

Harvesting and Storing the 2012 Corn Crop

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The extreme drought conditions that plagued much of Indiana during the 2012 growing season will create some unique challenges for producers as they harvest of this year's corn crop. As with any year, proper harvesting, drying, cleaning, and aeration techniques are important. However, when harvesting and storing drought stressed corn these often routine tasks require more attention. In addition some areas of the state are finding fields with *Aspergillus* ear rot (which can produce Aflatoxin) and that means that additional care must be given to the crop that is going into storage.

Combine Settings

Producers will need to closely manage their combine settings in order to prevent excessive damage to kernels. In dry harvest conditions, kernels will be more prone to crack and break which can increase the amount of fine material in the stored corn unless fines are removed. It will be important to carefully adjust everything from deck plate gap, to rotor/cylinder speed, and concave clearance so as to minimize the percentage of broken kernels. Since stalk integrity has also been compromised this year, there may be lodging of the stalks or pieces of stalk may break off during harvesting. Combine operators will need to adjust their cleaning fan speed and sieve openings to remove as much of this additional fine and foreign material as possible.

Drying

Although it is likely that most corn harvested in Indiana this year will be at lower than usual moistures when it is harvested, it is still very important that the corn be dried to 15% moisture or lower. At moistures below 15% the likelihood of fungal growth is greatly reduced. Growers experiencing *Aspergillus* ear rot, should dry their corn to moistures 0.5% to 1.0% below normal, and definitely below 15% moisture to reduce the chances that the mold will continue to grow once the corn is placed in storage.

Removing Fine Material

It is better to clean the grain and remove the fine material before drying to improve airflow during drying, but corn can also be cleaned after drying but prior to being placed in storage.. Fine material and broken kernels and pieces of cob can promote fungal and insect growth. They also interfere with aeration and cooling of the grain mass. Levels of *Aspergillus* will usually be higher in the fine material. Kernels infected with *Aspergillus* are often weakened and therefore are more susceptible to breakage during handling and combine harvesting..

Removing fines by screening the grain prior to placement in storage would be ideal. However, if screening is not possible or if there is still some fine material remaining in the corn when it is placed in the bin, then the storage bin should be cored. Even if a good grain spreader is used to fill the bin, fine material tends to accumulate in the center or "core" of the bin. Coring a bin

involves removing small amounts of grain while the structure is being filled or removing one large load (e.g. a semi) after the structure is completely filled.

Aeration

After the bin has been filled and cored, the top of the grain mass should be leveled to ensure good aeration. Air finds the path of least resistance so in order to evenly aerate the corn it should be at the same depth throughout. Aeration is a key step in maintaining good grain quality throughout the entire storage period. Once corn is placed in a bin it should be cooled to 55 degrees F or below as soon as possible. When the grain temperature is below 55 degrees F the chances for fungal growth and insect activity are greatly diminished. Depending on the size of the structure, the ambient temperatures and the fan capacity, it may take only a few days or several weeks to completely cool the grain mass to 55 degrees F. As autumn and then winter arrive and ambient temperatures continue to drop, the corn should be cooled by means of one or two additional aeration cycles. Although Purdue generally does not recommend freezing of the grain, farmers who carefully manage the grain conditioning process have done so to kill adult insects and better preserve the quality of the corn. Moisture can condense when warmer moist air comes into contact with the frozen corn and the condensed moisture must be removed by aeration to prevent mold growth. The longer grain is kept uniformly cool into the following spring and summer months the less risk there is for fungal and insect development.