

7 IMPORTANT REASONS WHY SUCCESSFUL GRAIN MANAGERS USE TEMPERATURE MONITORING

- 1 Maximum energy efficiency of aeration systems.
- 2 Provides accurate information for safe, long term storage.
- 3 Alerts managers more quickly to changing grain conditions.
- 4 Helps keep grain in highest quality condition.
- 5 Detection of mold growth.
- 6 Detection of insect activity
- 7 Monitors the effectiveness of fumigation.

Stored grain is constantly threatened by moisture migration, mold activity and insect infestation. When grain goes out of condition, regardless of the cause, there is always an increase of temperature in the critical area. These hazards are detected before loss occurs with a bin temperature monitoring system.

TEMPERATURE MONITORING

With a temperature record, a grain manager determines changes in stored grain. High temperature is no cause for alarm if the grain was stored warm, but an increase of only a few degrees in a zone of grain may indicate a serious potential problem. Even grain stored at cool temperatures has the same potential hazard indicated by a minor temperature rise in an area of the grain mass. A temperature detection system keeps the smart grain manager alerted to these warnings before loss occurs.



MOLD ACTIVITY

All stored grain is infected to a certain extent with various types of mold. Moisture and temperature will stimulate mold growth and lower the quality of stored grain. Turning of grain creates stress cracks which are fifteen times as receptive to mold growth and damage, so turning greatly increases chances for grain loss.



INFESTATION

Insect activity always increases temperature in stored grain. The warmest part of the mass (and not the average) can focus into a zone of insect growth. Infestation can be arrested with fumigants, but fumigant costs can be reduced if the grain temperature can be maintained. Insects accelerate reproduction in warm grain—consuming it with their growth—generating more and more heat to literally give energy to their ever increasing masses. However, practically all insects become dormant if subjected to low temperature.



MOISTURE MIGRATION

Even though stored grain has a uniform temperature and moisture content, cool nights and warmer days create movement of air through the grain mass. This convection picks up moisture to create zones of temperature variance and moisture accumulation. This increase of moisture in a part of the stored grain encourages respiration of grain carbohydrates and production of heat. The combined action of convection and respiration can mushroom into serious losses unless the grain can be cooled and the mass maintained at uniform moisture and temperature content. Aeration will remove a warm front from stored grain as well as maintain its safe storage condition and eliminate the need for turning. One half of one percent goes to invisible loss each time a bulk of grain is turned, plus the increase kernel damage is inevitable, as well as reduction in life of handling equipment.



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