

U.S. Grain Farmers Give Crop Updates

The U.S. Grains Council's *Grain News* has followed three producers throughout 2015: Greg Alber, a corn farmer from Iowa; Adam Baldwin, a sorghum farmer from Kansas; and Mark Seastrand, a barley farmer from North Dakota. Each have shared their decision-making processes on their farms for planting, managing the growing season and now harvest.

As harvest approaches and these producers start to take the 2015 crop from the fields, they are keeping their eyes on the ever-changing market outlook, as well as evaluating their inputs for the current year and planning for 2016.

Disease, Weather Limiting 2015 Corn Crop For Iowa Farmer

Over the late summer and early fall months, Iowa corn farmer Greg Alber maintained a positive outlook for his 2015 crop. However, minor set backs included fungal disease and lack of moisture in his fields.

All of Alber's corn fields were sprayed at least once with fungicide to fight off Northern Corn Leaf Blight (NCLB), a fungus caused by *Exserohilum turcicum*. Some fields were sprayed twice. According to Iowa State University Extension and Outreach, NCLB can result in yield losses of 30 percent or more but can be effectively controlled with proper fungicide use.

Alber first applied fungicides with an elevated sprayer driven through the corn fields. After the row canopies closed and fields became impassible by machines, he used aerial application to distribute the chemicals.


When using aerial application





Aerial application of fungicide. Image courtesy of All-American Co-Op, Minnesota.

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methods, small airplanes or helicopters fly over fields to administer the fungicides. This practice is highly regulated by federal and state laws to ensure the safety of the farmer and those in his community. [See “Farmer Certification” story in this issue.]

By mid-September, Alber’s corn was in the kernel dent stage, also referred to as R5. Some fields have begun black layering, which indicates physiological maturity of the crop. A black layer forms when the hard starch layer reaches the kernel base. The layer serves to cut off water and nutrient transfer into the kernel.

Earlier in the growing season, Alber believed this year’s crop was on track to be one of his best based on varieties planted and favorable conditions in his region.

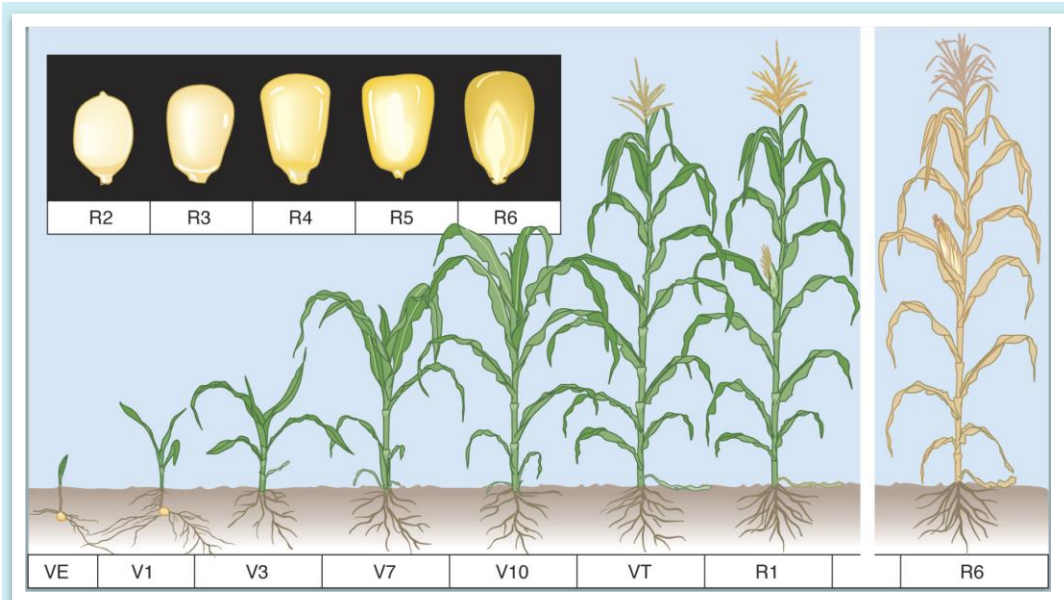
Alber is still hoping for 200 bushels/acre (12.6 tons/hectacre) corn, which is above the national average yield. “But we will just have to wait and see,” Alber said. “We are about three weeks out from harvest, so we will know a lot more by the middle of October.”

In USDA’s World Agricultural Supply and Demand Estimates (WASDE) report released on Sept. 11, U.S. corn production was estimated to be 13.6 billion bushels (345 million tons) with the national average yield at 167.5 bushels per acre (10.5 tons/hectare).

