



## BINS READY FOR HARVEST?

By Rodney Nohr, PE, NOHR Engineering Company, LLC

In a matter of weeks, farmers will begin delivering corn and beans to elevators, and grain teams will begin filling bins. Hopefully, businesses have inspected their bins and grain drying equipment during the past year and have made necessary repairs well ahead of harvest. Still, last-minute checks can help ensure safety and avoid problems during the harvest rush. There are also some basic recommendations to follow as bins are filled or emptied.

### PRE-HARVEST INSPECTION CHECKLIST:

- Make sure that all guards and safety shields for drives and power take-offs are in place, and train your personnel.
- In corrugated steel bins, make sure that all floor gates operate correctly. Gates should be tightly closed and padlocked to prevent accidental opening. Every year, bins fail and collapse because off-center gates are accidentally left open. Once they start withdrawing grain, off-center unloading can damage the bin.
- Check to see that bin grain doors are correctly closed, sealed, and tightened.
- With concrete silos, check for signs of recent cracking or changes in existing cracking and spalls or pop-outs in silo walls. Concrete on the ground at the base of silo walls, or concrete found in the grain coming out of the bins, is a clear sign of active wall damage that requires taking the silo out of service for closer inspection and repairs. Signs of serious damage include “star” or “web” cracking, particularly when accompanied by a bulge that indicates wall-reinforcing steel failure. Problems that require removing bins from service to inspect and repair include: grain leaking between interior bin walls, overhead bin bottom slabs (ceiling) that are shearing wall pieces off, and/or hopper fill sand is shifting down from slab to wall



joint. If these problems occur, the bin should be inspected by an engineer and/or a qualified concrete restoration contractor.

- Walk across empty bin floors to see if there are water stains and wet spots on the floor indicating leaks and needed repair.
- Make sure roof and wall doors are latched properly to avoid being blown open.
- Sagging roof decks indicate that roof beams (slipform beams) have lost end bearing and repairs are needed.
- According to manufacturer’s instructions, clean and test-operate the grain dryer system. Bird and mouse nests, chaff, bees wings, and caked grain dust can accumulate and cause dryer fires.
- Annually pressure-check gas supply lines for possible leaks—particularly at joints, unions, and connections.

### FILLING AND DRYING DOS AND DON'TS:

- Corrugated bins must be completely filled or emptied in the center before opening any off-center floor gates. If another floor gate is opened after center drawing a bin, empty the bin completely before adding more grain.
- When filling, especially large bins, occasionally pull a wagon or truckload of grain from the middle to remove broken grain, improve aeration and drying, and establish a center-flow channel. Once the bin is completely full, it should be center drawn back down to even out grain levels throughout the bin to help with aeration airflow.
- As a bin is filling, walk around the bin to make sure it’s filling in the center. If spouting or auger is incorrectly positioned and grain is not filling in the middle, there can be bin damage.

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# TAKING AGRONOMY CLAIMS TO HARVEST

If you've ever been involved in the process of settling agronomy-related claims, you're more than likely familiar with the phrase "take it to harvest." It means that we want to wait until harvest time to see how a damaged crop will turn out. Occasionally, we'll settle agronomy claims upfront based on visual analysis and our estimated value of a claim, but generally we take the claim to harvest to try to get the fairest and most accurate settlement for everyone involved.

On most claims we take to harvest, we like to have an Austin Mutual adjuster on the scene and part of the process. We ask farmers to provide us with as much advance notice as possible before harvesting a field with a claim. However, with weather, breakdowns, etc., we understand that it can be very difficult to give us advance notice. Because of that uncertainty, and with claims spread throughout the Midwest, we occasionally ask our insureds to be part of the process. The following are the procedures we follow.

