



October 11, 2018

## Why So Much Downed Corn This Fall?

By: Dan Steward

That is the question everyone has been asking. As with most biological systems, there is usually no one single answer. The cause is probably a combination of one or more of the following factors in no particular order:

1. *Stalk Rots.* Corn stalk rot, and consequently lodging, are the results of several different but interrelated factors. The actual disease, stalk rot, is caused by one or more of several fungi capable of colonizing and disintegrating the inner tissues of the stalk. The fungi include Anthracnose, Gibberella, and Fusarium, but are often a complex of a couple of different species. A weakened plant due to stresses from drought, heat, nutrient deficiencies, or leaf diseases, is more susceptible to infection. Stalk rots do not usually infect every plant in the field. Some agronomists believe that there were more stalk rots this year because more inoculums survived in the soil this past winter.
2. *High Plant Populations.* Farms have been pushing higher populations at the suggestion of their crop advisors and the seed companies for many years. Most hybrids, not all, do respond to higher populations. When the seed company recommends a lower population for a leafy or flex ear variety it is best to heed their recommendation.
3. *Big Ears, Tall Corn.* In areas that had good growing conditions throughout most of the year, big ears developed on some tall corn. Physics alone makes this corn more susceptible to lodging.
4. *Cannibalization from the Stalk to Fill the Ear.* This is my own theory. Even if the corn plant didn't have leaf blights, perhaps due to the hot weather, the leaves couldn't keep up with the developing ear and cannibalized the stalk. (See the following article on Dieback.)
5. *Early On-Set of Leaf Diseases.* Premature death of leaves from northern corn leaf blight or gray leaf spot destroys a plant's ability to photosynthesize and make sugar right when the plant needs it to fill out the corn grain. The plant cannibalizes nutrients from the stalk, thus weakening it. Some hybrids, particularly BMR, don't have great resistance to leaf diseases and can be markedly prone to weak stalks, especially when coupled with their lower lignin levels. Ironically, we did not see a lot of leaf diseases this August, although some gray leaf spot was observed in river bottom land late July to early August.
6. *High Winds Carrying a Lot of Moisture.* We had a number of strong storm fronts move through the area. Coupled with some or all of the above factors, you have the recipe for downed corn.

The bottom line is that corn in the field for grain harvest needs to be harvested as soon as you can conveniently do so, even if that means a higher drying cost. **It will be risky to let your grain field dry into the "teens."**

## Top Leaf Death or Dieback

By: Dan Steward

Look Familiar? This was a common site in many corn fields this fall. The following excerpt from an article by R.L. Nielsen of Purdue University gives some insight into the cause.

“As a corn crop progresses toward physiological maturity, the leaves naturally begin to senesce (die). The timing and pattern of leaf senescence are genetically regulated but are also influenced by environmental triggers, including severe photosynthetic stress. In years where much of the grain fill period is characterized by severe drought and/or heat stress, the onset of leaf senescence can occur earlier than expected prior to kernel black layer. Not only do leaves begin to die sooner than expected, but the pattern of leaf senescence sometimes changes also.



The pattern of leaf senescence that many of us remember, perhaps wrongly, is one where leaf death begins at the bottom of the plants and slowly moves up toward the upper leaves. However, particularly in years with late-season stress, leaf senescence often progresses from both the bottom and the top of the plant, with green leaves remaining in the middle of the plants for some time until complete leaf senescence occurs. In fields where the upper leaves begin to die before those in the central part of the plant, the effect can cause an unusual golden "glow" in the upper canopy against the morning or evening sun.

More recent research (Valentinuz & Tollenaar, 2004) suggested that this pattern was also evident in good grain yield growing conditions.”

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## Downed Corn Presents Challenges for Next Year

By: Dan Steward

There are many farms that are dealing with downed corn that cannot be picked up by harvesters. Besides the frustrations of losing what was likely a really good yield, this downed corn poses problems for next year in the form of volunteer corn germinating and acting as a weed, hurting yields and stand-ability. There are things you can do now to try to prepare for next year:

- \* Make note of which fields had a significant amount of downed corn where the ears could not be picked up.
- \* It is also important to note the traits in the downed corn in regard to herbicide tolerance. If the corn was conventional and had no herbicide tolerant traits, the obvious solution to take out volunteer corn in next year's crop is to plant a Roundup-Ready hybrid and use a post emergence program that contains Glyphosate. If the downed hybrid was only Glyphosate tolerant, planting a Glufosinate resistant hybrid (think "Liberty-Link" corn) will allow you to use a Liberty program next year. Unfortunately, a lot of triple stack hybrids being sold nowadays have resistance to both Glyphosate and Glufosinate.
- \* Early fall tillage can stimulate germination and emergence prior to a winter freeze, thus reducing the potential for emergence the following spring. Corn will germinate when the soil temperature is above 50 degrees F. Lightly discing a field can incorporate the seed deep enough that it will germinate if the soil is warm enough this fall.
- \* Moldboard plowing will bury a lot of the volunteer corn seed deep enough that it doesn't emerge, but it won't be 100% effective.
- \* Conversely, no-tilling next year's crop will minimize soil seed contact of the downed corn kernels so much of it won't germinate. Again, this is not 100% effective.
- \* Consider rotating to soybeans or seeding the field. There are selective grass herbicides that are labeled for use in soybeans and on straight alfalfa seedings that will do a good job of taking out the volunteer corn.
- \* If you have to grow corn on corn and the above options are not available, consider planting these fields last next spring to allow as much of the volunteer corn to germinate prior to the final pre-plant control measures (tillage, herbicides, etc). Applying a burndown application of Select Max® to germinated volunteer corn prior to planting is the best herbicide option.

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