

**Forecast of Wheat Midge in Western Canada for 1996 - O. Olfert, M. Braun, R. Lamb, B. Elliott, L. Harris and L. Manaigre**


A survey was conducted in the fall of 1995 to determine the density and distribution of wheat midge (*Sitodiplosis mosellana*) cocoons overwintering in the soil in western Canada. Densities of midge cocoons in the soil suggest that the weather conditions over the last three to four years have been favourable for midge population increase. The distribution of wheat midge on the prairies has further expanded to areas south and west of the parkland region.

Although wheat midge was first reported in Manitoba in the 1950's, the first major prairie outbreak did not occur until 1983 in NE Saskatchewan when wheat midge caused an estimated \$30 million loss in wheat yield. In the last 10 years, the pest population has gradually spread to the south and west of the Saskatchewan parkland to include much of the wheat-growing area in Manitoba and northeast North Dakota. In 1995, wheat midge infested the area north of a diagonal line running from the southeast to northwest Saskatchewan, SK (see map). In Manitoba, the number of wheat midge cocoons in the soil is very high ( $> 1,200/m^2$ ) in areas south and west of Winnipeg and southwest of Brandon. In Saskatchewan, there is a band of high midge density running along the Dark Brown soil zone from east of Regina up towards east of Saskatoon. Smaller areas of very severe infestation are expected around Melville and east of Weyburn, SK.

The data for this map were compiled from soil samples collected in September 1995. The intent of the map is to identify areas within the prairies that are at risk to damage caused by wheat midge. Significant damage and economic losses can occur in spring wheat when midge densities reach 600 cocoons per square metre. Therefore, it is advised that wheat growers in the infested areas ( $>600/m^2$ ) familiarize themselves with management strategies against the wheat midge. Information about the biology and control of wheat midge can be obtained at provincial Rural Service Centres. In areas where the density of wheat midge exceed  $1200/m^2$ , grower's should consider growing resistant crops. Wheat is the primary host plant of the midge, most other crops, including barley and oats, are not susceptible to midge. If wheat is grown in the heavily-infested areas, producers should be prepared to monitor wheat fields daily during the period that the crop is heading and should factor in the cost of an insecticide application in production estimates.

Density of wheat midge is typically very sporadic so large differences in infestations can occur in adjacent fields. Weather conditions during the 1996 growing season will influence the development, emergence and reproduction of adult midge. Potential damage from wheat midge may be more or less severe than suggested by the survey data. All growers are urged to monitor wheat fields appropriately during the susceptible period (emergence of head from the boot until flowering begins) in all of the infested areas. An insecticide application is recommended when the crop is heading and there is at least one adult midge on every 4-5 wheat heads. Late insecticide application should be avoided. It will not be cost-effective and may adversely affect biological control agents. Parasites played a major role in controlling wheat midge in 1995. Parasitic wasps controlled about 25% and 45% of the wheat midge infestation in Saskatchewan and Manitoba, respectively.

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 Agriculture and Agri-Food Canada  
 Direction générale de la recherche  
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