FUNGICIDE SENSITIVITY OF *CERCOSPORA SOJINA* TO DMI AND MBC FUNGICIDES

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Abstract

Cercospora sojina is the causal agent of frogeye leaf spot disease (FLS) in soybean. FLS management is achieved by planting resistant varieties, rotating crops, and applying fungicides. The use of fungicides may result in the development of fungicide resistance, which has occurred within FLS already to the QoI fungicide group. The goal of this project was to investigate any additional loss of fungicide efficacy, using both field and laboratory trials. The fungicide efficacy of Topguard (Flutriafol), Domark (Tetraconazole), Headline (Pyraclostrobin), and Topsin (Thiophanate-methyl) was evaluated in field trials at the UT AgResearch and Education Center at Milan from 2013 through 2019. The fungicides were applied at the beginning pod growth stage. A mycelium growth assay was used to evaluate fungicide sensitivity of isolates collected from TN, LA, GA and IA through the years 1994 to 2020 for Tetraconazole, Thiophanate-methyl, and Flutriafol at the rates 0, 0.001, 0.01, 0.1, 1.0 and 10 ppm. The effective concentration to inhibit 50% mycelial growth (EC_{50}) was calculated. While FLS populations were not managed with Pyraclostrobin, there was no loss of sensitivity for Flutriafol, Tetraconazole, or Thiophanate-methyl based on field results. The EC_{50} results were 0.157 ppm for Thiophanate-methyl, 0.159 ppm for Flutriafol, and 0.327 ppm for tetraconazole. There was no difference in the EC_{50} value of isolates collected from different states. Therefore, DMI and MBC are still efficient for managing FLS to this date.