3	4.3	60.9	14.0	3.0	331	31	3.6
Panicum miliaceum L	Proso Millet	87.9	12.8	8.3	1.4	65.9	9.0	2.6	309	27	0.5
Echinochloa crusgalli L	Barnyard Millet	88.1	11.5	7.7	4.7	67.0	7.6	1.5	341	17	9.3
Paspalum scrobiculatum L	Kodo Millet	88.4	8.3	8.03	1.29	69.9	8.5	2.6	302	22.0	9.9
Panicum littorale Lam	Little Millet	88.9	8.8	10.13	3.89	65.55	7.72	3.8	314	32.0	1.3

Ref: Nutritive value of Indian Food, NIN, ICMR, 2018

PHYTOCHEMICALS IN INDIAN MILLETS

Phytochemicals are biologically active organic substance of plant origin having disease preventing and health promoting properties. The screening of these phytochemicals may help in identifying the active compounds responsible for disease prevention (Suma et al. 2012). Most of the phytochemicals like polyphenols, flavonoids are found to have an antioxidant activity (Narasimha Rao 2003). Grains contribute to the significant supply of antioxidant to prevent oxidative stress. Millets are known to contain phenolic acids, which are located in the pericarp, testa, aleurone layer and endosperm (Hahn et al. 1984).

Millets serve as a good source of antioxidants. The predominant phenolic compounds are phenolic acids, flavones and proanthocyanidines. These antioxidants are effective scavengers of superoxide anion radicals and also initiate lipid per oxidation. Beneficial effects of polyphenols on management of blood glucose in diabetes are mainly attributed to reduce intestinal absorption of dietary carbohydrates, modulation of the enzymes involved in glucose metabolism, impairment of beta cell function and insulin

action, stimulation of insulin secretion and the anti-oxidative and anti-inflammatory properties of these components. (Nirmala Y, 2014).

HEALTH AND NUTRACEUTICALS

Essential nutrient can be considered nutraceuticals if they provide benefit beyond their essential role in normal growth or maintenance of human body. Research has demonstrated that nutrition plays a crucial role in the prevention of chronic diseases (Lopez-Varela Set al. 2002). Nutraceuticals are considered as food or part of food that provide medical or health benefits including prevention and treatment of diseases (Andlauer W et al. 2002, Kalra EK 2005) Millets are accepted as functional food and nutraceuticals because they provide dietary fibre, proteins, energy, minerals, vitamins and antioxidants required for human health. Millets also contain phytoestrogens of the lignan family and several phenolic acids with antioxidant properties (Shahidi F, 1995).

Many developed countries have engaged in nutraceutical evaluation and exploration of bioactive molecules from millets. The present study shows that millets have property to

be recognized as a very important nutraceutical in the present times and in future too. Besides nutraceutical potential, millets are environmentally resistant crop due to their survival in any type of harsh environment. India is the largest producer of millets and North-Eastern Terai Region of Uttar Pradesh is also playing a major role in producing high amount of these grains. Preventing cancer and cardiovascular diseases, reducing tumor incidence, lowering blood pressure, risk of heart disease, cholesterol and rate of fat absorption. delaying gastric emptying and supplying gastrointestinal health are the protective effects of the millets.

1. Diabetes: Minor millets such as Ragi, little millet, foxtail millet, kodo, barnyard and proso millets are nutritionally superior to conventional food grains and exhibit hypoglycemic effect due to presence of higher proportion of complex carbohydrate, resistant starch and slow rising sugars. A high intake of millet based dietary fiber, improves the glycemic control, decreases the hyper insulinemia, and lowers the plasma lipid concentrations in patients with type 2 diabetes. The intake of millets as a whole grain has also been suggested to be beneficial for the prevention and management of diabetes mellitus, and epidemiologically lower incidence of diabetes has been reported in millet consuming populations. Some polyphenols are able to regulate the key pathways of carbohydrate metabolism and hepatic glucose homeostasis including glycolysis, gluconeogenesis and glycogenesis usually impaired diabetes **(Nirmala Y, 2014)**. Compared to rice, especially polished rice, millets release lesser percentage of glucose and over a longer period of time. This lowers the risk of Diabetes **(Nirmala Y, 2014)**.

2. Cholesterol: Millets contain high amount of resistant starch as compared to other cereals and grains. The low glycemic millet foods are effective in reducing serum blood glucose level, serum cholesterol, triglycerides and glycosylated hemoglobin and also modest improvement in long term glycemic and promotes lipedemia control in diabetic subjects. **(Nirmala Y, 2014)**

3. Cardiovascular Diseases: There is a growing evidence suggesting the dietary intake of polyphenol rich foods and supplementation with these bioactive components could have protective effects against diabetes induced cardiovascular pathogenesis, the mechanism involved in these properties mainly include regulation of lipid metabolism, attenuation of oxidative damage and scavenging free radicals, improvement of the endothelial function and vascular tone. One of the most important favorable effects of polyphenols on cardiovascular system in diabetes probably is the regulation of lipid and lipoprotein and improvement of dyslipidemia. **(Nirmala Y, 2014)**. Several of the nutrients in millets have known potential for reducing risk factors for coronary heart diseases **(Truswell AS, 2002)**.

4. Gut Health and Obesity: Millets, also can be used as fermentable substrates for the growth of probiotic microorganisms. Sorghum, Pearl Millet, Finger Millet, Proso Millet, Little Millet and their products are notified common millet based functional foods and nutraceuticals. Millets are highly nutritious, non glutinous and non acid forming foods. Hence, they are soothing and easy to digest. They are considered to be the least allergenic and most digestible grains available **(Nirmala Y, 2014)**.

Fermented products of millet have natural antioxidants and antimicrobial activity against E. Coli and resistant to enzymes. So millet foods of derived peptides can be regarded not only for their nutritive value but also as a possible source to increase the natural defense of the organism against invading pathogens. **(Nirmala Y. 2014)**

5. Cancer : There have been several epidemiological studies that implicate dietary antioxidant phytochemicals like carotenoids **(Krinsky NI, 1993)** phenolic compounds and flavonoids **(Kuhnau, 1976)** as protective agents against cancer. Millets are rich in phenolics acids, tannins and phytate which act as "anti-nutrients" **(Thompson 1993)**. According to **Graf and Eaton (1990)**, these "anti- nutrients" are known to reduce the risk for colon and breast cancer in animals.

A large number of Ayurvedic health promoting properties are suggested by ancient people /Indians. Ragi products have been reported to help in controlling skin aging, anemia, relaxes the body, helps in weight loss, rich source of natural calcium, gluten free, detoxifies the blood, and is a source of high fibre content, etc.

PROCESSING OF MILLETS

Major challenge in the recent times is to achieve optimal processing to meet specific requirements for improving human health nutrition and food quality, to increase the energy supply and to provide safer and more profitable industrial inputs **[Welch RM et al. 2004, Semith O et al. 2006]**. In order to improve the nutritional and sensory value, processing of raw agricultural produce is essential. This can include decortications, milling, sieving, malting, popping, soaking, cooking and other operations. Though millets are rich in essential micro and macro nutrients, they also contain anti-nutritional compounds. Hence, processing methods are required to improve the availability of micro and macro nutrients and to decrease the effect of anti- nutrient upon consumption **(Hotz et al. 2007)**.

Simple processing methods like dehulling, soaking and cooking are reported to result in significant decrease in the anti-nutrient content and improved bioavailability of minerals like iron and zinc and also protein digestibility **(Vithal and Machewad 2006)**. Extensive information on processing and

nutrient composition (Geervani and Eggum 1989) and little information on its antioxidant activity (Asharani et al. 2010) are available. Some of the processing techniques are available which are discussed as follows:

PROCESSING TECHNIQUES

1. Germination: Germination or Malting is a simple method of food processing, offering significant improvement in the nutritional quality. Germination increases vitamins such as riboflavin, thiamine, ascorbic acid, and vitamin A (FAO, 1995). Hence, germinated millets can be used to prepare malt rich infant foods or complimentary foods. Germination of pearl millet leads to increase in protein digestibility from 14 to 26% and starch digestibility from 86 to 112% (Archana and Kawatra, 2001). It also improves the bioavailability of minerals like calcium, iron and zinc due to decreased phytate activity. Anti nutrients like polyphenols and saponin that lower the availability of minerals for absorption by the body can catabolize during germination. This improves mineral availability. Increase in iron content upto 88.3% from 7.4% at pH 7.5 in germinated finger millet was reported by Deosthale, 1982. Also, decrease in tannin content due to leaching during germination and decrease in the activity of polyphenols oxidase and other catabolic enzymes reported by Schimelis et al. 2008. Germinated millet offers increase in key nutrients and enhances sensory taste. However, crude fibre content decreased in germinated foxtail millet (Inyang and Idoko, 2006). Finger millets are found to offer better potential in brewing industries for the preparation of opaque beer (Usai et al. 2013).

