



PRACTICE ABSTRACT No. 20

Harvesting and storage of buckwheat

PROBLEM:

As buckwheat's popularity increases, so does its acreage. It is used as a cover crop and for grain production. In the case of grain production, the most difficult part of cultivation is determining the right time for harvesting.

SOLUTION:

Determining the harvest date can be very problematic. When the autumn is dry, the plants die off naturally. However, when there is more abundant rainfall, the buckwheat continues to flower, so the mature achenes may have fallen off on the lower branches and are still flowering on the upper branches. The level of asynchronous flowering depends on the variety as some varieties are more determinate than others, please refer to our buckwheat farmers' [bulletin](#). In a wet autumn, therefore, there is a large fallout loss. Harvesting is optimally started when 75 % of the achenes on the plants have turned brown (or typical seed colour, e.g. grey), the achenes on the terminal branches are ripe and coloured and the achenes on the middle branches are ripening. If harvested prematurely, the achenes are unfilled and therefore lighter. If a dry season is forecast, harvesting may be delayed.

Since buckwheat ripens gradually as it flowers and desiccation of the crop is not allowed in organic agriculture, it is possible to use the first autumn frosts to defoliate the crop; this is particularly suitable



Fig. 1: Direct harvest of mature buckwheat in October, 2021. Photo: Adam Brezáni

for late-sown crops. However, after this, the crop must be harvested within three days at the latest, otherwise the crop will quickly become infected with fungi and losses due to fallout increase.



Fig. 2: Perforated floor active drying with ambient air at EKOFARMA PROBIO s.r.o. (URL: <https://rb.gy/703v>)

Buckwheat can be harvested directly with a combine harvester. The disadvantage of this method is greater contamination of the harvested grain with green biomass from buckwheat plants and weeds. This leads to higher moisture of the harvested material and additional drying is often required. It is recommended that the threshing drum speed be set at 500 to 600 rpm with

a typical moisture content of 20 - 30%. If crop moisture is higher, it is recommended that the threshing drum speed be set at 700 rpm. A lower threshing drum speed ensures that mainly ripe achenes are harvested, and immature ones remain on the plant. The stubble should be kept taller, i.e. 150 - 200 mm, but this depends on variety and the degree of lodging. The goal is not to harvest the green parts of the buckwheat, because the greener material gets into the combine harvester, the slower it will run thereby decreasing efficiency. An option is to use a pre-treatment, i.e. swathing where the stand is cut about 20 cm from the ground with a disc mower or swather and laid onto the stubble. Then it is harvested using a combine harvester with a special pick-up adapter. This harvesting method could result in a higher yield because the immature achenes can dry more uniformly, But the negative is that the over ripe achenes will be lost via the cutting movement. However special equipment is required (swather), and an additional pass is needed during harvesting compared to direct harvesting.

Harvest moisture can vary between 20-30%. Optimal long-term storage occurs at 14%. If drying is carried out with hot air, the maximum temperature is 40 °C, but the temperature of the achenes should not exceed 25-30 °C. If the temperature is too high, the achenes might become brittle to dehusk and the net yield of groats may decrease. The grain can be dried with cold air through perforated floors at a maximum height of 150–200 mm to ensure good aeration. Once the mass is partially dried, the height can be increased to 300 mm to make room for another batch. If the floor ventilation has a high capacity. It is possible to increase the height to about 600 mm.

FURTHER INFORMATION:

Vogt-Kaute W., Grausgruber H., Bernhart M., Billsborrow P., Smales A., Kolmanič A., Champaviller M., Dolničar P., Tatarowska B., Plich J., Janovská D., Brezáni A., Hauptvogel P., Janovicková K., Toncea I., Mikó P., Megyeri M., Polgár Z., Jocković B., Vasiljević M., Đorđević V., Pagnotta M. (2022) ECOBREED Farmers Participatory Field Trials 2021. Kmetijski inštitut Slovenije, Ljubljana, pp. 102. <https://doi.org/10.5281/zenodo.7334377>

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ECOBREED CONSORTIUM



ABOUT ECOBREED:

ECOBREED is a 5-year (2018-2023) project funded by European Union's Horizon 2020 research and innovation programme that will improve the availability of varieties and seed suitable for organic and low-input production. Activities will focus on four crop species i.e. wheat, potato, soybean and common buckwheat, selected for their potential contribution to increasing the competitiveness of the organic sector.

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