

2-16-2010

Time to Think About Grain Quality Again

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Recommended Citation

Hurburgh, Charles R., "Time to Think About Grain Quality Again" (2010). *Integrated Crop Management News*. 485.
<http://lib.dr.iastate.edu/cropnews/485>

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Time to Think About Grain Quality Again

Abstract

Towards the end of February we typically begin to experience warmer weather and with that arises concerns related to the 2009 corn that came from the fields with low quality and high moisture. Some of the important properties of this corn that are at the basis of this concern are:

- It was wet - over 20 percent moisture, some much greater.
- It was light – test weights averaged about 52 pounds per bushel with little increase after drying. Light corn spoils faster and breaks more in handling.
- It had low protein – less than 7.5 percent at 15 percent moisture.
- Storage life is an issue – about half of normal corn with the same moisture and temperature.

Keywords

Agricultural and Biosystems Engineering

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Climate

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Integrated Crop Management NEWS



Time to Think About Grain Quality Again

By Charles R. Hurburgh, Department of Agricultural and Biosystems Engineering

Towards the end of February we typically begin to experience warmer weather and with that arises concerns related to the 2009 corn that came from the fields with low quality and high moisture. Some of the important properties of this corn that are at the basis of this concern are:

It was wet - over 20 percent moisture, some much greater.

It was light - test weights averaged about 52 pounds per bushel with little increase after drying. Light corn spoils faster and breaks more in handling.

It had low protein - less than 7.5 percent at 15 percent moisture.

Storage life is an issue - about half of normal corn with the same moisture and temperature.

There was damage (mold) in the field - about 3-5 percent where normal is 1-2 percent. The field mold was primarily cladosporium which does not produce toxins. There was some incidence of other molds and toxins in either hail damaged corn or very late planted corn. Toxins will not go away in storage, but usually do not increase either. For more details and information about harvest quality issues, visit the archive of ICM articles related to this topic at www.iowagrains.org.

Managing last year's corn harvest

Stored grain should be uniformly cool at 35 F or below. The active period for grain spoilage will begin in late February, as air temperatures rise. You should be checking corn weekly from now on, because 2009 corn has much shorter storage time (shelf life) than normal.

Record the temperatures on every inspection, more often if you have an electronic system that monitors continuously. Changes (increases) in the temperature over time when there has been no fan activity are an indication of spoilage starting. Grain is a good insulator which means that a slow rise in a temperature monitor could mean a much greater problem some distance from the sensor. Once corn has started to spoil, problems will return even after aeration cooling; the shelf life has been used and this corn will create problems until it is moved out.

Corn can be kept cold, even frozen, farther into spring as long as: 1) the corn is clean; 2) it has had the center core removed (to take out fines and trash); and 3) the bin has additional fans in the peak to bring in fresh air to control condensation dripping.

Things to do or check now, before problems show up:

- Know the moisture, test weight and temperature in every bin. These are the key parameters that determine future condition.
- If you have corn at 20 percent or higher moisture, move or dry it immediately.
- Market by test weight - lightest corn first.

- In February or early March – remove some corn from each bin if possible. Check. Re-level.
- If there is an increase in temperature, act immediately.
- Corn for feed should be tested for toxins (vomitoxin) and protein.
- Test for toxins by drawing at least a 5 pound sample; grind the whole sample for the test. Composites of several individual loads or undivided bin samples are best.

Not all corn is in good condition, even now

Outdoor storage had problems; some firms used it as temporary wet holding space with poor results. Bins have been emptied with the corn in poor condition. This means that there will be marketing concerns through the entire year. The average damage level of 2009 corn was high out of the field, which leaves very little room to blend storage problems. Since 65 percent of Iowa corn is used for ethanol, which has low tolerances for damage and damage-related toxins, expect that damage discounts will increase, and that corn will be graded more carefully. On the other hand, corn that is kept in good condition into summer will be in demand. Expect that even dry corn will start to have issues in late summer.

We will keep you updated as the weather changes.

Charles Hurburgh is a professor of Agricultural and Biosystems . He can be contacted at (515) 294-8629 or by email at tatry@iastate.edu.

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