

Abstract

Anthracnose (*Colletotrichum coccodes*) is the major fungal disease affecting processing tomato fruit in the midwestern United States. Currently available disease management strategies evaluated for controlling anthracnose fruit rot (AFR) on processing tomatoes include genetic resistance and the fungicide chlorothalonil applied according to conventional schedules or a disease-forecasting system (Tom-Cast). Experimental field plots were established in West Lafayette, Indiana, and East Lansing, Michigan, in 1993 to 1995. Chlorothalonil was applied every 7, 10, or 14 days or according to Tom-Cast with a threshold of 20 disease severity values, and was not applied to the control. In Michigan, *Phytophthora infestans* (1993) and *C. coccodes* (1993 to 1994) caused 91.8% (1993) and 30.7% (1994) fruit rot in the unsprayed plot. In Indiana, *C. coccodes* caused 69.8% (1993) and 39.0% (1994) AFR in the unsprayed plot. In 1995, Ohio 8245 (Michigan and Indiana), considered to be less prone to anthracnose, and Ohio 7814 were integrated into the conventional and Tom-Cast-prompted spray programs. Cultivar did not affect the incidence of AFR or foliar blight caused by *Septoria lycopersici* and *Alternaria solani* in either location. In 1993 and 1994, chlorothalonil applied at 10-day intervals in Indiana resulted in the highest benefit per hectare (BPH) and return per fungicide dollar (RPFd). In 1995, the highest BPH and RPFd resulted from chlorothalonil applied every 14 days to Ohio 8245 (Michigan). Chlorothalonil applied according to the Tom-Cast program resulted in a level of AFR that was generally not statistically different from the 7-day treatment but was high enough to result in crop rejection and high economic loss in 2 of the 3 years the study was conducted. Based on data from this study, it is not commercially feasible to grow processing tomatoes in Michigan and Indiana without chlorothalonil to protect against AFR even when a resistant cultivar is used. Additional keywords: AUDPC, FAST, fruit quality, fungicide residue, integrated pest management.