Identifying Corn Hybrids Resistant to Gibberella Ear Rot and Deoxynivalenol

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INTRODUCTION

- Gibberella ear rot (GER) and grain contamination with deoxynivalenol (DON) causes feed refusal in livestock and reduces corn market value (Figure 1)
- Selecting disease-resistant hybrids is recommended, but GER/DON resistance ratings are often not available to growers

Figure 1. Left: Pink mold visible at the ear tip. Right: Hybrids were inoculated at silking (R1) at all three locations (Bucyrus, South Charleston, and Wooster).

OBJECTIVE

- Assess susceptibility to GER and DON accumulation of commercially available corn hybrids in Ohio

RESEARCH HYPOTHESES

1. Hybrids will differ in levels of susceptibility to GER and DON accumulation
2. Hybrid differences in susceptibility will be stable across growing environments

METHODS

- 89 hybrids from 11 seed companies were blocked by maturity and screened at three locations (Bucyrus, South Charleston, and Wooster)
- Subset of ears were inoculated at silking and remaining ears were naturally infected (Figure 1)
- Ear rot severity and DON accumulation were measured for each hybrid

RESULTS

- DON levels were low at all three locations due to below-average rainfall in 2024
- 37 of the 89 hybrids had comparable DON levels to the least contaminated hybrid at all three locations (Figure 2)
- 2 of the 89 hybrids had significantly higher DON accumulation levels at all locations under the inoculated treatment (Figure 2)

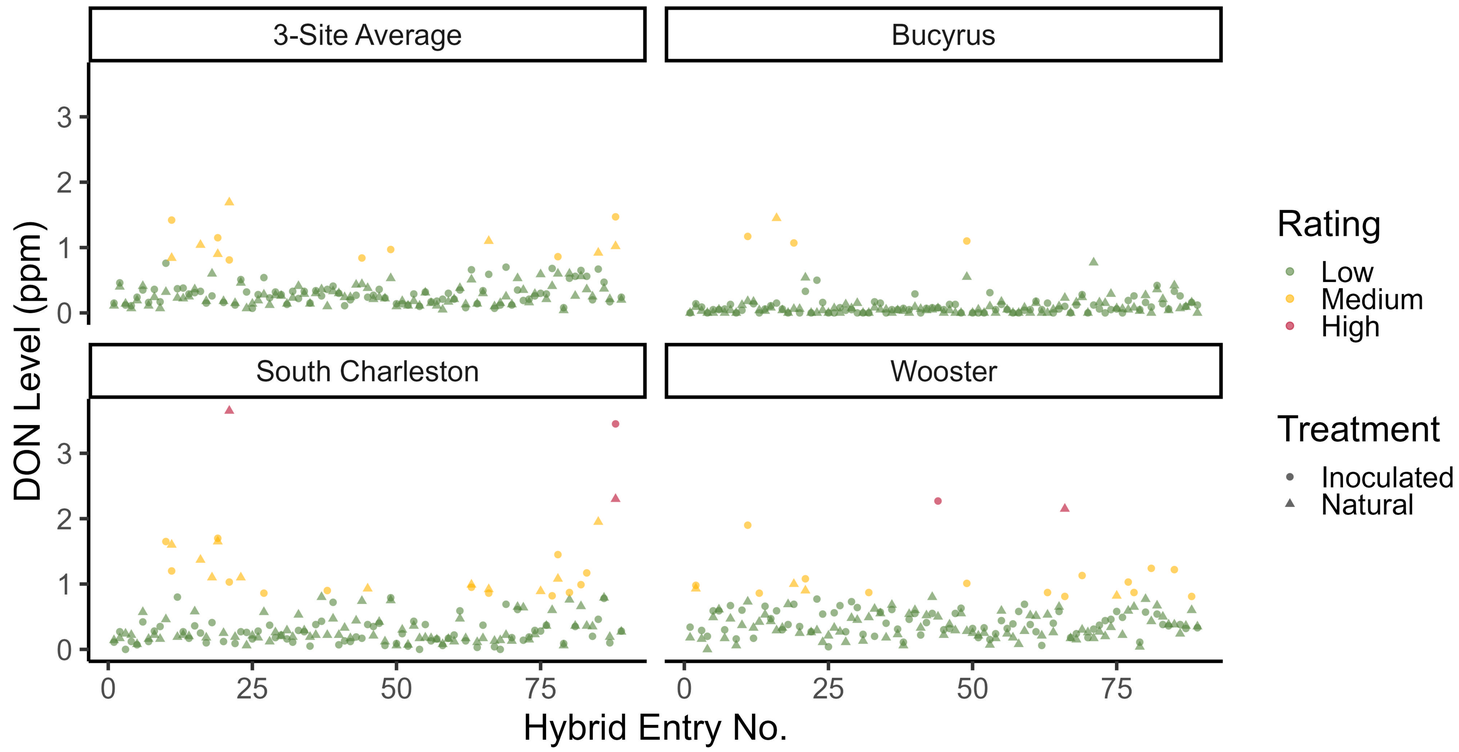

Figure 2. DON accumulation level per hybrid entry at all three field locations and three-site average. Shape denotes whether ears were inoculated or naturally infected by *Fusarium graminearum*. Color denotes level of DON accumulation relative to other tested hybrids (Low = 0 – 0.8 ppm; Medium = 0.81 – 1.9 ppm; High = 2.0 ppm or higher).

CONCLUSIONS

- Despite 2024 weather conditions being less favorable for GER development, significant differences in average DON contamination levels were observed among hybrids
- These results will help Ohio corn growers avoid planting susceptible hybrids and lower the risk of GER and DON accumulation

ACKNOWLEDGEMENTS

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