

## Oat Crown Rust in Canada in 2006

*James Chong*

Cereal Research Centre, Agriculture & Agri-Food Canada, 195 Dafoe Road, Winnipeg, Manitoba, Canada R3T 2M9  
jchong@agr.gc.ca

Crown rust was found at trace levels on wild oat and commercial oat fields in southern Manitoba on June 30, 2006. The unusual hot and dry conditions during the growing season kept the disease mostly at trace to light levels across the eastern prairie region (Manitoba and eastern Saskatchewan). However, in the buckthorn (the alternate host) areas, crown rust was still severe despite of the unfavorable conditions. For instance, in areas near Carman, MB, up to 40% or 80% crown rust severities were found on wild oat and oat fields by July 20. In 2006, 16 single-gene lines with *Pc38*, *Pc39*, *Pc40*, *Pc45*, *Pc46*, *Pc48*, *Pc50*, *Pc51*, *Pc52*, *Pc54*, *Pc56*, *Pc58*, *Pc59*, *Pc62*, *Pc64*, and *Pc68* were used as primary differential hosts, and single-gene lines with *Pc91*, *Pc94*, and *Pc96* and *tempPc97* as supplemental differentials. *TempPc97* is a gene recently transferred from *Avena sterilis*. In 2006, 77 races were identified from 124 isolates from wild oat in the eastern prairie region, and 51 of these races were found only once. BRBB (5.6% of the isolates) was the most common race, followed by LRBB (4.8%), and BQBB (4.0%). Virulence frequency to *Pc68* in isolates from wild oat increased from 42.0% in 2005 to 66.1% in 2006. Higher frequency of virulence to this gene (77.8%) was found in isolates from commercial oat fields, as over 80% of the oat acreage in Manitoba in 2006 were planted to cultivars with *Pc68* ('AC Assiniboia', 'AC Preakness', 'Ronald', 'Furlong'). In contrast, frequency of virulence to *Pc48*, a gene in 'Triple Crown' decreased to 3.2% in isolates from wild oat, as acreage of this cultivar decreased to 8% in 2006. Genes *Pc91*, *Pc94*, *Pc96*, and *tempPc97* are being used in breeding programs in Canada. Several isolates were found with virulence to *tempPc97* in the eastern prairie region in 2006. Two isolates with virulence to *Pc68* and *Pc94* (BRBG-94 and DRBG-94) were obtained from cultivated oat in the eastern prairie region, and cultivar 'Leggett' is susceptible to these isolates. Virulence to *Pc91*, a gene in 'HiFi', has been detected in the eastern prairie region since 2002, but was not detected in 2006.