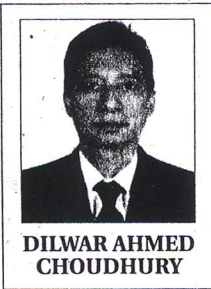


Prospects and potentiality of buckwheat in Bangladesh



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Buckwheat (*Fagopyrum esculentum*) is one of the minor crops grown in Bangladesh belonging to the family Polygonaceae. It is called 'Poor man's food' in Danish. In Bangladesh, buckwheat is cultivated in the north-west region, especially in Thakurgaon, Panchagarh and parts of Dinajpur and Rangpur districts during the rabi (October to March) season.

Buckwheat is a plant cultivated for its grain-like seeds and as a cover crop. The name "Buckwheat" is used for several other species, such as *Fagopyrum tataricum*, a domesticated food plant raised in Asia. Even though its name is buckwheat, it is not related to wheat, as it is not a grass. Buckwheat is referred to as a pseudo cereal because its seeds' culinary use is the same as cereals', owing to their composition of complex carbohydrates.

Buckwheat was domesticated and first cultivated in Southeast Asia, possibly around 6000 BCE, and from there spread to Central Asia and Tibet, and then to the Middle East and Europe. Domestication most likely took place in the western Yunnan region of China.

Among the various underutilized crops, buckwheat is one of the ancient domesticated crops of Asia, Central, and Eastern Europe. It has been mainly used as a staple food, especially in arid regions of the world. China is considered as the original centre of buckwheat and is extremely rich in buckwheat genetic resources. Buckwheat is mainly cultivated in India, Nepal, Bhutan, China, Canada, Mongolia, North Korea, far eastern Russia, and Japan.

In 2017, world production of buckwheat was 3.8 million tons. Currently, Russia is the largest producer of buckwheat with 40 per cent of the world total and China is the second largest with 38 per cent.

It is an annual plant, with reddish stems and flowers ranging in colour from white to pink. On account of its fast growth rate it is grown as a cover crop and helps in binding soils, thus checking soil erosion during rainy seasons. The plant is especially tolerant of poor quality, sandy or acidic soils. It is a crop with multiple uses: the tender shoots are eaten as leafy vegetables, the green leaves used medicinally to promote blood circulation and the grains used for preparing buckwheat flour for human consumption as well as livestock feed.

It is a short-season crop, does well on low-fertility or acidic soils, but the soil must be well drained. Too much fertilizer, especially nitrogen, reduces yields. Buckwheat is sometimes used as a green manure, as a plant for erosion control, or as wildlife cover and feed. It has a growing period of only 10-12 weeks.

Currently, buckwheat is receiving increased attention as a nutraceutical food crop because of certain unique active principal components. However, progress in cultivar breeding and crop management is still needed. Buckwheat has immense potential in crop improvement programs as reported by various research agencies like the International Plant Genetic Resources Institute and the Consultative Group on International Agriculture.

Nowadays, research needs to be focused on buckwheat genetic analysis that could help to identify better agronomic traits such as low seed shedding, enhanced nutrient quality, self-compatibility in varieties under development. Moreover, molecular intervention in this crop has a vast scope that will offer vital cues to the factors involved in its low yield. It can also be developed for cultivation on marginal lands because of its tolerance toward abiotic stresses, and this strategy would diminish its competition for land with

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other high-yielding staple crops.

Buckwheat used as staple food, bread, noodles and mixed with different culinary. It is also used in tea, beverage and in beer. Due to its high medicinal value, good source of protein, carbohydrates, vitamins and minerals its importance is quite high. As it is a gluten-free and is suitable for coeliacs; contains rutin, a compound that prevents blood from clotting. Buckwheat has some very good potentiality for small scale farmers including cold and drought tolerant with a short growing season (2-4 months) and can be cultivated as a second crop; does well in areas of high elevation (up to 4500 m); useful for attracting pollinators for producing honey.

The grain contains 10.3 per cent protein, 2.4 per cent fat, 2.4 per cent mineral matter, 6.8 per cent fiber and 65.0 per cent carbohydrate (chiefly starch). Besides, it also contains calcium (0.07 per cent) phosphorus (0.03 per cent), iron (13.2 mg) and vitamin B. It is well suited to light and well-drained soils such as sandy loam or silt loams and it grows satisfactorily on soil, too acid for other grain crops. It produces a better crop on relatively infertile, poorly tilled land than other grain crops when the climate is favourable. For this reason, buck-

wheat can be called as 'poor land's crop'.

Though it is a minor crop it has a great importance. But it may be mentioned that until to date there is no released variety of buckwheat with high yield potential and better quality. Further a very few limited attempt had been made for genetic improvement and agronomic management of this crop. Buckwheat is considered as a smart crop in intercropping systems and is intercropped with potato, soybean, sunn hemp, millet, safflower, sunflower, and other warm season annuals.

Therefore, it is very important to identify and select suitable genotypes for variety improvement. It could be grown well in hilly areas for grain as well as cover crop to protect soil erosion. At the same time agronomic management studies have also prime importance to ensure higher yield of buckwheat. However, still now it is an underutilized crop in Bangladesh but due to its high nutritional, medicinal and industrial value and good export potential, the crop should get proper exposure to increase its production.

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