

# AGRONOMIC Spotlight



Technology  
Development  
by MONSANTO<sup>®</sup>

## Considering Corn Harvest Losses and Drying Costs

The moisture level to harvest corn is often an economic decision weighing excess harvest losses against energy costs for drying corn. Growers need to consider the risk of severe lodging and yield losses when allowing corn to dry too long in the field.

### Corn Maturity and Harvest Loss

When corn matures in the field, it is around the 30% moisture level. There are many factors that impact how quickly corn dries down in the field after reaching maturity. Warm and dry weather speeds up the crop drying rate, whereas wet and cool weather slows it down. Late-planted corn or later-maturing corn products dry more slowly. Corn products also differ in their ear and husk characteristics that can affect the rate of dry down. Field losses generally increase with delayed harvest and as the crop dries down after maturity.

The optimum harvest moisture for corn is approximately 23% to 25%. At this moisture level, kernels shell easily and stalks generally stand better, which makes harvesting more efficient. A normal level of harvest loss is about 1 to 2 percent with a timely and efficient harvest.

Delaying harvest until corn dries down to 17% to 19% moisture can save considerable artificial drying costs. However, as corn dries down in the field, there is greater potential for excess harvest losses from stalk lodging and ear drop. Most harvest losses are mechanical, caused by kernel shattering or corn never getting into the combine. Allowing corn to dry down in the field could lead to excess harvest losses as much as 2 to 8 percent above the normal level of a timely and efficient harvest.

### Weather and Growing Conditions

Corn is maturing at a record pace this year with the early planting and rapid heat unit accumulation during the growing season. Wet weather early in the season followed by dry weather during grain fill can create conditions for the development of stalk rots and stalk cannibalization in corn. This could lead to higher than normal harvest losses because of an increased risk for stalk lodging in corn this fall.

**Waiting to harvest and allowing corn to dry too long in the field can bring more harvest losses this year.**

### Harvest Losses and Drying Costs

Table 1 provides an estimate of the energy cost to dry corn and the value of excess harvest losses by corn price when considering a delayed harvest for increased dry down. Estimates are provided for low (2% above normal), medium (5%) and high (8%) excess harvest loss conditions. When adding both harvest losses and drying costs, the spreadsheet shows that harvesting at a higher moisture level can be more profitable than allowing more field drying time especially when medium to high excess harvest losses are expected.

With many corn acres planted early in a very narrow window this year, much of the crop can reach the ideal stage for harvest around the same time. This makes it important to start harvesting early so that harvest losses from corn that is extremely dry and lodged can be minimized. If you see stalk lodging or ear drop problems, the harvest timing will be more critical to maximize the yield potential. Take the time to watch crop condition in the field and balance field dry down with harvest losses.

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## Considering Corn Harvest Losses and Drying Costs

**Table 1.** Estimated value of harvest losses and energy cost to dry corn with low, medium and high excess harvest losses.

### LOW EXCESS HARVEST LOSS—2%

Expected yield (bu/ac)	Harvest loss (bu/ac)	Value of harvest loss (\$ /ac) by corn price (\$/bu)			Energy cost to dry 5 or 10 points	
		\$ 3.75	\$ 4.25	\$ 4.75	5	10
175	3.45	\$ 12.93	\$ 14.65	\$ 16.38	\$ 22.53	\$ 36.67
200	3.94	\$ 14.78	\$ 16.75	\$ 18.72	\$ 25.75	\$ 41.91
225	4.43	\$ 16.62	\$ 18.84	\$ 21.05	\$ 28.97	\$ 47.15

### MEDIUM EXCESS HARVEST LOSS—5%

Expected yield (bu/ac)	Harvest loss (bu/ac)	Value of harvest loss (\$ /ac) by corn price (\$/bu)			Energy cost to dry 5 or 10 points	
		\$ 3.75	\$ 4.25	\$ 4.75	5	10
175	8.62	\$ 32.32	\$ 36.63	\$ 40.94	\$ 21.83	\$ 35.53
200	9.85	\$ 36.94	\$ 41.86	\$ 46.79	\$ 24.95	\$ 40.61
225	11.08	\$ 41.55	\$ 47.10	\$ 52.64	\$ 28.07	\$ 45.69

### HIGH EXCESS HARVEST LOSS—8%

Expected yield (bu/ac)	Harvest loss (bu/ac)	Value of harvest loss (\$ /ac) by corn price (\$/bu)			Energy cost to dry 5 or 10 points	
		\$ 3.75	\$ 4.25	\$ 4.75	5	10
175	13.79	\$ 51.71	\$ 58.61	\$ 65.50	\$ 21.13	\$ 34.39
200	15.76	\$ 59.10	\$ 66.98	\$ 74.86	\$ 24.15	\$ 39.31
225	17.73	\$ 66.49	\$ 75.35	\$ 84.22	\$ 27.17	\$ 44.22

Corn dried to 15% moisture content. Energy cost based on \$1.40/gallon LP gas and 8 cents/kwh for electricity. Total drying costs should include energy, labor and repairs. Base harvest loss of 1.5%. Adapted and copied from *Grain Storage Systems—Calculators & Tools—Cost of Harvest Losses vs. Heated Air Drying*. Sam McNeill, University of Kentucky—BAE Extension. [www.bae.uky.edu](http://www.bae.uky.edu) (last visited 9/2/10).

### Sources:

R.L. Nielsen. *Field Drydown of Mature Corn Grain*. Purdue University (Corny News Network. Revised July 2008. <http://www.agry.purdue.edu>)

S.G. McNeill. *When Should You Start Harvesting Corn in 2000?* University of Kentucky. August 16, 2000. <http://www.ca.uky.edu>

**Individual results may vary**, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. Technology Development by Monsanto and Design (SM) is a servicemark of Monsanto Technology LLC. ©2010 Monsanto Company. 09032010TED