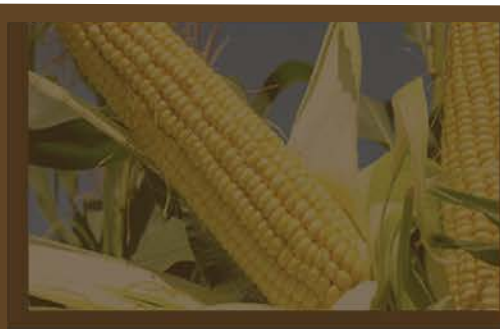


# Burrus Buzz

*Delivering more than just seed!*

June 30, 2015



## Questions and Answers about Twisted Whorl Syndrome of Corn

*by Stephanie Porter*

- 1. What is twisted Whorl Syndrome of Corn?** This “curious phenomenon” as termed by R.L. (Bob) Nelson of Purdue University is thought to occur when corn shifts from slow development (cool, cloudy weather) to rapid development (warm, sunny weather). Read more here: <http://www.agry.purdue.edu/ext/corn/news/timeless/TwistedWhorls.html>. However, twisted whorl syndrome is not fully understood by scientists. This phenomenon is not uncommon, but rarely affects the entire field or a great number of fields. Corn whorls can become twisted and drop to the ground, while the lower leaves appear normal. Corn tissue near the base of leaf blades may appear crinkled. When the twisted whorls of corn eventually grow and become unfurled, the new leaves growing within the twisted whorls appear yellow.



- 2. When did we start seeing twisted whorl syndrome symptoms?** Reports of corn whorl twisting started to be reported after the first of June. There was an extreme nighttime temperature drop and reports of symptoms started to roll in from Northern Illinois and Southern Wisconsin in the last 20 days. There was also some wind injury visible on some of the twisted corn, but I cannot confirm if wind contributed to the twisted whorl syndrome symptoms at this time. I visited fields and had reports of twisted whorl syndrome near Peoria, Galesburg, Tonic, Sterling, Avon, Yorkville, and Dwight, Illinois, as well as near Madison, Wisconsin. When I drove through out Northern Illinois, Southern Wisconsin, and Southeast Iowa, I was able to see that fields affected by twisted whorl syndrome consisted of various hybrids from multiple companies.
- 3. In cases of twisted whorl syndrome, why are only scattered corn plants affected throughout the field?** In almost all of the fields that I investigated, twisted whorl syndrome occurred to plants that were at the V5 or V6 growth stage. The scattered plants with twisted whorl syndrome were most likely at an earlier growth stage (V5 to V6) when compared to the rest of the field due to uneven emergence. Some of the plants with twisted whorl syndrome were dug and evaluated. They appeared to have a significantly reduced root systems due to factors such as compaction, flooding, pests, or disease. What would cause uneven emergence in a field? Planting into a poor (cloddy, rocky, wet) seedbed, soil type issues (crusting), heavy residue problems, varying planting depths, the way the seed lands, seedling disease of the primary root, insect feeding, flooding, varying soil temperatures (GDD), nutrient issues and so on.



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## Questions and Answers about Twisted Whorl Syndrome of Corn (*continued*)

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- 4. Why did some of the fields have a substantial amount of twisted whorl syndrome on field edges?** Most of the corn with twisted whorl syndrome on field edges was due to compaction or reduction in root mass. In one case, fields with a starter fertilizer application was not affected by twisted whorl syndrome, perhaps because this application had helped accelerate the growth of the corn hybrid.
- 5. Do you think that some hybrids are more prone to be affected by twisted whorl syndrome?** In most cases, growth stage was the common factor, not hybrid. It is possible that some hybrids with a slower "grow off" (when a corn plant transitions from the seedling phase to fast growth stage) could have been more likely to be affected. In years with good growing conditions, this slower hybrid "grow off" would not be a major issue.
- 6. Can twisted whorl syndrome be confused with herbicide injury?** Yes, cell growth inhibiting and growth regulator herbicides that are applied either pre-plant or pre-emergence can cause similar symptoms if taken up by the corn shoot. Also, the late application of growth regulators can also cause twisted whorls in older plants when leaf whorls come into contact with a substantial amount of herbicide. Investigate chemical usage, pattern, growth stage, roots, and nearby sources of herbicide drift to rule out herbicide injury. For example, many fields that had twisted whorl syndrome did not have any herbicide applications at the time when symptoms began to become visible.
- 7. Why did it take so long for the corn with twisted whorl syndrome to recover?** In normal growing conditions, corn will recover from twisted whorl syndrome within a week. This year, we did not have normal growing conditions. Temperatures remained cool and even when temperatures began to rise, we continued to have cloudy days in Southern Wisconsin and Northern Illinois. The yellow leaves did not green up as quickly during the continual cloudy weather. In addition, not all corn with twisted whorl syndrome will unfurl or recover at the same time; therefore, it may appear like the corn is not recovering, when in reality you are seeing staggered unfurling and yellowing of new leaves that were trapped within the whorl.



- 8. Will there be a yield decrease due to twisted whorl syndrome?** Yield effects from periods of twisted whorl syndrome caused by weather related causes are minimal. However, I do think we need to keep in mind that there could be yield decreases due to corn plants affected by lack of root mass due to planting into poor seedbed conditions, flooding, compaction, planter malfunctions, heavy residue, pests or disease.