THE EFFECT OF PLANT POPULATIONS ON THE SEVERITY OF ANTHRACNOSE STALK ROT IN CORN - NY

TRIAL OVERVIEW

As growers consider using higher seeding rates to help access the genetic potential for higher yield potential, it's important to consider how higher populations can also lead to more plant stress. Anthracnose Stalk Rot (ASR) can be one of the most damaging corn diseases in New York and Pennsylvania. An understanding of how higher plant populations affect the severity of ASR can help growers in corn product selection and aid in selecting the appropriate plant population.

Figure 1. Corn stalks at Verona, New York displaying late season disease symptoms of shiny black discoloration of outer stalk (left) and internal discoloration at the nodes common with Anthracnose stalk rot (right).

RESEARCH OBJECTIVE

Determine the impact of three plant populations on incidence of ASR in corn products with varying degrees of ASR tolerance.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Evaluation Date	Potential Yield/Acre	Planting Rate/Acre
Canandaigua, NY	Sandy Loam	Corn	Conventional	05/22/2017	10/24/2017	200	24,000 to 48,000
Verona, NY	Clay Loam	Soybean	Strip Till	05/21/2017	10/27/2017	200	24,000 to 48,000

SITE NOTES:

Twelve corn products (92-103 RM) with an ASR tolerance rating of 4 or 5 were selected for this trial. All corn products were planted at low, medium and high populations (24,000, 36,000 and 48,000 plants per acre). Evaluations for incidence of ASR were conducted at two locations – Canandaigua (Ontario Co.) and Verona (Oneida Co.), NY. Evaluations were made by harvesting five consecutive, typical stalks. For each stalk, the number of nodes infected with ASR and nodes with greater than 75% necrosis were measured.

UNDERSTANDING THE RESULTS

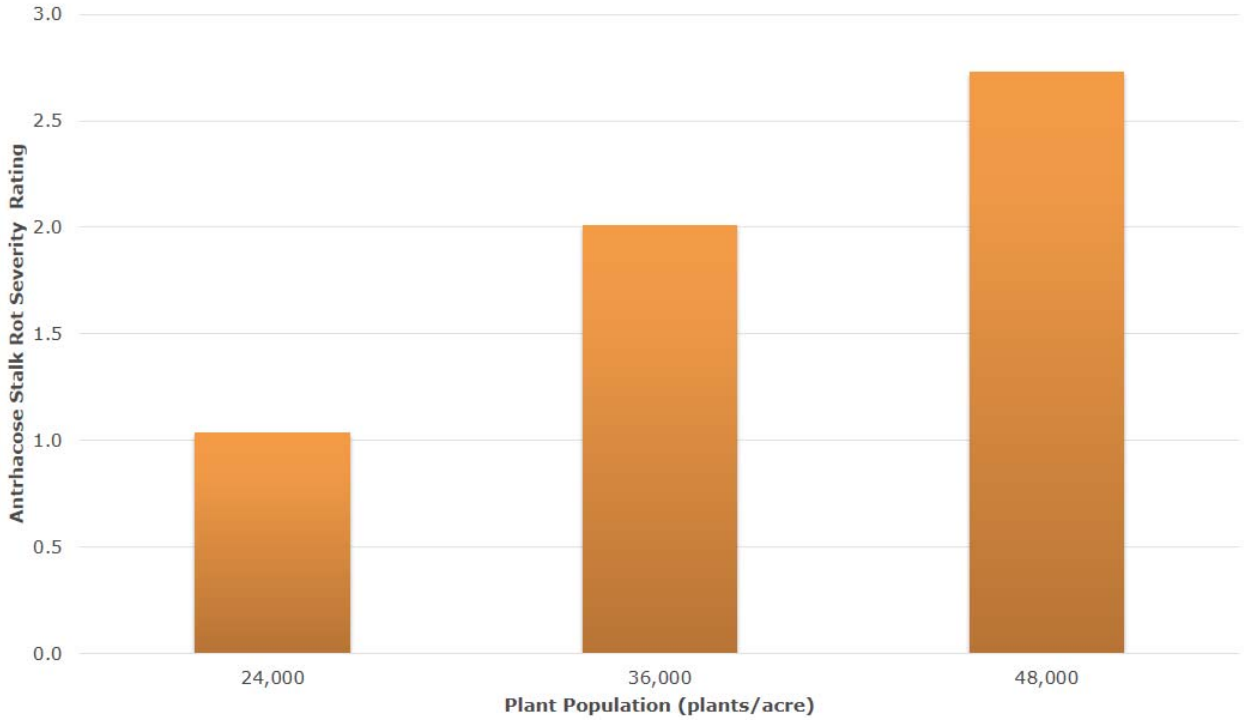

Figure 2. 2017 Anthracose stalk rot rating averaged over plant population for 2 locations in New York.

- Both incidence and severity of Anthracnose stalk rot (ASR) increased as plant populations went from 24,000 to 48,000 plants per acre.
- Previous crop did not affect results. Both locations had significant ASR levels.
- Another observation was that ASR was more severe in earlier RM (less than 97 RM) products compared to later RM. Average RM rating for early RM was 3.0 versus 1.5 for 98+ RM hybrids. It is not possible to determine if the difference in ASR between earlier and later RM products was due to maturity or due to the reactions of the specific products in those RM groups.

WHAT DOES THIS MEAN FOR YOUR FARM?

- Fertility, tillage, environmental conditions and crop rotation can all affect incidence and severity of ASR.
- In addition to the reduction in yield potential that ASR can cause, ASR can also cause standability problems and affect harvestability of the crop.
- Population recommendations for a corn product should be based on multiple factors including the ability of the product to maintain healthy stalks at high plant populations.
- As growers consider increasing seeding rates, the occurrence of stalks rots associated with stress, such as ASR, become more important.