2. Fermentation: Fermentation involves the breakdown of complex sugar based compounds and fermenting millets leads to decrease in the level of anti-nutrients and increase the protein availability and overall nutritional value (Ahmed et al. 2009). Fermenting pearl millet causes favorable modifications in chemical composition (fiber, protein, and fat content) and improves crude protein and flavonoid levels. Anti-nutritional factors like trypsin, amylase and phytic acid decrease during fermentation. Addition of *Lactobacillus* and yeast cultures to pearl millet flour resulted in increase in protein, total soluble sugars, reducing and non-reducing sugar content and starch digestibility (Saleh et al. 2012). Commercial cultures have also been developed to prepare fermented beverages from finger millet and skimmed milk.

3. Puffing: Puffing or popping of millets is done in order to prepare ready to eat products such as expanded products with low bulk density. Popping increases in vitro nitrogen content and starch digestibility. Increase in starch digestibility is due to high degree of starch gelatinization and release of starch granules from protein matrix, which renders them more susceptible to enzymatic digestion (Murlikrishna et al. 1986). Heat treatment makes protein more susceptible to hydrolysis

because of structural changes and thereby improve protein digestibility (Lewis et al., 1992). Fat and fibre content are more at the peripheral regions and hence get affected by popping/puffing. Popping/puffing lowers the crude fat and crude fibre contents of foxtail millet (Choudhary et al., 2011).

4. Roasting: In order to avoid spoilage of millet meal, lipase activity should be inactivated before milling. Roasting helps for this purpose by retarding lipase activity and minimizing lipid decomposition during storage. (Karthickumar and Moses, 2015). Weaning foods prepared by mixing roasted barnyard and finger millet flour showed increased iron bioavailability (Gahlawat and Sehgal, 1994) and Arora et al., (2002) observed that heat treatment increases the shelf life of pearl millet flour.

The steps involved in traditional malting of finger millets (Ragi) is as follows (Sawadogo-Lingani et al., 2010):

1. Cleaning by Winnowing
2. Mixing and Elimination of Purities
3. Steeping for 14- 24 hours:
4. Draining
5. Steeping water
6. Steeped grains
7. Germination for 3-4 days
8. Germinated grains
9. Sun-drying for 2-3 days
10. Ragi Malt

Food Products -

A variety of food products either fresh processed or RTE or RTC are prepared by ethnic method and are enjoyed by a large number of population. Various delicious food products from various millets are enlisted as below:

Sorghum: Sorghum roti flour, diabetic flour, pop grains, Parboiled rawa, cooked grains, sorghum (sweet) roasted grains (Hurda) sorghum flakes (Poha) Sorghum Dashmi, Thalipeeth, upama, papad, Ravaldli, Dosa Sorghum Cookies and Biscuits, Sorghum Kurdai, Puff grains

Finger Millet (Ragi): Idli, dosa, Idiappam, roti, Uppma, Porridge, Halwa Pakoda, Murukku, Papad, cookies, Millet malt, fermented drink, noodles.

Pearl millet (Bajara): Roti, Cookies, Puff grains

Fox tail millet (Ralo) - Hair, puff grains

● Grain processing machinery:

- 1) Thresher 2) Dehusker or Pearler 3) Sieving set 4) Grader-cum-aspirator 5) De-stoner-cum-aspirator / Gravity separator 6) mechanical dryer, 7) Extruder, mixer, oven, 8) Dehuller-cum-aspirator 9) Pulverizer-grinding mill, 10) Bag-filling and sealing machine /N2/vacuum packaging unit 11) Quality testing Laboratory. □



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1. Area Required	1000 sq.ft.	1000 sq.ft.
2. Water	2000 liter/day	4000 liter/day
3. Power	19 Kw	30 Kw
4. Manpower	1+3	1+4
5. Products	All types of Vegetables, Fruits, Herbs & Spices	
6. Target Market	RTC, RTE, Tea & Seasoning Industry etc.	

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Food Business in 2030

Samruddhi Agro Group

Tatyasaheb Phadtare

Chief Executive Officer
Samruddhi Agro Group



Introduction:

In an attempt to make India healthier and fitter, Samruddhi Agro Group strives to build a trustworthy lifestyle for Indians with innovative, genuine and pure organic products while taking care of both nutrition and taste simultaneously. Ranging from millet products to multigrain breakfast options, organic and healthy flakes to fibre rich food, hundreds of different varieties of flour to multigrain mixes, puffs, snacks and essential oil, Samruddhi Agro Group has got it all.

We constantly monitor our products in an attempt to make sure that we are able to cater to each section of the society. The lower class, the middle class or the upper class, everyone genuinely loves our products. The reason for the customer's sheer likeability towards our products, is - ***we make organic products, no alterations occur at Samruddhi Agro Group.***

The best part about Samruddhi Agro Group is that we deliver across the country and even outside the borders. This is something that our company takes great pride in, something that is valuable to be able to cater the food interests of millions of people across the globe. With that being said, let's take a deep dive in our history, our mission, numerous achievements, our products and journey so far.

Address:

Since we are a global product service provider, we have two addresses, one of the factory where all our products are manufactured in properly sanitized and socially distanced conditions and the second of our head office:

- I. **Factory Address-** 1615/2, Deolali Pravara, (Rahuri-413716), Ahmednagar, Maharashtra.
- II. **Factory Address -** Ramvadi (po-Vadapuri), Indapur - 413106, Pune, Maharashtra, India

Head Office- 14/4, Flat Number- 7, Shwetayan Apartments, Amruta colony, Pimple Gurav, Pune -411061.

Success story: From Struggle to Prosperity:

A paragraph about Mrs. Sarojini Phadtare and Mr Tatyasaheb Ramchandra Phadtare and his journey from rags to riches in terms of establishing the Samruddhi Agro Group by the man himself:

I had been working for about twelve years and found an opportunity in 2010. The Department of Agriculture had started the scheme of coarse grain development program. The idea of manufacturing various products by processing coarse grains like Jowar, Bajara, Ragi, Minor millets sprung up from the discussions with the officials. Despite innovation in this sector a lot of business opportunities could be created. With that in mind, we decided to take the challenge and step into a full time business.

My wife Saroj is a Home Science graduate, all the products used are tested at home. After succeeding, we decided to scale up the products. The nature of our industry expanded in 2013. We started a grain grading unit called 'Samruddhi Agro Group' at Deolali Pravara. In fact, sorghum and millet products were not easy to market. But along with the sale of the products, the concept of healthy food began to take root among the people. Our customers had become aware that the iron in the Ragi helps in reducing the blood loss in the girls.

Our work was immediately praised in the society. In 2013, we got DD Sahyadri Channel Entrepreneur Award and for the first time we appeared on television. Fame came sooner than money. In 2015, our products stood second, from all over India. We were awarded the Agrowon Smart Agri-Entrepreneur Award in 2019. We received many such awards. The quality of our products like Jowar Chiwada, Pohe, Idli Mix Dosa mix, Millet Flour has been tested to all standards and they have found a market outside India like USA, Netherlands, Belgium, Australia, Dubai, and South Africa. The struggle continues as there is still no export license. Now we introduced crumbs of the mixture too.

Saroj and I start our day early in the morning and end late at night. Saroj's hard work really brought me to prosperity. With perseverance and willingness to take risks along with the blessings of elders and good wishes of friends, we succeeded in our endeavors. The project, which was started from scratch, is now flying its flag abroad.

A short history about us:

Samruddhi Agro Group was founded in the year 2012 and well known for manufacturing Millet products including breakfast

options, snacks, cereals flakes, multigrain mixes and many more. We have established a factory at Ahmednagar in Maharashtra and our head office is located at Pune. We are glad to announce that we are a decade old in the business now.

Looking at the growing unhealthy food habits of Indians and how the inorganic ingredients are taking a toll on the overall health of individuals, we established Samruddhi Agro Group in an attempt to start a revolution against the inorganic and unhealthy food products.

All of our products are made from pure raw grains that we obtain from farmers and are locally produced. The beauty of Samruddhi Agro Group is that we ship our products across the nation and even internationally. In an attempt to make India healthy, we are constantly trying to make innovations in products to provide that necessary nutrient value.

