

## UNIQUE PROPERTIES OF BUCKWHEAT

*Horodyska O.P., Candidate of Agricultural Sciences, Ph.D.*

*e-mail: [olesya\\_pv@ukr.net](mailto:olesya_pv@ukr.net)*

*Moiko O.O., Applicant for Professional Higher Education, Specialty 201  
«Agronomy»*

*VSP «Kamianets-Podilskyi Professional College»  
Higher Educational Institution «Podilskyi State University»*

Buckwheat is a culture of versatile use and waste-free growing technology. The current level of buckwheat cultivation in Ukraine does not meet the growing needs for domestic consumption and sale abroad.

The problem of a stable yield of buckwheat at the level of 1.5-2.0 t/ha can be solved by creating and introducing a highly productive, highly adapted generation of varieties and technologies that can realize their genetic potential [4].

The buckwheat value is due to its unique nutritional and therapeutic and dietary properties. Buckwheat porridge is one of the most useful and valuable, containing extremely important nutrients for the human body: complete protein (12.6%), fats, carbohydrates, dietary fiber, organic acids, as well as calcium, phosphorus, iodine, vitamins B1 and B2, PP (rutin, industrially obtained from buckwheat), iron salts, citric and malic acids - catalysts for the absorption of food. The average chemical composition of buckwheat grains: water - 14%, proteins - 11.6; carbohydrates - 59.5, in particular, starch - 54.9; fats - 2.3; fiber - 10.8; ash - 1.8% [1].

The ash contains such elements as potassium, magnesium, sodium, copper, silver, zinc, calcium, iodine, aluminum, manganese, iron, nickel, chromium, phosphorus, cobalt. Their number depends on the variety of buckwheat and the part of the plant (shells or straw). The folic acid contained in buckwheat increases the body's stamina and resistance to disease, and helps in the treatment of gastrointestinal diseases. Buckwheat supports a healthy liver, helps to reduce high blood sugar and treat anemia, leukemia, strengthen the immune system, improve blood circulation, and reduce the level of "bad" cholesterol [2].

The culture contains in its composition substances that bind and remove radionuclides from the body. Just like rice, corn, buckwheat is gluten-free, so it can be eaten by people with celiac disease.

Buckwheat contains a record amount of the bioflavonoid quercetin - 8%. Diet of an oncologist V.A. Laskina contains 300 grams of buckwheat, that is, 24 grams of quercetin per day, plus the quercetin found in rose hips.

The bioflavonoid quercetin restores the activity of the p53 gene damaged or impaired in cancer cells or replaces its functions itself. The p53 gene, a cancer cell suppressor gene, is one of the main regulators in the cell nucleus that controls cell decomposition. Quercetin restores the function of the p53 gene, restoring the decomposition of tumor cells and leading them to death.

In terms of biological value (amino acid composition), buckwheat proteins are close to powdered milk protein (92.3%) and chicken eggs (81.4-99.3%). Buckwheat fats (2.5-4%) have a high content of linoleic and linolenic acids essential for humans,

as well as vitamin E, which has antioxidant properties. Buckwheat is stored for a long time without losing nutritional qualities [3].

Buckwheat is the only grain crop in our country that contains vitamin P in the grain. It surpasses other cereal crops in the content of vitamins PP, B2, and is also a source of vitamins B6 and B1 and mineral elements, especially iron, copper and zinc. All this makes it a valuable product of dietary and baby food.

Studies by scientists of fine chemical technology revealed the high efficiency of using buckwheat alkali as an adsorbent for cleaning water bodies from oil stains as a result of oil pollution [5].

Buckwheat is an entomophilous cross-pollinating plant that has an open flower with readily available nectar and a strong aroma that attracts 41 insect species. According to the data of the Beekeeping Administration, the average increase in the buckwheat yield from pollination by bees in Ukraine is 3.2 centners per hectare, which ensures an annual increase in the gross harvest of its grain by more than 900 thousand centners.

With sufficient moisture, buckwheat in the crop rotation is a good predecessor of other crops. From the first days of life, it grows intensively, develops a large leaf surface, covers the field early, inhibits weeds, and the roots loosen the soil well. A short vegetation period (60-90 days) allows using buckwheat as an insurance crop for reseeding winter and early spring crops, and in some areas grow it even after harvest.

Consequently, the status of buckwheat as a crop with unique nutritional properties, as well as a waste-free cultivation technology, create the necessary prerequisites for wider use and an increase in the sown area under this crop.

#### References

1. Alekseeva E.S., Elagin I.N., Taranenko L.K., etc. Culture of buckwheat. Part 2. Selection and seed production of buckwheat. Kamenets-Podolsky: Publisher Moshak M.I, 2005. 240 p.
2. Bilonozhko V.Ya., Berezovsky A.P., Poltoretsky S.P., Poltoretska N.M. Agrobiological and ecological bases of buckwheat production: monograph; For the order. V.Ya. White-legged. Mykolaiv: Iryna Hudym Publishing House, 2010. 332 p.
3. Alekseeva O.S. History of buckwheat breeding in Ukraine. Genetics and selection in Ukraine at the turn of the millennium. K .: Logos, 2001. T. 3. P. 86-98.
4. Kochmarsky V.S. How to stabilize grain production. *Seed production*. 2010. № 9. P. 1-5.
5. Kvaschuk O.V. Modern intensive technologies for growing cereals. Kamianets-Podilsky: Abetka, 2008. 243 p.