MILLETS – The nutrient rich counterparts of wheat and rice

Millet is one of the oldest foods known to humans. These are the small-seeded hardy crops belonging to gramineae family which can grow well in dry zones/rain-fed areas under marginal conditions of soil fertility and moisture. Due to their short growing season, these can develop from seeds to ready to harvest crops in about 65 days. This highly beneficial characteristic of the millets is of vital importance in thickly populated regions of the world. If stored properly, millets can keep well for two years or beyond.

Most of the millets are highly nutritious, non-glutinous, non-acid forming and easily digestible foods. Being gluten free, individuals suffering from celiac disease can easily incorporate various millets in their diets. Millet ingestion helps in a slower release of glucose over a longer period of time; thus, due to low glycaemic index (GI), their habitual intake reduces the risk of diabetes mellitus.

Further, millets are rich sources of minerals like iron, calcium, zinc, magnesium, phosphorous and potassium. Ragi (Finger millet) is very rich in calcium; and bajra in iron. These also contain appreciable amounts of dietary fibre and various vitamins (β- Carotene, niacin, vitamin B6 and folic acid); high amounts of lecithin are useful for strengthening the nervous system. Therefore, a regular consumption can help to overcome malnutrition among majority of our Indian population. These have often been called the coarse grains; however, due to their nutritional contributions, these are now being referred as ‘nutria-millet/nutria-cereals’.

Millets are also rich in phytochemicals (polyphenols, tannins, phytosterols) and antioxidants; however, they do contain some anti-nutritional factors that can be reduced by certain processing treatments.

Despite numerous qualities, utilization of millets as food is confined to the traditional consumers, particularly the tribal populations. This is mainly due to the non-availability of consumer friendly, ready-to-use/ready-to-eat millet based products. Recently, millets have gained attention and efforts are under way to obtain their convenient and value added processed products.
Although among the food crops, millets occupy relatively a lower position in Indian agriculture, they are quite important from the point of food security at regional/household level. Millets can not only grow in poor soil/climatic conditions, due to their short growing season, these can very well fit into multiple cropping systems under irrigated as well as dry land farming; and provide nutritious grain as well as fodder in a short span. Their prolonged and easy storability under ordinary conditions has accorded them the status of “famine reserves”; and this feature is of great relevance for India, as our agriculture suffers from the vagaries of monsoon. The millets commonly grown in India include: bajra (pearl millet), jowar (sorghum), ragi (finger millet), barri (proso/common millet), jhangora (barnyard millet), kangni (foxtail/Italian millet), kodra(kodo millet) etc.

**Bajra Jowar Ragi**

The fact that the small millets can grow from coastal regions of Andhra Pradesh to moderately high altitudes (hilly regions of Uttarakhand and North-Eastern states) is indicative of their wide capacity for adaptation. These crops can withstand variations in moisture, temperature and the type of soils ranging from heavy to sandy infertile lands. Therefore, to ensure food and nutrition security for our masses, it is important to increase the production of these crops and simultaneously revert the control of production, distribution and consumption back to the people. Since many households in dry land/hilly regions depend on millets to meet their food needs, we need to bring them into the food security basket.

With regard to Global Hunger Index (GHI), India ranks 64 (among the 81 nations); and in child malnutrition, unfortunately it occupies the second place; both the situations highlighting poor plight of our country. This is the scenario despite Public Distribution System/ Targeted PDS (PDS/TPDS) being there for nearly five decades; however, the focus has been only on wheat/rice distribution while the millets have long been disregarded. However, it has now been proposed to enlarge the food basket and include millets like jowar, bajra, ragi etc in the PDS.

Declining State support (in terms of crop loans/insurance) has led to the poor status accorded to millets in Indian agriculture which needs to be reversed urgently. There is a dire need for the Indian policy makers to refocus their attention towards millet farming systems and enact policies to create enabling environment for the farmers. With respect to millets production/promotion, some of the existing Government schemes/ projects/programmes include:

- Initiative for Nutritional Security through Intensive Millets Promotion (INSIMP) – a part of Rashtriya Krishi Vikas Yojana” (RKVY) which is the only comprehensive initiative to support millet production.
- Rainfed Area Development Programme (RADP) – a component of the Rashtriya Krishi Vikas Yojana” (RKVY); and

India is the largest producer of many varieties of millets; bajra being the most widely grown. However, over the last five decades the area under millet production has been shrinking; and more so ever after the Green Revolution in 1960s. During the last five decades, a sizeable area under millet cultivation was shifted to other crops; and this has been an extraordinary loss to the India’s food and farming systems.