About us:

While establishing and laying the foundation stone of Samruddhi Agro Group, our main focus was nutrient value addition, organic processing and production of healthy food products while promoting locally produced organic agricultural crops.

We source all of our grains and required raw materials from group of 29 farmers at a considerably higher rate than what they are offered at the marketplace. We firmly believe in Lal Bahadur Shastri's quote - **Jay Jawan, Jay Kisan**. With the help of our farmers and their naturally sowed and organic raw materials, we produce the finest quality of organic products to suit the needs of our customers worldwide.

Millet:

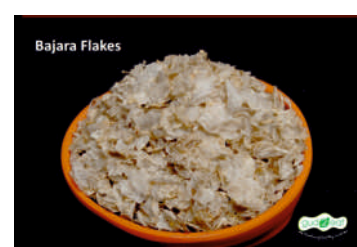
Nutritional facts of this amazing, organic and healthy grain:

For each serving of hundred grams of cooked millet at optimum conditions, it contains the following nutrients in appropriate manner:

- 3.51 g protein
- 1.3 g dietary fibre
- 23.7 g carbohydrates
- 44 mg magnesium
- 0.161 mg copper
- 100 mg phosphorus
- 0.272 mg manganese

Health benefits of this amazing, organic and healthy grain:

The most fascinating quality about millet grains is that they are low maintenance and efficient. Usually in many parts of India,



they were traditionally used as fodder for livestock but with the health benefits coming in, more and more people are trying to inculcate it into their daily food habits in an attempt to gain health benefits of this magical grain. The most amazing aspect of millet grains is that they can be used in various recipes so as to provide the essential nutrition to the whole body. Another aspect of millet grains is that they usually grow fast in comparison to other cereal options like wheat or rice. It is this outstanding quality of millet grains which makes it the ideal crop. Millet is currently the sixth most important and valuable cereal grain in the entirety of the world. In addition to the numerous benefits, millets are completely gluten free. Hence, it good for both physical and mental health of individuals.

Some of the health benefits of using millet grains on a daily basis are mentioned below:

- **In terms of improving digestion:** Millets usually contain a large proportion of fibre, which affects the digestive health of an individual in a positive manner. Since it has an enormous quantity of fibre, it helps in regulating the bowel movements. It is well said that- *A healthy digestive system is being healthy itself*. Millets also contain a fixed amount of prebiotics which eventually speed up the growth of prebiotics within the microbiome present in human beings. This proves extremely beneficial for the health of the gut and is also of great significance for the immune system. The healthy fibre in millets is of great importance for cancer patients. Millet proves to be extremely

beneficial to celiac disease patients or those suffering from gluten intolerance as it is completely gluten free. Individuals suffering from celiac disease can consume this amazing grain without any risks to their body because it is not only gluten free but also quite rich in nutrients like proteins and fibres.

- **Supporting and being extremely beneficial for the cardiovascular system:** Millets generally contain huge amounts of magnesium, which is an essential nutrient for the heart in terms of regulating the heart rhythm and its overall wellness and development. Consumption of millet helps in elevating the quantity of protein adiponectin which is important for protecting the cardiovascular tissues. Millets also consist of Vitamin B3 (commonly known as Niacin). This particular vitamin is crucial in reducing the factors of various heart diseases including maintaining cholesterol levels and triglycerides, and becomes beneficial on a whole in toning down the oxidative stress levels of the human body.
- **Improving the mind space and mood of a person:** Millets are rich in amino acids along with a balanced amount of tryptophan which helps in maintaining the mental peace of an individual. It is because of these factors that one feels calm in terms of mental health and wellness after consuming a millet based diet. Also, according to a research done in 2014, a heavy millet rich diet reduces the factors of depression and anxiety considerably in people because of the amount of amino acids present in them.
- **Millets reduce the risk of diabetes:** According to a 2021 study and research, it has been confirmed that millets reduce the risk of developing type 1 and type 2 diabetes considerably. It is so because millets manage and reduce glucose level of blood in people that are diabetic. Due to the consumption of millet products, an increase in adiponectin occurs and its concentration improves insulin sensitivity in the body. Since, the glucose levels and the insulin levels of the human body is at a check, the risk of developing type 1 or type 2 diabetes is considerably lower.
- **Millets help significantly in managing weight and reducing the chances of obesity:** According to another study and research done in 2021, it has been proven that a balanced millet diet can manage obesity and high cholesterol levels which usually cause many chronic problems. A millet rich diet reduces the body mass index (BMI) and therefore, reduces the probability of getting overweight.
- **Millets help in reducing oxidative stress to a great level:** Oxidative stress is fatal for the body, especially if it is

generated at higher rates in relatively smaller time span. Oxidative stress is responsible for causing a number of chronic problems including arthritis, type 1 diabetes and type 2 diabetes, asthma, heart cancer, neurodegenerative

disorders and many more. Dementia is a disease caused by the consumption of a high fat diet which is caused by the ever-increasing oxidation stress levels in the human brain. For the treatment of dementia, doctors usually prescribe antioxidants. The reason simply lies in the fact that antioxidants prove to be extremely beneficial for managing oxidative stress levels. Doctors also advise the patients to consume a diet which is extremely rich in antioxidants. This is where a millet rich diet comes into play. According to the nutritional chart, millets are surplus in antioxidants. This type of diet helps antioxidants in reducing the oxidative stress levels of the human body. Thus, developing chronic disorders and diseases become rare. Since the oxidative stress levels are considerably reduced, human stages such as ageing and illness also reduce to great amounts. Millet consumption in diet also reduces the chances of Alzheimer's disease

- Millet consumption on a daily basis results in suppressing the growth of cancer cells
- The high protein and antioxidant content in millets heals wounds quickly
- Millet is also beneficial in terms of supporting antifungal and antimicrobial activities in great regard.
- Since millet is highly rich in its alkaline content, the pH of the body is maintained. It is this particular quality of millet which reduces any kinds of abdominal discomfort caused due to bad eating habits.
- Millets have low glycemic index therefore the glycemic load on the body is reduced which further reduces the risk of type 1 and type 2 diabetes

Our team: Established in 2012, we made a well reputed name for ourselves in the list of top product suppliers in India. We are located in Pune, Maharashtra and are listed in Trade India's list for supplying naturally organic products of high





quality and capacity. You can buy in bulk from us in an attempt to make us provide you the best services and genuinely great products. Our team consists of experts in the field of Nutrition, Agriculture, Food processing, Marketing as well as Agriculturists who follow good agricultural practices. Our main focus is towards building healthy and strong India with the help of a healthy lifestyle.

Our Vision: Under the expertise of our founder, we constantly try to generate more competence and significance in our well esteemed organization. Our vision is well built on the fact to constantly evolve in terms of manufacturing and marketing to come up with better quality organic products which will take us a step ahead in making India healthier.

Our Mission: It's our mission to establish Samruddhi Agro Group as the leading brand of organic millet products in India and across the world. We also aspire to be a valid source of organic products of the highest quality available in the nation. It's our mission to make India healthy and fit. And we are constantly working in that direction. Due to our care about the health conscious community and customers, we are processing only healthy, nutritious and tasty products. We brought out our traditional healthy products into modern style without changing nutrition and taste.

Awards that have gained us global recognition-

Samruddhi Agro Group has managed to make a unique place for itself in the food product industry across India and even on a global level. The list of awards and accolades awarded to us are:

1. **Agrowon Smart Krishi Udyojak Award** in April 2019 by Agrowon, Pune, Maharashtra
2. **Baliraja Sanman Puraskar 2017** in December 2017 by News 18 Lokmat, Maharashtra
3. **Krishi Bhushan Puraskar** in December 2017 by S. S. Jaju Smruti Pratishthan, Ahmednagar, Maharashtra
4. **Best Millet Start-up in Maharashtra state** in February 2017 by IIMR, Government of India, Hyderabad
5. **Krishi Sanman Puraskar 2016** BY Doordarshan Sahyadri, Mumbai
6. **Adarsha Udyojak Puraskar 2016** by Fruit & Vegetable Processing Association, Pune, Maharashtra
7. **Krishi Sanman Puraskar 2015** by D Media roots, Pune, Maharashtra
8. **The Best Entrepreneur 2013** by Indian Institute of Millet Research, Government of India, Hyderabad

These awards and titles are a proof of the sheer commitment and passion that we display towards making the best quality products. ❑



DECLARATION



- The contents of this issue is referred and compiled from various sources and Purnabrahma doesn't claim it's authenticity.
- The contents given in the article are the views of the respective authors.

