AGRONOMIC Spotlight
Technology Development by MONSANTO ®

Considering Corn Harvest Losses and Drying Costs

Deciding the appropriate moisture level to harvest corn is often an economic decision, weighing excess harvest losses against energy costs for drying corn. Growers should consider the risk of severe lodging and yield losses when making harvest timing decisions.

Corn Maturity and Harvest Loss

When corn is mature in the field, it is around the 30% moisture level. Many factors 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. Differences in ear and husk placement among corn products can also affect dry-down rates. Field losses generally increase with delayed harvest.

The optimum harvest moisture for corn is approximately 23-25%. At this moisture level, kernels shell easily and stalks generally stand better, which makes harvesting more efficient. With a timely and efficient harvest, losses should be minimized to 1-2%.

Delaying harvest until corn dries down to around 17-19% 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 harvest losses as much as 2-8% above the normal levels during a timely and efficient harvest.

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

Harvest Losses and Drying Costs

Table 1 provides an estimate of the energy cost to dry corn and the value of excess harvest losses based on corn price. Estimates are provided for low (2% above normal), medium (5%), and high (8%) excess harvest loss conditions. When considering both harvest losses and drying costs, the spreadsheet illustrates 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.

It can be beneficial to start harvesting early to minimize corn harvest losses. If you see stalk lodging or ear drop problems, harvest timing will be more critical to maximize yield potential. Take the time to watch crop conditions in the field and balance field dry down with harvest losses.

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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	Harvest loss	Value of harvest loss ($/ac) by corn price ($/bu)			Energy cost to dry 5 or 10 points	
(bu/ac)	(bu/ac)	**$ 4.50**	**$ 6.00**	**$ 7.50**	**5**	**10**
175	3.45	$ 15.51	$ 20.69	$ 25.86	$ 22.53	$ 36.67
200	3.94	$ 17.73	$ 23.64	$ 29.55	$ 25.75	$ 41.91
225	4.43	$ 19.95	$ 26.60	$ 33.24	$ 28.97	$ 47.15

MEDIUM EXCESS HARVEST LOSS—5%

Expected yield	Harvest loss	Value of harvest loss ($/ac) by corn price ($/bu)			Energy cost to dry 5 or 10 points	
(bu/ac)	(bu/ac)	**$ 4.50**	**$ 6.00**	**$ 7.50**	**5**	**10**
175	8.62	$ 38.78	$ 51.71	$ 64.64	$ 21.83	$ 35.53
200	9.85	$ 44.33	$ 59.10	$ 73.88	$ 24.95	$ 40.61
225	11.08	$ 49.87	$ 66.49	$ 83.11	$ 28.07	$ 45.69

HIGH EXCESS HARVEST LOSS—8%

Expected yield	Harvest loss	Value of harvest loss ($/ac) by corn price ($/bu)			Energy cost to dry 5 or 10 points	
(bu/ac)	(bu/ac)	**$ 4.50**	**$ 6.00**	**$ 7.50**	**5**	**10**
175	13.79	$ 62.06	$ 82.74	$ 103.43	$ 21.13	$ 34.39
200	15.76	$ 70.92	$ 94.56	$ 118.20	$ 24.15	$ 39.31
225	17.73	$ 79.79	$ 106.38	$ 132.98	$ 27.17	$ 44.22

Corn dried to 15% moisture content. Energy cost based on $1.40/gallon LP gas (based on average wholesale price for March 2011) and 8 cents/kwh for electricity (based on averages of commercial and industrial prices for February 2011). Total drying costs should include energy, labor and repairs. Base harvest loss of 1.5%. *Spreadsheet taken 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 (last visited 9/2/11).*

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