Siemer Milling Company

How to Maintain Quality Grain for Market

Procedures to Prepare a Bin for Harvest

- Do not place newly harvested grain into a bin that contains old crop.
- Empty the bin of all residual grain.
- Brush down the walls, sweep up the floor and remove dust and chaff.
- Clean grain, chaff and debris from under false floor and air tunnel.
- Inspect for and repair any cracks and holes.
- Use a **registered insecticide** for spraying bin sides and floor. **Diacon IGR PLUS, PBO-8 Synergist and Centynal EC are examples of Insecticides Registered for Wheat that have good residual properties.** Apply a coarse spray on all areas that are sprayed. Pay particular attention to cracks, doors and air tunnels. This should be done several days prior to placing grain into the bin. Be sure to alternate the insecticide every year.
- Clean the perimeter of the bin of debris and weeds. Spray the area with an approved insecticide.
- The bin is now ready to receive grain.
- Periodically spray around the perimeter of the bin with an approved insecticide. Also be sure to **keep grain spills picked up** and **weeds pulled**.
- Storing dry grain below 13 percent moisture is best.
- Be sure not to place any grain on top of this bin after it has been treated with phosphine.

Long Term Wheat Storage

- At harvest place new crop wheat into clean bin with sides and floors being treated with **Diacon IGR PLUS, PBO-8 Synergist and Centynal EC**.
- Turn on fans after bin is full to remove field heat from the grain keeping it from spoiling.
- Two to three weeks after harvest pull core from the bin.
- Thirty to forty days after harvest (before corn harvest) turn wheat into another empty bin. Be sure bin is clean and has been treated with **Diacon IGR PLUS, PBO-8 Synergist and Centynal EC**.
- Then turning the bin into the other bin add phosphine pellets or tablets at a rate of 90 tablets or 300 pellets per 1,000 bushels. Be sure to calculate the rate at which the grain is turning to be sure that the bin is treated equal throughout.
- Be sure that the fan is properly sealed up along with vents to prevent any gas from escape.
- Place warning signs on all doors and near the ladder.
- The bin should remain under fumigation for 4 - 5 days.
- After 4 or 5 days the fans should be turned on to start removing the remaining gas from the grain. Run for at least 48 to 72 hours straight before turning off.
- Once the nights start getting cooler, the fans should be turned on again to start cooling down the grain. The fans should be turned on every night until the grain reaches 55 degrees. Insects do not reproduce at temperatures below 55 degrees.
- Periodically spray around outside of bins to prevent insects from migrating into the bin from the outside. Also be sure to keep all spills picked up around the bin.

Wheat Drying

The ideal moisture content for wheat is around 14 percent. To reach this level, you may need to dry your wheat.

How Grain Dryers Work

- Wet wheat in dryers is cooled as moisture from the wheat evaporates into the air around it.
- As the wheat dries, the cooling effect decreases.
- As the moisture content approaches 14 percent, the wheat is almost as hot as the air in the dryer. This is when damage is most likely to occur.

Farm Dryers

There are many kinds of farm dryers on the market. For safe drying of your wheat, the dryer must:

- Keep the wheat moving in the dryer
- Mix the wheat with the hot air
- If wheat is not kept moving, kernels lying next to the heat source dry first. These may be damaged if the air temperature is above 60°C (140°F).

Drying Wheat Safely on the Farm and in Elevators

Determine the Temperature in your Dryer

- Take the temperature of the hot air before it enters the dryer.
  - Temperatures taken within the wheat layers may be misleading.
- You may need to install extra temperature sensors to determine the highest air temperature in the plenum.
  - Dryer thermometers may be inaccurate or incorrectly placed in the plenum.
- Watch the thermometers inside the dryer to ensure the temperature stays constant.
  - Outside air temperature and wind may affect drying.

Wheat Drying

Keep Temperatures at Levels Safe for Your Dryer

- If your dryer has not been tested, keep temperatures below 60°C (140°F).
- If you use a non-recirculating dryer or a cross flow continuous dryer, keep temperatures at 60°C (140°F) or below.

If you Use Another Type of Dryer:

- Dry batches at 60°C (140°F).
- Have the results tested.
- If tests show no damage, raise the temperature to 65°C (149°F).
- Test again. (With some dryers, you may be able to raise the temperature to 70°C (158°F).)

Do not Over Dry

Stop drying when the moisture level in your wheat reaches 14.5 percent if you are using heat to dry your grain. As the wheat cools, more moisture will be lost.

Dry Very Wet Wheat Slowly

If your wheat is over 20 percent moisture:

- Remove less than 6 percent of the moisture in one pass through the dryer. Do not attempt to remove more.
- Keep the temperature below 60°C (140°F).
- Reduce the drying temperature to 50°C (122°F) to for the last quarter of the heating cycle.

How Grain Dryers Can Damage Wheat Quality

Some dryers may overheat the wheat. This partially cooks the protein inside the kernel. Wheat flour with cooked protein is not good for baking. Wheat with cooked protein is only good for feed.

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