Make Bucks Out of Buckwheat - A Treasure of Nutrition

Dr. Deepali Kothekar

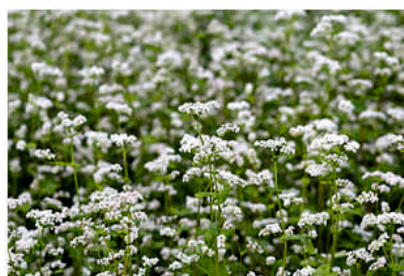
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One of the casualties of Russia-Ukraine war was the rise in the costs of Japan's inexpensive soba noodles made from their beloved grain -buckwheat. Western sanctions on Russia, the growing fear of food crisis, subsequent Russian restrictions on export of buckwheat, shipping restrictions and in stability resulted in a huge burden for buckwheat noodle vendors and a hit to the pockets of Japanese student population who rely on the low-cost buckwheat-based meals. Russia is the top buckwheat producer in the world and Japan the top importer. In the 9th century when the Greek missionaries spread Christianity to Russia, it is said that they brought with them more than just the bible, they brought a miracle seed so highly nutritious and delicious that it became a staple food grain of Russia!

Buckwheat is a dicot pseudo cereal belonging to the family *Polygonaceae*. The hulled grain of buckwheat, called groats, is either consumed whole after boiling or steaming, or ground into flour. Cultivated buckwheat comprises two species: *Fagopyrum esculentum* L. (common buckwheat) and *F. tataricum* (Tartary buckwheat). Its cultivation is spread to the Middle East, Europe and Central Asia. In India both common buckwheat and Tartary buckwheat is cultivated in the hilly terrains of northern states of Jammu Kashmir, Himachal Pradesh, Uttarakhand, eastern regions of West Bengal, Sikkim, Assam, Arunachal Pradesh, Nagaland, Meghalaya, Manipur and southern hilly terrains of Kerala and Tamil Nadu (Nilgiris and Palani hills).

It is a short season crop (10-12 weeks) that is often grown as a cover crop and grows well in less fertile but well drained soil. Because it adds nitrogen to the soil and is easy to cultivate, farmers grow this crop as a ground cover for making the soil fertile as well as to get rid of weeds. The attractive white,



Field of buckwheat flowers



Buckwheat groats

yellow, or pink flowering fields of buckwheat offer a stunning sight. The flowers fertilize to form peculiar triangular shaped seeds which are consumed as grain.

In Japan, China and Tibet, this grain with nutty flavour, is a common cuisine in the form of noodles, whereas roasted and boiled kernels of '*grechka*' (as Russians call it) are served in the form of porridge in Russia and eastern Europe. Because of its convenience to cook, *grechka* is also sold in ready-to-boil bags. In India this pseudo cereal called '*kuttu*' is underutilized and consumed majorly during fasting with a variety of recipes, such as dosa, pan cakes (thalipeeth), and porridge prepared from its flour. Buckwheat is cultivated not only for its grains but also for its high-quality honey. The nectar of buckwheat flowers attracts honeybees and the converted honey ranges in color from dark purple to black, or generally amber with a slight reddish tint. Buckwheat Honey has many antioxidants (dark honey has more) and is full of immunity-boosting ingredients and vitamins.

What makes buckwheat a super pseudo cereal is its gluten-free endosperm and its richness in macronutrients, micronutrients and bioactives. It has starch (59-70% of dry matter) which is the source of instant energy, high biological value proteins (11-14%) and polyunsaturated fatty acids such as linoleic, linolenic, and arachidonic. Unlike cereals like wheat which are limiting in essential amino acid lysine, buckwheat provides lysine, leucine, threonine, arginine and sulphur containing amino acids. This makes buckwheat protein a valuable raw material for generating bioactive peptides as well. This pseudo cereal is also rich in micronutrients such as B vitamins, and minerals such as calcium, magnesium, phosphorus sodium and zinc. Moreover, buckwheat groats have a high content of insoluble and soluble fibre making it a suitable functional food for obesity and diabetes.

Buckwheat research has gained significant interest recently due to the presence of some less studied secondary metabolites with antioxidant and anticancer effects. Flavonoids such as rutin and quercetin, and other constituents such as fagopyrin, β -sitosterol, orientin, vitexin, etc., add to the health benefits of this pseudocereal. Consumption of this

antioxidant rich super food has been associated with lowering of plasma cholesterol levels, management of hypertension, management of varicose veins, neuro protection, anticancer, anti-inflammatory, and anti-diabetic effects. The leaves and flowers of fagopyrum is a source of anthocyanins such as cyanidin, pelargonin and malvidin. Tatar buckwheat sprout contains more anthocyanins than common buckwheat sprout. Several naphthodianthrone called fagopyrins A to F, with anticancer effects are isolated from three Fagopyrum species (*F. esculentum*, *F. tataricum*, and *F. cymosum*). Fagopyrins in higher quantities, however, show phototoxic effect (fagopyrism) following exposure to sunlight.

Buckwheat, in the form of either raw grains, hulled grains (groats), roasted grains (kasha) or flour, is in demand in food, beverage, textile and cosmetic industry. According to Market Data Forecast published in January 2022, Buckwheat market was estimated at USD 1.4 billion in 2022 and is anticipated to reach 1.6 billion by 2027. The growing awareness of health

benefits of this grain is the predicted driver of its increasing demand. Significant rise in demand for this superfood is estimated in Asia-Pacific, North American and European markets in near future.

Unlike the cultivation of wheat, maize and rice that are widely consumed, buckwheat cultivation in India is restricted to hilly areas and is declining day-by-day due to unawareness of its nutritional value, restricted consumption, and limited demand. Thus, there is a strong need to create awareness regarding the nutritional and health benefits of this underutilized crop. It is available in supermarkets and is expensive than the other cereals perhaps because of the special milling technique required during grain processing. Farmers need to be educated and encouraged to cultivate this sustainable crop and make it a profitable source of livelihood. Scientific and technological interventions are urgently warranted to increase production and utilization of this resilient crop which holds promise to sustain the adversity of climate changes and provide a treasure of nutrition. □

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Golgappa Food Pellets : The Revolution

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Golgappa or Panipuri is a famous street food in India, liked by all age group. Every evening you find all panipuri stalls on the streets full of people. Raw Golgappa is made by making dough of semolina/ refined wheat flour (maida), salt, adding legume flour in small quantity. It is then compressed as a sheet, with small oval shaped discs cut which are further processed for frying in vegetable oil. You get puffed puri or Golgappa. This puri is then sold at panipuri stalls and served by adding tamarind water, boiled potatoes, sev, green and sweet chutney and boiled chana. This puri is made manually at many places in house. But this process is unhygienic and we have seen many videos on social media regarding unhygienic panipuri making.

In the year 2009, when I was working with Haldiram Foods Int. Ltd, Nagpur, with suggestion of our Director Mr. Sushil kumar Agrawal sir, we had worked on making 3 D food pellets without punching on Italian machine.

We used maida, food starch, and salt as a raw material. During this we made oval shaped food pellets, which after frying, turned into a ball or Golgappa shape. After frying, we observed uniform expansion in our product, crispy in nature and with less oil absorption. Later we improved quality by adding semolina. We named this product as "cereal ball". Soon sampling began and we started selling the product through distributors.

In short period of time, the product demand increased as Panipuri street vendors started using these pellets for raw Panipuri making, but we were able to produce only 50 thousand per month due to production of regular products and few export orders. We also got suggestions from the customers to match quality in aspects of color, size and taste



like the hand made Golgappa. But due to other product demand, we could not concentrate. Later in 2011, TTK Bangalore worked on this product and developed same handmade panipuri and started selling.

Demand of this product then increased and there are now around 14 companies making this product and the sale is over 3000 thousand per month.

When all street vendors in India will start using the sepellets for raw panipuri making, then demand will be of 20,000 thousand per month minimum.

You can make Multigrain, Quinoa Golgappa too.

Now automating machines for tamarind water/masala filling in raw panipuri is also available and seen at many places.

