EDITORIAL

Can We Have a Millet Revolution?

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The Food and Agriculture Organization of the United Nations has declared this year the International Year of Millets. It is, according to FAO, "an opportunity to raise awareness of, and direct policy attention to the nutritional and health benefits of, millets and their suitability for cultivation under adverse and changing climatic conditions." Millets have special nutritive value, being high in protein, dietary fibre, and micronutrients. Millets grow in arid and semi-arid regions and are thus viewed as climate-resilient crops. Millets are grouped as major millets, comprising sorghum, pearl millet, and finger millet, and minor millets, comprising many crops including foxtail, little, kodo, proso, and barnyard millet.

The central problem is that the area sown to millets has declined sharply over the years in many countries, including India. The area under jowar (sorghum or great millet), for example, was 15.8 million hectares (ha) in 1980–81, and went down to 1.5 million ha in 2023–24. In the case of ragi or finger millet, area cultivated fell from 2.5 million ha in 1980–81 to 0.82 million ha in 2023–4. The total production of sorghum, finger millet, pearl millet (bajra) and small millets declined from 19.7 million tonnes in 1980–81 to 15.1 million tonnes in 2022-23.

The main reasons for the decline in area under millets are undoubtedly low yields and low returns especially in contrast to wheat, rice, and maize. To enhance the production of millets, we need to address questions of yield and the incomes of farmers.

According to official statistics, in 2022–23, the average yield of finger millet was 1457 kg per ha, the average yield of sorghum was 1096 kg per ha and the average yield of bajra or pearl millet was 1510 kg per ha. In the same year, the average yields of rice and wheat were 2617 kg per per ha and 3537 kg per ha. In the case of rice and wheat, there are regions with yields much above the national average. The average yield of rice in Andhra Pradesh was 3730 kg per ha, for example, and that of wheat in Punjab was

4748 kg per ha. In short, there is a big difference between the yield of millets and the two main cereals consumed in India, rice and wheat.

Turning to incomes, the returns to millet cultivation are much less than incomes obtained from growing other cereal crops (and, of course, non-cereal crops). A recent study using data from the Commission on Agricultural Costs and Prices showed that net income over variable costs was much lower for several millet crops than for rice and wheat. For the years 2011–15, if net income over variable or paid out cost was 100 for nutri-cereals (the official term for all millets), the ratio was 224 for paddy and 304 for wheat. In terms of net income over total costs, the absolute return was negative for all millet crops individually and for all nutri-cereals taken together. Returns for rice and wheat were positive. In short, given current yields and costs of production, growing millets is not an attractive alternative for cultivators.

In addition to low yields and returns, another important constraint is the drudgery involved in post-harvest operations, including milling and cooking. We can learn here from an intervention by the M. S. Swaminathan Research Foundation in the Kolli hills of Tamil Nadu, where customized machinery (such as dehullers) replaced traditional hand pounding of grain by women, saving them a huge amount of time and effort. The manufacture of processed foods reduced time spent in cooking and encouraged more frequent consumption. The time and energy spent by women in processing of millets needs to be reduced too.

As recognized in the National Food Security Act, the provision of millet in the public distribution system, in school meals, and in other feeding programmes is a good policy measure. This will only be feasible with higher and more stable production. Unless productivity and profitability are raised substantially, small farmers in dryland regions cannot be expected to rally around exhortations to produce more millets. If the International Year of Millets is to be successful, it will require massive expansion of public funding of research and extension, and provision of financial and in-kind incentives to millet growers. These include assured remunerative prices and reliable marketing channels.

In an article on agriculture and food security, M. S. Swaminathan, Rajul-Pandya Lorch, and Sivan Yousef wrote that, with respect to the technology needed to enhance the productivity and profitability of small farms in dry land regions, we need to "defend gains, extend gains, and make new gains." Applying this to the current context, India needs, first, to defend the gains of the green revolution in terms of ensuring an adequate quantity of domestic food grain production while addressing problems such as soil health and water management. Advocating a simple shift out of rice and wheat to millets can weaken national food sovereignty. To illustrate, in 2023, the average yield of wheat was 2.5 times that of finger millet. It follows that to produce the same quantity of finger millet as wheat today would require more than doubling the area under cultivation. India does not have this option with arable land.

Secondly, we need to extend the gains by diversifying the cereal basket by investing in new technology and in institutional measures such as price support for millet crops. Thirdly, we need to focus on the climate-resilient production of all cereal crops and on new gains that can emerge from cutting-edge science and technology. Underlying social and economic constraints need to be addressed to ensure that the new technologies benefit all sections of society.