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Time to Check and Make Decisions About 2008 Corn

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Abstract
Last fall there were several Integrated Crop Management articles about the quality and handling of the 2008 corn crop. **This type of corn has roughly half the storage life of normal corn under the same moisture and temperature conditions. At that time the corn was coming out of the field very wet, with soft texture, low test weight, and low protein content.** These were consequences of the cool wet growing season; much of Iowa corn did not ever reach full maturity. Elevators and producers alike filled bins with wetter-than-normal corn, up to 24 percent moisture in some cases. There were also cases of emergency piles of 18-22 percent corn, that did not get picked up until January.

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Time to Check and Make Decisions About 2008 Corn

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Last fall there were several Integrated Crop Management articles about the quality and handling of the 2008 corn crop. **This type of corn has roughly half the storage life of normal corn under the same moisture and temperature conditions.**

At that time the corn was coming out of the field very wet, with soft texture, low test weight, and low protein content. These were consequences of the cool wet growing season; much of Iowa corn did not ever reach full maturity. Elevators and producers alike filled bins with wetter-than-normal corn, up to 24 percent moisture in some cases. There were also cases of emergency piles of 18-22 percent corn, that did not get picked up until January.

Corn in bins that were aerated and monitored to stay below 30F, and that had the center cores removed are generally in good condition, while unaerated bins and piles have gone already to 75-100 percent damaged kernels.

Iowa is not alone in this problem. Below is some good advice from Dr. Ken Hellevang, North Dakota State University.

> The estimated allowable storage time, AST, decreases rapidly at warmer grain temperatures. For 26 percent moisture corn, the AST for normal corn is about 90 days at 30 degrees, 35 days at 40 degrees and only 12 days at 50 degrees. For 22 percent moisture corn, the AST is about 190 days at 30 degrees, 60 days at 40 degrees and only 30 days at 50 degrees. For 20 percent moisture corn, the AST is very long at 30 degrees, is about 90 days at 40 degrees, and 50 days at 50 degrees. Immature, cracked and broken corn kernels are more prone to deterioration than good quality corn, so corn this year may be more prone to storage problems.
>
> Warming of the grain will normally be limited to a couple feet near the bin wall and a few feet at the top of the bin. Monitor grain temperature in these locations to determine when to operate the aeration fan. Bin temperature cables help monitor grain temperature, but only detect the temperature of the grain next to the cable. Grain has an insulation value of about R1 per inch, so grain insulates the cable from hot spots just a few feet from the cable.
>
> Cover aeration fans when they are not operating to prevent wind from warming the corn. Wind blowing into an uncovered aeration fan or duct will aerate the corn warming it to temperatures near the daily maximum. This occurs because there tends to be more wind during daylight hours than at night.

The active period for grain spoilage begins in mid to late February. Use

every opportunity to keep the grain cold. Take some grain out of every bin in the near future; this will indicate if there are problems starting. Wetter corn can bridge over the unloading slide; it is better to know and solve this now rather than in warm weather when grain may be heating rapidly.

Once the grain temperature cannot be maintained below 30F, wet corn (anything over 17 percent) will have to be dried or sold. Spoilage will happen rapidly. Natural air will work if the bin has 0.5 cfm/bu or more of airflow and the moisture is less than 20 percent. Otherwise, use heated air.

Ethanol plants are sensitive to mold damage; damage interferes with enzymes and fermentation. Livestock feeders should consult nutritionists or veterinarians to screen damaged or blended corn for mycotoxins. Mycotoxins are not normally associated with storage but the combination of corn properties, high moisture, and less drying could create these issues in highly damaged corn.

Expect careful grading of corn for the rest of this marketing year. There is already considerable damaged corn in commercial elevators, from temporary piles that were not covered or aerated. This will leave much less flexibility for blending of off-grade corn from farm bins. All users are going to be on the lookout for poor quality grain this year. If you have very high moisture corn still in storage, above 22 percent moisture, plan to sell or dry it before the end of February.

Bottom line – Act now to check, move or dry 2008 crop corn. This corn will be difficult to manage for the rest of the year. Damaged corn will be hard to market and will get worse quickly.

Charles Hurburgh is a professor of Agricultural and Biosystems.
