

10-24-2008

Corn Quality Issues in 2008 – Storage Management

Charles R. Hurburgh
Iowa State University, tatry@iastate.edu

Roger W. Elmore
Iowa State University, relmore@iastate.edu

Follow this and additional works at: <http://lib.dr.iastate.edu/cropnews>



Part of the [Agricultural Science Commons](#), and the [Agriculture Commons](#)

Recommended Citation

Hurburgh, Charles R. and Elmore, Roger W., "Corn Quality Issues in 2008 – Storage Management" (2008). *Integrated Crop Management News*. 747.
<http://lib.dr.iastate.edu/cropnews/747>

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit <https://crops.extension.iastate.edu/>.

Corn Quality Issues in 2008 – Storage Management

Abstract

Grains have a shelf life just like any food product. Shelf life is primarily determined by moisture content and temperature. It is gradually used through the time before use, and each operation or storage regime consumes a portion of the life.

Keywords

Agricultural and Biosystems Engineering, Agronomy

Disciplines

Agricultural Science | Agriculture

[Subscribe to Crop News](#)

Archives

[2015](#)[2014](#)[2013](#)[2012](#)[2011](#)[2010](#)[2009](#)[2008](#)[Previous Years](#)

ISU Crop Resources

[Extension Field Agronomists](#)[Crop & Soils Info](#)[Pesticide Applicator Training](#)[Agronomy Extension](#)[Entomology Extension](#)[Plant Pathology Extension](#)[Ag and Biosystems Engineering Extension](#)[Agribusiness Education Program](#)[Iowa Grain Quality Initiative](#)[College of Agriculture and Life Sciences](#)[ISU Extension](#)

Integrated Crop Management NEWS

 PRINT STORY
 EMAIL STORY
 ADD TO DELICIOUS
 ATOM FEED
 FOLLOW ON TWITTER

Corn Quality Issues in 2008 – Storage Management

By Charles Hurburgh, Department of Agricultural and Biosystems Engineering; Roger Elmore, Department of Agronomy

Grains have a shelf life just like any food product. Shelf life is primarily determined by moisture content and temperature. It is gradually used through the time before use, and each operation or storage regime consumes a portion of the life.

Check combine settings between fields because fines and cracked kernels spoil much faster than whole, sound kernels. Grain that starts to heat or get moldy has essentially used its storage life. The goal of grain storage management is to reduce the rate at which the life is lost. **Every action taken after harvest affects the ultimate length of time grain can be stored and the quality at the time of use.** Always get grain cool quickly and minimize variations both from the dryer and from the field.

Holding wet grain, especially without aeration, shortens shelf life considerably. Fungi grow very fast in corn above 20 percent moisture. Overnight storage of wet corn in a wagon or truck can have a marked effect on future storability. Always get wet corn into an aerated storage immediately. Likewise the practice of holding medium moisture corn (16-20 percent) for future blending or feeding opportunities will cause problems for corn stored (even after drying) into the following summer.

Aeration Practice

Phase 1: Fall Cool Down

- Lower grain temperatures stepwise
 - October 40-45 F
 - November 35-40 F
 - December 28-35 F

Phase 2: Winter Maintenance

- Maintain temperatures with intermittent aeration
 - January, February 28-35 F

Phase 3: Spring Holding

- Keep cold grain cold
 - Seal fans
 - Ventilate headspace intermittently

This year there will be more wet corn held because of high field moistures and expensive drying. Wet corn should be checked weekly, and monitored for temperature increases. Wet corn should have 0.2 cfm/bu of aeration, double the normal rates for dry corn. Problems will start to show up in February and March as temperatures rise.

Options when large amounts of wet corn exceed drying capability

1) Dry to 17-18 percent moisture and cool in the storage bin. Corn will end up at about 16 percent moisture.

2) Dry to 20 percent moisture, cool in bin, hold wet corn for spring.

The less you dry, the more risk you are accepting. But spreading out the drying into spring may be the only choice. Risk will require more constant attention.

Be selective about what corn is placed in storage versus moved at harvest. Deliberately decide which corn and bins are going to be kept into the summer. This should be your best (highest test weight) corn, harvested below 20 percent moisture with careful combine settings to minimize trash and placed in storages with good aeration rates/airflow distributions.

Low test weight corn should not be put in temporary storages or outdoor piles. It is also not wise to mix corn of different crop years in the same storage bin; the mix is generally much less stable than each year's crop stored separately. The 2008 corn will be more susceptible to mold and heating in storage than average corn at the same moisture, which means that holding wetter corn should only be done in cases where there is drying or other options to halt spoilage if it starts.

Remove the center core and use a grain distributor if possible. Check your grain at least every two weeks, with some way to take grain temperatures. If a slow rise is noted, aerate. If a hot spot starts, make that the next corn to be moved out; one storage problem always leads to another.

Understand your buyers' needs, and match storage and drying practice to intended marketing time. For example, corn sold for July or August 2009 delivery should be dried more fully right away.

Maximum storage time (months) for corn and soybean*							
Corn temperature °F	Moisture Content						24%
	Corn (top %), Soybean (bottom%)						
	13%, 11%	14%, 12%	15%, 13%	16%, 14%	17%, 15%	18%, 16%	N/A
40	150	61	29.0	15.0	9.4	6.1	1.3
50	84	34	16.0	8.9	5.3	3.4	0.5
60	47	19	9.2	5.0	3.0	1.9	0.3
70	26	11	5.2	2.8	1.7	1.1	0.2
80	15	6	2.9	1.6	0.9	0.9	0.06
*Based on 0.5% maximum dry matter loss—calculated on the basis of USDA research at Iowa State University. Corresponds to one grade number loss; 2-3% points in damaged seeds. Soybean approximated at 2% lower moisture than corn.							

Charles Hurburgh is a professor of Agricultural and Biosystems. Roger Elmore is a professor of agronomy with research and extension responsibilities in corn production.

This article was published originally on 10/24/2008. The information contained within the article may or may not be up to date depending on when you are accessing the information.

Links to this material are strongly encouraged. This article may be republished without further permission if it is published as written and includes credit to the author, Integrated Crop Management News and Iowa State University Extension. Prior permission from the author is required if this article is republished in any other manner.