Department of Entomology

Top 10 Grain Storage Management Tips

Grain Storage Top 10 List

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Grain and Livestock Systems Grain storage capacity, on-farm and commercial, exceeds 1 billion bushels in Kansas. Elevator managers and producers with on farm storage are responsible for the well being of their investment – $3 billion worth of grain in their storage structures. Those responsible for managing stored grain should take their investment management job as seriously as a banker. Across the country, average storage losses caused by insects and molds are estimated to be 10 cents per bushel. If this value holds true for Kansas, then the annual loss is $100 million or about $40 per Kansan.

Top 10 Grain Storage Management Tips

1. Start by cleaning facilities inside and out. Any space where insects can live – inside or outside of the structure – must be cleaned. In cases where physical cleaning is not possible, a chemical approach is required.

2. Cool grain quickly. Insects and molds have a difficulty reproducing when the grain temperature is below 50 F. Generally, it is recommended to cool the grain to 35 to 40 F. However, for grains harvested between May and August, it is beneficial to reduce the temperature as soon as possible to below 70 F using intermittent aeration.

3. Monitor incoming moisture. Aeration fans deliver small quantities of air but were never intended to dry grain. Their purpose is to change the grain temperature. Problems are created when high moisture grain enters the storage structure.

4. Adjust harvesting and handling equipment. Grain that contains broken kernels or trashy material is harder to store. The more broken kernels, the more surface area exposed for insects to nibble. Equipment, excessive handling or dry grain are the three leading causes of broken kernels.

5. Clean grain. Normally, weedy material has a higher moisture content than grain. Foreign material may accumulate in isolated pockets in a grain bin and interfere with aeration. Excess moisture and the inability to cool these pockets may results in ideal breeding areas for insects, fungi or molds.

6. Monitor stored grain. Schedule inspection times. Temperature, moisture and odor are the most commonly monitored conditions. Once the grain temperature and the outdoor air temperature are below 45 F, monthly monitoring should be adequate. If the average grain or air temperature is above 45 F, inspect every 2 weeks.

7. Be observant. Many stored grain problems can be stopped in the early stages if you are paying attention. Odor is a common indicator of grain spoilage. When there are multiple steel bins at a site and one bin roof has no snow or frost while the others do, the grain may be heating. Visual evaluation inside a bin is also useful. Moisture migration may be detected by slimy feeling grain on the surface or drip spots on the underside of a roof.

8. Promote safety. Safety should be first and foremost on the minds of everyone working near grain storage facilities. Follow all manufacturers' guidelines related to chemical use. Use caution

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when climbing metal ladders during cold weather. Heavy clothing, cold or wet ladder rungs can create hazards. A minimum of two people should be present when sampling grain bins and no one should ever enter a bin when equipment is running or is going to be turned on.

9. Know your marketing plan. Use that plan to develop a management strategy for maintaining the quality of stored grain. This is particularly necessary when storing grain into the late spring or summer months. Rewarming of the grain may be necessary to prevent moisture migration within a grain mass due to temperature differences.

10. Be ready to act quickly. Grain storage problems do not disappear once they are detected. Grain that is heating should be cooled, turned or marketed immediately to prevent further damage. Once heating is detected the problem will only get worse unless some action is taken. Heating grain may cause structural damage as well as charred grain if no action is taken.

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