



Agriculture in



भारत 2023 INDIA

The Common Goals



Understanding Millets

Epicentre of India's Amber Revolution

19 April 2023 marked the successful conclusion of the Meeting of Agricultural Chief Scientists (MACS) held under the G-20 Indian Presidency in Varanasi. Sitting on the holy ghats of Varanasi, and sipping the city's famous "masala chai", dawned upon me the significance of the key outcome of this meeting i.e., MAHARISHI - Millets And Other Ancient Grains International ReSearch Initiative.

The MAHARISHI initiative has the potential to challenge millets' classification as a 'food of the poor' or "Inferior" good (goods whose demand increases as income decreases). It is certainly a special providence that this ancient, spiritual capital of India witnessed the strengthening of the foundation for the revival of this ancient grain, which dates back to Harappan Civilisation.

In pre-1960 India, when two-thirds of the country was below the poverty line, millet dominated food-grain cultivation. Post-Green Revolution and with declining poverty levels, other cereal (like wheat and rice) consumption and plantation increased.



Figure 1
Source: Poverty Levels- World Bank; Area under foodgrain

Today, India stands at a potential inflexion point where a millet led "superfood revolution" can be brought about by tapping its health, environmental and trade potential.

Nutri-Cereals Have Multiple Benefits

These nutri-cereals have multiple benefits. Non-communicable diseases account for 17.9 million (74%) of all deaths globally of which diabetes accounts for >10% (WHO).

Millets, due to low glycaemic index, complex carbohydrates and high fibre can mitigate the impact and occurrence of NCDs, anaemia, obesity and malnutrition.

Three crops, i.e., wheat, rice and maize fulfil more than two-thirds of global calorie demand and consume more inputs (FAO). For instance, bajra and ragi require 250-400 mm and 400-600 mm of water respectively while rice requires 1500-2000 mm of water. Further, millet unlike other cereals can be grown in arid areas and are resilient to rainfall and temperature variations.

Millets are nutritionally superior to other cereals. As per a comparative study by APEDA, millets have 7-12% protein, 2-5% fat and 15-20% dietary fibre. The carbohydrate content in millet ranges from 60-70 grams compared to 64-68 in other cereals. Therefore, millet can facilitate the transition from food to nutritional security especially when adult Indians are not meeting their recommended dietary targets (Global Nutrition Report 2021).

Export Potential

India is the leading producer of millet, accounting for 80% of Asian and 20% of global production, and this presents big opportunities. Even if 5% of the world's diabetic and anaemic population is targeted for millet consumption, the potential increase in millet demand would be 4 LMT (APEDA). With the value addition of millet, the export opportunity is close to \$2 billion. This trade opportunity is also environmentally friendly. At present, India's major exports are rice and wheat which makes us a net exporter of natural resources like water. Moving towards millet will change that trend.

While India has successfully designated 2023 as the International Year of Millets, challenges to tap their full potential remain. The production and area under millets and consequently the marketable surplus have remained stagnant. In developed countries, millet is largely used in animal feed and rebranding them as a food item remains to be done to address perception issues. Finally, the low productivity of millets also needs redressal (growth at a decadal CAGR of 2% only). Thus, an approach that addresses the demand-side and supply-side bottlenecks needs to be adopted.



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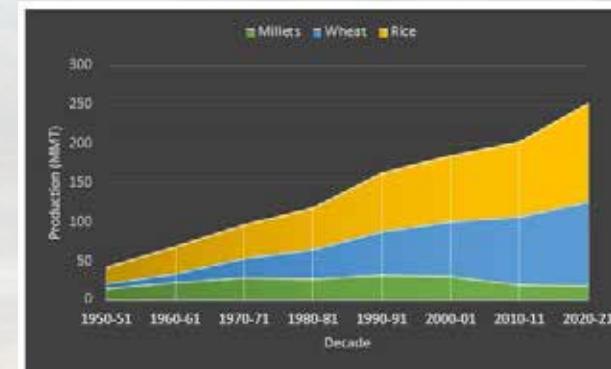
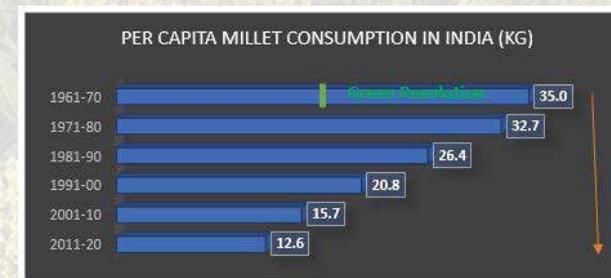


Figure 3
Source: Directorate of Economics and Statistics, MoAFW

Demand For Nutritional Food

On the demand side, tapping the demand for nutritionally dense food by the rising urban population (which places a lot of importance on a healthy lifestyle) holds promise. Using behavioural interventions is equally important and could include advertisements through health-conscious celebrity chefs and influencers, awareness-raising campaigns, prominently placing millet and millet-based products at department stores, and adding them to restaurant menus.



Source: USDA and author's calculations

On the supply side, millets can be encouraged to be grown alongside other crops. Announcing remunerative MSP and strengthening the public procurement and WCD programs are some solutions. For integrating millets into the global supply chains, agri-business promotion holds potential. Many Indian start-ups have been giving millets a makeover and changing perception issues by coming up with new millet-based recipes and focusing on better branding. Further, the millet corridors



may be established near production centres. Such corridors would have several processing hubs that will provide backward linkages to producers for procurement and also value addition to consumers. Millet FPOs can address the lack of processing facilities. Finally, HYV millet production through seed hubs and Agriculture Universities may be encouraged. MAHARISHI whose Secretariat shall be housed at the Indian Institute of Millets Research in Hyderabad aims to do just that by strengthening institutions and building capacities for research and knowledge.

Time Ripe For Amber Revolution

At an institutional level, the convergence of departments like NITI Aayog and APEDA, with DA&FW can enlarge the mandate of millet promotion in the country. Further, determining HS Codes, grades and standards for certain millets can deepen their export potential. To boost millet production and exports, a "One State, One Millet and One Country" approach may also be adopted, i.e., States in India wherein a particular type of millet is produced may be mapped to countries which have its demand.

Indian agriculture has witnessed various revolutions- Green Revolution that ensured food security, White Revolution that made India the world's largest milk producer, Blue Revolution that nurtured fisheries and aquaculture. The time is now ripe for an "Amber Revolution" that will ensure nutritional security while addressing environmental challenges.



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