

**The 1996 Grasshopper Forecast for Alberta and Saskatchewan - O. Olfert, D. Johnson, D. Giffen, C. Andrews, R. Weiss, L. Harris and M. Dolinski**

An increase in the risk to crops and rangeland from grasshoppers is expected in 1996, but numbers will not be as high this year as in the mid-1980's. The attached map depicts the density of grasshoppers found in the 1995 survey. The different categories are based on expected egg-laying and future hatching, and correspond approximately to very light, light, moderate, and severe risk of crop damage.

Saskatchewan and Alberta experienced a downward trend in grasshopper densities in the early 1990's, when rainfall and cool conditions interfered with the ability of grasshoppers to reproduce. However, in 1995 the proportion of the agricultural region shown on the map considered to be infested has increased from 15% to 26% of the area surveyed. Of the 460,000 square km surveyed, light, moderate, and severe infestations were detected in 120,000 square km, up from 45,000 square km in 1994. As a result, the threat to crop production from grasshoppers is forecast to be greater in 1996, but not as great as during the extensive outbreak of 1984-86. Moderate infestations are predicted in 6% (up from 4%) and severe infestations in only 5% of the surveyed area.

Predictions are based on estimates of adult grasshopper density obtained from the annual survey conducted by Saskatchewan Agriculture and Food, Saskatchewan Rural Development, the Alberta Agriculture Service Board, and Agriculture and Agri-Food Canada, as well as on weather and biotic factors that affect grasshoppers. The combined survey database included approximately 2,600 sites in 1995.

The damage potential of localized grasshopper outbreaks was lessened in districts that had above-average rainfall in 1995. Survival and activity of the adult grasshoppers during the egg-laying season was normal as a result of seasonable weather throughout the prairie region. In most of Saskatchewan and Alberta, the dominant species was the migratory grasshopper (*Melanoplus sanguinipes*), followed by the two-striped grasshopper (*M. bivittatus*), Packard's grasshopper (*M. packardii*) and the clear-winged grasshopper (*Camnula pellucida*). In Alberta, in addition to these species there were localized increases in populations of rangeland grasshoppers such as the large-headed grasshopper (*Phoetaliotes nebrascensis*) and Gladston's grasshopper (*Melanoplus gladstoni*). The northern agricultural regions of Alberta were infested with scattered, nearly pure populations of the clear-winged grasshopper, which was the cause of much of the outbreak in 1984-86 but is now gone from southern regions.

