The Memories Of An Autumn Blizzard

Toll Of The 2013 October Storm Still Staggering

BY RITA BRHEL
P&D Correspondent

No doubt, many farmers in the region were working nearly round the clock last week to get crops out of the field before winter's start. While the official first day of winter is more than a month away, November has traditionally ushered in the coolest fall days.

Yet, the Arctic blast that swept through the Great Plains earlier this week, bringing the season's first snowstorm across the Dakotas and effectively bringing the mild fall to a frigid end, was a bit reminiscent of the early fall blizzard a year ago.

"The blizzard on Oct. 3-5, 2013, will forever be remembered as a devastating natural disaster that caused extraordinary losses to the agricultural industry in western South Dakota and the surrounding area," said Laura Edwards, climate specialist with the South Dakota State University (SDSU) Extension service in Aberdeen.

Approximately 45,000 animals died in the storm, including cattle, sheep, horses and bison. SDSU climatologists categorized the blizzard as historic not only because of the financial impact to farmers and ranchers but also because of the extreme characteristics of the storm. A one in 10-year snow event, snowfall reports ranged from 1 1/2 feet to 4 1/2 feet in some areas, with Rapid City setting a new snowfall record of 19 inches in a single day for October. Being wet snow, it amounted to fully one-fifth of the annual average precipitation in West River.

One of the biggest questions following the October 2013 blizzard was if this was a preview of what's to come with climate change. While Edwards acknowledged that the trend during the past century has been toward wetter autumns in South Dakota, data analyzed by SDSU climatologists show that historic events such as this is likely not due to climate change and the likelihood of another one will likely decrease as global warming continues over time.

"The results of the study show that the October 2013 blizzard in Western South Dakota was indeed just by chance and cannot be definitively tied to human-induced climate change," Edwards said. "This is consistent with other research in the Plains region, which show trends toward increased water vapor in the atmosphere but no statistically significant increase in extreme precipitation events in the fall."

So why was there such a high death loss, and what can be learned for this and future years?

Rosie Nold, SDSU animal scientist at Brookings, and Dave Ollila, SDSU sheep scientist at Rapid City, reviewed the October 2013 blizzard and found a number of contributing factors.

First, the snowstorm occurred so early in the season that livestock were not acclimated to winter conditions. For example, cattle and horses grow a thicker hair coat in response to shorter days and cooler temperatures. But temperatures in the weeks leading up to the 2013 storm were in the 70s, so hair coats were still thin and offered little protection from the elements.

The structure of the storm was also different than other blizzards, in that rain preceded snow by hours. Not only did animals not have the thick hair coats needed to withstand chill, but their hair coats were wet, further depleting the coats' insulating factor. The storm was very cold, with winds recorded up to 60 miles per hour. Many of the animals that perished were found on open range and pastures without windbreaks, so there wasn't any shelter to the otherwise wet, not-yet-acclimated animals other than one another. This explains why many of the animals that died were found piled on top of each other in fence corners.

Because the blizzard came so early in the season, the animals were still grazing on green grass, which contains less energy per pound of feed consumed than winter hay. Chilled animals need to eat more feed to stay warm and thrive in cold conditions. Green grass doesn't give animals the needed energy-dense foods to do this.

"All the factors caused cattle to simply stop and succumb to hypothermia," Nold said. "It's important to note that the factors were beyond the control of ranchers, owners or anyone else."

Understanding The Concept Of Corn Shrink

BROOKINGS — Shrink is the loss of weight caused by drying and handling the grain and is expressed as a percentage of the original quantity. It is a loss of revenue associated with mechanically drying corn.

"Corn buyers account for shrink by discounting the price per bushel that they offer (i.e. a charge per bushel) or by calculating the reduction in bushels. When producers are considering whether to sell corn at harvest or store on-farm, all costs, including shrink, must be evaluated," explained Kim Dillivan, SDSU Extension Crops Business Management field specialist.

MOISTURE SHRINK

When corn is dried, Dillivan said the largest component of weight loss is the removal of moisture. "This loss of mass is called moisture shrink and is calculated by multiplying a moisture shrink factor by the percentage of water removed," he said.

The moisture shrink factor is the percent weight loss per percent moisture removed and is equal to: 100/(100 — final moisture percent)

For example, corn dried to 15 percent moisture has a shrink factor of 1.176 (100/85). Moisture shrink factors are independent of the initial corn moisture percentage. Moisture shrink factors are dependent on final moisture percentage.

