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## Quality and handling of the 2014 Iowa crop

Charles R. Hurburgh  
Iowa State University, [tatry@iastate.edu](mailto:tatry@iastate.edu)

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## Quality and handling of the 2014 Iowa crop

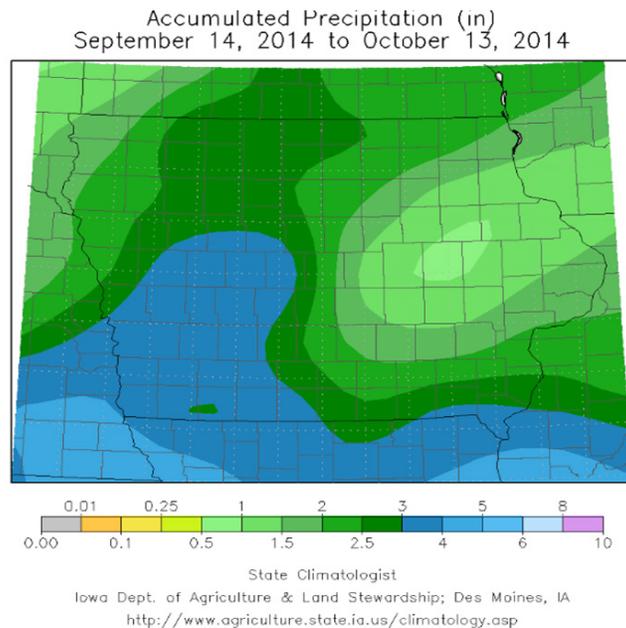
Charles R. Hurburgh, Professor, Agricultural and Biosystems Engineering, Iowa State University

### Overall growing conditions

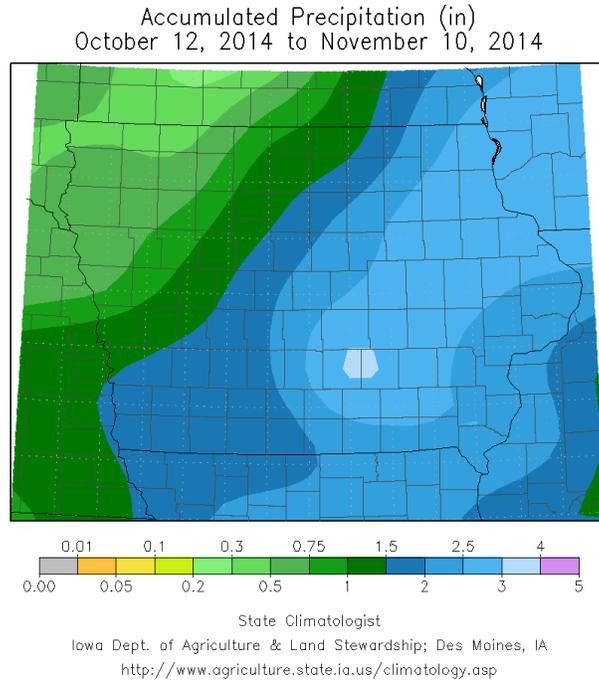
Every year brings on a new set of challenges for harvest and grain management. In the past five years we have gone from very wet to very dry. Scorching heat at the very end of the 2013 season caused large variations in quality even within the same field. In 2014, planting pace was about normal, temperatures were 1-3 degrees below normal and moisture was well above normal - especially in the August and September grain fill period. Western and southwestern Iowa were 3-6 inches over normal for moisture in this period. This combination of weather conditions put the 2014 crop 7-10 days behind normal maturity.

