



Relevance of Barnyard Millet (*Echinochloa frumentacea* L.) Cultivation and Agronomic Management for Production Sustainability

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Abstract

Barnyard millet (*Echinochloa frumentacea* L.) is an important minor millet crop due its nutritional quality and adaptability to wide range of climatic conditions. Moreover, the crop has a considerable range of tolerance to drought and high temperature which enhanced during the present scenario of climate change which imposed more relevance of cultivation of eco-friendly and climate smart crops. During last few decades small millets gained their importance due to relook into their nutritional quality and wider adaptability in adverse climatic conditions. Barnyard millet has enough potential to sustain under the change climatic scenario as well as to produce nutritional gains under resource poor soils. Considering the importance of the crop, an initiative has been taken to draw out the agronomic management practices for barnyard millet for sustaining productivity in fragile ecological conditions vis-à-vis production of nutritional grains for food security in drylands.

Keywords: Barnyard Millet, Nutritional Value, Production Sustainability, Drylands, Agronomic Management, Food Security

The word 'millet' is derived from the 'mil' or 'thousand' which refers to the large number of grains that can be produced from a single seed (Shahidi & Chandrasekara, 2013). Millets have heritage of consumption since the Neolithic age. Presently, these crops are cultivated in arid and semi-arid regions of Asia and Africa as staple food and animal feed (Maitra *et al.*, 2001; Maitra, 2020a). Millets are considered as miracle crops, because cultivation of millet has multiple benefits (Figure 1). The grains are used use as food and feed and stover is used as fodder. Millets are diversified cereals; hence cultivation of millet enriches biodiversity in agro-ecosystem. In erosion prone sloppy and arid regions, short statured millets provide grassy cover restricting soil and

nutrient loss. Soil organic carbon depletion is a major problem in drylands and cultivation of millet with less water assures carbon sequestration (Srinivasarao *et al.*, 2014). Millets are less nutrient demanding, cultivated with low chemical inputs, less greenhouse gasses emitting crops; thus millets reduce carbon footprint in agriculture. Under extreme weather and warm conditions also as C₄ plants millets assure CO₂ abatement opportunities and in future with elevated CO₂ levels these crop will perform better than major cereals (Brahmachari *et al.*, 2018).

How to cite this Article: Sagar Maitra, Pritam Panda, Shравan Kumar Panda, Dibyajyoti Behera, Tanmoy Shankar, S. P. Nanda, 2020, Relevance of Barnyard Millet (*Echinochloa frumentacea* L.) Cultivation and Agronomic Management for Production Sustainability, 8(Special Issue) : p 27–32.
Source of Support: None; **Conflict of Interest:** None