

Buckwheat: a legacy on the verge of extinction in Ladakh

Buckwheat (*Fagopyrum esculentum*; family Polygonaceae) is a moisture-loving, cool-climate, annual plant. It is a native of Central Asia, cultivated in China and other Eastern countries as a bread-corn. In India, the crop is widely grown in the high mountains of Jammu and Kashmir in the west to Arunachal Pradesh in the east. In South India, it is sporadically grown in the Nilgiris and Palani hills. It is a short duration crop (2–3 months), and fits well in the high Himalayas where the growing season of a crop is of limited period because of early winter and snowfall¹.

It is less productive than other grain crops on good soil, but is particularly adapted to very poor, badly tilled land, which can produce scarcely anything else. It is one of the quickest growing green manure crops, taking only 4–5 weeks from seeding to flowering. It is used to suppress weeds. The crop helps in soil binding and checks soil erosion¹. It is also a good green manure crop and improves soil texture². Buckwheat can also increase phosphorus and micronutrient availability in the root zone for the following cash crop in a rotation. Because it matures quickly, buckwheat can be grown as a late-season crop.

Buckwheat is a pseudocereal. It produces edible seeds used as a cereal grain, though the plant does not belong to the family Poaceae. The fruit is an achene

with a single seed inside a hard outer hull, which is dark brown or black in colour. The seed coat is green or tan, which darkens the buckwheat flour. The seed contains a floury endosperm. Crude protein content is 18%, with biological values above 90% (ref. 3), containing a high concentration of all essential amino acids, especially lysine, threonine, tryptophan and the sulphur-containing amino acids⁴. It is rich in iron (60–100 ppm) and zinc (20–30 ppm)⁵. The plant also contains antioxidants rutin (10–200 ppm) and tannin (0.1–2%)⁶. Young leaves are eaten as vegetable and the stalks are used to feed cattle. Buckwheat flour is unsatisfactory for bread, but is used to make pancakes. In most northern and western states of India, the flour is called as *kuttu ka atta* and is consumed by the Hindus on particular fasting days, especially during *Navaratri*.

Buckwheat is grown traditionally in relatively warmer areas of both Leh and Kargil districts of Ladakh, where double-cropping is possible (Figure 1). It is generally grown as the second crop after harvesting the barley crop. Locally buckwheat is known by various names, viz. *dyat*, *dro*, *bro*, *fafar*, etc. in different regions of Ladakh. There are two variants of buckwheat grown in Kargil: yellow-coloured, small-sized *brosuk* and black-coloured, larger-sized *gyamrus*.

Buckwheat was one of the staple foods of Ladakhi people a few years ago. A popular food item made of buckwheat flour in Kargil is known as *kiseer* or *giziri*, which is similar to plain *dosa*. Nowadays, its cultivation and consumption have reduced drastically. The area under buckwheat in Ladakh has also reduced considerably. This may be attributed to its high sensitivity to climate, changing food habits, increasing demand of land for fodder and wheat, and growing competition with newer crops in the region like French beans, turnip and green peas as the second crop.

Very low temperature reduces germination, favours male sterility and reduced seed set. Also, the plants are so tender that a single night's frost can destroy a whole crop. Moreover, the area under wheat has increased, which requires more time to mature than barley, thus destroying the traditional practice of barley–buckwheat combination in the double-cropped areas. Keeping in view the nutritional quality of its grain and early maturity and suitability of the crop for marginal and degraded lands, there is a need to revive its cultivation in Ladakh.



Figure 1. Buckwheat in Kargil.

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