## COLLECTING YIELD DATA

Yield data can be collected several different ways, and each claim situation is evaluated to determine the fairest and most accurate method. They include:

1. **Hand counts.** This is a primitive method since only so many ears/kernels can be collected, and it only provides an estimate based on a limited amount of the field. Nonetheless, in some cases it is the only practical way to collect information. At least it gives us a good relative baseline to use to settle the claim.
2. **Weigh wagon.** We often ask our insureds to use a weigh wagon or a farmer's grain cart with a scale to do spot yield checks of affected versus unaffected areas. Weigh wagons are more accurate and can account for more plants, different kernel sizes, moistures, and test weights. However, weigh wagons are typically used for spot checks and may or may not represent the field as a whole.
3. **Combine yield monitor.** If the farmer has a combine yield monitor for spot yield checks of affected versus unaffected areas, and it is correctly calibrated, it can be quite accurate. However, it is important that someone from Austin Mutual, or one of our insureds, rides along in the combine to verify the data.
4. **Yield map.** Using a combine yield map to estimate yields and losses can be extremely accurate if the farmer has the proper calibrated equipment. Even then, looking at the various colors on a yield map can be a bit subjective, leaving

some room for interpretation.

5. **Weighing all grain.** Trucking all of the harvested grain (or hay, etc.) and running it across a scale to compare affected versus unaffected areas is extremely accurate. However, if a farmer stores his grain in on-farm bins, going across a scale may not be feasible. It can also be a problem if a farmer does haul it all across a scale, but fails to accurately keep track of which truck (or scale ticket) belongs to which field or area.

No matter the method, the ultimate goal is to collect information with as much accuracy as possible, ensuring that a farmer is made whole on his losses without causing Austin Mutual and our insureds to pay more than the claim is worth. With that goal in mind, when a claim occurs, we ask that our insureds stay aware of the field's status. If you know that a field on which there's a claim is about to be harvested, please make certain Austin Mutual is aware. At that point we can communicate to ensure that a representative from Austin Mutual is available to verify the data collection at a time that works best for you. ▶



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Harvest time brings plenty of opportunities for long hours and safety concerns. Taking the time to conduct pre-harvest checks on bins and grain dryers, and following recommended filling and emptying procedures, will help minimize the challenges that come with the season.

*NOHR Engineering Company, LLC, based in Yankton, SD, provides engineering, evaluations, analysis, and design services to U.S. and international clients, including those in the agricultural and insurance industries. The company also investigates and reports on bin and silo failures. They can be e-mailed at [nohr@nohengineering.com](mailto:nohr@nohengineering.com). ▶*



**SOUTH DAKOTA** - Dan Tomjack, of Nationwide Insurance, presented Food Safety and Security during the meeting of the South Dakota Ag Cooperative Safety Director Association (SDAC-SDA) in Mitchell, SD, on Aug. 7. In addition, Ken Bouwman, of RISC, LLC, discussed the new Global Harmonization Standard, explaining the steps companies will need to take to be in compliance. The next meeting will be held at the Mitchell Technical Institute at 10 a.m. on Sept. 18.

# WHEN IS A CUSTOMER OUT OF GAS?

A customer running out of gas is one of the biggest safety issues a propane retailer faces. As a result of not handling these situations properly, a large percentage of serious propane explosions have occurred.

Most out-of-gas calls are a result of a customer not paying attention to their tank, but there is always the possibility that a leak has occurred. Unfortunately, the customers who continually run out of gas often do not have the best maintained and safest propane systems. Therefore, a leak test must always be performed on a customer's system in an out-of-gas situation.

## **NFPA 54 STATES:**

*"Immediately after the gas is turned on into a new system or into a system that has been initially restored after an interruption of service, the piping system shall be checked for leakage. Where leakage is indicated, the gas supply shall be shut off until the necessary repairs have been made."*

Most companies have a policy for when customers run out of gas, but they fail to define what constitutes 'running out of gas.' When visiting with propane drivers, I've been told that they've delivered to a tank that showed 0% on the gauge, but the system still had pressure, so they did not treat it as an out-of-gas. I've also had drivers tell me that they had customers complain of running out even though the gauge on the tank still showed propane in the tank.

The best policy to ensure safety is that if a tank is below 5% it should be treated as out of gas. This will prevent unnoticed out-of-gas situations due to an inaccurate gauge and situations where the tank is empty but there is still pressure in the system.

When a propane system runs out of gas, one of the concerns is that air can get into the system, which can cause pilot lights to go out. The customer may try to relight the pilots and, if they have difficulty, an explosion could occur. In order to prevent this, the system needs to be purged of any air in the system. This should always be part of the procedure when responding to an out-of-gas call. By defining an out-of-gas customer as anyone with less than 5% in their tank, you'll help ensure that a customer doesn't have their pilot lights go out due to air in the line.

