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HOG-UPDATE

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This Hog Update was originally released in 2004, a year where corn came off the field at 16 to 18% moisture, and producers had the option of storing corn in their own bins with careful use of aeration.

With the current high corn prices, we do not need to lose any corn or hog production because of spoilage or waste. Our primary goal is to ensure top quality corn fed out of these bins the whole year long. For different reasons, the information below is still pertinent.

Maintaining Quality of Dried Corn in Storage

By Joseph Szentimrey
Owner/operator of Szentimrey Bros. Grain Elevator for 25 years

Feed intake typically increases for hogs when new crop corn is introduced into the ration at harvest. The rate of gain immediately increases, indicating that corn quality is at its best at harvest time.

You must prevent deterioration when storing dry corn. Although the acceptable moisture of corn in the market is 15.5%, long-term storage is more easily accomplished with corn at 13.5%. Bin manufacturers recommend steel bins with full floor aeration and temperature monitoring cables. Good equipment makes success easier but is not necessarily guaranteed.

The following precautions are recommended:

1. Fill the bin through the center opening at the top of the bin roof.

2. As soon as the floor is covered, start up the aeration fan to suck the air out of the bin. Stick your nose into the exhaust air; get used to the pleasant aroma of fresh dried corn. Repeat this test daily.

3. The first indication of trouble is when you smell a sourdough odour. This odour can happen soon after corn is elevated into the bin. At this point, heating has not started. Temperature sensing cables do not indicate problems. However, start aerating day and night until the sour odour disappears.

4. Do not fill the bin to touch the roof. As soon as possible, core out the bin. Remove enough corn to eliminate the pile in the middle of the bin and create a crater instead. No doubt you have noticed when filling the bin that small pieces of cob ride on the top of the corn stream and end up at the bin wall. Air takes the way of least resistance. The pile in the centre of the bin will not get aerated and spoilage will surely start there.

5. If there is no emergency, the best time to aerate is on a sunny day with dry, north or west winds; the type of weather you would like to make hay if it was summer time.

6. Once you start aerating, you must keep going until the drying front gets from the top to the bottom.

   The drying front is the layer of corn where the fresh air picks up moisture from the upper kernels. Then, the moisture migrates to the dryer kernels lower in the layer. This is not what you first expect.

   You may have thought that the fresh air picks up a particle of moisture, carries it all the way to the exhaust fan doing no harm to the corn on its travel. What really happens in the drying front layer is that the moisture can get high enough to foster growth of mould. When the drying front moves down, the moisture migrates from the top of the layer to the bottom of the layer, and all the corn in the bin will be damaged.

7. You must aerate frequently to prevent hot spots from developing.

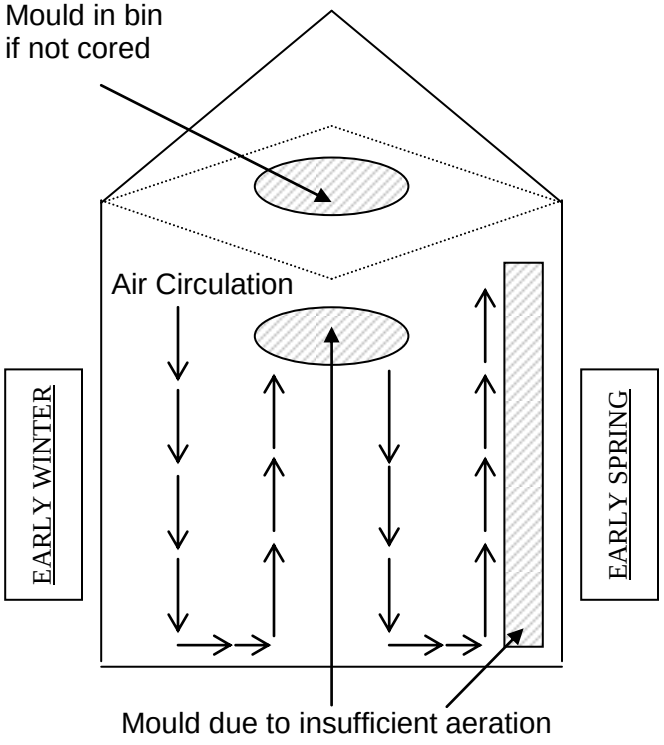
8. As the winter air gets colder you should aerate every time the air temperature drops 10 degrees Celsius.