Also small ready pack of branded companies with raw pellets and panipuri masala inside is available in retail market and online. Now you can enjoy your favorite hygienic Panipuri at home also. ☐



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Packaging

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- Packaging Approval

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Small Millets in mainstream diets promoting decentralised processing infrastructure

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In India, declining cereal diversity in diets is one of the key factors behind malnutrition and the prevalence of non-communicable diseases such as diabetes (Misra A. et al. 2011; Ruchi V. et al. 2014; Gayathri R. et al. 2016). The inclusion of small millets in the mainstream diets could contribute to the answer. Small millets include little, Proso, Brown top, Barnyard, Foxtail, and Kodo millets. Performing well in marginal environments they have superior nutritional properties, including high micronutrient and dietary fibre content, and low glycemic index. However, there has been a drastic decline in production and consumption of small millets in the last few decades, mainly due to limited production, high drudgery involved in their processing, negative perceptions of small millets as a portion of food for the poor, and policy neglect when compared to other crops.

The neglected and underutilized status of the small millets is a reflection of inadequate research on and inadequate Government support pertaining to production, processing, marketing, promotion, and utilization. The limited quantum of production has resulted in limited private investment in processing and marketing, which in turn resulted in a limited number of food products in the markets, poor availability, and higher prices, leading to poor demand. The market for small millet food products in terms of volume is very limited and picking up in the recent past. Product differentiation in rice and grits of small millet is yet to happen and other value-added ready-to-eat and ready-to-cook products are slowly catching up in the market. Poor demand in turn is exerting a negative feedback effect on the production, processing, and marketing, leading to a vicious cycle. There is a need for breaking this vicious cycle. It is only possible when comprehensive and integrated ecosystem-level interventions aiming at demand stimulation through promoting household consumption, increasing production, developing decentralized processing infrastructure, and local market development are taken up simultaneously at

local and regional food system levels. This paper deals with policy support needed for the establishment of decentralized processing infrastructure, an important component in the overall framework for the revalorization of small millets.

Need for decentralized processing infrastructure

Dehulling is the process of removing the outer husk from the grains. It is a vital process for obtaining grain rice and for further processing of grains for consumption. Traditionally, small millets were dehulled manually by women in the production regions and this process involves significant drudgery and time. Lack of village-level processing infrastructure and high drudgery related to manual processing has resulted in a drastic decline in consumption of small millets other than a finger in the production regions. Lack of regional level processing infrastructure resulted in moving out of the limited production from the production regions to distant processing zones like Nashik, Maharashtra, thereby crowding out local consumption. Thus, the price spread in the value chain is more, and consequently, the price of small millet rice and other staple forms is more compared to paddy rice and wheat, making them less affordable to a large number of consumers. In these ways, inadequate availability of appropriate scale processing technology and lack of local/regional processing infrastructure development remains the important limiting factors for enhancing the status of small millets in mainstream diets in the local and regional food systems. For creating an environment conducive to the consumption of small millets in the production areas and to transform the current positioning of small millets as 'elite food' to one of 'food for all the sections of the society', establishment of a vibrant village level and regional level processing infrastructure is a key step, which addresses the critical missing link. The emergence of regional processing units in Southern India due to the availability of appropriate small-scale machinery has shortened the value chain thereby aiding in local and regional consumption. Similar developments need to be promoted in various other parts of the country where small millets are cultivated on a scale.

Role of Government

The role of the Government is critical in promoting decentralized processing infrastructure for small millets. Given the increasing incidence of non-communicable diseases and the persistence of the double burden of malnutrition across the social classes and ages, promoting small millets consumption can be an important instrument for the Government to address them. The need to implement Food Security Act, 2013 by the states also gives the necessary policy backdrop. Given the current status of poorly developed markets for small millets, there is a need for comprehensive and integrated support in the model of the 'Commodity Board' for promoting small millets as a nutritious food category. The state can learn from the comprehensive support given by it to

the sericulture, tea, coffee, spices, and coir industry to promote small millets on a scale. While there has been focused support in some parts of the country for increasing production and promoting consumption, there has been meagre support in establishing decentralized processing infrastructure and market development. The key roles of government in the establishment of decentralized processing infrastructure. Specific support is needed from the Government on the following aspects in an orchestrated manner:

- 1) Addressing the research gaps in processing
- 2) Supporting the establishment of a thriving ecosystem for processing equipment
- 3) Supporting the establishment of local/regional processing enterprises of various scales

Addressing the research gaps in processing

Research on small millet processing has been quite inadequate and has been mostly limited to food processing and dehulling. For establishing small millets as a food category in the markets for wider consumption, there is a need for addressing the following research gaps in the broader canvas of small millet processing: Improving the primary processing equipment. While processing millets without husk (naked grains) namely sorghum, pearl and finger millets is easy, processing of millets with husk namely little, proso, kodo, barnyard, foxtail, and brown top millets is difficult. These have an inedible husk that needs to be removed through processing. The major challenges in processing small millets are:

- The small size of the grains
- Variations in the raw materials due to variation in varieties,

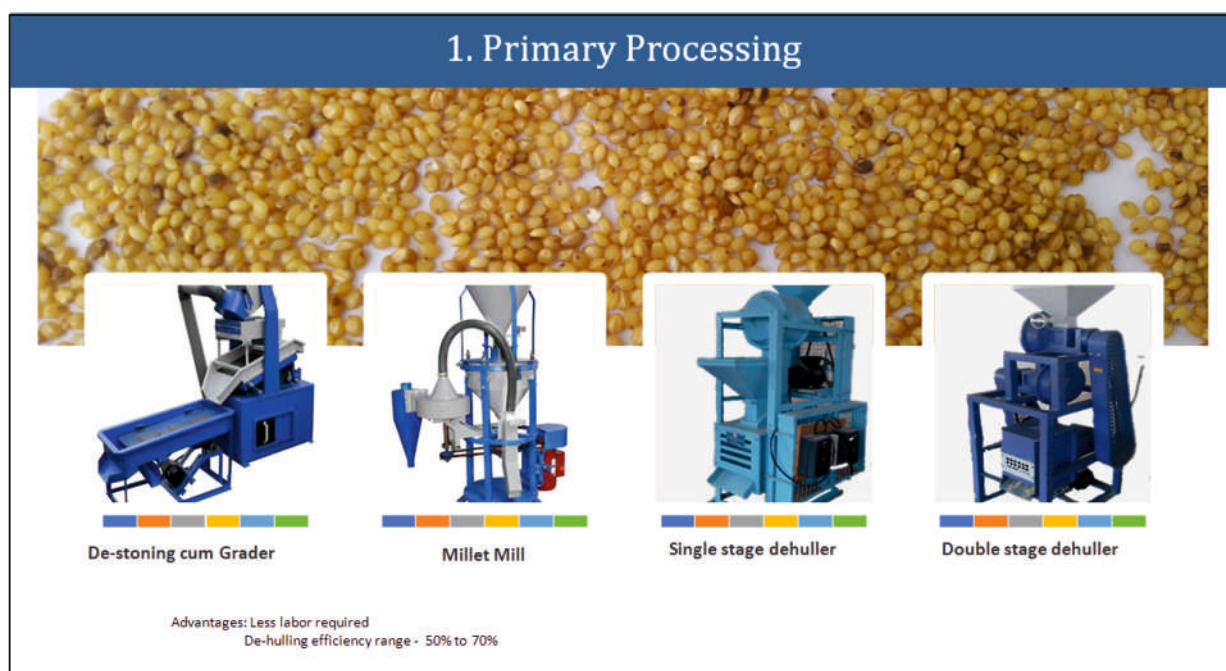
cultivation practices and microclimate, and variations across the crops

- Low shelf life of the processed rice and grits due to pest infestation and rancidity. The machinery currently used for processing small millets on a small to medium scale include,

i) Graders / Shakers, ii) Destoners, iii) Air classifier / Aspirator and iv) Hullers. Currently, three types of dehulling technologies are employed namely,

1. Emery mill working on abrasion principle,
2. Rubber roller mill working on abrasion principle and
3. Centrifugal type working on impact principle. Most of the components of these processing machinery are improvised versions of paddy processing machinery.

