

GENETIC RESISTANCE AND CHEMICAL CONTROL OF SCLEROTINIA

Bob Henson, Greg Endres, Darrin Hauf, and Ken Grafton

Sunflower. The third season of screening sunflower germplasm for reduced susceptibility to Sclerotinia head rot was successfully completed in 2002. Sixty-five commercial hybrids and breeding lines submitted by seed companies were planted, inoculated with disease spores, misted for five weeks, and evaluated for head rot symptoms. A number of entries showed promising levels of resistance, even among the confection types. In an adjacent field area, 678 breeding lines and four species of wild sunflowers were managed for the USDA Sunflower Research Unit in Fargo. These materials should provide germplasm for the development of future hybrids with increased head rot resistance.

Canola. In the second year of evaluating canola, 20 production varieties and 20 fungicide treatments were studied. Despite inoculation with ascospores and misting, Sclerotinia infection was relatively low, possibly due to excessive temperatures during flowering. However, the relative ranking of varieties for disease incidence was quite similar in both years. Results of the fungicide treatments suggest that application at mid-bloom is more effective than at early bloom.

Dry Bean. In 2002, evaluations of dry bean breeding lines for susceptibility to Sclerotinia began at the Carrington Research Extension Center. Excellent disease pressure was achieved through inoculation with ascospores and misting. Within a population of lines derived from a cross between a pinto and a navy bean, promising materials were identified for disease resistance, as well as architecture and seed type. In addition to this population, another breeding population and the National White Mold Disease Nursery were evaluated.

General Comments. Continued improvements were made in infrastructure and the methodology for inoculation with ascospores, misting, and disease evaluation. Research on Sclerotinia continues to expand to new crops and methods of control and the Carrington Center is developing a reputation of expertise in this area. This framework, combined with the evolving network of collaborative links, should contribute to more effective and more economical control of Sclerotinia.



Misting the dry bean sclerotinia variety trial.