



Buckwheat Production: Harvesting

Introduction

Though buckwheat is a low-maintenance crop, it is important to harvest it correctly. A good yield for correctly grown and harvested buckwheat is 20 to 30 bushels per acre. Good harvesting techniques will help you meet this goal. Fact sheet #50 contains information about planting and crop management. This fact sheet covers harvesting techniques.

When to Harvest

Harvest buckwheat when the grains are mature (Figure 1). Start looking in the 10th and 11th week after sowing. The field may still be green or flowering when the filled grains are ripe and the lower leaves have fallen. *Look at the grains closely*; many of the green or tan hulls are empty and should be disregarded when determining how many seeds are ripe.

The main concerns for harvest timing are lodging and shattering. The risk of lodging increases quickly as (1) the seeds get heavier, (2) the leaves fall, and (3) fall winds become stronger. Stem rot can set in at that time as well, enhancing the risk of lodging. Grain shatters, or falls off, soon after seeds mature, so missing the right time to harvest causes severe yield loss. In addition, un-harvested seed can cause buckwheat volunteers the following year.

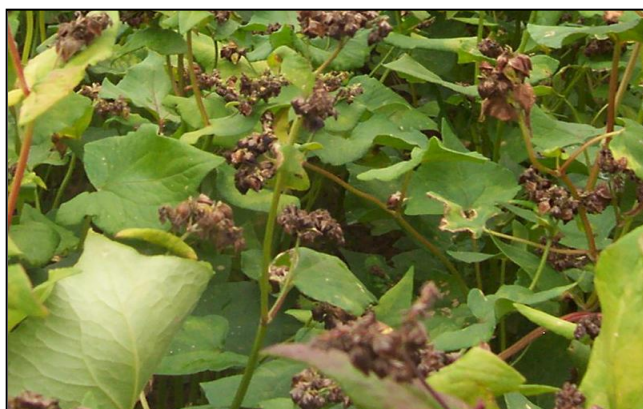


Figure 1: Buckwheat ready for harvest. The amount of green leaves can vary a great deal, and they cannot be used to judge maturity. Check whether filled seeds are mostly black, and still require a little force to pull off.

Methods of Harvest

There are two commonly practiced methods of harvesting buckwheat. Windrowing is the traditional method, and is well suited to the way that buckwheat matures. Direct combining allows the harvest to be completed in one operation, and is effective after the lower leaves have fallen off the plant naturally or when the plants are killed by frost just at maturity.

Windrowing or Swathing

Windrowing buckwheat is the typical practice in the western United States, Canada and Maine. This procedure has proven to be so successful that it is now the recommended harvesting procedure in the Northeast.

Because of the way buckwheat ripens, immature seeds occur on the plant at harvest. Harvesting should be done when three fourths of the seeds are ripe. *Inspect the seeds closely, and count only filled seeds. Green hulls from late flowers will often be empty, so a quick look is likely to underestimate the stage of maturity of the seeds.* When three fourths of the seeds are brown and hard, the crop should be cut and windrowed prior to combining.

After swathing or windrowing, allow buckwheat to cure a few days (usually 7 to 10 days). The windrow should be laid on 12-inch-high stubble for good air circulation. In the windrow, some dry matter will translocate into the nearly mature seeds and they will ripen. This maturation increases the yield. Windrowing also helps reduce shattering because it can be done quickly when the maturity is right, and because the seed is caught among the stems.

When windrowing, cut the stem as high as possible to keep the windrow off the ground for easier combining and to reduce the risk of equipment damage caused by stones. To avoid excess grain shattering during the combining operation, adjust the reel speed to correspond to the forward speed of the combine or windrower, and reduce the combine's pick-up speed to a minimum.

Direct Combining

Standing buckwheat can be combined directly if the crop matures after most of the leaves have dropped or just as they are killed by frost. These conditions occur at elevations higher than about 1500 feet. The crop should be harvested within a few days of frost to prevent seed shattering. Direct cutting green buckwheat (before a killing frost) is possible. Growers who have used this method are able to direct cut without excessive straw wrapping by driving slowly and adjusting the combine so the straw moves through as straight as possible. Optimal harvest time is a few days later than with swathing. Check by hand to see how easily the grains come off and harvest when they thresh cleanly but before seed start falling off on their own.

To avoid shattering, and for better machine operation with mature plants, combine in the morning or after dusk. The grain stays on the plant until it gets to the cylinders, and the stems are tougher so they pass through the combine intact.

When direct combining, cut the crop as high as possible and keep the ground speed down so that the machine is not overloaded. Use as much air as possible without blowing out clean grain; the stems and weed seeds easily cause the load to heat.

For best results, open the chaffer so that grain drops to the lower sieve before it has passed over 2/3 the length of the chaffer, but do not admit too much coarse material. Close the lower adjustment sieve as far as possible without carrying clean grain into the return elevator.

The quality of the grain suffers from rough handling, so the combine should be adjusted accordingly; slow and gentle are the watchwords. Reduce the cylinder speed to only 1/3 of that used for wheat or oats (approximately 500 rpm). Open the concaves as high as possible to avoid breaking the straw, but make sure all the filled kernels get remove. Try 3/8" in the front and 3/4" in the rear. It is a good practice to check the grain after harvesting a small area to see if these equipment adjustments are correct. If the seeds are cracked and broken, reduce cylinder speed.

Rotary combines require a special rotor sometimes called a bean rotor. A standard rotor grinds the wet stems to a pulp that clogs the machine. To reduce risks with any

combine, keep the straw moving straight, do not bruise the seeds, and blow out all the chaff.

Yields

With favorable weather and good soil, yields of 20 to 30 bushels of buckwheat per acre can be achieved in New York State. The average yield in New York State is about 15 bushels per acre. Growing buckwheat on poorer ground or with poor preparation will result in lower yields; yields of 10 to 15 bushels per acre are common under these conditions. As stated in agronomy factsheet #50, the best yields are obtained on soils with moderate fertility and good tilth, and where the soil was carefully prepared and uniformly seeded.

In Summary

Buckwheat should be harvested when the seeds are mature enough but not ready to fall off. Buckwheat can be harvested by windrowing, when 3/4 of the seeds are mature, or by direct combining, when the lower leaves of the plants have fallen off. When checking for seed maturity, do not count the empty hulls.

Additional Resources

- "Buckwheat production guide"
<http://www.nysaes.cornell.edu/hort/faculty/bjorkman/buck/guide/>
- Cornell Field Crops and Soils Handbook.
- Björkman, T. 2003. Commercial Buckwheat Production. The Birkett Mills.

Disclaimer

This fact sheet reflects the current (and past) authors' best effort to interpret a complex body of scientific research, and to translate this into practical management options. Following the guidance provided in this fact sheet does not assure compliance with any applicable law, rule, regulation or standard, or the achievement of particular discharge levels from agricultural land.

For more information



Cornell University
Cooperative Extension

Buckwheat extension
<http://www.nysaes.cornell.edu/hort/buckwheat>

Thomas Björkman
Department of Horticulture

2010