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A Tough Harvest - Frequently Asked Questions

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Abstract

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A Tough Harvest - Frequently Asked Questions

By Charles R. Hurburgh, Department of Agricultural and Biosystems Engineering

The difficult harvest has not gotten any easier. With most of the corn and still a significant percentage of soybeans still in the field, several management questions have come up very often.

Q. With all this rainy weather, should we shut off fans and wait for the weather to improve?

A. If you are drying with heated air, no. Keep the drying moving; in fact the rainy weather may be the only chance to catch up or keep up with the fast pace of wet grain once the weather improves. If you are drying with natural air, or are just cooling/holding wet grain, then it depends. If the grain is reasonably dry (corn below 17 percent, soybeans below 15 percent), with uniform moisture and cool temperature (below 50F), then you can shut off the fans but remember to turn them back on. Otherwise no. You do not want to stop a drying or cooling front in the bin, and wetter grain heats so you need to keep control of temperatures. Grain picks up moisture from the air at about one-fourth the rate at which it dries so rewetting over short periods is not usually an issue.

Q. Corn moistures are in the upper 20s or 30s and my dryer cannot keep up at all. What are options – time is getting late.

A. There will likely not be much field drying any more. Recent rains have rewet some corn if the upright ears trapped water; sprouting in these cases may occur also. At this point, any choices are designed to buy time so that corn can be harvested, held and drying completed later. I will talk about elevator drying and shrink in another question.

Natural air/low temperature will still work, although slowly. In most air drying bins (depth less than 20 feet), about 1 hp/1000 bushel will handle up to 20 percent moisture, 2hp/1000 up to 22-23 percent. Beyond that, fan horsepower becomes too large and spoilage risk too high. Natural air will not finish drying this fall.

Heated air drying can be speeded up by removing hot corn and cooling in storage. Consider drying very wet corn in stages – down to 24-25 percent; cool, hold with air, redry to below 20, then use air the rest of the way. This will buy some time but will take more management, effort and cost. Producers and elevators with a combination of drying systems will find more options to move and hold grain to capture short term capacity.

Q. Corn test weights are low; why and what impact will that have?

A. Corn lost test weight because of the rapid maturity advance in late August of what was a crop lagging in maturity. Kernel fill was not complete. Dry corn test weights are in the 52 -54 lb/bu range, with less than normal increase during drying. This is about 3 lb/bu less than average. Test weight loss during

kernel fill means loss of weight per acre, in this case approximately 5 percent.

Low test weight corn spoils more rapidly and breaks more in handling, as we saw in 2008. There will be storage problems in spring and summer of 2010, especially with the shortage of drying capacity and more grain held at higher moistures. Ethanol yields should not be significantly affected; light corn tends to be softer and lower protein, both of which favor ethanol yield. Feed users should test for mycotoxins from field molds, and expect lower protein corn with more small particles after grinding.

Q. What about wet soybeans and high temperature drying? Some soybeans are above 18 percent in the field yet.

A. As with corn, there will probably not be much more field drydown. Soybeans react in storage like corn with 2 percent higher moisture – 15 percent soybeans respond about like 17 percent corn. Natural air is the best; the November air will dry beans to about 13.5 percent moisture which is dry enough to hold over the winter. The goal in heated air drying should be either to get the beans to 14 percent, still able to be held overwinter with aeration, or to the acceptance moisture of the market.

Many markets this year are cutting off acceptance at 15 percent moisture. Elevators are generally not designed to dry two products. The dryer, aeration and grain flow of wet material is usually arranged for corn only. In normal years, the few wet soybeans that are harvested are blended with the larger amount of dry beans. This year there are few dry beans. Crush processors cannot handle wet soybeans either; they are too soft to split correctly in the cracking rolls, which then makes the hulls (fiber) hard to remove.

Q. Shrink and other charges for moisture seem to be going up. Why?

Soybeans are the most subject to these increases because the commercial elevators do not have the capability to dry soybeans efficiently. There have been dryer fires as a result of soybeans in corn dryers. Farm drying systems, especially bin dryers are more suited to soybean drying.

Normally moisture is handled with a combination of shrink deductions of weight and fees for drying. Shrink is intended to calculate, as closely as possible, the ending weight after both drying and storage-handling operations. Equivalent bushels after shrink to the market standard moisture are used for settlements, warehouse receipts and their regulatory verification, and other production related needs such as proven yields, loan collateral, and insurance adjustments.

Shrink adjustments are made with a percentage deduction per percent of moisture. Drying (water) loss is mathematically fixed depending on the ending moisture (15 percent normally for corn and 13 percent for soybeans), and independent of starting moisture or grain condition. Drying to 15 percent removes 1.18 percentage point of moisture; drying to 13 percent removes 1.15 percent. The difference between these figures and the actual factor used by the grain buyer is an allowance for handling and storage loss. In Iowa, shrink must be disclosed as the sum of the water and handling percentages – e.g. the common 1.40 percent per point is 1.18 for water and 0.22 for handling allowance. The total handling allowance goes up with the amount of moisture removed. Two points removed gives 0.44 percent in this case; 5 points removed gives 1.1 percent, and so on.

Scientific tests have shown that, overall, grain elevators actually experience about 1 percent loss during storage and handling, and that farm systems lose about 0.5 percent, beyond the moisture removal. The normal shrinks taken by elevators (1.35 percent or 1.40 percent) allow about enough handling loss at typical harvest moistures, with progressive increases for the less typical and more difficult-to manage higher moistures.

Problems arise when shrink factors are used as discounts or incentives beyond inventory weight balance. To keep accuracy in inventory and in other non-market uses of production data (such as proven yields, crop insurance

settlements, and loan collateral), shrink should be used for weight only. There is no restriction in Iowa on either the shrink scale used or on the drying/handling fees that can be imposed to provide incentives. Recently soybean shrinks as high as 3.0 percent per point (1.2 for water and 1.8 for handling loss, per point) have been seen. These are discouragements to high moisture beans, but will result in significant “long” inventories, from beans present but not listed on settlements.

Financially, the producer and elevator may end up in the same place with a high shrink or a lower shrink plus higher fees for drying, but producers needing accurate quantities for production records should discuss with buyers how to get weight records reflective of the actual dry bushels delivered. At 20 percent moisture dried to 13 percent, the 3.0 percent scale deducts 21 percent of the weight; 8.4 percent for water and 12.6 percent for handling losses.

Drying charges normally range from 4-6 cents per bushel per point of moisture, and must cover both the variable cost of dryer operations (fuels, labor, etc.) and the fixed cost return to the dryer investment. Farm dryers may dry at lower costs for variable costs only, but when the fixed cost of the dryer is included, total costs are often similar.

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