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First Report of Pathogenicity Groups 3 and 4 of *Leptosphaeria maculans* on Canola in North Dakota. C. A. Bradley, Department of Plant Pathology, North Dakota State University, Fargo 58105; and P. S. Parks, Y. Chen, and W. G. D. Fernando, Department of Plant Science, University of Manitoba, Winnipeg, MB R3T 2N2, Canada. *Plant Dis.* 89:776, 2005; published on-line as DOI: 10.1094/PD-89-0776C. Accepted for publication 18 April 2005.

Blackleg, caused by *Leptosphaeria maculans* (Desmaz) Ces. & de Not (anamorph = *Phoma lingam*), is an economically important disease of canola (*Brassica napus* L.) worldwide and was first detected in North Dakota in 1991 (3). *L. maculans* can be categorized into one of several pathogenicity groups (PGs) on the basis of the interaction phenotypes in differential canola cvs. Westar, Glacier, and Quinta by using a standard screening protocol in the greenhouse (4). With this system, PG1 strains are weakly virulent and PG2, PG3, and PG4 are highly virulent. The predominant strains of *L. maculans* in North Dakota are PG1 and PG2 (3). In cooperation with the Oilseed Pathology Lab in the Department of Plant Science, University of Manitoba, blackleg-infested canola stubble was collected arbitrarily from fields in North Dakota during August and September of 2003. Isolates of the pathogen were obtained by plating surface-sterilized (2% NaOCl), collected stubble on V8 agar containing 0.03% chloramphenicol at 22°C under continuous cool-white fluorescent light. Pycnidiospores were harvested from single pycnidia after 14 days of incubation with the Mira cloth filtering method (2) and stored at -20°C. Each isolate was passed once through cv. Westar to maintain virulence. Isolates were confirmed as being *L. maculans* by the presence of characteristic pink pycnidia formed on V8 agar and the characteristic symptoms caused on inoculated cotyledons of cv. Westar. The PG test was performed using a standard screening protocol (4) and was repeated three times for each isolate. For each isolate, 12 7-day-old cotyledons of each differential cultivar were wound inoculated with 10 µl of a pycnidiospore suspension (1×10^7 per ml). Disease severity on cotyledons was assessed 12 days after inoculation with a 0 to 9 scale (0 to 2 = resistant; 3 to 6 = intermediate; and 7 to 9 = susceptible). A total of 106 isolates were obtained from the stubble collected from 47 fields. Of these isolates, three were characterized as PG1, 94 as PG2, six as PG3, and one as PG4; two isolates could not be characterized according to the PG system as described (4). PG3 isolates originated from two fields in Cavalier County and one field in Ward County. The PG4 isolate was from Cavalier County. To our knowledge, this is the first time highly virulent strains of PG3 and PG4 have been detected in North Dakota. PG3 and PG4 strains of *L. maculans* were found

only recently in western Canada (1,2). The discovery of these PGs in North Dakota and western Canada has immense implication to canola breeding programs and blackleg control, since these PGs may cause greater levels of blackleg severity on canola cultivars that are resistant to only PG2 type isolates.

References: (1) Y. Chen and W. G. D. Fernando. *Plant Dis.* 89:339, 2005. (2) W. G. D. Fernando and Y. Chen. *Plant Dis.* 87:1268, 2003. (3) H. A. Lamey and D. E. Hershman. *Plant Dis.* 77:1263, 1993. (4) A. Mengistu et al. *Plant Dis.* 75:1279, 1991.

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