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Nine Species of Pythium Associated with Corn Seeding Blight in Southeastern Iowa

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Abstract

During the 2012 growing season, several thousands of acres of corn in southern Iowa were replanted in late May because of [poor stands caused by seedling disease](#). Many of the fields affected were planted between April 23 and 27. From April 28 through May 8, 2 to 6 inches of rain fell across southern Iowa and southeastern Iowa, respectively, and soil temperatures dropped below 55°F for four to five days. Approximately, one week later, damped off seedlings were reported in the area.

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Nine Species of *Pythium* Associated with Corn Seedling Blight in Southeastern Iowa

By Alison Robertson, Rashelle Matthiesen and Azeem Ahmad, Department of Plant Pathology and Microbiology

During the 2012 growing season, several thousands of acres of corn in southern Iowa were replanted in late May because of [poor stands caused by seedling disease](#). Many of the fields affected were planted between April 23 and 27. From April 28 through May 8, 2 to 6 inches of rain fell across southern Iowa and southeastern Iowa, respectively, and soil temperatures dropped below 55°F for four to five days. Approximately, one week later, damped off seedlings were reported in the area.

We received funding from the Iowa Corn Promotion Board, Valent, and BASF to investigate this seedling disease epidemic. We visited 25 affected fields, collected symptomatic seedlings and recovered nine species of *Pythium*. The most prevalent species recovered was *P. torulosum*, a known pathogen of corn (Figure 1). Pathogenicity tests done in the lab and growth chamber established that cool (55°F) soil temperatures favor both seed and root rot caused by *P. torulosum*.

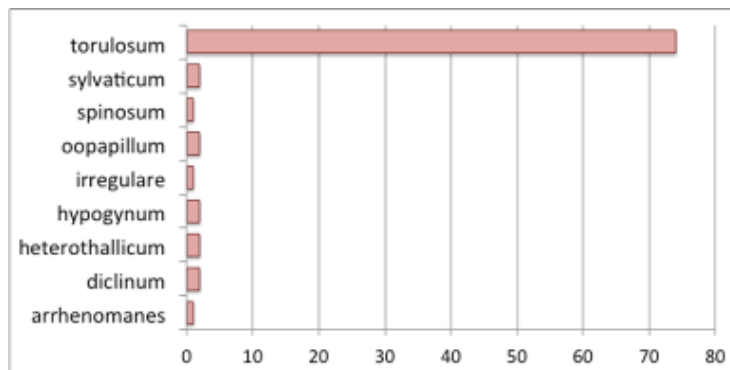


Figure 1. Species of *Pythium* recovered from diseased corn seedlings in southeastern Iowa in May 2012. Bars indicate number of isolates recovered from tissue samples from approximately 280 symptomatic seedlings.

Fungicide seed treatments protect germinating seed from pathogens. Metalaxyl (e.g., Allegiance®) and mefenoxam (e.g., Apron®) have excellent activity against *Pythium* species. Strobilurins, e.g. azoxystrobin (Dynasty®), trifloxystrobin (Trilex®) and pyraclostrobin (included Acceleron), also have some activity against this group of pathogens. A few years ago, researchers in Ohio reported resistance to all these fungicides among *Pythium* species that they had recovered from diseased corn and soybean seedlings in Ohio (Broders et al, 2007). We tested the *Pythium* species we recovered in 2012