Millets can not only grow under harsh circumstances, these drought resistant crops...
requiring fewer external inputs are termed as the ‘miracle grains’ or ‘crops of the future’. Cultivated as dual-purpose crops (food & fodder), millets contribute to the economic efficiency of farming and provide food/livelihood security to millions of households, particularly the small/marginal farmers and the inhabitants of rain fed/remote tribal regions.

Besides, millets help in reducing the atmospheric CO2 and thus contribute in mitigating the climate change. On the contrary, paddy is a major contributor to climate change through methane emission (the green-house gas emanating from water-drenched rice fields). Wheat being a thermally sensitive crop, with increasing temperatures, its production is liable to be adversely affected. Thus, in due course, wheat might disappear from our farms.

Millet production is not dependent on the use of chemical fertilizers. These crops do not attract pests; and majority of the millets are not affected by storage pests; thus, the use of pesticides is not mandated.

Millets are remarkable in their nutritive value; being nearly 3-5 times nutritionally superior to rice and wheat - be it minerals, vitamins, dietary fibre or other nutrients. Sorghum is an important source of antioxidants, polyphenols and cholesterol-lowering waxes. Due to their high dietary fibre content coupled with low glycaemic index, millets can help in curbing overweight/obesity as well as lowering the risk of hypertension, CVDs, T2DM, cancers as well as in preventing constipation.

Millets along with rice, wheat and pulses/oilseeds can be used to produce nutritious food products such as porridges, chapattis, breads, ladoos, pastas, biscuits, cookies, cakes, and several fermented foods including probiotic drinks. After dehulling, millets can be simply cooked like rice and their flour can substitute rice flour in preparing various snack items. Fermented batters of millets and black gram (3:1) can be used for making idli, dosa or uttapam. Ragi and refined wheat flour blends (1:2) can be used for making highly acceptable noodles/vermicelli which are hypo-glycaemic too.

Traditional methods of cereal processing (popping and flaking) as well as the contemporary ones (roller drying/extrusion cooking) can be successfully employed for preparing various millet based ready-to-eat products. Thus, a variety of extruded millet-cereal-pulse snacks can be prepared commercially for easy availability and wider use. Similarly, millet-cereal-pulse blends can be used in preparing murukus, papads, vadiyan, bhujia, vermicelli, spaghetti, noodles, macaroni etc. Various millet blends along with wheat can be used for making multi-grain flour, baked products like biscuits, cookies, breads, buns, rusks, cakes and muffins. Sorghum (Jowar) malt is being used for preparing the infant foods. Since extrusion processing lowers the anti-nutritional factors and enhances digestibility of the millets; extruded millet products can be promoted as healthy snacks/health foods.

Partially processed millet products – ready to cook/instant foods, can be made available in the market; due to ease in preparation, these can promote millet consumption and thus, create a demand for these nutritious grains and simultaneously reduce the reliance on staples like rice and wheat.

In view of numerous benefits conferred by the millets, our farmers should aim at growing more and more of the millets; and we as consumers, should include millets in our daily food basket. Apart from increasing the production and consumption, in today’s era of modernization, industrialization and urbanization, we need to adequately process the millets to create a variety of value added nutritious products as per the taste, texture, flavour of the consumers.

Further, the public needs to be made aware of the benefits conferred by millets and their role in combating the ill effects of westernized sedentary lifestyle so that they can lead a healthy life.

Give a try; include millets in your forthcoming meals and enjoy the benefits conferred by these tiny nutritious grains!!!!

(source PIB)

[Dr Santosh Jain Pass is former Director, Institute of Home Economics (University of Delhi, AND Ms Akanksha Jain, Research Associate)