Small millet processing machines are designed and manufactured by the equipment manufacturers mainly based on their experiential knowledge (trial and error method), as limited scientific research inputs have gone into the same through technology transfer. On the other hand, few resourceful processors in the market have learned small millet processing based on a large number of iterations, thereby gaining operational knowledge which is 'tacit' in nature. Limited formal research on standardizing the processing equipment like a process line has been done. There has been no effective working mechanism or learning platform for effective interaction and flow of knowledge between research institutions, equipment manufacturers, and end-users or to support the learning within their respective sectors. The few dehulling technologies developed are not put to test in processing units using large volumes of throughput to know their performance. The hulling efficiency (calculated as a share





of millet rice kernel to total grain processed) and quality of output has been less than acceptable. The presence of unhulled grains in the millet rice is an important issue faced by consumers. On the processor side, the high cost of processing to achieve acceptable quality rice increases the price of small millet rice substantially, thereby hampering the volume of sales. Processing is the critical link in the small millet supply chain between production and consumption and therefore difficulties and inefficiencies in processing have a considerable negative impact on the growth of markets for small millet food products. Therefore, there is a need for fine-tuning the existing small millet processing machinery in the following aspects to improve the quantity and quality of output and to improve ease of use:

1. Optimising the dehulling technology with reference to different small millet crops add to different grades of the same millet
2. Improving the separation mechanism in hullers to reduce the removal of grits and other usable materials along with husk
3. Improving the grader in terms of its sieving efficiency to meet pre and post-hulling segregation requirements of different small millet crops and reducing the machine footprint on the factory floor
4. Improving the post-hulling machinery to separate unhulled from the hulled grains and to separate finer stones and mud balls similar in size and weight from rice and grits
5. Optimising the 'process line' for village, small and medium enterprise level processing for improving the versatility, hulling efficiency, and product quality, optimising the cost of processing, and reducing pest incidence; this in turn will increase viability of the processing enterprise
6. Reduction of the cost of the machines in the process line by reducing the foot print, height, weight and energy requirements; this will help in making them more affordable.

7. Improving the ease of use, ease of maintenance and servicing, and safety, considering the power requirements, skill requirements, and gender concerns, to reduce the downtime and to reduce the pest infestation.
8. Improving the scale of the huller to meet the processing requirements at SME level.
9. Research on multi-product process line: Currently only small millet 'rice' is considered as the primary output of the processing unit. As the market develops further, there can be requirements for more than one type of rice and flour, which are differentiated in terms of quality, use and price. Research is needed for improving the 'process line' to deliver multiproduct outputs

The inclusion of small millets in the mainstream diets could be one of the important ways of addressing malnutrition and non-communicable diseases such as diabetes. But, in adequate availability of appropriate scale processing technology and lack of local/ regional processing infrastructure development remains the important limiting factors.

The role of the Government is critical in promoting decentralized processing infrastructure for small millets. Specific support is needed from the Government on the following aspects in an orchestrated manner:

1. Addressing the research gaps in processing with a focus on
 - a) Improving primary processing equipment
 - b) Improving shelf life of products
 - c) Product standards
 - d) By product utilization
 - e) Managing Kodo millet poisoning
2. Supporting establishment of a thriving ecosystem for processing equipment with a focus on
 - a) Supporting existing and new equipment manufacturers
 - b) Development of a business hub
 - c) Development of cadre of mechanics
 - d) Ensuring adherence to product standards and product services
 - e) Supportive tax regime
 - f) Empanelment of well-performing equipment manufacturers
3. Supporting the establishment of local/regional processing enterprises of various scales with a focus on
 - a) Establishing/ expanding production facility
 - b) Structured capacity building
 - c) Building market linkages
 - d) Access to funds for working capital
 - e) Creating enabling environment

Concerted efforts in the above-mentioned aspects by Government and other stakeholders are expected to result in the development of a viable decentralized small millet processing infrastructure in the medium run and the establishment of small millets as a nutritious food category in the long run. □



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Food Tourism in India: Scope and Approaches

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Food tourism is gaining importance now days. In the early 2000, food tourism emerged and it was defined by Erik Wolf (Ex Director Culinary Tourism and Tasty Economic Proposition, 2001), as "the pursuit and enjoyment of unique and memorable food and drink experiences both far and near". Later the term *Food Tourism* emerged, after several other phrases which were suggested (food travel and food tourism; food and beverage tourism, culinary tourism and gastronomy tourism). This article is an attempt to identify the prospects of Food Tourism in India.

With globalisation, the tourism industry has grown manifold. Due to good transportation facilities, digital marketing and virtual advertising, customers are attracted to take up tours. Another reason is the wide spread use of web based services. Today all information is available at the click of a button bringing countries and cultures closer. Also, websites floated on the internet give travellers attractive packages and schemes to choose from. Tourism websites provide vital information about transport, accommodation, local tour packages, tourist attractions and most important about the food available. While planning any tour, travellers are interested in good food. It is one of the major factors affecting selection of tourist destination. Thus, *food tourism* plays a vital role in the tourism industry. Tourists usually are interested in local and traditional cuisines.



Food Tourism in India: India is a country with a treasure of food specialities and delicacies of different religions. Many years ago, the Indian Government had given a boost to the tourism industry. Today Food Tourism can enhance the industry even further. Figure 1 enumerates the possibilities.

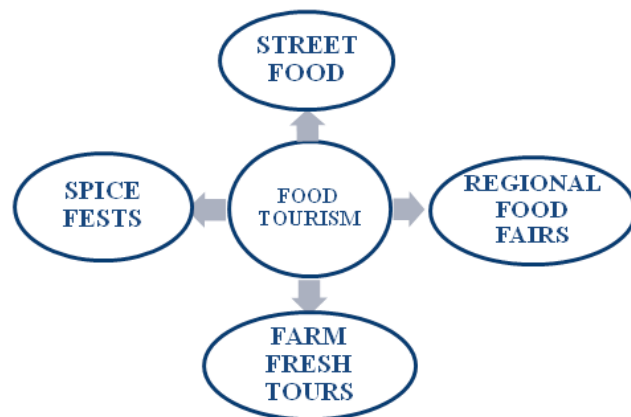


Figure 1: Scope of Food Tourism in India

- I. **STREET FOOD:** A food tourist may want to follow street food stalls or trucks from region to region and write articles or blogs about them. There are TV shows on street food and even demonstrations of street food cooking on cookery shows. Such is the popularity of street food all over the world. In the vast diversity of our country, there is a large variety of street food in each state. Some examples are- VadaPao and MisalPao of Mumbai, Puchkas and JhalMuri from Kolkata, Dabeli of Gujarat, AkkiRotti from Karnataka, BikaneriKachori and Mirchi bade from Rajasthan, CholeBhature from Punjab, Delhi's famous Ram Ladoo and MatarKulcha, PohaJalebi from Madhya Pradesh, LittiChokha from Bihar and many more. The list is exhaustive.

It is said that food says a lot about the place it belongs to. So to know the true soul of any place, the street food

should be explored. Street food in India has some hidden treasures for sure. Street food is also cheap anywhere compared to big hotels and fine dining places. The popularity of the famous street food snacks is such that these are now days offered by 5 star restaurants too. The doubt about the sanitation and safety of street food has been rested by FSSAI (Food Safety and Standards Authority of India) who have modified several regulations in the past few years. The new regulations will surely help ensure good and safe street food.

II. SPICE FESTS : India is a land of spices. The Government of Kerala, department of Tourism in 2016 had organized an 'International Spice Route Culinary Festival and Competition' in collaboration with UNESCO. This idea emerged due to the spice trade from Kerala to over 30 countries in the world. They invited chefs from Egypt, France, Germany, Indonesia, Iran, Italy, Japan, Lebanon, Malaysia, Netherlands, Portugal, Qatar, Thailand etc. These chefs made a variety of dishes which included all the spices in the spice route. This culinary fest was one of the first creative enterprises which celebrated flavour. There were many cooking demonstrations, discussions and competitions too.

Thus, more Spice Fests can be planned and conducted to introduce the spices and recipes for tourists. Each Indian state has the potential to plan a spice fest and increase tourism. Competitions, demonstrations, talks and seminars to give information can be planned. There can be spice trails in the plantations and many more culinary programmes.

III. REGIONAL FOOD FAIRS : The Indian states and religions boast of exquisite and tasty cuisine. From the north to south and east to west the food differs a lot depending on the staples that grow there. The ingredients and spices may or may not differ but the taste is absolutely different depending on the methods of cooking. The regional recipes can be showcased and promoted through regional food fairs.

Through food fairs, purchasing local food products, tasting local beverages and foods, dining at quality restaurants can be encouraged. Food fairs can help regional development and generate income for locals. It can be a mode to make any place a popular destination. Employment opportunities will rise and help to better the standard of living of the region. Once tourists are fascinated various strategies can be used to enhance tourism even further.



Apart from the food industry, local jewellery, art, dance, music all can get a boost.

IV. FARM FRESH TOURS/EVENTS: Children and many times even adults are interested in knowing about farming and farm produce. Such tours can be planned and publicised. The tours should be such that experiences will offer knowledge. Particularly for children, they can be taught some first-hand skills in farming. Each tour can be a variety of activities such as a bullock cart ride, hand picking of fruits and vegetables, juicing of self-picked fruits, a short film on various stages of harvest of the farm speciality. Walk among plantations; learn about nurturing saplings, methods of composting, farm animal information, and information about herbal plants and medicinal uses of the plants.

