



Estimating and Reducing Harvest Loss

Do you know how many bushels you're leaving in the field? Although harvest is a fast-paced time of year, it's critical to take the time to estimate harvest losses and make adjustments if necessary. Harvest losses can add up quickly, so time spent making adjustments at the beginning and throughout harvest can quickly pay for themselves with extra bushels in the bin. In some cases, harvest losses are excessive, but they can quickly be reduced to 1 bushel per acre or less if you take the time to check combine performance. To keep harvest losses low, you need to know where losses occur, how to measure them, and what adjustments can reduce losses.

Sources of Harvest Loss

1. **Preharvest Loss:** These are the ears lost prior to combine harvest. To measure this, check the unharvested field in several areas and count the number of ears on the ground in 1/100th acre area. For an area 8 corn rows wide (30" row spacing), 22' of row equates to 1/100th acre area. Assuming full-size ears, each ear represents about 1 bu/acre of yield loss.
2. **Header Loss:** These are the kernels and ears lost at the combine header. When a combine pass is being made in the field, stop in the row and back up. Place a 1' by 1' square (inside dimensions) on the ground in the area between the uncut crop and the area where chaff was spread. Count the number of kernels found within the square. **For corn, 2 kernels per 1ft² = 1 bu/ac yield loss; for soybeans, 4 soybeans per 1ft² = 1 bu/ac yield loss.** Collect this measurement in 3 to 4 areas to calculate average header loss. For corn, count any additional ears on the ground that were not stripped by the header.
3. **Separator Loss:** This is measured at the back of the combine in the area where chaff has been spread. Collect kernel or soybean counts in 3 to 4 areas using the 1' by 1' square method described in #2. This number includes both header loss and separator loss. Separator loss is calculated by subtracting header loss from total combine loss.



PVC square for estimating harvest loss. Inside dimensions are 1' by 1'.

Adjustments to Reduce Harvest Loss

Knowing where harvest loss is coming from (preharvest, header, or separator) helps us to know where adjustments can be made.

1. **Harvest Moisture:** Optimal grain moisture for corn harvest is around 23 to 25%. Allowing corn to drydown in the field beyond this point could lead to as much as 2 to 8% additional harvest loss. Harvesting grain at moisture greater than this often results in damaged kernels, while harvesting at moistures less than this often results in increased mechanical harvest losses (ear drop, kernel shattering). Additionally, research has shown a decrease in kernel dry weight when corn harvest did not occur at the optimal grain moisture. In general, soybeans should be harvested around 14 to 15% moisture and should not fall below 12% due to increased risk for split and cracked seeds.
2. **Header:** For corn headers, the gap between deck plates above the snapping rolls should be narrow enough to avoid shelling kernels on the ear but yet wide enough for stalks to be pulled through without wedging. Stalk roller speed should be the same as ground speed of the combine. For soybeans, reel speed should be set to 25% faster than ground speed. Harvesting soybeans at the optimal moisture will also help reduce shatter loss at the header.
3. **Rotor and Concave:** Refer to the combine manufacturer's manual for starting points of rotor speed and concave clearance. In general, start at the slower end of suggested rotor speeds and adjust upward to ensure seed threshing. Concave clearance may need to be adjusted to minimize mechanical damage to the seed during threshing.
4. **Fan and Sieves:** Refer to the combine manufacturer's manual for fan speeds. In general this should be set to the higher end and gradually lowered to reduce lighter seeds from blowing out the back of the combine. Sieves will need to be adjusted based on seed size. To reduce the amount of chaff in the harvested seed, sieve openings will need to be smaller for smaller seeds and larger for larger seeds.

Although harvest loss estimates and combine adjustments take some time, making these adjustments can lead to more bushels in the bin at the end of the season and increased profits.

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