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Promotion of Millets Cultivation through Consumption

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A B S T R A C T

This is a review journal about millets. The study concentrates on the specific importance of the millets. The experts delivered their views about the nutritive values of millets as healthy food. As the cultivation concerned only the little amount of water is needed expressed the agriculture experts. The result show that decline of the millet cultivation is due to the consumption of rice more compared to Millets. Millets has been treated as a poor man food and Rice as a Luxury Food. Further Decline may be controlled when the Government schemes and policy involved more in public distribution system. Health benefits of millets should be recognized by the public and consumption will be increased.

Introduction

Millets are one of the oldest foods known to humans and possibly the first cereal grain to be used for domestic purposes. Millets are small-seeded grasses that are hardy and grow well in dry zones as rain-fed crops, under marginal conditions of soil fertility and moisture. Millets are also unique due to their short growing season. They can develop from planted seeds to mature, ready to harvest plants in as little as 65 days. This is important in heavily populated areas, When properly stored whole millets will keep for two or more years.

Types of Millets

Millet' is a collective name used to describe a number of different small-grained cereal grasses. Although millets do not derive from one plant species, they do share consistent common features. Millets are usually subdivided into 'large millets' (sorghum and pearl millet) and 'small millets' (finger-, barnyard-, little-, kodo-, foxtail- and proso millet). Finger millet is often mentioned separately from other small millets. While the paper deals with all millets, 'small millets' are of special concern.

Major Millets grown in India

There are many types of millets which are available for the cultivation, where in India, 6 major millets are grown. In that, the one you mentioned "Thinai" is commonly known as "Italian Millet" which the second most grown millet variety after "Cumbu"(in Tamil) or "Pearl Millet"(Hallur excavation shows it was been in the practice of cultivation from 1500 BCE in South India), which also famous and most cultivated once. On the contrary, the Rice cultivation and other water intense crops were not so common during those days, which was needing an intense care, process, man power, etc.

Millets produce manifold security

While single crops such as rice and wheat can succeed in producing food security for India millets produce multiple securities. They include securities of food, nutrition, fodder, fibre, health, livelihood and ecology. Most millets have edible stalks which are the most favoured fodder for cattle. Many a time, crops such as sorghum and pearl millet are grown only for their fodder value. Besides fodder, millets are storehouses of nutrition and hence produce nutrition security. Being hosts to diverse crops such as red gram, millet fields also produce fuel wood and fibre through amaranth. The legume crops that are companion crops for millets are also prolific leaf shredders. This leaf fall acts as natural manure and maintains soil fertility. Thus, millet farms not just use soil fertility for their growth but also return this fertility to the soil.

“Millets are low in carbohydrate and take longer to digest. That's why breakdown of glucose is slower. It takes longer for glucose to enter bloodstream and hence blood sugar

levels are stable. This is beneficial for diabetics who have to control rapid rise and decline of glucose in blood. Millets are high on fibre and satiate hunger quickly preventing from overeating,” Professor (Food and Nutrition) and Associate Dean, College of Home Science, ANGRAU, Dr. Anurag Chaturvedi.

Health Benefits in consuming Millets

1. Millet is alkaline and it digests easily.
2. The Hunzas – who live in a remote area of the Himalayan foothills and are known for their excellent health and longevity – enjoy millet as a staple in their diet.
3. Millet will hydrate your colon to keep you from being constipated.
4. Millet acts as a prebiotic feeding microflora in your inner ecosystem.
5. The serotonin in millet is calming to your moods.
6. Millet is a smart carb with lots of fiber and low simple sugars. Because of this it has a relatively low glycemic index and has been shown to produce lower blood sugar levels than wheat or rice. (Kamari and Sumathi, 2002)
7. Magnesium in millet can help reduce the effects of migraines and heart attacks.
8. Niacin (vitamin B3) in millet can help lower cholesterol.
9. Millet consumption decreases triglycerides and C-reactive protein. Scientists in Seoul, South Korea concluded that millet may be useful in preventing cardiovascular disease. Nutrition Research. April 2010; 30(4):290-6.

10. All millet varieties show high antioxidant activity. A team of biochemists analyzed the antioxidant activity; all varieties showed high antioxidant activity. *Journal of Agricultural and Food Chemistry*, 9 June 2010; 58(11):6706-14.

11. Millet is gluten-free and non-allergenic. A great grain for sensitive individuals.

12. Millet's high protein content (15 percent) makes it a substantial addition to a vegetarian diet.

Why to consume millets?