However, Alber said he fears low test weights, stalk quality issues and ear droppage because of the dry weather he experienced during July and August. He said that once the corn is dry enough, the fields must be harvested quickly.

A USDA National Agricultural Statistics Service (NASS) report showed 68 percent of the corn crop in the United States was in good to excellent condition on Sept. 21, down from 74 percent in 2014.

Alber said this report gave the market a little push, but with current low prices and increasing input costs, corn farmers will be lucky to break even in 2015.



Corn plant development. Graphic courtesy University of Illinois Extension.

Corn Growth Stages Post Pollination

Throughout the growing season, farmers, market analysts and government officials all rely on estimates of corn growth phases as they make management and marketing decisions for the crop.

The Kansas State University Department of Agronomy identifies the two main growth stages of corn as vegetative and reproductive. The separation of these two stages is the appearance of silks and leads into the pollination period (R1).

Following pollination, corn crops are monitored throughout the reproductive stages for kernel development, which gives farmers and analysts indicators of maturity and yield.

The blister stage (R2) has small white kernels with fluid that is usually clear and 85 percent water.

The milk stage (R3) follows when kernels begin to show a yellow color. The inner kernel fluid has a milky texture from accumulating starch. Stress at this stage can limit kernel size and weight.

The dough stage (R4) follows as the ear becomes brighter yellow, accumulated starch begins to thicken, and the cob develops a reddish color.

The dent stage (R5) begins when kernel moisture content begins to decrease from approximately 55 percent, getting its name from how the kernels look as starch begins to

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Sorghum Market Favorable, Record Crop On Horizon

Despite insect pressure on his central Kansas farm, sorghum farmer Adam Baldwin said his 2015 crop is on track to be his best yet.

“About a month ago, we scouted and came across sugarcane aphids in some of our fields,” Baldwin said.

Because of a research project conducted by Kansas State University (K-State), the aphids were detected early.

K-State monitored sugarcane aphid traps with infrared sensors in Baldwin’s fields, which allowed the researchers to track aphid levels and then suggest treatment methods.

“These recommendations aligned with what our crop scouts recommended as well,” Baldwin said.

Luckily, the tracking reported low infestation rates, and Baldwin only needed to spray a few fields with insecticide to kill the aphids. Additionally, Baldwin sprayed all his fields for sorghum headworms when they were detected. Unfortunately, the same treatment does not work for both insects.

Baldwin said he needs another good rain to finish off the sorghum crop and may wait until the first frost in his area to begin harvest. Ideally, sorghum harvest will begin in mid-October for Baldwin’s crop.

Some sorghum farmers Baldwin knows have already begun harvesting, and the reports are good, he said. According to a Sept. 21 USDA National Agricultural Statistics Service (NASS) report, 66 percent of the sorghum crop is listed in good to excellent condition, up 9 percent from last year’s report at the same time.


The recent devaluation of the Chinese currency has also had a small effect on the sorghum market.

Corn Growth Stages Post Pollination, cont’d

harden at the top of the kernel and moves down toward the cob. Stress or a frost at this stage only affects kernel weight.

The final stage is physiological maturity (R6) and occurs when the hard starch layer of the kernel reaches the cob and a black layer has formed. At the beginning of this stage, the kernel is 30 to 35 percent moisture depending on variety and environment.

Farmers monitor the progression of drying to a level that fits their harvest and storage plans, usually 15 to 20 percent moisture.

For additional information on corn growth and development visit: <http://www.agronomy.k-state.edu/extension/crop-production/corn/corn-growth-and-development.html>. 



Adam Baldwin stands in a field of sorghum infected with sugarcane aphids. The field was sprayed with insecticide to kill the pests and allow for plant growth. Image courtesy of Jacob Byk, *The Hutchinson News*.

“This change has allowed cattle feeders and ethanol plants back into the marketplace,” Baldwin said. “Importers who got priced out of the market now have an opportunity to get back in.”

Baldwin currently serves as vice president of the United Sorghum Checkoff Board and USGC Asia Advisory Team leader and recently visited China.

“From our trip, we received an impression about China’s import level in the coming months and where it might stabilize,” Baldwin said. “As a farmer, I explained to the importers that most growers’ decisions are made by Nov. 1 of the previous year and that the corn/sorghum relationship could change next year unless the buyers let it be known they want more sorghum and are willing to pay for it.”

