Title Curative and protectant activity of fungicides for control of crown rot of strawberry caused by *Colletotrichum gloeosporioides*

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Abstract

The ability of fungicides to control Colletotrichum crown rot of strawberry caused by *C. gloeosporioides* was examined over three seasons. A single application of each fungicide was made 2 days before inoculation (2 DBI) or 1 day after inoculation (1 DAI) with conidial suspensions of *C. gloeosporioides*. The proportion of plants collapsed on one date at the end of each season was evaluated. In a combined analysis, there was a significant fungicide treatment-season interaction (P = 0.004). Percent mortality was 64% over 3 years in control plots that were inoculated with *C. gloeosporioides* but not treated with fungicide. Captan applied 2 DBI consistently reduced plant mortality (mean mortality = 17%). However, it was not as effective when applied 1 DAI (mean mortality = 46%). Azoxystrobin, pyraclostrobin, and thiophanate-methyl all reduced plant mortality relative to the control if applied 2 DBI (mean mortality = 46% for azoxystrobin, 37% for pyraclostrobin, and 41% for thiophanate-methyl) or 1 DAI (mean mortality = 29% for azoxystrobin, 27% for pyraclostrobin, and 32% for thiophanate-methyl). Results indicated that these fungicides were more effective when applied 1 DAI; however, lower plant mortality was not always observed with postinoculation applications. Cyprodinil + fludioxonil reduced mortality relative to the control, but there was no consistent evidence that it was more effective when applied at 2 DBI (mean mortality = 39%) than when applied 1 DAI (mean mortality = 40%). Similarly, mortality in plots treated with thiram 2 DBI (mean mortality = 30%) or 1 DAI (mean mortality = 32%) was not different. Potassium phosphite did not affect mortality, regardless of the timing of application (2 DBI mean mortality = 61%, 1 DAI mean mortality = 67%). The results indicated that an effective strategy for controlling Colletotrichum crown rot caused by *C. gloeosporioides* should be based on weekly applications of captan throughout the growing season. Azoxystrobin, pyraclostrobin, or thiophanate-methyl applications should be applied when weather conditions are highly favorable for disease development and the activity of contact fungicides such as captan or thiram might be compromised.