No propane supplier wants the hassle of an out-of-gas customer, but not properly responding can be a potential liability for the company. Following these practices will help ensure that your customers' systems remain safe and an explosion is avoided. ▶



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**IOWA** – Members of the Ag Cooperative Safety Directors of Iowa (ACSDIA) listened to Joe Melton, a consultant with RCI Safety, discuss the employee-driven Behavior Based Safety program at the organization's July 9 meeting. In addition, Arthur Fleener and Shirley McGuire, with FMCSA, discussed the CDL classifications and requirements. Kent Anderson, with the Ammonia Safety and Training Institute, gave a presentation on anhydrous ammonia safety. The next ACSDIA meeting will be at the Ag Information Center in Nevada, IA, at 10 a.m. on Sept. 10.

# REVIEW FEED QUALITY CONTROL PROCEDURES

Quality control in livestock feed manufacturing is the responsibility of every person involved in the process. It begins with making certain that the person taking the order understands the order correctly—even if it means repeating the order and delivery instructions back to the customer. The mill operator must be in control of raw and in-process materials, finished products, the condition of manufacturing equipment, and the general sanitation of the mill. The feed truck driver should ensure that trailer bins are clean and empty before loading, and that feed is delivered safely to the correct destination.

Feed claims are usually very costly, and sometimes do not become apparent for many days, weeks, or even months. One company experienced a couple of significant claims within a few months time period. A top-to-bottom procedural investigation determined the probable cause(s) and steps needed to correct the deficiencies.

## DEFICIENCIES DISCOVERED IN QUALITY CONTROL INVESTIGATION:

- The feed manufacturer's mix formulas didn't match up. There were three different copies of the feed recipe: a master original, a recipe in a second binder, and one in the mill. Changes to the recipe in the master original were not being made to the copy in the second binder or the mill copy. Mill workers could easily access the old recipe by mistake.
- The mill was using an in-house manufactured base mix for two customers. When one customer changed to a different base mix, the mill operator automatically changed it for the other customer. What they didn't realize was that the first customer had added some ingredients in the new base mix to make up for missing sodium and phosphorus. The second customer's recipe didn't have the add-ins, resulting in sows losing bone density and going down while nursing.
- Mill operators were not comparing mix orders sent to them from the office to see if the ingredients matched what was in the computer.
- At one mill, employees were mixing feed to the weight ordered but were not always adding the right ingredients. Instead, they were putting in whatever they felt like as fillers to make the weight!

## WHAT CORRECTIONS WERE PUT INTO PRACTICE TO ADDRESS THESE DEFICIENCIES?

- Only one individual is responsible for entering a recipe formula change.
- Once the information is placed into the system, this individual compares data put into the computer against the recipe provided by a certified nutritionist.
- Once the procedure is checked out, that same person delivers the recipe to the mill operator and ensures that it is put into the mill computer properly. Then both must sign

off that they match.

- Swine/beef consultants review all feed recipes. If a recipe is no longer used, and the customer does not anticipate using it, it is pulled from the system and archived.
- All mix changes must be made by a certified nutritionist or veterinarian unless a producer brings in a specific mix recipe given to them from their qualified source.
- Each mix is placed into a binder so that there is a hard copy in case the computer system ever fails.
- All mill employees are instructed to look at each mix recipe when the order is placed to the mill, and compare all of the information. If even one item does not match up they must contact the feed manager or one of the feed consultants to get the proper recipe mix.
- Inventory control has been stepped up to guarantee that the correct amount of products are being used for each feed order.
- Finally, the two individuals who were adding ingredients at their own discretion were terminated.

If your company has never performed a procedural investigation of your feed manufacturing operations, or it's been some time since the last, I recommend getting one scheduled soon. Simple oversights can cause expensive problems and long-lasting damage to your reputation. ▶



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# GRAIN DRYER FIRE SAFETY

By Dean Kerfeld

A dryer fire during harvest can cause significant downtime, lost revenue, and increased expense while you repair the damage or make arrangements to have the grain dried in another manner. Fires can also lead to explosions, which can result in injury or death. The primary causes of dryer fires and explosions are poorly maintained and improperly operated equipment—both preventable.

