

ABSTRACT**CONTROL OPTIONS OF *Alternaria alternata* (Fr.) Keissler IN ORGANIC TOMATO PRODUCTION**

Bahadır ÜNSAL

Master Thesis, Adnan Menderes University
Graduate School of Natural and Applied Sciences
Department of Plant Protection

Supervisor: Prof Dr. Seher BENLİOĞLU

This study was undertaken to determine the efficacy of some biological and chemical preparations against *Alternaria alternata* (Fr.) Keissler by using conventional and Tom-Cast program in field-grown organic tomatoes. The study was carried out in four commercial organic tomatoes fields growing under contract with Rapunzel Company in Manisa province during the crop season 2009 and 2010. Copper hydroxide (Champion WP), *Bacillus subtilis* (Serenade SC), potassium bicarbonate (Armcarb) and *Reynoutria sachalinensis* extract (Regalia) were used in the trials. The experiments were conducted in two factor-randomized block design (conventional, Tom-Cast) with five treatments (four fungicide + control) and four replicates under natural infection conditions. Tom-Cast model was used for prediction and warning systems. According to the conventional application, six or seven treatments were done in farmers' field while only two or three treatments were done in Tom-Cast program. At the end of evaluations, there was no significant difference in disease severity index between conventional and Tom-Cast programs in both farmers in 2009 while significant difference was found in disease severity index between two application programs in the second farmer field in 2010. The disease severity index of fungicide applications were found to be statistically different compared to untreated control in both farmers' field in 2009 and 2010. The highest effectiveness (27.5% and 39.4%) was obtained from copper hydroxide applications in 2009. The highest effectiveness was obtained from *Reynoutria sachalinensis* applications (45,91%) and this was followed by copper hydroxide (43.54%), *Bacillus subtilis* (42,95%) and potassium bicarbonate (40.87%) in the first farmer in 2010. However, the effectiveness of *Bacillus subtilis*, *Reynoutria sachalinensis*, copper hydroxide, and potassium bicarbonate was found 50.99, 50.59, 47.02 and 44.38%, respectively in the second farmer's field in 2010. Marketable fruit yield between conventional and Tom-Cast program differed only in one field in both year while the yield in fungicide treated plots were found to be statistically different in compared to untreated control in both farmer's field in 2009 and 2010.

Key Words: Organic tomatoes, copper hydroxide, *Bacillus subtilis*, potassium bicarbonate, *Reynoutria sachalinensis*, Tom –Cast