

Progress Report: January 2011

Title: Practicality Evaluation of Grain Storage Techniques

Investigator(s): Karl VanDevender, Extension Engineer; Bodie Drake, Extension Technician;

Crop(s): Corn\Grain Sorghum

Status: Year 3 of 3

Value to the Grower: The increase in corn acreage has mandated that much of the annual crop be handled, dried, and stored on farm. There are a large number of on farm bins that are utilized for this. Corn bags were utilized extensively in 2007-2009. However, limitations associated with bags point to the potential advantages of dryers and bins. General management procedures for on-farm handling, drying, and storing will help growers better manage their harvest options and capitalize on additional marketing alternatives. Collected bag, bin, and dryer data from cooperating Arkansas farms and sources from neighboring states was used to meet the objectives below.

Objectives:

1. Study several corn bag storage operations to determine best operating practices.
2. Study several on-farm bin operations, particularly larger size bins, to develop some comparisons.
3. Develop a broad base of educational material to familiarize producers with options and management guidelines.

Preliminary Results:

1. Grain drying cost, including energy and equipment, typically total \$0.25-\$0.80 per bushel. Two calculators (cost calculator for corn drying and storage with a diesel powered fan bin system and cost calculator for corn drying and storage with a pass dryer bin system) to provide more specific estimates based on user inputs have been developed and are currently posted at www.aragriculture.org/storage_drying/default.htm .
2. An equilibrium moisture content calculator has been developed and posted at www.aragriculture.org/storage_drying/default.htm. It uses temperature, crop specific data, and data derived from a sling psychrometer or a known relative humidity reading (could be from the local weather report for that day) to generate an EMC value for the grain.
3. An equilibrium moisture content table builder has been created and posted at www.aragriculture.org/storage_drying/default.htm. This tool is designed to print 8½ X 11 grain specific EMC tables for laminating and posting near bin fan controls.
4. The fact sheet “Suffocation Hazards in Grain Bins” has been revised and is available at www.uaex.edu/Other_Areas/publications/PDF/FSA-1010.pdf .
5. A new series of grain drying fact sheets are being completed. Topics include, principles of grain drying, field drying, natural air/low temperature grain drying, high temperature grain drying, and dryeration/combination drying.
6. Grain drying/storage concepts and tips were presented at 9 producer meetings and field days with 313 people in attendance. Most of these meetings included a presentation. A display table demonstrating the software has also been utilized.
7. An additional 5 local meetings are currently scheduled for presentations and display table setup.