



BUCKWHEAT (*Fagopyrum esculentum*/*Fagopyrum sagittatum*)

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Buckwheat is a fast-growing, warm-season, succulent, broad-leaved annual attaining a height of 2 to 4 feet. It has one main stem with several smaller branches. Leaf shape is roughly triangular, and flowers are white, pink, or red. Seeds are of two types depending on the variety: large and dark-colored with triangular-shaped sides, or smaller and gray-colored, with a rounder shape. The root system is fibrous, has a relatively large volume, and is concentrated in the plow layer.

Buckwheat germinates within days of planting, grows rapidly, begins to flower in 4 to 5 weeks, and may continue to flower for several more weeks. Seed matures 2 to 3 weeks after flowering.

Environmental preferences and limitations

Buckwheat can germinate and grow at temperatures as low as 45°F, but optimal growth occurs at 55°F or higher. It is very frost-sensitive and does not survive even light frosts. Buckwheat has a low water requirement and does not do well in wet soils. It can tolerate poor fertility and a wide range of soil pH, but is not shade-tolerant.

Uses

Buckwheat is used as a warm-season cover crop. Its rapid germination and growth cycle make it ideal for use in rotations that otherwise would leave fields bare during short periods of late spring or summer. Buckwheat is an excellent choice in these situations to smother weeds, protect the soil surface, and provide insect habitat.

There is a market in Oregon for buckwheat seed, which is used for human and animal consumption. If circumstances warrant it, a buckwheat cover crop can be allowed to mature, and then harvested.

Buckwheat flowers provide a source of nectar for honeybees and native pollinizers. Buckwheat pollen is a food source for many insects, and seeds are a food source for ground-dwelling birds including pheasant and quail.

Buckwheat is not likely to increase soil organic matter content much because dry matter production is relatively low and tissues are succulent and decompose very rapidly when incorporated. However, buckwheat can improve short-term soil tilth and has been used to prepare fields for transplants.

Buckwheat is particularly efficient at taking up phosphorus from the soil and storing it in its tissues. There is some evidence that incorporating buckwheat residues can increase phosphorus availability to the following crop.

Dry matter and N accumulation

Dry matter production and N accumulation of buckwheat are relatively low.

The N in incorporated residues is not likely to be available to following crops. However, because decomposition is rapid, incorporated residues do not reduce N availability for following crops.

Management

Buckwheat may be planted in spring or early summer. When buckwheat is planted in late summer, decreasing day length forces it to flower soon after it emerges, preventing further growth.

Cover crop seeding rates are approximately 40–45 lb/acre, which is higher than the rates suggested for maximum seed production. Increase seeding rates if using varieties with larger seeds or if broadcast seeding.

Drill buckwheat seed to a depth of 1/2 to 1 inch, or broadcast and incorporate it with a light disking.

Quick facts: Buckwheat

Common names	Buckwheat
Hardiness zone	10, i.e., no frost tolerance (see Figure 1)
pH tolerance	Wide range; optimum is 6.0–7.0
Best soil type	Wide range; tolerates poor fertility
Flood tolerance	Low
Drought tolerance	Moderate
Shade tolerance	Moderate
Mowing tolerance	Low
Dry matter accumulation	Less than 1 ton/acre
N accumulation	Low
N to following crop	Very little or none
Uses	Use as spring or early to mid-summer cover crop to smother weeds and improve tilth. Rapid growth, easy incorporation, and fast decomposition allow use during short fallow periods.
Cautions	Requires warmth. No frost tolerance. Will flower soon after emerging when planted in late summer, limiting growth.

You can grow two or more buckwheat crops successively by planting a crop immediately after incorporating the previous crop.

Buckwheat has a low water requirement. Afternoon wilting does not necessarily mean that soil moisture needs to be increased. Often the plants revive during the night with no ill effects, only to wilt again the following afternoon.

Buckwheat generally is mown or incorporated within 2 weeks of first flower to prevent production of viable seed that could cause a weed problem in following crops. Residues are easily incorporated with a disk. They decompose rapidly and rarely interfere with planting subsequent crops.



Figure 1.—Oregon plant hardiness zone map. Buckwheat normally will survive in **Zone 10** or any warmer zone; thus it is not winter-hardy in Oregon. (Extracted from the USDA's national plant hardiness zone map, based on average annual minimum temperature in °F.)

Zone 4 = -30 to -20; Zone 5 = -20 to -10
Zone 6 = -10 to 0; Zone 7 = 0 to 10
Zone 8 = 10 to 20; Zone 9 = 20 to 30

Pest interactions

Buckwheat's rapid growth makes it an excellent choice for smothering weeds during the warm season.

Buckwheat flowers are attractive to bees and beneficial predatory insects such as hoverflies, predatory wasps, insidious flower bugs, and *Scoliid*ae. The tarnished plant bug, a pest, also has been observed to be abundant on buckwheat.

Varieties/cultivars

'Tempest' and 'Tokyo' are older varieties of buckwheat. They have small seeds and mature in midseason. 'Mancan' and 'Manor' are newer varieties developed in Canada that have a vigorous growth habit as well as larger seeds, stems, and leaves. Semidwarf varieties that resist lodging also have been developed.

For more information

World Wide Web

Orchard floor management information—<http://www.orst.edu/dept/hort/weeds/floormgt.htm>

OSU Extension Service publications—eesc.orst.edu

The University of California, Davis cover crop information—<http://www.sarep.ucdavis.edu/sarep/ccrop/>

Oregon Cover Crop Handbook

This publication also is part of *Using Cover Crops in Oregon*, EM 8704, which contains an overview of cover crop usage and descriptions of 13 individual cover crops. To order copies of EM 8704, send your request and \$5.50 per copy to:

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