

IN THE FIELD

The Nebraska Women of
Agriculture

*Expect the Unexpected -
The Value of Trends in
Marketing*

November 7, 2013
Courthouse Annex
Center, NE
6:30 p.m.

Cost: \$20 Meal Included
To Register Call
402-336-2760

Selecting Corn Hybrids to Minimize Diseases in 2014

Carefully planning for the next crop season can help minimize many corn diseases and the losses they cause. Selecting more disease-resistant corn hybrids and placing them strategically in fields with histories of those diseases is one of the most economical ways to manage diseases. There are several things to consider related to disease management and seed selection.

Field Conditions and Disease History

Fields can be vastly different as far as disease history, growing conditions, availability of irrigation, tillage regime, rotation sequence, and other factors that influence the incidence and severity of crop diseases. Familiarity with the cropping practices and conditions that favor diseases can help you anticipate which disease(s) may be problematic next year in a field and strategically plan to avoid and/or manage them.

Most of the diseases in Nebraska corn are caused by pathogens that overwinter (survive) from year to year. Under favorable weather conditions, you can expect to see these diseases develop whenever susceptible corn hybrids are planted. In fact, all of the major diseases, except rust diseases (including common and southern rust), are caused by pathogens that overwinter in Nebraska fields. Rust fungi produce airborne spores that must be blown in from other areas of the country, often from states south of us, making it difficult to anticipate whether rust will be a problem with any certainty. However, increased corn production in states south of Nebraska and potentially in northern Mexico could provide for more rust spore production and increase the chances of rust diseases developing in our area annually.



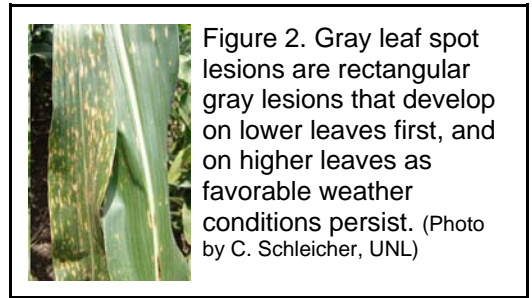
Figure 1. Freckles caused by the bacteria causing Goss's bacterial wilt and blight can often be visible near the edges of lesions.

Most of the remaining corn diseases are caused by pathogens that survive in infected corn residue from the previous season(s). Fields with continuous corn and/or minimum tillage can be higher risk for some diseases because they provide a constant source of residue for overwintering pathogens. In fields with higher risk, it is especially important to plant resistant or tolerant hybrids.

Examples of common residue-borne diseases are:

- **Goss's bacterial wilt and blight.** Goss's wilt has become increasingly common across Nebraska and the Midwest during recent years, often causing severe disease and yield loss, especially following widespread crop damage, such as that caused by hail. Diagnostic symptoms of the more common leaf blight phase of Goss's wilt include the dark colored freckles and glossy bacterial exudate on the surface of lesions (Figure 1). Research comparing the importance of cropping practices and other field conditions identified the corn hybrid's rating for Goss's wilt as the most important factor affecting disease development (Langemeier, 2012). Although tolerant hybrids are not immune to the disease, they can substantially reduce Goss's wilt severity and subsequent yield loss.

● **Gray leaf spot.** In contrast, the pathogen of gray leaf spot (Figure 2) requires high relative humidity of 96% or more for at least 11 hours and warm temperatures. Gray leaf spot lesions are rectangular, gray to brown and develop on the lower leaves first and continue to develop higher up the plant as long as favorable weather conditions persist. Tolerant hybrids can reduce disease lesions and slow their development and spread up the plant. Foliar fungicides are also very effective at managing gray leaf spot.



Many seed companies will rate how their hybrids react to these common diseases and these hybrid reactions can vary greatly. Many companies also rate their hybrids' reactions to other diseases, such as eyespot, northern corn leaf blight, rusts, and some stalk rots.

It is important to note that resistance or tolerance to a disease does NOT imply resistance to other diseases. That's why it's important to familiarize yourself with the diseases in your fields and position tolerant hybrids appropriately for the best effects.

In addition, it is common for competing seed companies to utilize opposing rating scales in seed catalogs. For instance, a 1-9 scale used by one company may indicate "1" as best while the same scale used by another company may indicate "9" as best. Numerous other rating scales exist. Pay close attention to rating scales and their exact meaning to avoid misinterpretation and contact your local company representative for clarification or if you have any questions.

If you need assistance identifying a disease, consider submitting a sample to the UNL Plant and Pest Clinic for a diagnosis.

Source: Cropwatch

Changes in Gasoline Are Here

Lower octane gasoline is now flowing up the pipelines to local terminals. This "sub octane" fuel will change the choices and prices we see at the pump.

Previously gasoline in the pipeline was about 87 octane, starting now gasoline in the pipeline will be about 83-84 octane. This "sub octane" will need to be blended with an octane enhancer to meet the 87 and above octane ratings we see at the pump. This is where ethanol comes in, as the lowest cost octane booster (ethanol has an octane rating of 100).

In recent years the choices have been 91 premium, 89 "super" with 10% ethanol, and 87 regular. Starting now there are many choices for fuel stations, yet of greatest interest to the public will be the low cost option which will change from 89 "super" with 10% ethanol to the 87 with 10% ethanol. Don't let the numbers confuse you, octane rating is not energy, and mileage per gallon will not change between the old 89 "super" and the new 87 with 10% ethanol.

Just to make things even more confusing we are nearing the time when we switch to winter fuel which is more volatile and has lower BTU per gallon than summer fuel (more short HC chains

thus lighter fuel).

Below are some potential options for fuel stations and generally how they could be priced assuming premium fuel is the highest cost and ethanol trades at a discount to gasoline. Note the list below generally goes from lowest cost to highest.

- 87 with 10% ethanol
- 89 with 10% ethanol (mix of "sub octane, premium and ethanol)
- 87 (made from "sub octane" & premium)
- 93 with 10% ethanol (premium with ethanol)
- 91 (premium)

Things to know: 1. Octane rating is not energy and a car should get the same mileage with 87 as 89 or even 91.
2. Cars with high compression engines are the only cars that need high octane fuel. Read your gas cap and your manual (most cars list a minimum octane such as 85). High compression engines are more efficient, due to the compression ration, not the fuel.

Source: John Hay, UNL Extension Energy Educator