Nutrition

They are highly nutritious, non-glutinous and not acid forming foods. Hence they are soothing and easy to digest. They are considered to be the least allergenic and most digestible grains available. 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

Millets are particularly high in minerals like iron, magnesium, phosphorous and potassium. Finger millet (Ragi) is the richest in calcium content, about 10 times that of rice or wheat

Even there are several speculations stating that, the non occurrence of the diabetes until 19th century with the people in southern India, suddenly saw a raise in the diabetes cases due to the change in the food intake, i.e., increased rice consumption than the millets. Was the increase in rice consumption and lack of enough equivalent physical work by the people, really made us more prone to the diabetes. It is all under study now. Another price paid by us by looking for luxury (Rice). Whereas, rice is not energy packed when compared to

millets, regarding that MedIndia has a great article, which compares millets with wheat and rice, *Millets versus Wheat and Rice*.

Experts Suggestions in Consumption Of Millets

The power-packed breakfast platter of fruits, nuts, and vegetables now has another valuable addition: a bowl of millets. So, the menu now has *thinai* tomato rice, *varagu karuveppilai* rice, and *kudiravaali* lemon. "Acceptability of millets is increasing. What we need to do is get creative with recipes to improve their palatability," says diabetologist Dr. V. Sekar.

A healthy lifestyle begins with awareness on buying unpolished millets for consumption, says R. Rajamurugan, author of *Nalla Soru*, a millet recipe book. "Unpolished millets come loaded with vitamins and minerals. When you spend extra to move to a millet-based lifestyle, ensure that you get the health benefits in its entirety," he says.

Rajamurugan says millet works best for breakfast. "You can soak cooked millet rice overnight in water and have it the next morning with butter milk. This way, you get probiotics that keeps you energetic through the day. When consumed with ghee or buttermilk, millets help the body absorb the nutritious benefits immediately. As millets are gluten-free, you cannot experiment with *rotis*, cakes or biscuits. But, variety rice, *adai*, *paniyaaram*, *puttu*...you can even make *payasam* with millets with palm sugar or *jaggery*."

S. Arunkumar, who runs Paruthi Paalum Paniyaaramum eatery that specialises in millet food, says the health-conscious ones have woken up to the benefits of millets. "When they come here to dine, they are full of questions. We have *chola kazhi*, *kudiravali puttu*, *uthappam*, *kozhukattai* and

many varieties of *paniyaaram* and millet savouries and sweets. We make it a point to explain the health benefits.”

According to Dr. Vandana Shiva, Navdhanya founder humans evolved by eating about 8,500 species of plants and today we eat about 300. Among these, various kinds of grains formed a large part of our diet. In India, millets have formed the core of the everyday diet for millenia. However after the Green Revolution, subsidies for wheat and rice, and the food distribution system millets are slowly dying out.

Environmental

Unlike rice and wheat that require many inputs in terms of soil fertility and water, millets grow well in dry regions as rain fed crops. By eating millets, we will be encouraging farmers in dry land areas to grow crops that are best suited for those regions. This is a step towards sustainable cropping practices where by introducing diversity in our diets, we respect the biodiversity in nature rather than forcefully changing cropping patterns to grow wheat and rice everywhere.

Small farmers

There are many co-operatives of small farmers that are working on providing livelihoods to farmers while at the same time focusing on ecological preservation. In dry land regions, these groups encourage the farmers to produce crops that are local to those regions, that thrive best there – millets. By incorporating millets into our diets, we will be supporting these groups.

Declining small millet cultivation

In spite of the extraordinary nutritional qualities of millet grains and capacities of

millet farming systems, the area under millet production has been shrinking over the last five decades. The period between 1961 and 2009 saw a dramatic decrease in cultivated area under millets, more so in case of small millets (80% for small millets other than finger millet, 46% for finger millet). The area under all small millets other than finger millet has declined drastically in all states and the total production of small millets has declined by 76%. The productivity has remained more or less stagnant in the last two decades. The area declined by 83% from first five year plan to 11th plan whereas the production also fell by nearly 80%. The productivity of small millets (other than finger millet) remained almost stagnant till 11th plan with a slight decline during 3rd and 4th plans

Why decline in Millets Cultivation

The total millets production in the State dwindled from 23.24 lakh tonnes in 2011-12 to 13.42 lakh tonnes in 2012-13 (42.3%). Even though the area increased by 0.6 percent between these two years, the fall in yield rate by 43.0 percent caused on overall decline in millets production. With the increase in the coverage to 9.10 lakh hectares during 2013-14, the total production of coarse cereals is likely to go up to 25.0 lakh tonnes.

The rice was considered as a luxury in those days, it was not for all. These millets like, Cumbu, Thinai and another famous one, Varagu or KelVaragu or Kepai(Ragi or finger millet) were the lay man's food for millenniums, where any one can cultivate it on their small land. Even now, the Kelvaragu koozh or dishes made by millets are considered to be the food of the poor men. Prasanna Kumar, worked on developing Remote sensing appln for Agriculture and water resources.

Source: Page on tn.gov.in

Why urgent focus on millets cultivation

Declining small millets cultivation has resulted in reduced availability of these nutritious grains to needy population and also the traditional consumers have gradually switched over to more easily available fine cereals due to Government policies. This is a disturbing trend and needs urgent focus by the agricultural experts and policy makers. Immediate policy and market support, value addition and promotional activity are necessary for arresting the further decline not only in cultivation but also consumption. Improving productivity and enhancing demand should be the twin approaches.

