Farmers may see abnormal corn ears

Farmers were able to get a good start on the corn harvest with the unseasonably warm and dry weather this past week. Many fields have the potential for good yields. However, other fields were damaged by flooding and too much water early in the season and will be challenged to obtain average yields.

Corn ears at harvesttime are often good indicators of the field/weather conditions that occurred earlier in the year. Abnormal ears are more common in drought years. However, farmers faced enough weather challenges earlier in the season that they may see many strange and unusual ears this year.

The following list includes the most common abnormal ears that farmers may see in their fields this year:

- **Nubbin ears.** Very small, misshapen ears with poor kernel set. Reduced kernel numbers are usually associated with reduced kernel row numbers and kernels per row, and poor kernel set and kernel abortion.

- **Nubbin ears.** Often associated with plants that are stunted due to extreme stress, such as drought, excessive rainfall, and nutrient deficiencies. Nubbin ears are often too small for effective combine harvest.

- **Cobby ears.** Few kernels scattered across ear. When severe, ears show mostly cob tissue with scattered kernels and kernel rows. If reduction in kernel numbers is limited, ears may exhibit jumbled kernel set.

Cobby ears indicate poor pollination of ears and incomplete kernel set, which may have been caused by severe drought and high temperatures (due to asynchronous pollen shed and silking, i.e., poor "nick"); inadequate pollen supply due to uneven crop development; silk clipping by feeding insects; and certain herbicide families.

- **Poor tip fill.** Cob tissue has no kernels on the last one or more inches of the ear tip. Ovules at ear tip are not fertilized or abort after fertilization because of environmental stress, such as drought, too high of plant population, or nutrient shortage. The presence of barren tips does not necessarily indicate a yield loss.

For example, favorable growing conditions may result in a larger number of potential kernels per row than normal. So even if corn ear tips are not filled completely, due to poor pollination or kernel abortion, the number of kernels per row may be above normal. Complete tip fill may indicate plant populations are too low for optimum yields.

- **Incomplete basal fill.** Kernels are absent or in limited number at the base or butt of the ear while the rest of the ear is normal.

This is an indicator that silks from the base did not get pollinated because of environmental stress or insect damage. These silks are the first to emerge from the ear and may dry out before pollen is shed, or insects, such as rootworm beetles, chew them off before pollination.

- **Zipper ears.** Ears are missing part of entire kernel rows, generally on the outside or underside area. This is primarily caused by kernel abortion. Ears are often misshapen, giving a curved shape because of the differential kernel formation.

As a result of the curve, farmers often call this condition "banana" ears.

The cause of zipper ears is unknown. It is thought that silks from the zipper area may have been covered up by other silks in a way that pollination did not occur. The condition is more frequent in drought years, when there is hail damage at pollination, and with high plant populations.

- **Chaffy ears.** Lightweight ears with poorly-filled, shrunk kernels resulting in lower yields and test weight. Spaces between kernels indicate incomplete kernel fill.

- **Genetically caused by severe stress during the dough to early dent reproductive stage (August). Stress may be caused by drought, cold temperatures, too high of plant population, foliar diseases, hail, and potassium deficiency.**

- **Mixed kernel color.** Ears that have primarily yellow kernels intermixed with scattered blue or red kernels. Caused by cross pollination from blue or red corn that was planted too close to a field of yellow dent corn.

- **Kernel red streak.** Red streaks form on the sides and tops of the kernels. They tend to occur more on ear tips and on hybrids where the husks are looser, exposing the tip kernels.

Red streak is caused by a toxin secreted by the wheat curl mite during feeding. It generally will not affect yields but may lower the value of the grain if being raised for feed-grade corn (corn chip and corn flour market).

Besides environmental causes, abnormalities may be caused by pests such as insects, disease, and birds. Birds may feed on ear tips with hybrids that have loose husks. Insects, such as European corn borers, earworns, and western bean cutworm larvae, may feed directly on kernels and bore into the cob.

Kernels that have been damaged by insects or birds provide an avenue for fungal diseases to enter the ear. Some of these fungi only lower grain quality but others may produce a toxin that is harmful to livestock and humans. Farmers may see some of these abnormalities this year, and hopefully, very few ears with disease.

Dr. Peter Thomison, Ohio State University Extension state corn specialist, has images of corn abnormalities at http://u.osu.edu/mastercorn/.

Lentz is extension educator for agriculture and natural resources for the Ohio State University Extension Service in Hancock County. He can be reached at 419-422-3851 or via email at lentz38@osu.edu.

Lentz can be heard with Vawn Wickerham on weekdays at 6:35 a.m. on WFIN, at 5:43 a.m. on WKXA-FM, and at 5:28 a.m. at 106.3 The Fox.