



# UPDATE

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To: Members of the Safety-Health-Environmental Services Program  
From: John Lee

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Harvest 2009 is finally underway. Weather conditions of this harvest have not been seen for a long time, if ever. The grain industry has gotten used to three or four weeks of grain drying and then shutting down the dryers for the year. This year will require a lot more care and maintenance because I am sure that many of our members will dry a significant amount of their corn.

Because of the wet year, there have already been two grain dryer fires during harvest in Illinois that I am aware of. And out of state there have been several major fires. See photos below.



Cause of this fire is suspected to be a vaporizer malfunction. Soybeans were the commodity being dried.

Photos courtesy of Mike Christopherson, Managing Editor, Crookston Daily Times



Soybeans were being dried when this fire started. The potential cause was soybeans with 18% moisture and a plenum temperature of 160F to 180F (also bean pods).

Of the four dryer fires I am aware of:

- Corn was the commodity in two of the fires
- Soybeans were the commodity in the other two fires
- Potential causes and fire fighting errors were:
  - A vaporizer malfunction
  - Dryers operating at too high of a temperature and at slow speeds
  - High moisture corn not flowing as normal causing grain to get overheated
  - Fines and “bees wing” accumulation on burners due to very wet corn
  - Dryer sheets plugged with accumulation of material
  - Difficulties with fire fighting equipment allowed fire to get out of control
  - Emptying the dryer completely during a fire causing a chimney effect which caused the dryer to be a total loss
- Ultimately, the conditions of this harvest are the cause of these fires



The following information came from a GSI tower dryer owner's manual. GSI also advises "with the increase in pod count and an especially wet harvest this year we are recommending daily checks be made for fine accumulation AND that drying temperature not exceed 140 degrees when drying soybeans in a Tower Dryer".

*Please refer to your dryer manufacturer for specific maintenance and fire fighting recommendations.*

## **SEASONAL INSPECTION AND SERVICE**

1. **Important!** The covers to the metering system access door(s) must be in place at all times when the dryer is in operation. Before turning blowers on always make sure this door is clamped into position.
2. Follow lubrication guides as outlined in the Lubrication Table.
3. **Do not let grain fines and dust accumulate inside the cooling section of the dryer.** Clean bi-weekly if drying most products or daily if drying milo, clean the cooling chamber floor of fines and dust. Sweep down the cooling section sheets if necessary. Fines can be swept into the unload systems on both the Zimmerman and GSI dryers.
4. **Do not let grain fines and dust accumulate inside the heat section of the dryer.** Daily check the hopper divider that separates the heat section from the cooling section to insure that it remains clean and open.
5. When cleaning dryer, check the grain discharge area on the dryer. On **GSI** hopper bottom dryers check around the metering drum to insure that grain is flowing freely from each column and that there is no trash build-up. On **Zimmerman** Accutrol sweep dryers check the sweeps for trash or stalk buildups that could be obstructing grain flow.
6. If undried grain is left in the dryer for more than a week during the drying season, inspect the plenum roof to make sure that there is no wet grain sticking to the roof that could restrict
7. grain flow. When the dryer is restarted make sure that all grain columns are evenly unloading.
8. When drying dirty corn in high humidity conditions, sludge may build up in the upper outside sheets of the dryer. This build up can be removed by either washing the sheets down with a high pressure water hose, or by shutting incoming grain, dropping the grain level to below the plugged area, and then running the fans and burner to dry the affected area. Tapping or sweeping the sheets will dislodge debris. Attempting to sweep off the sheet build-up while it is still wet will usually plug the sheet more.

## **IN CASE OF FIRE**

1. When you first detect a fire, the entire drying operation should be shut down, including grain flow into and out of the dryer. The emergency controls may have already done this. Also, shut off the electrical and fuel supply to the dryer.
2. Do not try to cool a fire by running fan(s).
3. Never run grain from the dryer into the elevator or storage if a fire is known or suspected.
4. Locate the area of the fire.
5. If the fire can be extinguished with a fire extinguisher, water hose or by removing the burning material, this should be done right away. Watch the dryer closely for another fire after one
6. has occurred.
7. Emergency discharge slide gates at the bottom of each column as well as easy access gates located near the hopper discharge area permit fast dumping of each individual grain column. If it is necessary to emergency dump grain from the dryer, wait until the fire department is on site before doing so.
8. A fire extinguisher should be located at or near the dryer, if a fire seems to be getting out of control call the fire department.

Lastly, I would like to mention safety of employees. Most grain elevator employees are not fire fighters and do not have the proper equipment to fight fires. In addition to the obvious hazards of fire, low oxygen and toxic atmosphere could be an issue. Grain dryers are a vital part of grain operations but it is not worth someone getting hurt or killed trying to save a grain dryer.