"The moisture shrink factor is a constant for each final moisture level achieved. For example, the moisture shrink (weight loss) is 1.176 percent for each point of moisture removed when the final moisture content of the corn is 15 percent," Dillivan said. As Dillivan mentioned earlier, moisture shrink or percent weight loss equals the percentage of moisture removed multiplied by the moisture shrink factor.

He shares an example: corn dried from 25 to 15.5 percent moisture (loss of 9.5 percentage points of water) has a loss of mass equal to 11.23 percent (9.5 x 1.183). In this example, the percentage reduction from the original weight (11.23 percent) represents the amount of water removed when drying 25 percent moisture corn to 15.5 percent.

HANDLING LOSS

Although the majority of weight lost when drying corn is a consequence of water removal, some dry matter is also lost, explained Dillivan. "Called handling loss and sometimes called invisible shrink, this small reduction in mass results from broken kernels, foreign material, loss of oil or other compounds and continued respiration of the seed kernels," he said. "However, handling losses are usually quite small relative to water loss."

The amount of handling loss depends on several factors, including:

- Physical quality of the corn;
- Method used to dry the corn;
- Dry time; and
- How the corn is handled during drying.

According to research conducted at Iowa State University, the estimated on-farm handling losses ranging from 0.22 to 1.71 percent; and losses from commercial drying systems ranged from 0.64 to 1.33 percent. The Iowa State University researchers found the 3-year, on-farm handling loss average was 0.82 percent compared to 0.88 percent for the commercial facilities.

CALCULATING TOTAL SHRINK

Grain buyers will account for both moisture shrink and handling loss. This is called total shrink and to calculate buyers will often use either drying tables or a constant shrink factor. Grain drying tables include a water shrink loss which is calculated by using shrink factors, plus a loss from handling explained Dillivan.

Dillivan said that often this handling loss is assumed to be 0.5 percent.

Another method used to calculate shrink is to use a constant shrink factor; often 1.3, 1.4, or 1.5 per percentage point of moisture removed. "A constant shrink factor is used to account for both water and handling losses," he said.

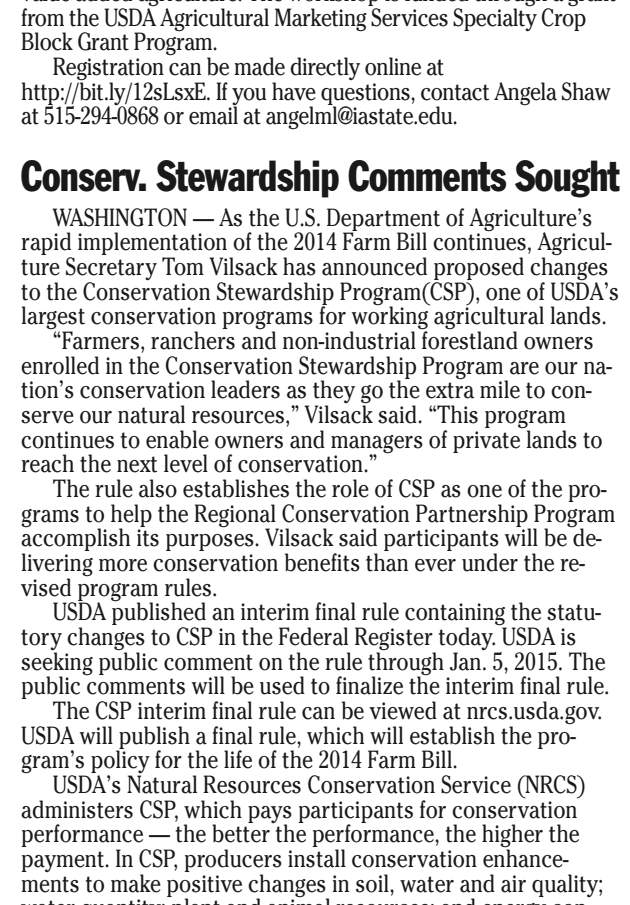
Total shrink (percent total weight loss) is found by multiplying the percentage moisture removed by the constant shrink factor.

For example, assuming a constant shrink factor of 1.4, corn dried from 25 to 14.5 percent moisture (loss of 10.5 percentage points of water) has an assumed loss of mass equal to 14.7 percent (10.5 x 1.4). In this example, the estimated water loss equals 12.27 percent (10.5 x 1.169). Therefore the grain buyer is assuming a handling loss of 2.43 percent (14.7 — 12.27).