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2015 Barley Harvest Complete For Seastrand

Mark Seastrand, a barley farmer from North Dakota, officially finished his 2015 harvest at the end of August. Shortly after completion, Seastrand received reports back from the malters who purchased his barley on contract that they were pleased with both the quality and quantity of his crop.

On his farm, Seastrand also raises barley for seed production. In 2015, he planted a new variety, *Genesis*, developed by North Dakota State University.

“The *Genesis* barley turned out quite well,” Seastrand said. “It looked terrible because high winds and thunderstorms laid the plants on the ground a week prior to harvest, but it out-yielded my conventional six-row varieties.”

He plans to grow *Genesis* again next year for seed production. The growing process for conventional barley and barley intended for seed production is similar, but the North Dakota Seed Department must inspect the seed production fields at heading and do stand counts as part of a visual examination. After harvest, the grain must be cleaned and conditioned to undergo a certification process to ensure varietal purity, Seastrand said.

Seastrand said barley crop reports from across the state of North Dakota were good all around with most areas above average. However, a few areas detected Deoxynivalenol (DON or vomitoxin), a mycotoxin that may be produced by barley infected by *Fusarium* head blight, which is also known as scab.

In order to maintain a safe food supply, the U.S. Federal Grain Inspection Service (FGIS) and grain handling facilities collect samples when barley loads are delivered. The samples are measured for DON through laboratory procedures. DON is restricted to 1 parts per million (ppm) by the U.S. Food & Drug Administration (FDA) in all food-grade barley products.

The biggest challenge facing Seastrand’s crop is storage. Because of the length of his contract, he will have to use on-farm cold weather storage for upwards of nine months.

“When the harvested grain is at our farm, we have to monitor it closely for insects and moisture, so I am constantly climbing up and down our grain bins, probing and aerating to keep the grain cool and dry,” Seastrand said.

Planning is a constant process on Seastrand’s farm, as crop rotation is vital to his no-till farming operation.

“I’ve been evaluating this year’s soybean fields for crop residue and insect issues already, as they will be next year’s barley fields,” Seastrand said. “After the ground freezes later this fall, I will begin spreading fertilizer in preparation for 2016.” ■

Pesticides And Fertilizers: Farmer Certification Process

When the need arises to apply chemicals to crops in the United States, not just anyone can do it. Pesticides, which include insecticides and herbicides, have both federal and local regulations governing private applicators.

Certifying agencies differ across the country, and the certification process differs from state to state, but all fall under the regulation of the U.S. Environmental Protection Agency (EPA).



Mark Seastrand's barley field and harvester in North Dakota during 2015 harvest.

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Federal law requires anyone applying or administering restricted use pesticides to be certified by the EPA. These chemicals include pesticides not available to the general public and present environmental risks if applied improperly.

“The certification process ensures an applicator has the necessary job knowledge and skills to protect himself and the environment,” said Leo Reed, manager of certification and licensing for the Office of Indiana State Chemist, the licensing agency in the state of Indiana.

Lack of compliance could result in warnings or civil penalties, Reed said.

Indiana uses a closed book, proctored exam for initial certification. Farmers have the opportunity to attend recertification classes to refresh themselves on emerging issues and technology.

In August 2015, EPA proposed new certification standards to increase safety that include:

- Stronger competency standards
- Certification categories for application methods
- Mandatory three-year renewal
- Required training for non-certified applicators
- Applicators being at least 18 years old

Kansas farmer and rancher Douglas Patterson said the proposed changes are more strenuous, but he expects minimal implications for his farm.

“Some equipment might have to be modified for handling and disposal of containers,” he said.

Staying aware of such changes is challenging, but he relies on emails from agricultural publications and governing agencies for updates.

Although Patterson’s certification currently covers all farm workers, both his son and son-in-law are earning licenses. He urged all farmers to obtain certification.

“It’s a learning process because we’re using different things to handle different plants,” Patterson said. “If we didn’t use the science and business of pesticides, we would definitely be at a loss for the food we could produce, and the public would be at risk for health issues and damaged crops.”

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In Indiana, Reed said county extension educators are trained to answer questions and host recertification seminars. Updates are also provided to licensed applicators in his state through direct mailings and website alerts.

In most states, fertilizer does not fall under the private applicator licensing restrictions, but may require purchase from a certified dealer. State extension specialists or agriculture departments advise farmers on these state and local regulations.

For more information on the EPA’s certified applicator licensing process, visit <http://www2.epa.gov/pesticide-worker-safety/how-get-certified-pesticide-applicator>. ■

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