JUST AGRICULTURE
multidisciplinary e-Newsletter

Smart Foods

Tarun Sharma, Akashdeep Singh and Garima Chauhan
Department of Agronomy, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishwavidyalaya, Palampur, HP

ARTICLE ID: 009

Smart foods are the foods or food crops that are full of nutrition, sustainable with harsh environments and can provide higher yields in changing climates. These food crops include Peral millet (bajra), Sorghum (Jawar), Finger millet and pulses etc. The year 2023 has been declared the International Year of Millets by the Food and Agricultural Organisation.

Photo courtesy: ICRISAT

Smart Food: Good for Humans

Nutrient deficiency or malnutrition has been reported on a large scale in under-developed and developing countries, especially in children and women. Our food habits have narrowed over time with 70% of consumption based on rice and wheat. The human diet is being responsible mainly for a lot of body ailments such as diabetes, obesity, anemia and stunting. Sorghum and millets are rich sources of antioxidants, vitamins, folic acid, iron, zinc, protein, fiber, calcium and are low in glycemic index. Most importantly they are a gluten-free diet source. Smart foods being enriched with such major nutrients e.g., iron and zinc which play a major part in boosting human immunity against several ailments and reducing nutrient deficiency especially in children and women.

Some of the smart food crops with enriched nutrient content are:

JUST AGRICULTURE
multidisciplinary e-Newsletter

Crop	**Nutrient**	**Content** (per 100 grain)
Sorghum	Zinc	1.9 (mg)
	Iron	3.9 (mg)
	Folic Acid	39.4 (micro gram)
Pearl Millet	Zinc	2.7 (mg)
	Iron	6.4 (mg)
	Protein	10.9 (g)
Finger millet	Zinc	2.5 (mg)
	Iron	4.6 (mg)
	Calcium	364 (mg)
	Magnesium	146 (mg)
Barn Yard Millet	Zinc	3.0 (mg)
	Iron	5.0 (mg)
	Niacin	4.2 (mg)

Millets (Photo courtsey: ICRISAT)

Smart Food: Good for Planet

These food crops are good for our planet as they can be grown with less water (Water Use Efficiency for Finger millet, pearl millet and sorghum being 13.4, 8 and 9 Kg/ha-mm), high temperature and even with nutrient-poor saline soils. Legumes are known to contribute to improving soil nutrition by nitrogen fixation as well as improving soil properties by adding

JUST AGRICULTURE
multidisciplinary e-Newsletter

organic matter. Millets have a low carbon footprint and serve as a strategy for mitigation and adaptation to climate change. These can tolerate the harsh climates resulting from global warming and producing enough even under such conditions.

Crop	Stress	Tolerant cultivars
Sorghum	Drought	CSH-5, CSH-9 and CSV-4
Pearl millet	Drought	HHB-234, HHB-226 and HHB-216
	Heat stress	GHB-558, GHB-732 and GHB-538
	Cold stress	GHB-538
Finger Millet	Drought	VR-708 (Padmavati), MR-1 and MR-6
Foxtail-millet	Drought	RS-118, K-211-1and PS-4

Smart Food: Good for Farmer

Smart food crops are well known for their wider adaptability in harsh climates such as high temperatures and low water availability wherein other crops cannot grow well. Millet cultivation is possible even on generally fallow and cultivable wastelands. Being climate-resilient crops, they can act as a good risk management strategy. These food crops have not reached their yield plateau like other crops, and have great potential for increasing yield levels. They are good for the farmer as they can act as the source of food, fodder, sugar production and even biofuels.