

Buckwheat

General Information

Buckwheat, *Fagopyrum esculentum*, is a broadleaf crop that is well-suited to northeast growing conditions. Buckwheat products (flour, honey, groats roasted as kasha, or buckwheat pasta) are not only delicious, but also very nutritious; the grain contains a very high amount of lysine, an essential amino acid necessary for humans to develop proteins. Buckwheat has a relatively low yield (30-40 bushels per acre is generally considered to be a very good buckwheat crop), but with new consumer demand for gluten-free buckwheat, it could become more profitable. Growers who can produce high-quality buckwheat generally get premium prices for their crop, and the plant does well in low-quality soils and a range of climates. Buckwheat flour is often dark in color (although some buckwheat is so refined it is almost as light as other flours) and is more often altered and marketed as pancake mix than sold as pure flour. Buckwheat honey is another value-added product that growers can often premium prices for.

Preparation & Planting

To establish a buckwheat crop, work a seedbed by tilling in the fall and applying phosphorous to low-fertility soils. Soil should be firm, well-drained sand or silty loam, but keep in mind that buckwheat does well in a range of soils and does not need much fertility to thrive. In fact, if nitrogen levels are too high, buckwheat plants can lodge and result in low yields.

Till seedbeds just before planting to kill newly-emerging annual weeds, but use a shallow setting to conserve moisture in the soil. It is important that the seedbed be firm to allow for buckwheat's small seeds to absorb the nutrients they need. Broadcast seeds in the spring at a rate of about 35-60 lbs per acre (or more if weeds are a considerable problem), or use a grain drill to create a more consistent stand. Plant seeds in moist soil at a depth of about 1 ½ to 2 ½ inches. Because buckwheat can be set back by late-spring frosts, it should be planted after any risk of frost has passed, but promptly thereafter. Buckwheat yields are highest when flowering occurs before the heat of summer, and early establishment will help control weeds. Buckwheat will germinate in as few as 2-5 days in temperatures above 45°F and establish itself quickly and vigorously. High temperatures and dry winds will negatively affect buckwheat yields and flowering success.

Buckwheat grows quickly and forms a dense but shallow root system. Because of this, and because buckwheat is a broadleaf crop, it can wilt and lean during dry periods. Its fibrous roots will, however, help to aerate the soil and promote earthworm activity. Buckwheat has long been valued as a cover crop or green manure for its ability to add phosphorous, potassium, and calcium to soils; in fact buckwheat can access phosphates in soils that many other grains cannot. Farmers recommend the Mancan variety as a green manure, in part because the stalks are weak and can easily be chopped and tilled back into the earth. Buckwheat will improve soil fertility for the following season's crop and suppress weed seeds during the growing season by releasing

allelopathic compounds. For these reasons, buckwheat is often used to rejuvenate soils that lack good nutrition or have had problematic annual weeds.

Cultural Practices

By tilling just before planting your buckwheat, you will reduce weeds and, in most cases, the buckwheat's aggressive growth patterns will adequately compete against weeds. It is recommended that you do not plant buckwheat in rows; the established stand should not need much weed cultivation, since it will grow dense and provide its own shade, crowding out weeds. Another possible way to control weeds in your buckwheat crop, though rarely necessary, is to inter-seed with a legume like alfalfa or sweet clover. The legume will crowd out weeds and can be plowed into the soil in late autumn to add nitrogen to the following year's seedbed.

Insects and diseases rarely affect buckwheat, although occasionally buckwheat growers have run into problems with root rot and a *Ramilaria* fungus that causes leaf spot. It is a good idea to use honey bees or leaf-cutter bees to pollinate buckwheat, which flowers 5-6 weeks after seeding and will continue flowering for a month or so.



Harvesting & Storing

Because it is an indeterminate plant and will continue to flower for a long period of time, the buckwheat plant will have flowers, unripe seed, and ripe seed present simultaneously. This can make it difficult to time the harvest, but under normal conditions in the northeast, buckwheat can usually be harvested approximately ten weeks after planting. Swath before combining buckwheat if it has not already been knocked back by a frost, and do so before seeds become overripe, or when about 70-75% of the seeds are brown and mature and the plants have lost most of their leaves. Once the seeds closest to the ground begin to drop from the bloom spike, yields will decrease and the number of problematic volunteer buckwheat plants for the following year will increase.

Unlike many other grains, you will want to harvest buckwheat either with the early morning dew or on a slightly damp day, so that the seeds do not shatter as you harvest. (Adjusting the combine pick-up speed to match ground speed and using a draper type of pickup on a combine, as opposed to a drum pickup, will reduce shattering of seed heads as well.)

You can either dry buckwheat in windrows, so that the frost and cold weather of autumn can dry out the more mature seeds, or bring the crop in directly from the field. Cut stalks, tie them into bundles or shocks, and dry them until the seed head has a moisture level of no more than 16%. Because there will likely be green plant materials mixed in with the harvested grains, processing and drying buckwheat properly is very important. Buckwheat is easy to thresh because most of the seeds will fall out if you shake a dry bundle of grain; on a small scale, you can also flail the seed heads, but you should then winnow or clean your final product to remove chaff and stems.

The grains are then typically milled or rolled into flour, making about 60-75 pounds of flour for every 100 pounds of clean, dry buckwheat.

One appealing aspect of buckwheat for home-scale growers is the ability to easily harvest small amounts at a time by stripping the desired seeds from the stalks with your fingers. The tricky part is removing the hulls, since the hull comprises a large part of the entire kernel. For home use, it is possible to use a blender or food processor to hull buckwheat and then sift the hulls out; according to Gene Logsdon, author of Small-Scale Grain Raising, this method is best carried out when the buckwheat has been toasted first. If you are growing a large amount of buckwheat, you will want to either hull your own buckwheat on-farm, sell whole buckwheat grain, or find a facility that processes grains commercially.

Buckwheat that is stored for long periods of time will change in color from light green to reddish-brown, visible under the hull of the grain. Because it is high in fat, buckwheat is susceptible to rancidity and should ideally be used or sold fresh instead of being stored. It has been found that buckwheat flour made from year-old buckwheat is of much lower quality than freshly-harvested grain.

Buckwheat can also be used for honey, and the northeast's climate suits honey flow quite well with its cool temperatures and relatively high moisture. Buckwheat yields a great amount of nectar, and growers indicate that one acre of buckwheat can produce as much as 150 pounds of honey in a season. Many beekeepers value buckwheat because it flowers and produces honey late in the season, when there are few other sources of nectar available.

After harvesting your crop of buckwheat in the late summer, you will want to till the field thoroughly to discourage volunteer seeds from germinating the following year. Because buckwheat can be harvested in late summer or early fall, it is possible to get a few passes in with discs before planting a winter cover crop. Even with this precaution, you should not plant another small grain in a field recently used for buckwheat, unless that crop can be row-planted and carefully cultivated to remove buckwheat volunteers.

References:

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