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Fall Combine Harvest Considerations

By Mark Hanna, Department of Agriculture and Biosystems Engineering

To harvest the crop efficiently the combine operator needs to spend pre-harvest time maintaining, adjusting, and setting the combine. Some Iowa growers will face special harvest-time issues this fall, those include:

- Gullies and rills may have been created by intense late summer rainfall and hail-damaged areas. Areas affected by adverse weather should be scouted before harvest for the size and condition of ears as well as gullies or holes that may have formed.
- Fields with wetter corn may have delayed harvest; scout and consider stalk strength before making the decision to delay.

Everyone, regardless of field conditions, should take time to check field losses this fall and make appropriate combine adjustments - especially if significant volunteer corn or soybean escapes were visible after last fall's harvest.

Field losses

In average-to-good crop conditions when the crop is standing well, field losses attributable to the combine should be one bushel per acre or less. Two corn kernels or four soybeans on the ground per square foot equals one bushel per acre loss. Larger areas should be checked for dropped ears as a single dropped ear represents several hundred kernels. One three-fourth pound whole ear per one-hundredth acre (436 sq ft) equals a one bushel per acre loss.

Combine settings and adjustments

Normal combine adjustments should include review of the operator's manual for suggestions. Start with rotor/cylinder speed at the lower end of acceptable range, then increase speed only as required to keep threshing losses acceptable. Concave clearance should start near the wider end of the range, then be adjusted narrower only enough for acceptable threshing and material flow. Plants that have been hail-damaged are more likely to have grain that is brittle and susceptible to breakage if threshing is not gentle.

In the cleaning shoe, begin with suggested sieve settings and start with fan speed near the higher end of the acceptable range. The objective of fan airflow is to fluidize the material mat on the sieves. Fan speed should be lowered only enough to avoid grain loss. If corn is lighter test weight due to hail or other field conditions, fan speed will need to be reduced somewhat to avoid significant grain being blown from the combine. Cleaning shoe adjustments won't separate off-colored grain if test weight and grain size are identical to good appearing kernels.

If the threshing and cleaning shoe areas are properly adjusted, most machine losses occur at the grain head, particularly for soybeans. Knife sections should be sharp and in register, and flexible cutterbar and header height control in good working order. These adjustments will have even more importance if soybeans are lodged or many low-hanging pods are present. A second, lower hanging ear seems to be more prevalent in some corn fields

this year. If harvestable grain is present on the lower ear, adjust cornhead height appropriately. The gap between deck plates above snapping rolls should be adjusted narrow enough to avoid shelling of butt kernels on snapping rolls, but wide enough to avoid excessive stalk breakage. A one and one-fourth inch gap is typical, but this gap should be adjusted as necessary for field conditions. One-way harvest may be considered for severely lodged crops. If corn is severely lodged a reel may not greatly reduce losses, but at least allow a faster field speed while keeping losses at the lowest level for the field conditions that are present.

Safety

Harvest can be a stressful time, particularly during adverse weather or field conditions. Review precautions and take time to ensure safety. In addition to replacing shields, avoiding clearing snapping rolls with power engaged, and making sure the head is blocked before working underneath it, also consider hazards of falling from the combine, fire prevention, and lighting and marking issues.

More information is available in these ISU Extension publications. They can be downloaded free of charge from the extension online store.

- **AE 3112** [Setting combines for harvesting best quality seed and field corn](#)
- **AE 3113** [Setting combines for harvesting best soybean seed quality and maximum yield](#)
- **PM 574** [Profitable corn harvesting](#)
- **PM 573** [Profitable soybean harvesting](#)
- **PM 1265h** [Harvest safety yields big dividends](#)

Mark Hanna is an extension agricultural engineer in agricultural and biosystems engineering with responsibilities in field machinery. Hanna can be reached at hmhanna@iastate.edu or (515) 294-0468.

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