A Survey of Foliar Diseases Affecting Cucurbitaceae in South Dakota

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INTRODUCTION

- Cucurbit crops make up 46% of the 830 acres of vegetable production in South Dakota
- The prevalence and distribution of the foliar diseases affecting cucurbits are unknown

OBJECTIVES

- Identifying spores of causal pathogens by preliminary microscopy to determine the foliar diseases present in South Dakota grower fields
- Isolating fungal cultures for identification of genera by sequencing the ITS region

METHODS

- Collected up to 40 symptomatic leaves from bottle gourd, melon, cucumber, pumpkin squash, watermelon or zucchini plants from 12 farms (Fig. 1)
- Used microscopy to identify fungi associated with symptomatic leaves
- Surface sterilized leaf tissue with 5% bleach for 30 seconds and plated on ¼ PDA amended with 40 mg/L streptomycin and 40 mg/L chloramphenicol
- Sequenced ITS regions of recovered fungal isolates to confirm pathogen genera

RESULTS

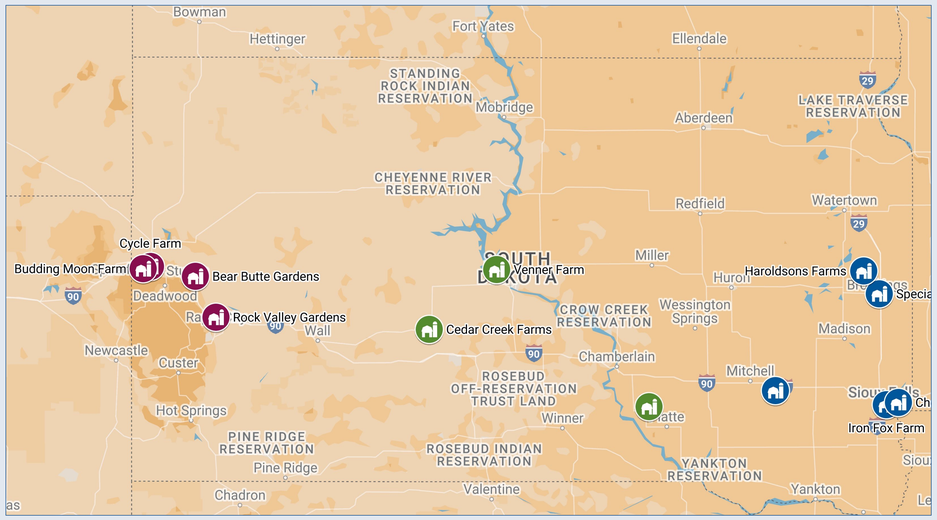

Figure 1. Locations of farms surveyed

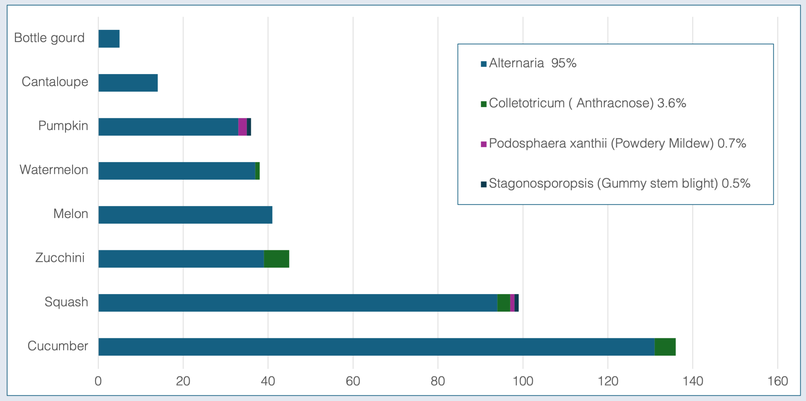

Figure 2. Microscopic identification of spores from 422 cucurbit leaves

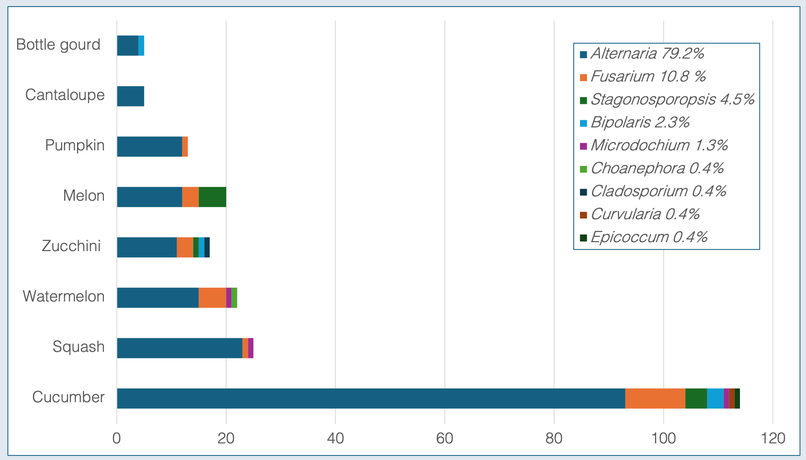

Figure 3. Isolates of 9 genera identified across 221 recovered isolates

DISCUSSION

- *Alternaria* spp. were most commonly identified and recovered from diseased cucurbit leaves (Fig. 2 and 3)
- *Alternaria* spp. also appear to be present as a common contaminant, possibly leading to false microscopic identification.

Future Directions:

- Multi-locus sequencing of GAPDH, TEF1 and RPB2 regions to identify *Alternaria* spp.
- Evaluate fungicide efficacy for controlling *Alternaria* spp. in-vitro and in-vivo

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