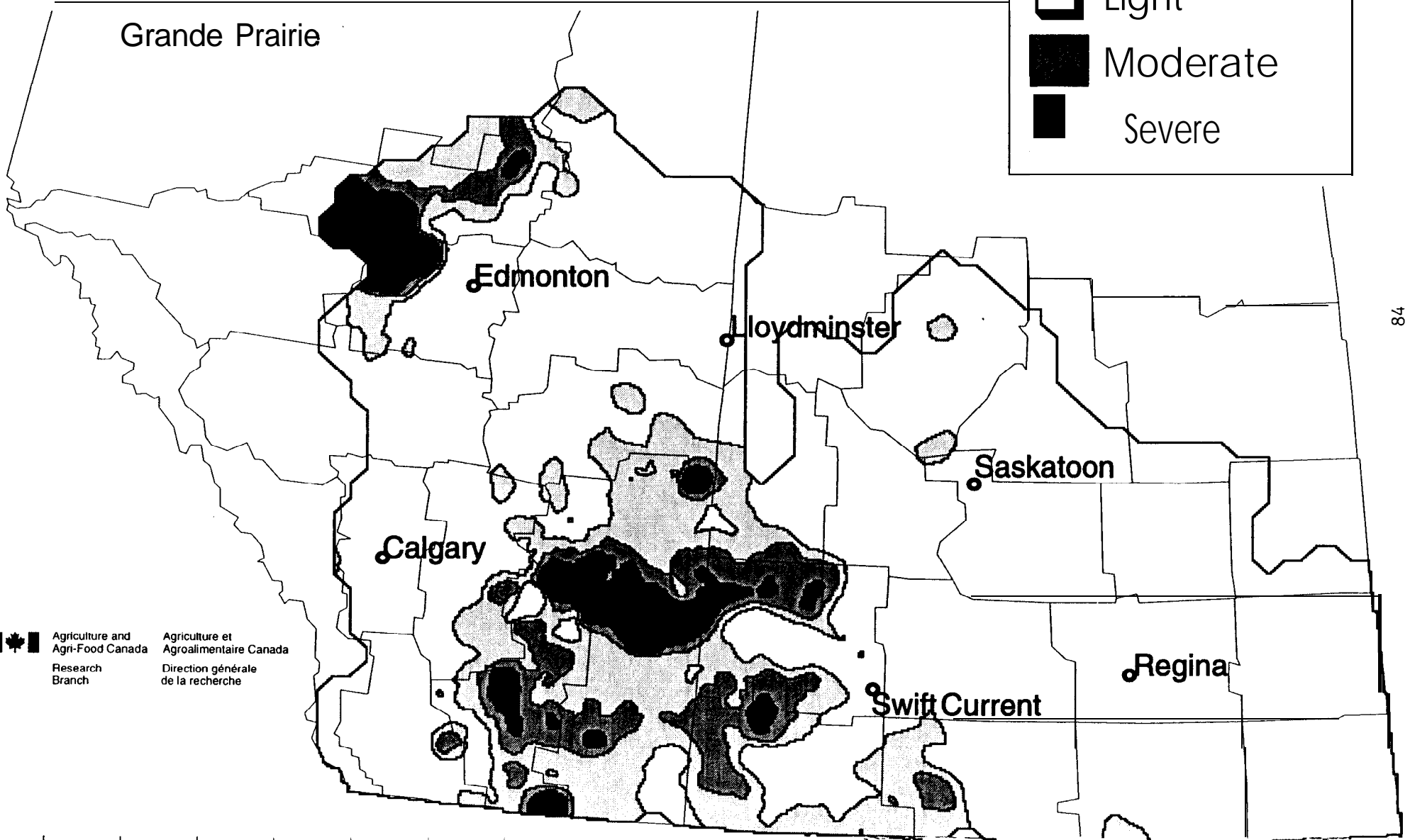
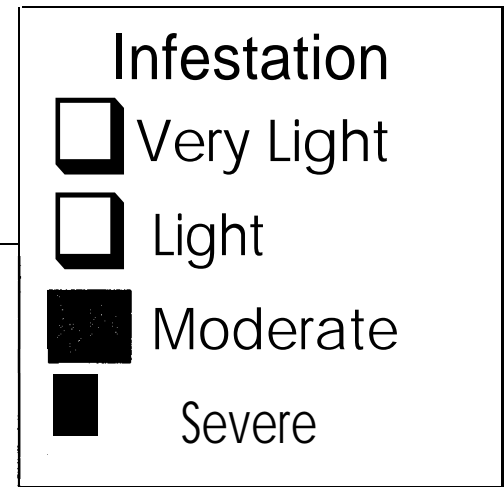
The severity of grasshopper infestations in the current year depends primarily on weather and the presence of grasshoppers during the previous summer. Grasshoppers tend to thrive in zones in which moisture is available but low. Heat in late summer encourages maximum mating and egg-laying. A warm, dry fall enhances embryonic development; a warm, dry spring and early summer increases survival of the hatchlings and the potential for subsequent damage to crops.


Field margins, fence lines, roadsides and crops grown on stubble must be watched closely when hatching begins in the spring. When using insecticides, take note of precautions regarding user safety, correct use, and proximity to threatened wildlife. Keep in mind that the objective is to sensibly protect the crop, and not to achieve 100% removal of grasshoppers. Updates of the current status of grasshopper populations will be available in the spring. Infestations greater than about 10 per square metre should be monitored closely for crop damage.

**Area of agricultural land (%) in each risk category, based on grasshopper breeding density. Regions rated with an average of 8 or more per sq. metre will require control measures on significant numbers of farms.**

Class Mean # per m <sup>2</sup>	1993		1994		1995	
	%	Area km <sup>2</sup>	%	Area km <sup>2</sup>	%	Area km <sup>2</sup>
0 - 4	70	272,041	8.5	334,364	74	342,445
<b>4 - 8</b>	<b>20</b>	<b>77,635</b>	<b>9</b>	<b>35,223</b>	15	71,079
8 -12	7	26,523	4	16,817	6	28,429
12 -24	3	10,914	2	6,352	5	20,855
<b>&gt; 24</b>	<b>&lt;0.1</b>	<b>1,446</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>100</b>	<b>388,559</b>	100	<b>392,756</b>	100	<b>462,808</b>

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