The Millet Network of India (MINI)

works with civil society groups to revive sustainable agriculture through cultivation of millets. However the recently proposed National Food Security Bill does not take into account the production of millets for a variable diet. Many people have even forgotten how to cook with millets and this needs to be changed. Although awareness is now spreading, unless government policy changes the millets in India will die away and get totally replaced by monoculture which will reflect not only on food security but also health.

Steps to progress the cultivation

India is one of the threshold of discussing the Food security Bill which will have far reaching implications for the poor and the marginalized, in their struggle to access food and nutrition to lead a dignified and healthy life. We have for long been arguing that the introduction of millets into the Public distribution system and into government mid day meal scheme is important to achieve food sovereignty.

In the last few years, however, thanks to research on the role of rice, especially polished rice, in diabetes and weight gain, nutritionists assert that there is a need to include millets in one's diet for a healthy living.

For those who are health conscious and are wary about what they eat, experts suggest that millets should be a part of their daily regular diet. Millets are nutritious, non-glutinous (non-sticky) and are not acid-forming foods, thus making them very easy to digest.

As part of the attempts to promote consumption of millets, the ANGRAU Home Science College organised a Millet Festival at People's Plaza. "There is a need for dietary modifications because of sedentary lifestyle. Processed units should be established more for the processing.

Development of health foods and their commercialization should receive focused attention to promote the millets among the urban elite, which would lead to reduction in life-style related disorders.

Procurement procedures and infrastructure necessary to ensure smooth and safe millets supply through the PDS and the related cost implications when compared to existing grains.

Market research on the uptake of millets if provided under the PDS, with differentiation between various categories of consumers.

Case study for Tamil Nadu about the cost implications of including millets into ICDS schemes. Government must urgently provide space for millet based foods in the ICDS, school meals and welfare hostel programmes

Table.1 Nutrient composition of millets compared to fine cereals (per 100 g)

| Food grain | Carbo- hydrates (g) | Protein (g) | Fat (g) | Energy (KCal) | Crude fibre (g) | Mineral matter (g) | Ca (mg) | P (mg) | Fe (mg) |
|-----------------------|---------------------------|----------------|------------|------------------|-----------------------|--------------------------|------------|-----------|------------|
| Finger millet | 72.0 | 7.3 | 1.3 | 328 | 3.6 | 2.7 | 344 | 283 | 3.9 |
| Kodo millet | 65.9 | 8.3 | 1.4 | 309 | 9.0 | 2.6 | 27 | 188 | 0.5 |
| Proso millet | 70.4 | 12.5 | 1.1 | 341 | 2.2 | 1.9 | 14 | 206 | 0.8 |
| Foxtail millet | 60.9 | 12.3 | 4.3 | 331 | 8.0 | 3.3 | 31 | 290 | 2.8 |
| Little millet | 67.0 | 7.7 | 4.7 | 341 | 7.6 | 1.5 | 17 | 220 | 9.3 |
| Barnyard millet | 65.5 | 6.2 | 2.2 | 307 | 9.8 | 4.4 | 20 | 280 | 5.0 |
| Sorghum | 72.6 | 10.4 | 1.9 | 349 | 1.6 | 1.6 | 25 | 222 | 4.1 |
| Bajra | 67.5 | 11.6 | 5.0 | 361 | 1.2 | 2.3 | 42 | 296 | 8.0 |
| Wheat (whole) | 71.2 | 11.8 | 1.5 | 346 | 1.2 | 1.5 | 41 | 306 | 5.3 |
| Rice (raw, milled) | 78.2 | 6.8 | 0.5 | 345 | 0.2 | 0.6 | 10 | 160 | 0.7 |

Conclusion

There is a well grounded expectations from the farmers that only the consumption provide the availability of the millets through cultivation. This extend the cultivation to suitable areas, particularly to their earlier cultivating regions, can be made. This kind of support for millets is necessary to sustain their production and production by addressing the current competition from market friendly crops like maize. Research institutions must give a new thrust on millet areas and issues. But such research initiatives must be led by farmers since they form exciting perspectives for the research which has to be people centred and people directed. Institutional finance and insurance which is

offered generously to farmers who cultivate preferred grains such as rice and wheat and non food crops must be extended to millet farmers also.

The State government is planning a number of initiatives, including roping in women in tribal areas, to increase the production of millet in Tamil Nadu.

Sources told City Express that millet was produced in nearly 18 districts of the State, but now only a handful of them produce the crop. In 1980, millet was cultivated on 35,00,000 acres of rain-fed areas, mostly by tribal communities. In 2010, the area of cultivation was around 15,00,000 acres. It is believed that many tribal areas have switched over to rice. By C. Shivakumar |

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