

INFLUENCE OF ORGANIC FERTILIZERS ON GRAIN QUALITY OF *TRITICUM MONOCOCCUM* L., *TRITICUM DICOCCUM* SCH., AND *TRITICUM SPELTA* L.

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Abstract

Organic farmers require cultivars that can be multiplied and grown in the organic farming system with no undue negative effect on the health and function of the agroecosystem. The objective is to research the impact of different types of fertilizers on the grain quality for species of wheat (*Triticum dicoccum* Sch., *Triticum monococcum* L., and *Triticum spelta* L.) cultivated under the conditions of organic farming.

The experiment was conducted in 2014-2017 at the Agroecological Center at the Agricultural University - Plovdiv (Bulgaria) by the block method in three replications with a size of the experimental plot of 10.5 m². The organic fertilizers: Amalgerol, Lithovit, Baikal EM, Tryven - for foliar application, and one soil fertilizer - Agriorgan pellet were used in the study. Indicators measured and methods used were: Mass of 1000 grains (g)- weight method; Separation of grain from chaff (%); Hectolitre weight (kg/100 L grain) - BSS method; raw protein and fats according to the BSS 11374 method; starch according to the polarimetric method, BSS EN 13040; wet gluten - method adopted for low-gluten foods (%).

The results show that all organic fertilizers increase the 1,000 seeds weight in all wheat species. Higher percentage differences were observed for *Tr. spelta* when treated with Tryven - 17.8%, Amalgerol - 9.6% over control. In *Tr. dicoccum* in the variants treated with Baikal EM (3.9%), Amalgerol - 2.9%, and for *Tr. monococcum* the variant treated with Amalgerol - 8.4%, Baikal EM and Tryven. Treatment with Baikal EM and Lithovit increased the hectoliter mass in *Triticum dicoccum* by 1.8% and 1.2% above the control, respectively, and in *Triticum monococcum* - Baikal EM by 3.5 and Amalgerol by 2.3%. In *Triticum spelta*, an increase in the indicator above the control is observed after treatment with Baikal EM - by 3.8%. The amount of crude protein, starch and fat in the grain varies within a narrow range between the different fertilization options and the control within species. In organic farming specific conditions all three wheat types show a low gluten content. The highest wet gluten content was reported after Tryven treatment at *Tr. dicoccum* - 2.9% and with Amalgerol- 3% at *Tr. spelta*.

The studied organic fertilizers have a positive effect on the physical and biochemical parameters of the grain can be successfully used in the production of healthy foods in organic farming.

Key words: Organic agriculture, Grain quality, Biofertilizers, *Triticum dicoccum* Sch., *Triticum monococcum* L., *Triticum spelta* L., Wet gluten.