

ENERGY-SAVING TECHNOLOGY OF MAIZE GRAIN CONSERVATION IN BIG-BAGS

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Abstract

Introduction. Highly productive livestock production is mainly based on the use of maize grain in feed balance. Maize makes up nearly one third of the world grain production. In Ukraine annual demand for maize grain for forage purposes is 5-6 mln t. It should be emphasized that maize is a crop harvested during autumn period and its grain always has high moisture content, thus it requires appropriate conservation technologies. One of them is a technology of damp grain conservation in big-bags as it does not require costs on energy sources for drying.

Methodology. The technology of damp grain conservation is based on its storage in oxygen-free environment with preservative.

It is fulfilled in the following way: just after threshing, damp (24–38%) maize grain is supplied at barn floor where big-bags are filled together with application of the biological preserving mixture, air exhaustion, hermetization by means of soldering of the liner neck and stacking for further storage.

Results. After continuous storage grain was of high quality. Its feeding to milk cows in the diets gave 0,96 kg yield increase in the milk with basic fat content (3,4%), i.e. +5,14 % to control, where dried grain was fed.

Economic calculations on the expediency of damp maize grain drying show that a farm applying the technology of damp maize grain conservation in big-bags has 14,13 \$/t losses, but when drying at **MXII**, losses make up 33,04 \$/t, in other words, the farm saves only when it stores 18,92\$/t of grain. Besides considering better productive effect of conserved damp grain when fed to milk cows, the economic effect of one ton is \$120 because of the obtained additional quantity of milk with basic fat content. General effect makes up 138,92 \$/t of conserved damp maize grain.

Conclusions. Usage of the offered technology allows making the conserved damp grain a commodity, i.e. it can be transported at any distances at the same time preserving its nutritious value and avoiding energy costs on grain drying.

Key words: corn, wet corn, dry grain, milk, economy, energy.