As in past years, late season weather changes shifted expectations of quality. The initial estimate of wetter corn remained true; averages stayed in the 18-22% range because field drydown is always slow after mid October. Overall quality was put at risk however, in some areas. The mid September (13th and 14th) frost in far northern Iowa caused more reduction in grain fill than was previously thought. This is showing up as lower test weight. This issue is more prevalent in Minnesota, Wisconsin and northern Illinois. The rest of the state still is seeing corn test weights 57 lb/bu and up, after drying. If you have some frost related issues, please see <https://store.extension.iastate.edu/Product/Frost-Damage-to-Corn-and-Soybeans>

The southern half of Iowa (see map below) had extreme rains in late September into October which raised the chances of field molds, primarily *Gibberella*, but *Fusarium* may also be present. Both of these fungi produce toxins. The most likely will be deoxynivalenol (vomitoxin), others include zearalenone (often found with vomitoxin) and fumonisin. Examples of affected ears and recommended feeding limits are given below. None of these toxins are regulated by Food and Drug Administration, but guidance or advisory level recommendations have been issued as a result of the negative health impacts they can have on livestock that consume them. For more information on the potential impacts and management of these toxins in 2014, see <http://www.extension.iastate.edu/CropNews/2014/1015Hurburgh.htm>.



Weather conditions completely reversed in the next month, with little rain and moderate temperatures in most of the previously wet areas. This reduced the mold threat in the later harvested corn.



## Storage space

On November 1, 2014, USDA projected the corn yield in Iowa to be 183 bu/acre, up 18 bu/acre from 2013, and the soybean yield to be 52.0 bu/acre, up 7.5 bu/acre from 2013. Both crops are anticipated to be at record levels for total production, 2.42 billion bushels for corn and 510 million bushels for soybeans. These numbers are important for grain storage decisions because the production - carryover - storage balance for Iowa is tight (numbers in billion bushels):

<b>Production – Iowa</b>		<i>(USDA, November 2014)</i>
Corn	2.42	
Soybeans	<u>0.51</u>	
	<b>2.93</b>	
<b>Carryover (both)</b>	<u>0.28</u>	<i>(USDA, September 2014)</i>
<b>To store in 2014</b>	<b>3.23</b>	
<b>Storage Capacity – Iowa</b>		<i>(USDA, December 2013)</i>
On Farm	2.10	
Off Farm	<u>1.40</u>	
	<b>3.50</b>	

This is a tight situation with little slack for working space and grain out of position relative to space. Undoubtedly some grain will be temporarily in outdoor piles but the large processing usage will consume grain steadily enough that outdoor piles may not remain long. Other states to the west and north face greater shortages of storage than Iowa.

Producers and grain handlers are reminded not to mix 2014 with 2013 corn, which had poor storage properties. For best results, rotate stock for corn that has been carried over. Rotation does create logistical issues when done during harvest but all forecasts point to significantly increased stocks at the end of 2014-2015 marketing year. Make advance identification of which bins will be stored the longest, and therefore which bins should get the highest quality grain. Test weight is the best measure we have of future storability, assuming moisture content is at safe levels for fall (15% corn, 13% soybeans).

## Management

The key management actions are the same as always, although there may be more leeway in storage times/shelf life for corn with test weights over 57 lb/bu.

- Uniform drying and cooling
- Adequate aeration (0.1 + cfm/bu)
- Cooling cycle every 10-15 degree change of outside air versus grain
- Get below 40o F as fast as possible
- Take out the center core of fines immediately
- Have a regular inspection and temperature monitoring program
- Temperature change is important (3 degrees increase in two weeks with no aeration being run is significant)!!! Keep records.
- Stay within temperature-moisture guidelines even if quality is good; both corn and soybeans may be stored for longer periods this year.

## Harvested quality – corn and soybeans

Due to the late harvest, and publication deadlines, data on harvested crop quality is not available as of publication date. This section will be completed with an update distributed for the January 2015 Crop Advantage Series, and will be presented at the ICM Conference December 3, 2014.

## Other resources

Iowa State University Extension and Outreach has 20-minute training modules on three grain management operations: Aeration and Dry Grain Storage, Fan Performance, and Dryeration. Go to the Iowa Grain Quality Initiative website, <http://www.iowagrains.org>, and select grain storage training.

Also available are two training modules on mycotoxin development and management, respectively

- <http://cai.iastate.edu/extension/mycotoxinsone/index.html>
- <http://cai.iastate.edu/extension/mycotoxinstwo/index.html>

These were originally created for an FDA-sponsored training project related to the Food Safety Modernization Act.