



AGRONOMIC Spotlight



2009 Corn Harvest Preparation: Optimum Moisture and Minimal Field Loss at Harvest.



Another harvesting season is upon us, and reducing loss while harvesting at the optimal moisture level is key to maximizing grain yield and profitability. A timely harvest is important, as harvesting corn when it is too dry will lead to a host of other problems, such as deteriorating stalks, lower weights at the grain elevator, cracked grain, harvest losses due to ear drop and stalk lodging. These harvest losses can also be a large source of volunteer corn issues the next year. In addition to harvesting at an optimum moisture, adjusting your combine to the most appropriate settings for the crop that you are planning to harvest, will also

help to reduce harvest loss and damage. Grain moisture at harvest impacts the cost of artificially drying the grain after harvest and also with dockage at the grain elevator due to excess moisture. A good place to start, and a basic rule of thumb is 28% moisture, if drying equipment is available. In the South, field-drying of corn is usually the most economical approach for producers, however, combine and weather losses will most likely be greater due to the delay in harvest, and must be taken into consideration. If these losses balance the cost that would be incurred through drying and storage of the grain, then it is most likely the best practice to allow the crop to dry-down to a certain point, in the field. One other point to consider is whether or not the corn hybrids that were planted performed as expected. Take time to evaluate corn hybrids for stalk lodging and other undesirable characteristics, and use this data in selecting corn hybrids for the upcoming 2010 season.

In addition to harvesting at an optimum moisture, achieving proper combine settings will maximize grain quality, while minimizing machine field losses. Listed below are a few combine preparation tips to help increase combine efficiency and decrease machine harvest loss. In addition, always follow manufacturer's equipment settings to help minimize losses

- To minimize seed coat damage, start with the lowest recommended cylinder speed, and use only enough speed to adequately thresh the grain, while keeping loss to acceptable levels.
- Cleaning airflow is normally set at a higher level, and then reduced just below the point where grain is blown out the rear of the cleaning shoe.
- Deck plated/snapping rolls should be adjusted to match the size of the ear and stalks. This will avoid shelling on the ear and slipping ears through the front of the machine.
- Spacing between plates should be 1.25 inches in a normal crop, and ear savers should be maintained on the corn header.

Table 2. Length of row (feet) for 1/100 acre for measuring ear losses.

Row Width	Number of rows			
inches	4	6	8	12
30	44	29	22	15
36	36	24	18	12
38	34	23	17	11

Sources:

C. Shay, L. Ellis, and W. Hires. *Measuring and reducing corn harvesting losses.* Dep't of Ag. Engineering, Univ. of Missouri Extension. Publication G1290.

S. Fox. *Reducing Harvest Losses in Lodged Corn Fields.* University of Kentucky.

Shay et al. *Measuring and Reducing Corn Harvesting Losses.* G1290. University of Missouri.

S. Fox. 2005. *Reducing harvest losses in lodged corn fields.* Univ. of Kentucky Extension Service. Sept. 28, 2005.

Hanna, Mark. *Combine Harvesting Tips for 2008 Harvest.* Dep't of Agriculture and Biosystems Engineering, Iowa State University Extension.

When talking about loss of crop at harvest there are several types of loss. These include:

Pre-harvest loss - This is typically a function of lodging. Lodging can continue to increase depending on environmental stresses, such as drought, wind, and insect damage. These types of pre-harvest losses should account for less than one percent of the total crop yield.

Header ear loss - usually results from harvest speed (too fast or slow), driving off the row, or harvesting with the header too high. Proper adjustments can hold losses to 1%, from an average loss of 3% to 4%.

Header kernel loss - occurs when kernels are lost in the harvest mechanism of the corn head. Cutting average loss from 0.6% to 0.4% should be the goal.

Cylinder loss - occurs when kernels remain on the cob. Proper concave adjustments and cylinder speed should limit cylinder loss to 0.3%.

Separation loss - occurs when individual kernels pass over the sieves and are blown out the rear of the combine. This type of loss should be held to 0.1%.

Some machine harvest loss is inevitable, but with modern harvesting equipment a loss of below 3% to 4% is achievable. Under some conditions harvest losses could range from 3% up to 20%. As the price of corn increases these small percentage losses can add up to big bucks out of your pocket.

Refer to **Table 1**, to view changes in gross profits at 3% and 10% yield losses at different market prices.

Table 1. Examples of gross profits per acre at different levels of field loss and different corn market prices.

Price/bushel	Average 3% field loss at 155 bu/acre yield	Average 10% field loss at 144.15 bu/acre yield
\$4.00	\$620.00	\$536.24
\$5.00	\$775.00	\$670.30
\$6.00	\$930.00	\$804.36

How to Measure Harvest Loss.

Determine total ear loss by counting the number of full-size ears, or the equivalent, in a 1/100 acre area (**Table 2**). Each full-size ear represents about 1 bushel/acre loss. To measure kernel loss, count the loose kernels on the ground and those still attached to threshed cobs in a 10 square foot area for each row behind the combine. The area should have a width equal to the planted row width (**Table 3**). Two kernels per square foot equals a 1 bushel/acre loss.

By following the above mentioned tips you should be able to keep crop loss to a minimum during harvest and also maintain efficiency throughout this harvest season, and for many to come. For additional information, please consult your local DEKALB/Asgrow representative.

Table 3. Row length for 10 square foot frame.

Row Width inches	Row Length inches
30	48
36	40
38	38
40	36

TWO KERNELS PER
SQUARE FOOT

EQUALS

1 BU/A LOSS IN
CORN.

Monsanto Company is a member of Excellence Through Stewardship(SM) (ETS). This product has been commercialized in compliance with the ETS Product Launch Stewardship Guidance and the Monsanto Product Launch Stewardship policy, after meeting applicable regulatory requirements in key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship(SM) is a service mark of Biotechnology Industry Organization. **ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** Growing Knowledge and Design® and Monsanto imagine® and Vine Design® are registered trademarks of Monsanto Technology LLC. DEKALB and Design® and When Performance Counts™ are trademarks of DeKalb Genetics Corporation. ©2009 Monsanto Company.

