

Chapter 7

Millets as an Integral Part of Nutritional Diet in India

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ABSTRACT

Millets are small grained cereals belonging to the family Gramineae and they include major millets and minor millets. Millets are quite important from the point of food and nutritional security at regional and house hold level. In India's dry lands, they play a significant role in meeting food and fodder requirements of farming communities. Millets are found to have high nutritive value comparable and even superior to major cereals with respect to protein, energy, vitamins and minerals. They are also rich sources of phytochemicals and micronutrients. Since millet is gluten-free, it is an excellent option for the people who are suffering from atherosclerosis, diabetics and heart disease. In the face of increasing population and stagnant wheat and rice production, millets can be a promising alternative in solving the problem of food insecurity and malnutrition, because of their sustainability in adverse agro-climatic conditions. These crops have substantive potential in broadening the genetic diversity of the food basket and ensuring improved food and nutrition security.

INTRODUCTION

Millets are small grained cereals belonging to Gramineae family which include major millets like sorghum and pearl millet (which are tall growing and fairly drought tolerant) and minor millets with short slender culm and small grains possessing remarkable drought tolerance (ICRISAT and FAO, 1996). The term "millet" is often used loosely to refer to several types of small seeded annual grasses. Millets share a set of characteristics which make them unique amongst cereals. They belong to five genera, namely *Panicum*, *Setaria*, *Echinochola*, *Pennisetum*, *Paspalum*, and *Eleusine*. The genus *Pennisetum* includes about 140 species, some of which are domesticated and some grow in the wild. Most of the genera are widely distributed throughout the tropics and subtropics of the world (De Wet et al, 1984). Millets can

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be a valuable source of forage because of their rapid growth, high nutritive value and ability to survive stressful conditions such as drought. According to Hulse *et al.* (1980), the most important cultivated millet species are pearl millet (*Pennisetum typhoides*), also known as bulrush millet; proso millet (*Panicum miliaceum*), also known as common millet; foxtail millet (*Setaria italica*); Japanese barnyard millet (*Echinochloa crus-gallivar* or *E. colona*); finger millet (*Eleusine coracana*), also known as birds foot millet or African millet and kodo millet (*Paspalum scrobiculatum*). Other millets include little millet (*Panicum sumatrense*), tef millet (*Eragrostis tef*) and fonio millet *Digitaria exilis* and *D. iburua* (Dogget, 1989). The vernacular names of millets in India are given in Table 1.

India is also the home for the species *Echinochloa colona* (Sawa) under barnyard millet. Many indigenous communities in Asia preferred millets as their grain crop for shifting cultivation. The long history of minor millet cultivation and their spread to different regions of the world, which are notable for extremely harsh farming conditions, had generated considerable genetic variability in these crops. Kodo millet is very hardy and possesses the highest drought resistance with potential to offer a good yield in a growing period between 80-135 days. Barnyard millet could be said to be the second hardiest millet with the ability to give a modest yield in 50-100 days. Finger millet is more widely grown in Africa and Asia, differentiated in to five races and shows wide variability in appearance, adaptability, maturity period, yield and quality. Foxtail millet may be ranked fourth in yielding ability. The yield potential of little and proso millets are relatively lower with proso millet being hardier. Brief details of millet crops are given in Table 2.

HISTORY

NABARD (2007) summarized the history of millets as follows: From African highlands finger millet was taken to India about 3000 years ago and to Europe at the beginning of the Christian era. Later, the crop was widely distributed both in many African countries as well as in the Indian subcontinent. They have been a part of the human food system from time immemorial. Many types of millets have been found in Harrapa and Mohenjodaro archaeological sites. Africans were known to use millets in their myriad culinary courses. The leader of the Shang Dynasty in the 2nd millennium BC was known as Hou Chi, 'The ruler of Millet'. Indian vedic scriptures like Sathapatha Brahmana have ample references to millets. Kalidasa, in his legendary literary masterpiece 'Shakuntala', has sage Kanva pouring foxtail millet while bidding farewell to Shakuntala in Dushanta's court.

The oldest historical roots of millet are found in China, where it was considered a sacred crop. One of the earliest recorded writings dates from 2800 BC giving directions for growing and storing of the grain. During prehistoric times, people of Northern India were also cultivating millet. Millet's travel continued throughout the Middle East and Northern Africa where it became a staple food. It further became a typical food of the Sumerian diet in about 2500 BC. Millet was even mentioned in the Hebrew bible. The idyllic Hanging Gardens of Babylon were said to have included millet among their treasured plants. Through trading with Eritrea and Somalia circa 3000 BC, the early Egyptians learned from the Africans how to cultivate millet, which would grow well in the dry Sahara, where wheat and barley were unable to thrive. Millets made their way from China to the Black Sea region of Europe by 5000 BC. Romans and Gauls made porridge from it and in the middle ages millet was more extensively eaten than wheat. The interesting fact is that millet is also pointed out in the Bible as used to prepare bread during those days.

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