With the farm tours can be added indigenous plant and vegetable cooking demonstrations. Lunch and snacks made from farm fresh produce can be sold. Many countries have made farm tours a tourist attraction. In our country also in some states it is popular during harvest time. This concept should be publicised. Other events linked to farm tours can be food and beverage trade shows which are being held in India and other countries too. The Indian food processing industry is rapidly growing and the Government plans 'Food Expos' to showcase the products. All such events can be planned to boost up food tourism.

Benefits of Food Tourism: Tourism industry brings revenue to countries. India's tourism industry has grown and now brings billions of dollars every year to our economy. If Food Tourism is promoted, there will be employment and entrepreneurship development which will contribute to the economic growth. Growth of tourism industry is seen in the increase of domestic and foreign tourists observed each year. If food tourism is seriously taken up, it can increase the number of tourists. There will be scope for new entrepreneurs to rise. With this will increase jobs and opportunities too.



Apart from the above suggested areas for food tourism, culinary trails, cooking classes, cookbooks, food guides, new adapted recipes also can attract tourists. Food tourism can also be educational. The curiosity about food, different cultures, of a particular cuisine, about cooking skills needed for preparing those recipes all can be utilised as part of food tourism. Thus, food tourism can be an industry by itself which can promote creativity and innovation. It will bond different cultures together. In the era of entrepreneurship, it will be able to contribute to economic development of any country and keep the connection with culture and values.

References:

1. Ichikawa, H., Yamato, N., & Dustan, P. (2017). Competitiveness of global cities from the

perspective of the global power city index. *Procedia Engineering*, 198, 736-742.

2. Lim Khong Chiu, Radzliana Radzuwan and KhorPoyHua (2018). The relationship between consumer-perceived value and the propensity to use sports tourism event websites. *J of Tourism Sports Management*.
3. Ellisa, A; Park, E; Kimc, S; Yeoman, I. (2018). What is food tourism? *Tourism Management*, 68, 250-263.
4. Duttagupta, S. (2013). Foreign travellers' recommendation of culinary tourism in India based on cuisine image and satisfaction with experiences at culinary establishments: an exploratory study. A thesis presented to the University of Waterloo, Canada.
5. Banerjee, M. (2015). Food Tourism: An Effective Marketing Tool for Indian Tourism Industry. *International Journal of Science Technology & Management*. Vol 4, (2), pg 26-35.
6. Jaswal, S. S. (2014). Role of Tourism Industry in India's Development. *J Tourism Hospit*, 3:2, pg 2-6.
7. Shah, G and Shende, K (2017). A study on the importance of Food Tourism and its impact on Creating Career Opportunities amongst the Residents of Pune city. *International Journal of Research in IT and Management (IJRIM)*; Vol. 7, Issue 3, pp. 192- 208.
8. www.en.unesco.org/events/international-spice-route-culinary-festival. ☐



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Millets - The package of Nutrients

Mrinalini Sant

Clinical Dietician
Consultant at Krishna Hospital,
Kothrud, Pune
Operations Head
“Nityaposhanam”



Millet is a small and round grain grown in India, Nigeria & few other Asian and African countries. Millets belong to the grass family. Apart from maize & Sorghum, the major millet crops of India are:

- Pearl Millet (*Bajra*)
- Italian Millet (*Foxtail Millet*)
- Little Millet (*Semai*)
- Kodo Millet (*Varagu*)
- Finger Millet (*Ragi*)

Nutrition in Millets: Like most cereals, millet is a starchy grain i.e. rich in carbohydrates. It also packs several:

1. Vitamins & Minerals
2. Essential amino acids (building blocks of proteins)
3. Ragi - Highest calcium content of all cereal grains (value & mg)
4. Phosphorus
5. Antioxidants e.g. Phenolic compounds- Ferulic acid, Catechins which help in rapid wound healing, Skin protection and anti-inflammatory properties
6. Fibre and non-starchy poly saccharides (indigestible carbs) that help controlling blood sugar levels (Low in glycemic index)
7. Soluble fibre. Hence may help to reduce cholesterol levels
8. It's a gluten free grain, making it a viable choice for people with celiac disease or those following a gluten free diet because of gluten sensitivity. (Gluten - A protein that occurs naturally in grains like wheat, barley, rye etc.)

How to add millets in daily food? We can enjoy different tasty dishes made by using combinations of millets. Maharashtrian



thalipith flour (*bhajani*) is the best example of combination of cereals and millets. One should eat millet roti (*bhakari*) in one of the meals daily, so as to get nutrients from them regularly. Millets are having good amount of soluble and insoluble fibre, which act as prebiotic, and hence protects gut health. We can add millet flour while cooking *kadhi*, *alu vadi*, *kothimbir vadi*, *pakodas*, *muthias*, *handavos*, *millet idli*, *millet dosas*, *porridges*, *soups* etc.

Can Diabetics eat millets? Yes. Millets are proved to be low in glycemic index, ranging between 54 -68 grains, which means that due to their complex carbohydrates content, they do not cause the blood sugar levels to shoot up. Also their fibre, minerals, vitamins and complex carbohydrate contents provide greater satiety which makes the stomach feel full for longer time. This is highly beneficial for diabetics who always tend to suffer from frequent hunger pangs. While eating millets like *jawar*, *varai*, try to eat in combination with pulses or curd/buttermilk for better results.

Is it beneficial in weight loss? Yes, to eat is a necessity, but to eat intelligently is an art! You need a minor change in your eating habits to lose that stuck up weight. Millets are loaded with fibre and one of the best sources of complex carbohydrates with numerous health benefits. Whole millets and millet flours are naturally gluten free sources and a great alternative to rice and wheat. The fibre content in millets help in regular bowel movement by flushing the toxins out of the body. It is now a well-proven fact that consuming whole grains regularly can help you shed those extra kilos!! Some researchers believe that fibre in millets along with its bio active compounds is responsible for keeping our stomach fuller for longer duration of time and reduces snacking habit between meals. This helps in shedding the extra kilos without compromising on nutrition.

Want to stay away from Diabetes? Of course, we all want ourselves to be non-diabetic throughout our life, and also should design our daily food menus wisely so that our kids would also live a healthy life and won't catch diabetes in future. We know obesity, overweight are latest pandemics in India. This extra weight leads to prediabetes, where a person's

insulin (the hormone which regulates our blood sugar levels and makes our organ cells to utilize this sugar as a source of energy) becomes insensitive or resistant, and hence the sugar/glucose/energy from food cannot reach organ cells. Therefore our pancreas tend to secrete more and more insulin, this is called Insulin Resistance. The unutilized glucose is stored inside our body in the form of fats, which in turn causes weight gain. This excess weight is a risk factor for Poly Cystic Ovary Dysfunction (PCOD), Thyroid dysfunction, Fatty liver, cardiovascular disease etc.

Which are the most effective millets for diabetes and how to use them? Being a Clinical dietician, I use to meet diabetic patients on daily basis, in OPD, IPD and ICU too. I always wanted to implement my knowledge of Clinical Nutrition in the form of an actual food formula, which is easy to cook, has rich nutrient values, has familiar taste, and should be giving good results to the patient in his/her pocket friendly charges.

I started preparing combinations of millets and cereals and actually used them as a staple food for diabetics. For e.g.

1. Millet roti made with *Jowar* (sorghum) + green *moong* + *Methi* seeds (fenugreek seeds)
2. *Raagiambil* (sugarless *raagi* malt cooked in water and added with fresh buttermilk, hing, jeera)
3. Millet dosa: *Raagi* flour + Chickpea flour (*besan*) + oats flour

Also I prescribe one meal of the day without wheat and rice. So one of the meals, preferably in dinner the diabetics were prescribed millet roti (*bhakari*) along with green leafy vegetable and daal, raw salad. Many diabetes patients reduced their fasting sugars, their body weight, acidity issues, cholesterol levels, constipation issues, energy and stamina issues got resolved.

