

# The Upcoming Battle with the New Goss's Wilt – Spring and Summer 2016

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As the 2016 corn planting and growing season arrives more growers are remembering the early death of their corn crop last fall and in previous seasons. They recognize they have seen it, they know their yields did not meet expectations and they often saw some of the worst stalk lodging ever during that time period. None of their typical sources of information: their local fertilizer and Ag input suppliers; the seed company agronomists; and the Extension service reps have not provided any definitive answers on it or offered curative steps to control it or minimize its impact. Farmers recognize it is having an important effect on their crops and on their income and they need to know what it is and what should be done about it.

The 'old Goss's Wilt' first appeared in the late 1960s in western Nebraska and was confined to 8 counties plus 2 in eastern Colorado until 2009, when it moved east to Pennsylvania and north to Manitoba. It previously was a slow moving bacterial disease that typically appeared after a wind or hail storm that caused damage and entry into the corn leaves and stalks. It increased greatly in the percentage of fields it was in and how greatly it affected the plants it infested. Something changed its biology and that is part of the story. The typical symptomology was an orange or red flashing of the upper leaves followed by the appearance of watery, freckled lesions on the leaves followed by the leaves drying down prematurely. It used to be problematic in second year corn where the inoculums could overwinter easily on corn residue. What an investigative team found over sixteen years was that a metallic crystal or biomatix was present. A low mineral and nutrient environment caused partly by reliance on an N-P-K only fertility programs and too much emphasis on chelating, biocidal herbicides were creating an environment for the biomatix to form.

The 'New Goss's Wilt' that has been a problem since 2009 can show the same foliar symptoms, but more often appears as caramel colored lesions that appear at ground level at V8 to V10 when the V3 of V4 leaf sheaths are beginning to slough off the stalk. Those leaves or stalks will show a brown mottling ranging from faint to very pronounced in color and appearance. Rookies scouting for the lesions should buy \$5 strip test kits from Ag Diagnostics of Elkhart, IND to help them make the diagnoses at first. In time they will not need the strip kits. In wet and dry years there is enough dew to help the bacteria multiply and begin to cause problems. Later in the summer large brown or blackish fingerprint-like lesions will appear on the stalks.

As the plants grow and bacteria inside the stalk multiply, the stalks will become progressively plugged at the nodes. Splitting the stalk lets you detect a brown or black layer at the lower nodes and browning in the crown region of the roots. This plugging by the bacteria and the biomatix continues during the summer until a hot, dry and windy three to seven day period in mid to late August creates a large water and mineral demand in the upper plant the plumbing system can't meet and the entire fields die in two to three days. The plants turn almost white and die from the top or bottom. Late season N shortages accentuate this as there can be cannibalization of the upper leaves visible. The second ears turn mushy and very stinky.

A group of growers and plant researchers have been finding that applying micronutrients at planting and during the season if appearance and tissue sample verify mineral deficiencies. Biologicals applied in-furrow to increase mineral uptake are also important. Early curative and preventative products like Procidic and 42PHI have worked, but with limitations. Foliar applied ammonia based N fertilizers also help stall or kill the bacteria. The best product we have found is a nutritional based **BioEmpruv** made in a Utah fermentation lab. We are recommending it be applied in stages: first at planting or thru V4-6, then again at V14 to VT. It lasts nearly 3 months on the plant. Consider canopy coverage and how growth dilutes it. In 2015 work the fields stayed green and to fill another 3 to 4 weeks with greatly improved standability. That represents 35 to 46 % of the normal 55 to 60 days of grain fill. It is a safe product and can be tank mixed with other products if desired. Too often corn growers have battled this disease solely with fungicides, which has not worked.