The handling loss assumed increases as the constant shrink factor is increased. . The handling loss is found by subtracting the water shrink from the total shrink.

"Corn shrink occurs whether the grain is stored on-farm or at a commercial facility. Shrink is a reduction of grain weight /mass and results when corn is dried to a moisture content that is safe for storage," Dillivan said. "When corn buyers apply a constant shrink factor to estimate shrink (e.g. 1.4), they are accounting for moisture and handling losses."

For more information, visit iGrow.org.



ISU Extension Workshop In Sioux City

SIOUX CITY, Iowa — Iowa State University Extension and Outreach is offering a Good Agricultural Practices (GAP) workshop in Sioux City Nov. 19 and Nov. 25.

The one-day workshops is offered as Level 1: KNOW and Level 2: SHOW.

Level 1 is training for growers who provide food to consumers through community–supported agriculture or farmers' markets or are considering retail foodservice sales. Training covers good agriculture best practices and market considerations.

Level 2 workshops guide farmers in the development of a written farm food safety plan. Farmers considering sales to retail foodservices such as grocers, restaurants, hospitals and other institutions, and those interested in adding value to fresh produce and selling products in a convenience form will have the tools to demonstrate GAPs are in place after attending the workshop.

ISU Extension and Outreach faculty and specialists instructing the workshops include Angela Shaw, food safety; Catherine Strohbehn, food safety and local foods systems; and Linda Naeve, value added agriculture. The workshop is funded through a grant from the USDA Agricultural Marketing Services Specialty Crop Block Grant Program.

Registration can be made directly online at http://bit.ly/12sLsxE. If you have questions, contact Angela Shaw at 515-294-0868 or email at angelml@iastate.edu.

Conserv. Stewardship Comments Sought

WASHINGTON — As the U.S. Department of Agriculture's rapid implementation of the 2014 Farm Bill continues, Agriculture Secretary Tom Vilsack has announced proposed changes to the Conservation Stewardship Program(CSP), one of USDA's largest conservation programs for working agricultural lands.

"Farmers, ranchers and non-industrial forestland owners enrolled in the Conservation Stewardship Program are our nation's conservation leaders as they go the extra mile to conserve our natural resources," Vilsack said. "This program continues to enable owners and managers of private lands to reach the next level of conservation."

The rule also establishes the role of CSP as one of the programs to help the Regional Conservation Partnership Program accomplish its purposes. Vilsack said participants will be delivering more conservation benefits than ever under the revised program rules.

USDA published an interim final rule containing the statutory changes to CSP in the Federal Register today. USDA is seeking public comment on the rule through Jan. 5, 2015. The public comments will be used to finalize the interim final rule.

The CSP interim final rule can be viewed at nrcs.usda.gov. USDA will publish a final rule, which will establish the program's policy for the life of the 2014 Farm Bill.

USDA's Natural Resources Conservation Service (NRCS) administers CSP, which pays participants for conservation performance — the better the performance, the higher the payment. In CSP, producers install conservation enhancements to make positive changes in soil, water and air quality; water quantity; plant and animal resources; and energy conservation. More than 64 million acres have been enrolled in the program since the launch of the program in 2009.

Vilsack said NRCS is working to simplify the administrative complexity of CSP by streamlining the regulation.

For more on technical and financial assistance available through conservation programs, visit www.nrcs.usda.gov/GetStarted/.

Funds Available For Honey Bee Habitat

RAPID CITY — The United States Department of Agriculture (USDA) has announced that more than $4 million in technical and financial assistance is available to Midwest farmers and ranchers to improve honey bee habitat.

This funding provides producers guidance and support to implement conservation practices that will create safe and diverse food sources for honey bees.

"Honey bees play a vital role in South Dakota crop production," said Bob Reiners, South Dakota Department of Agriculture (SDDA) apiary specialist. "Our state is home to 324,682 colonies maintained by 228 beekeepers on 6,748 locations across the state. In 2013, these colonies produced 14,840,000 pounds of honey with a value of $30,570,000. In recent years, we have run into decreasing numbers due to colony collapse disorder. This USDA initiative will also provide additional benefits to native pollinators."

Local staff and technical specialists with the NRCS can help develop a plan to address resource concerns. Now is the time to contact your local Natural Resources Conservation Service (NRCS) office to begin developing a good conservation plan on your farm or ranch or, visit www.sd.nrcs.usda.gov/. Funding is provided through the Environmental Quality Incentives Program (EQIP) and applications are due Friday, Nov. 21.