   This will prevent an internal circulation downward, forcing the air in the centre of the bin to move up carrying moisture to the top centre layer of the bin. If left long enough, the top could get wet and hot, and the grain will sprout (refer to diagram).

9. If you continue to aerate the entire bin, the contents will freeze. If you keep the corn frozen for about two weeks, all grain beetles in the corn will die.

10. Toward spring as the air temperature rises, aerate at every 10-degree Celsius increment increase. Repeat again and again.

    This will prevent an internal circulation upward at the walls and down in the centre of the bin. The result of this circulation is mouldy corn around the outside of the bin, and about one to two feet in from the bin wall as shown in diagram below.



11. Empty the bin through an auger opening in the centre of the bin.

    The grain should flow off the top creating a funnel toward the centre of the bin. If you did not follow aeration instructions, walls will form in the grain. Sometimes the walls will crumble or slide in a big blob into the centre of the bin.

    The quality of this corn may not look bad during crumbling, but a little green-blue dust will show and the kernel may show evidence of blue eye mould. Should you be tempted to go in and take the vertical walls down, you could create an avalanche of corn weighing twenty to forty tonnes, with fatal results.

12. If your bin is built with fans that blow air, you should climb to the top of the bin and open the roof door.

    Should you aerate and fill at the same time, the red dog that is liberated will get blown out through the roof vents and some may collect on the roof. The acid formed in this layer may destroy the galvanizing.

    The airflow in the bin as discussed in point 4 will be the same whether the air moves up or down. However, when the air is blown in, the humidity that leaves the corn may condense on the inside of the roof. Then, it drips onto the corn starting a wet spot, or it may freeze into blobs that can slide down and plug the unloading auger.

    The drying front discussed in point 6 will still exist, but will move up not down.

You will have to be more careful warming up the bin in the spring. When the relative humidity is high, the moisture is introduced at the bottom of the bin immediately condensing, not the top where the damp corn can be easily run off.

Remember that aeration fans do not have sufficient airflow capacity to dry corn.

Lastly, feeding corn out of the bin on a daily basis will make all problems less noticeable.

TOXINS in CORN

With this year's corn, some producers will be faced with higher levels of toxins and will want to take all precautions to store corn properly.

- *If you have corn of questionable quality, drying to 13.5% moisture and cleaning out fines are very important.*
- *Try to dilute down these grains and divert them to finishing hogs. Keep the best corn for sows, weaners and replacement gilts.*
- *Watch for symptoms in your animals. If suspected, we can sample to test for toxins.*

This year, we have already seen some areas with quite high toxins and feed refusal. This corn will be diverted to other supply streams. Be cautious with corn DDGS purchases this year, as toxins generally increase threefold. Beware of bargain-priced DDGS, as these may have elevated levels.

If you have concerns, speak with your representative on ways to alleviate the affects of toxins.

Don't forget to check out the back page for a few guidelines on interpreting toxin level tests.

Infosheet

Molds and Mycotoxins

Hog Updates are also available on-line at www.bscanimalnutrition.com

What to know about Cold Air Drydown

1. You need full floor aeration.
2. Fans must be higher capacity 10-20 hp compared to 1-3 hp aeration fans. These fans usually push air, so removing and feeding corn on a daily basis removes the wettest corn from the top
3. Very little drying takes place during fall and winter. Moisture sensing stations inside and outside are used to only run aeration when humidity is less outside
4. Corn must be frozen to prevent spoilage (moulding).
5. Drying will take place during dry spring days.
6. Feed this corn ASAP even before drying. Adjust diets.
7. With great care you can prevent spoilage, but disappointing results can occur.
8. All precautions listed for keeping dry corn in good condition apply to cold air drying as well. Removing fines with ¼" mesh screen greatly improves airflow and chance of success.

HOG UPDATE is published in the interest of helping hog producers become more profitable. We welcome your comments.

BSC Animal Nutrition Inc.
R.R. # 4, St. Marys, Ont. N4X 1C7
Toll Free: 1-800-268-7769
Telephone: 519-349-2190
Fax: 519-349-2191

E-mail: info@bscanimalnutrition.com
Website: www.bscanimalnutrition.com

BSC Representatives

Peter Vingerhoeds 229-8810
peter@bscanimalnutrition.com

Perth, Wellington, Waterloo
Stuart Boshell 949-0149
stuart@bscanimalnutrition.com

Lambton, Middlesex
Ben Dekker 899-4769
dekker@xcelco.on.ca Fax 899-2327
