

# AGRONOMIC AND ECONOMIC EFFICIENCY OF THE WASTE USE FROM THE PRODUCTION OF ALCOHOLIC BEVERAGES ON CAMBIC CHERNOZEM

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## Abstract

Nowadays, the environment ecological status in the Republic of Moldova is deplorable in most natural and anthropogenic ecosystems. Wastes from the alcoholic beverages production is often stored chaotically presenting a major danger to the environment soil, water, air, flora and fauna. There is no waste processing and recycling company in the country. This waste contains a significant amount of biophilic elements necessary for the nutrition of agricultural plants and the increase of organic matter in the soil. About 100 thousand tons of waste is accumulated annually in the Republic of Moldova. Waste from the production of alcoholic beverages contains 28 thousand tons of organic matter, 180 tons of nitrogen, 80 tons of phosphorus and 260 tons of potassium. For this purpose, two field experiments were organized at the Technological-Experimental Station "Codru", Codru commune, Chisinau municipality, where the residues from the production of alcoholic beverages were studied: wine yeasts and vinasse (waste from wine production), distillers grains marc (waste from the production of rectified ethyl alcohol) on soil fertility and plant productivity. Research conducted in 2012-2019 showed that fertilizing the soil with cereal marc led to increased productivity of field crops. The increase in production on average is 868-1223 kg/ha of cereal units (30-42%) compared to the non-fertilized version with marc. Fertilization with waste from the production of alcoholic beverages increases on average over 9 years, the content of organic matter by 0.18-0.37% (4800-10000 kg/ha), mobile phosphorus by 0.3-1.0 mg/100 g soil (8.1-27.0 kg/ha), exchangeable potassium with 10-13 mg/100 g soil (230-300 kg/ha) for variants fertilized with waste. There was an increase in Sauvignon grape production of 0.9-2.3 t/ha (8-21%) on average for 9 years for wine waste variants. Wastes from the production of alcoholic beverages, applied to the soil as organic fertilizer have a significant economic effect, can be recovered and reintegrated into viticulture and phytotechnic sectors.

**Key words:** chernozem, yeasts, vinasse, grains marc, economic efficiency