Then I started preparing these millet combinations commercially, after checking the nutrient contents of those formulas. I used combination of *Raagi* and Amaranth seeds (*Rajgeera*), black *chana*, green *mung*, whole *udad*, soyabean and other iron, calcium rich herbs and functional foods (dried curry leaves, *kasoori methi*, moringa leaf powder, *khaskhas*, other spices and condiments etc.) and it proved to be a balanced food formula for managing sugar levels and weight issues too. I got the food lab reports for above formula as follows:

Nutritive Values per 100 g

Carbohydrates - 70.72 g
 Proteins - 13.27 g
 Fats - 7.67 g
 Calcium - 393 mg (Estimated daily need of Calcium is 800 -



1200 mg in different age groups, pregnancy and lactation)
 Iron - 3.31 mg
 Calories - 405 Kcal
 Magnesium - 102.58 mg
 Phosphorous - 450 mg
 Fibre - 4.68 g

One more formula prepared with combination of millets was using Sorghum + Pearl millet + Finger millet + dry green chickpea, whole black gram, *green moong*, condiments etc.

All ingredients were lightly roasted and ground. Diabetics got good results with this formula also. After food lab testing, I got the following results -

Nutritive values per 100 g

Carbohydrates - 73.91 g
 Proteins - 11.80 g
 Fats - 8.12 g
 Fibre - 1.9 g
 Energy - 415.9 Kcal
 Magnesium - 106.15 mg
 Phosphorous - 280 mg

Case Study:

Name - Mr.XYZ

Reports in Feb 2021

HbA1c - 7.8 %
 BSL Fasting - 157 mg/dl
 Post Lunch (PP) - 180 mg/dl

After changing his diet and adding millets serve on regular basis in one of his meals, following results were obtained after exactly one month:

Reports in March 2021

HbA1c - 6.1 %
 BSL fasting - 78 mg/dl
 Post Lunch (PP) - 102 mg/dl

And with same diet which was religiously followed along with one serve of millets daily, he has maintained almost same sugar levels, also his cholesterol levels are highly normal. His energy levels are so good that he can enjoy long walks, trekking, and yoga and feels positive and fit throughout the day.

This is one amazing real-life example which exemplifies the health benefits of regular intake of millets, the magic grains!

Role of millets in PCOD (Polycystic Ovarian Disease - A hormonal disease where the ovaries become enlarged with small cysts on the outer edges.)

Millets are rich in magnesium, a mineral that is crucial for starch digestion. Magnesium is necessary for the production of many carbohydrate-digesting enzymes, including those that regulate insulin action. So, eating magnesium-rich millets can help reduce the risk of type 2 diabetes. High fiber content of millets avoid insulin spikes and also help in estrogen (female reproductive hormones) metabolism, thereby improving fertility.

PCOD is often associated with insulin resistance, hence with the help of millets one can reduce weight, reverse insulin resistance and correct hormonal imbalance too. Natural calcium from millets is beneficial for bone, muscle and teeth health, nerve conduction, digestion, regulation of blood pressure and therefore heart health.

Hence right choices, right portion sizes, and right combinations, right cooking methods is the only key to get daily required nutrients. Millets is the best ancient superfood, easy to cook and to digest. They are a very good source of proteins, calcium, iron, magnesium, phosphorous, copper, potassium, selenium, folic acid, Vitamin B. Millets being gluten free makes them one of the healthiest food option.

Wish you good health!!!

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The Story of Vishuddham

Anita Ghatanekar



The story of Vishuddham is my story. I was a working woman for over 30 years. In 2017, I left the job and started working for the disabled kids of the society. During the same time I was also associated with Srujano vision Tech Pvt. Ltd on Re-engineering Process, which is an IT Enablement consultancy for MSME's.

With the onset of pandemic, my work got affected severely. This made me think about starting new ventures of my own. For this, we began visiting many villages. One day, my IT friend and I were discussing about the E-commerce platform where only food products can be sold. Meanwhile, my brother also resigned from his IT Company. He enquired about the sales and marketing company for healthy and natural farming agricultural products.

Together, we brainstormed. We came in contact with many farmers. First time we visited Solapur. We actually witnessed a good example of organic farming practice. The soil is extremely fertile. No chemical fertilizers are added. Only cow dung and cow urine or *gomutra* is used.

In October 2020, we registered our company as GD Associates. The name "Vishuddham (Soil to Soul)" means *Shuddha* - without mixing -pure. Soil to Soul tag line has its origin from a Marathi proverb i.e. "*Hrudayacha Marg potatun jato*" which literally means "A way to man's heart is through his stomach or by serving him tasty food". So we decided on the brand name as "Vishuddham".

The integral part of the human life is "Food". All of us are aware about the stories from Stone Age to Iron Age and how the human species have settled after practicing farming. Agriculture has made the human race prosperous and has revolutionized human life. Over the course of time, we started to destroy nature by industrialization. This has disturbed the natural way of life adversely.

It has marked the onset of a way of life very different from a sustainable one. The green revolution further deteriorated the situation because of the usage of pesticides on large scale and



chemical based farming. This has affected our health negatively. We realized what harm has been done and now are motivated to undo the effect. The farmers have pledged to practice farming in natural way - **To feed souls a healthy and safe diet from their soils.**

At VISHUDDHAM we connected with many farmers and farmer groups, when we decided to embrace the sustainable lifestyle. Consumers want to change their eating habits and farmers are ready to supply residue free agriculture products.

We at "**Vishuddham - Soil to Soul**" has come up with pure agriculture and allied products. Vishuddham is bridging the gap between consumers and farmers. Vishuddham has many types of residue free agricultural and allied products and in affordable price.

Now we have various products which were brought from many farmers belonging to places like Solapur, Aurangabad, Sangli, Satara and Akola. We want to connect with many more, willing farmers. Our main focus is on Natural Farming i.e. Residue-free farming and produce. We usually visit the farms, discuss with the farmers, assess and then only bring the products. Research says that the percentage of illness like cancer, diabetes, obesity, hyper/ hypotension and thyroid are the diseases due to lifestyle changes. We need to keep a healthy life style.

What is a healthy lifestyle?

The answer is,

1. Waking up early
2. Exercising for 45 minutes daily
3. Drinking warm water
4. Eating heavy breakfast
5. Including protein rich diet
6. Having moderate lunch
7. Dinner to be done before sunset

I know this may not be possible for everyone, but at least we can keep our food healthy. The preparation of our daily dal, roti, rice, fruits should be chemical free.

Vishuddham gives you the chemical free grains, pulses, wheat, jwari, bajari and many products.

प्रकृतीनकदापिखंडिता

Nothing is permanent except Nature ❑

My Story

Pratibha Ravi

**Founder of MS Group
MSc.
Nutrition and Food Processing**



I'm Pratibha Ravi, 24-year-old, a Women Entrepreneurs and Founder of MS Group. I was born in Mumbai, Maharashtra. I completed my Bachelor's degree in Nutrition from SVT College (SNDT Women's University) and Masters' degree in Food Technology from SNDT College. I am a sports enthusiast and always an aggressive player who does not like to sit ideal.

Soon after I completed my PG, lockdown was imposed and it was a tough time for all 2020 pass out student to get job. No food sector at that moment was ready to hire a fresher.

Finally on 6th of July 2020 I was hired in a retail outlet and worked as a store in charge. After 6 months I realized it was out of my field and interest. Meanwhile, the idea of developing a new product stroke me and the journey of my start up began.

On 7th of July 2021, I launched my 1st product in market- MULTIGRAIN PORRIDGE MIX. Since then I started selling this product using social media platform, after a month in small retail markets and soon online in flipkart and amazon. This journey was very challenging. The initial six months I gave my 100% so that I can stand stable in the market.

Positive reviews and repeated order from customer motivated me and made me to go ahead and work on it. Many appreciated the unique formulation of my products, as it was natural and provided good nutrition for all age group. This motivated me to launch my second product in the market- ROASTED TRIO SEED POWDER which hit the market by leaps and bounds in no time.

I had started from scratch, doing things manually. But today I have my own processing unit with sophisticated machines and a family of 15 female employees. I have achieved this success in my life because of my confidence and self-belief.

My aim is to design, manufacture and sell nutritious



wholesome food product in Indian market at affordable prices. All the products would be prepared from pure ingredients and high-quality raw materials.

My achievement towards my product:

1. Secured 2nd prize for my research project titled "Development of Multigrain Porridge Mix Flour" in AVISHKAR 14th Maharashtra state Inter-University Research Convention, 2020
2. Secured Dr. APJ Abdul Kalam Best Innovation Award for research work on "Multigrain Porridge Mix Flour" in 24th World Congress on Clinical Nutrition & 1st World Congress of Medical Food and Nutrition, Oct-2021

And today I believe that "when your passion & determination combine, you become unstoppable!" and "a very long way to go and grow." ☐





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120
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