WEILAND, J. J., USDA-Agricultural Research Service, Northern Crop Science Laboratory, Fargo, N.D. 58105. **Esterase isozyme and DNA fingerprinting distinguish *Cercospora beticola* races C1 and C2.**

Physiological races C1 and C2 of *Cercospora beticola* originally were distinguished by the differential leaf spot symptoms they incited on sugarbeet. Supernatants of liquid stationary cultures of these two *C. beticola* races were the source of secreted esterase in this study, with the fungal mycelia from these cultures being used as a source of genomic DNA and non-secreted esterase activity. Using both the random amplified polymorphic DNA (RAPD) and the amplified fragment length polymorphism (AFLP) techniques, DNA polymorphisms distinguishing these two races were shown to exist. Esterase activity was detected in both culture supernatants and extracts prepared from fungal mycelia. In both denaturing and native polyacrylamide gel electrophoresis, a major esterase activity was produced by race C2 that was of slower electrophoretic mobility as compared to the major esterase activity produced by race C1. The possible involvement of esterase activity in the observed virulence differences of the two races on inoculated sugarbeet is discussed.