Many fires in grain dryers are caused by malfunctions in the burner ignition mechanisms or the fuel supply line to the burner. Either malfunction can set fire to the grain. Some grains, such as sunflowers and grain sorghum, are more susceptible to fire than others, but all grains will burn. The risk of fire is decreased by cleaning the grain of foreign material and grain dust prior to drying.

Another important factor in reducing the potential for dryer fires—and keeping your employees safe—is providing proper training. The following are basic steps to implement at your facility:

1. Prior to drying season, educate your grain dryer operators on grain drying procedures, utilizing the dryer's operation manual as a basis. Review the checklists, startup, and shutdown procedures.
2. Develop a pre- and post-grain dryer maintenance schedule.
3. Require that personal protective equipment be worn. Establish mandatory procedures to be followed if entry into the dryer is necessary, including lockout/tagout procedures.
4. Copies of the operating manual, checklist, and records should be easily accessible at the dryer for reference by the operator. A list of names and phone numbers should be available for emergencies and repairs.
5. Have dryers inspected by a qualified service technician.
6. Make sure that safety controls such as thermostats, high-temperature limit switches, air-flow switches, and flame detectors are in place and working.
7. Do not modify the original controls, such as the gas pressure regulator setting, and do not bypass safety shutdown controls.
8. Frequently inspect the dryer system for chaff buildup in the plenum and grain chamber.
9. Make sure anyone working around the dryer system knows the location and operation of electrical and fuel disconnects.
10. Learn how to properly use a fire extinguisher.

## IN CASE A FIRE OCCURS:

- Immediately shut off the fuel source and the electrical power to the fan, and call 911 to contact your local fire department.
- Do not use water on an electrical fire.
- If fire is nearing a propane tank, evacuate the area by at least a half-mile radius.

Harvest is nearing, but it's never too late to take these effective steps for safety. ▶



**NEBRASKA** - Rodney Nohr, PE, with Nohr Engineering Company, LLC, spoke to members of the Ag Cooperative Safety Directors of Nebraska (ACSDNE) about grain handling facility structural integrity and hazards at the organization's July 11 meeting. The meeting also included a review of the May 3 OSHA Sweep Auger Enforcement Policy and discussion of recent activity by various regulatory agencies. The next meeting will be Sept. 12 at the Holiday Inn® in Grand Island.



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## DOCUMENTATION: A PRACTICE THAT PAYS

Someone is injured at your location. Perhaps it's a close friend, or an employee of a company with which you've had a long-lasting relationship. One day you open the mail to discover that they are represented by an attorney who is asking you to notify your insurance company that a claim needs to be filed. You scramble to remember the day of the accident and details. The next thing you know, the attorney indicates that you were negligent in maintaining your operation and is asking a jury to award his or her client compensation. And, while your company does regular maintenance and site inspections, you've not written down the dates, the time, what tasks were completed, and what repairs were made. You've got a problem.

To avoid being in that tenuous position, follow this checklist to provide properly documented pre- and post-incident information:

1. Every time you inspect a facility, write down the date you completed the inspection, what was inspected, the result of your inspection, and what repairs were made. Keep this information in a specific place so it does not get lost.
2. When a piece of equipment needs maintenance or repairs, document what work was done and when.
3. When someone is injured, take photographs of the accident scene, since the area where the injury occurred can

change over time. Write down the name and contact information for the injured party and witnesses. Document the injured party's and witnesses' descriptions of the accident and whether or not the injured party requested medical care. Many of our customers use an incident report form that captures all of the pertinent information. These forms are kept on site and are readily available for any employee to access and complete when an incident occurs.

4. Notify your insurance carrier as soon as possible. This will allow us to investigate the incident and guide you through the process.

At Austin Mutual, our goal is to keep you from that uncomfortable situation of having to recall events that may have happened several months or even years ago. By keeping good records and documenting the correct information, we have a solid foundation to begin our liability investigation. Our staff is happy to visit with you further on this subject. Just give us a call. ▶



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