

VIRGINIA CORN BOARD REPORT– FY2024 Investigating a new corn disease in Virginia.

PRINCIPAL INVESTIGATOR: David Langston, extension Plant Pathologist
6321 Holland Rd., Suffolk, VA 23437

OBJECTIVES:

1. Evaluate yield loss in Virginia via large-plot strip trials.
2. Assess the susceptibility of commonly used corn varieties in Virginia.
3. Investigate the geographical distribution, genetic variability, and cropping systems associated with the pathogen in corn fields exhibiting a high prevalence of disease.

RESULTS:

Objective 1. Evaluating yield loss

Two strip trials were initiated in Spring 2024 to evaluate potential yield loss caused by a new corn disease at the Tidewater AREC. Strips 4-rows wide by 300-ft long were sprayed with Veltyma fungicide at 7.0 fl oz/acre at VT/R1 and were separated by 4-row untreated strips for a total of 4 reps per location. Disease was assessed as percent leaf area affected by disease on August 7th at both locations. Yield was collected on September 13 at both locations. Veltyma sprays significantly reduced disease at both locations (Table 1). However, there was no yield advantage between sprayed and unsprayed strips. This is consistent with observations from small plot field trials in 2021-2023.

Table 1. Effect of fungicide treatment and application timing on foliar disease in corn.

	% foliar disease Aug 7		Yield (bu/A)	
Treatment, rate/A and timing ^z	Location 1	Location 2	Location 1	Location 2
Untreated check	52.5 a	55.0 a	218.1	144.8
Veltyma 7 fl oz (VT)	1.8 b	2.8 b	208.7	148.6
P(f)	0.002	0.01	0.06	0.13

Objective 2. Susceptibility of corn varieties

Three OVTs (official corn variety trials) conducted by the Virginia Tech corn and small grains program were evaluated for disease in 2024. The trial at the TAREC (Tidewater AREC=44 var.) was evaluated on August 6, MH (Mt. Holly=48 var) experiment site on August 13, and the SPAREC (Southern Piedmont AREC=46 var) on August 21. Evaluations consisted of the percent foliar disease observed per plot. High levels of disease were observed at the TAREC but low levels at MH and SPAREC. There were significant differences in variety susceptibility at TAREC and MH which ranged from 11.8 – 62.5% and 1.3 – 36.3%, respectively. There were no significant differences between varieties observed at the SPAREC location. The lowest level of disease was observed in varieties MA6153PCE and MA6120PWE at TAREC and MH, respectively. It is important to note that the highest level of disease at TAREC and second highest level of disease at MH was observed in Channel 214-70TRERIB.

Objective 3. Pathogen distribution and genetic variability.

Corn tissue was biopsied from samples collected from OVTs at TAREC, MH, SPAREC, and grower fields in Sussex, Virginia and Kentucky. Fungal isolates collected from diseased tissue were of a *Nigrospora* sp. (collected from all locations) and a *Phomopsis* sp. (isolated from one tissue source at TAREC). Isolation of *Phomopsis* sp. is consistent with isolations made in previous years in our lab, but to our knowledge, *Nigrospora* sp. have not been isolated from corn leaf tissue previously in the U.S. or other countries. Since *Nigrospora* sp. was isolated from every location, it is likely that this new disease is the primary pathogen of this new disease of corn. Currently we are trying to reproduce disease symptoms on corn to prove pathogenicity.