Millets for Food and Nutrition Security

Frank Notes

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Millets are as old as when agriculture was initiated in different parts of the world. So is the case with India. These crops have been the ancient food grains and played vital role in ensuring food and nutrition security to human race. These are collective group of small seeded grains, belong to the Poaceae family and commonly known as the grass family. These are highly nutritious and have been consumed for centuries in various cultures around the world. Millets are grown in about 131 countries in tropical, sub-tropical and slightly temperate regions of the world with Asia and Africa accounts for major production and consumption centres. Except teff and fonio, sorghum (*jowar*), pearl millet (*bajra*), finger millet (*ragi*), and small millets such as foxtail millet (*kangni*), little millet (*kutki*), barnyard millet (*sawan*), kodo millet, proso millet (*cheena*) and browntop millet (*korale*), etc. are cultivated in India in one region or the other.

India had been ship-to-mouth existence and used to meet its food requirement on wheat import from USA under PL-480 Scheme in 1960s. The instrumental role played by Dr. M.S. Swaminathan in development of high yielding varieties of wheat and rice in late 1960s resulted in self-sufficiency in food grain production in the country. We give tribute to sad demise of Father of Green Revolution, Dr. Swaminathan for his pioneering contribution in development of agriculture and making India self-reliance in food grain. In 2000s, he underlined that now there is a great opportunity for us to enlarge our food basket and look at grains which are more nutritious in order to ensure food as well as nutrition security. Increase in production of millets needs to be given more impetus.

It is worth to mention that there has been steep fall in area under cultivation of millets from 1970s. Production of these crops had shown increase up to 1975-80 and then more or less at the same level up to 2015-20 on the basis of five year's averages. Development and adoption of improved varieties / hybrid seeds have played noteworthy contribution from 1990-95 in productivity improvement of these crops. Further, in view of use of high yielding varieties of wheat and rice with application of fertilizers and use of irrigation, production of these crops showed considerable increases from 1970s. Therefore, share of millets in total food grain production has declined considerably over the years. The reduction in share has been ascribed to loss of millets acreage by other crops in view of their more yield potentials and better crop prices. As per the 3rd Advance Estimate of Ministry of Agriculture and Farmers Welfare, production of Shree Anna/ Nuri-cereals is estimated at 17.15 million MT against total food grain production of 330.5 million MT, thereby showing a share of 5.2% now.

Millets hold immense significance across various domains. They stand as nutritional powerhouses, abundant in vital nutrients making them crucial in areas combating mal-nutrition. Their adaptability to diverse agro-climatic conditions and short-duration crops render them pivotal in areas where conventional crops face challenges. These crops can withstand harsh environmental conditions, drought like situation, and are hailed as climate-smart crops, requiring less water and inputs. The adverse effect of climate change on crops has already been witnessed. Overall, millets are indispensable not only for their nutritional values but also for their potentials to foster sustainable agriculture, enhance food and nutritional security and fortify economies of scale with diverse challenges.

Millets are rich in dietary fibre, protein, vitamins, and minerals, making them valuable part of a balanced diet. They also play a crucial role in enhancing our immune system. Being nutritionally rich, high in dietary fibres and low in glycaemic index, millets very well tackle the nutritional and lifestyle challenges at the consumers' end. Millets have been gaining renewed attention in recent years due to their potential to address food, nutrition and economic security; promote sustainable agriculture; and contribute to healthier diet.

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Food Security Mission; celebrated 2018 as National Year of Millets with recognition of millets as nutri-cereals because of their added advantages. United Nations General Assembly (UNGA) declared 2023 as the International Year of Millets on 5th March 2021 on the behest of the Government of India. The main objective is to raise awareness about the nutritional and environmental benefits of millets by promoting their cultivation, production, consumption; diversifying processing equipment and technologies; and catering to various domestic and international market segments. ICAR-Indian Institute of Millet Research, Hyderabad has been revitalizing millet production by sharing best management practices, research and technology at the National and International level.

Among other various initiatives, Government of India has reintroduced millets into public diets across the country. Noteworthy initiatives such as POSHAN 2.0 emphasise the promotion of dietary diversity and food fortification while also supporting traditional knowledge systems and integrating millets. Realizing the importance in food-chain, various state governments are putting up their sincere efforts by including millets in state government programmes. Some of these are emphasis on cultivation of millets by tribal people; unique multi-stakeholder interventions, introducing millet-based foods; establishment of millet village; serving of hot cooked meal to the children under integrated child development services; inclusion in public distribution system and mid-day meal schemes; processing and supplying of kodo millet bars to pre-school children through Anganwadi centres; revival of *ragi* cultivation, etc. These collaborative efforts by various stakeholders have been significantly contributing to the resurgence of millets in the Indian diet.

India has always acknowledged the importance of millets, considering them a 'super food' and a prominent way to enhance farmers' incomes, consumer health and the Nation's prosperity. India stands at the third position globally in terms of export value of US$ 64 million during 2021-22. The global market size of millets is projected to grow at a compound annual growth rate of 4.6% (from 2023–2028) and reach US$ 13.80 billion by 2028. As a leading producer of millets, India's share in international trade is forecasted to grow exponentially, representing US$ 2 billion opportunities.

Millets are the 'next-gen solution' for cultivators, consumers and the climate. Millets directly support five Sustainable Development Goals set-up by United Nations bearing no. 1, 2, 3, 12 and 13 out of seventeen goals. In order to tap full potential of millets, one can adopt a four-pronged strategy coined as 'PAID' – production enhancement; awareness creation; innovation; and demand generation.

The efforts of Indian Agri-scientists are underway towards development of better high yielding varieties/hybrids, and also fortified millets rich in iron and zinc. Still more research and development are required in this area to improve farm productivity of these crops, thereby farmers' income. The extension agencies have also to play an important role in transfer of developed technologies up to the grass root level for adoption by the farmers. As these crops are short duration and can fit in the timing between one crop and the following crop or if lands are fallow during the period. In view of creation of hydrological drought in tube well irrigated areas and salinity/alkanity in canal irrigated areas of rice-wheat cropping system, millets should be given emphasis in such cropping systems, may be by incentivizing the farmers, to minimize such problems. India is enriched with unique varieties of value added products of millets and same are becoming very popular among the people residing in cities as they have been realizing the value of such products for sustainable lifecycle. As millets are less remunerative which require the necessary supports as drivers in value chain mode to make them more profitable in order to enhance farmers' income. There is lot of scope for value-addition and processing to earn more than the routine business. It can be promoted through entrepreneurship development in collective action mode through SHGs and FPOs.

This special issue of Indian Journal of Fertilisers contains six papers on various aspects of millets. We hope that the readers will find the content of the special issue relevant and useful. ■