

Measuring Harvesting Loss

What are harvesting losses?

Physical grain losses during harvesting can be divided into various types, depending on the operation and the machinery used.

Losses during cutting crops:

- **Shattering loss:** shedding of mature grains from the panicle caused by birds, wind, rats, and handling.
- **Lodging loss:** plants with mature grains fall on the ground making the grains difficult to recover.
- **Standing crop loss:** standing plants with mature grains are left standing in the field after harvesting.

Losses during threshing and cleaning:

- **Separation loss** or “blower loss”: grains that are mixed with straw or chaff during the cleaning operation.
- **Scatter loss:** grains that are scattered on the ground during the threshing and cleaning operation.
- **Threshing loss** or unseparated loss: mature grains that remain attached to the panicle in the straw after completion of the threshing operation.

Losses during crop and grain handling:

- **Handling loss:** mature grain lost during lifting, hauling, stacking, pouring, and bagging of crop and grains.

Why is measuring harvesting losses important?

Losses occur at all operations of harvesting and can reach 20% or even higher. For minimizing harvest losses it is necessary to quantify the different losses and optimize the individual operations accordingly.

Measuring losses

Shattering Loss Assessment in Harvesting

In the field, a number of random quadrants are chosen of 1-2 square meters surface area each. After the harvesting procedure, all grains that are lying on the ground within the quadrants are collected. Following collection, the collected grain should be carefully weighed. The loss can be expressed as kg/ha if total field surface area is known, or as % of total yield, if yield is known. Report all losses on same moisture content basis, usually 14% MC.

Separation Loss (Blower Loss or Cleaner Loss) Assessment

During the threshing/cleaning operation, wrap the blower exhaust in netting that will collect all chaff, straws, and grains but does not obstruct the air flow. Collect the grain by cleaning the material, and drying down to 14% MC. Blower loss can be expressed as kg/ha if total field surface area is known, or as % of threshed grain, if thresher throughput is known. Report all losses on same moisture content basis, usually 14% MC.

Scatter Loss Assessment in Threshing

Place the thresher or cleaner on a large plastic tarp. After the threshing/cleaning operation, gently remove the machine and collect all grain from the tarp. Scatter loss can be expressed as kg/ha if total field surface area is known, or as % of threshed/cleaned grain, if thresher/cleaner throughput is known. Report all losses on same moisture content basis, usually 14% MC.

Threshing Loss Assessment

Place a large tarp at the straw output of the threshers which will capture all straw. After threshing for a certain amount of time, examine all the output and manually remove all mature grains from panicles, straw, and tarp. Thresher loss can be expressed as kg/ha if total field surface area is known, or as % of threshed grain, if thresher throughput is known. Report all losses on same moisture content basis, usually 14% MC.

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