

Rust Impact on Sunflower in Manitoba

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Sunflower rust caused by the fungus *Puccinia helianthi* Schw., is a widespread disease in the major sunflower growing areas of the world. This pathogen completes its life cycle on sunflower with a high probability of genetic recombination and the formation of new races. Several races of sunflower rust have been identified in North America. Prior to 1990, race 2 was the most predominant in the Red River valley of USA and Canada. Recently, new races 3 and 4 became more predominant in Canada. Severe epidemics of sunflower rust occurred in Manitoba in the fifties causing 60% yield reduction, in North Dakota in 1971-73, and in both Manitoba and North Dakota in 1988-99 with severity levels of 1-60% leaf area affected. Rust infected sunflower every year with various levels of severity. Sunflower rust was present in 65% of fields surveyed in 2003 with disease severity of 40 to >60% leaf area affected in 20% of the fields in south central Manitoba. Such levels of severity must have reduced the yield as well as the seed weight and quality in sunflower. Most oilseed hybrids are resistant to race 2 and some to race 3, while most confection hybrids are susceptible to all races. Following a 3-year Crop rotation, control volunteer sunflower plants, and avoid planting sunflower adjacent to heavily rusted fields from previous year, will help reducing the local inoculum and delaying the primary infections. However, rust spores are windborne and can arrive anytime during the season with the prevailing south wind. No registered foliar fungicides in Canada to control sunflower rust, but several fungicides proved effective in significantly reducing disease severity and increasing yield.