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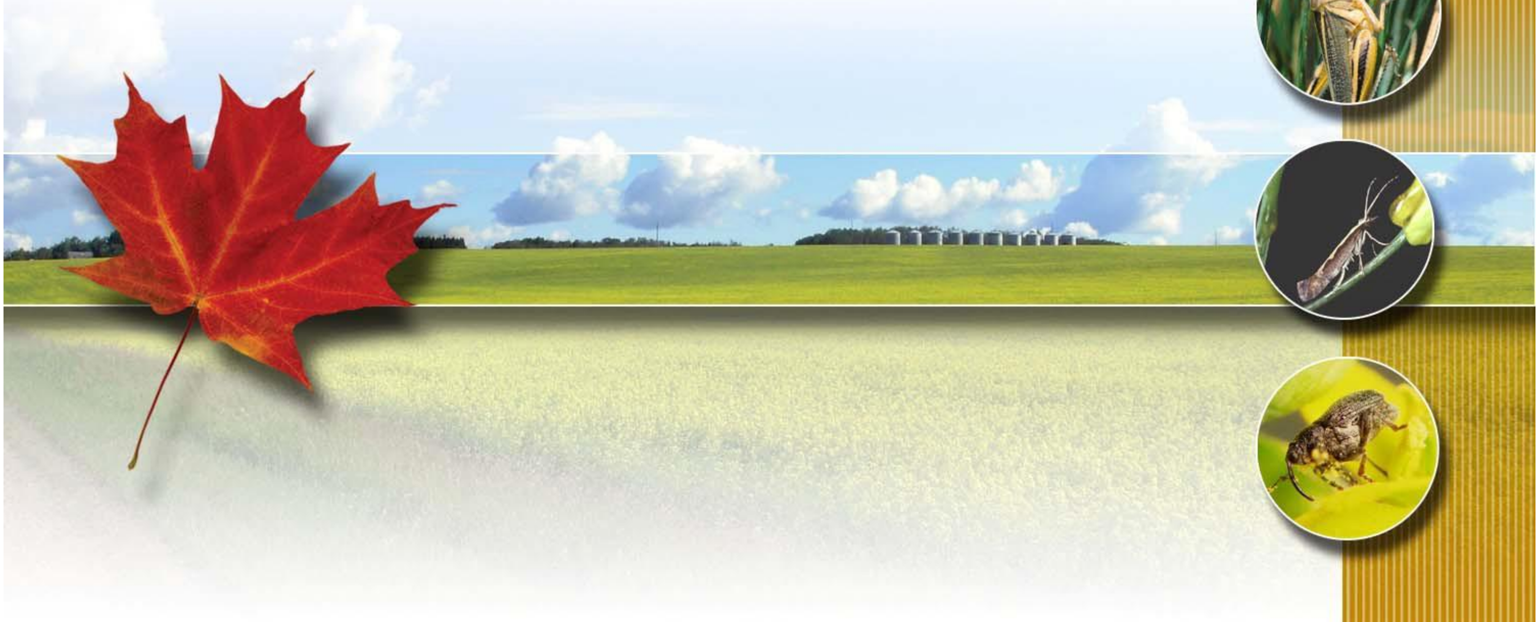

2012 Crop Variety Highlights and Insect Pest Updates

Melfort Research Farm Scott
Research Farm Saskatoon
Research Centre

Canada

Regional Testing of Cereal, Oilseed and Pulse Cultivars 2012
L.P. Nielsen and G.J. Moskal

Cultivars are tested regionally to determine their adaptation to the wide range of soil and climatic conditions in Saskatchewan. These tests are conducted at approximately 12 locations each year including two by Scott Research Farm staff (Scott and Glaslyn) and one at the Melfort Research Farm. Results form the basis of cultivar recommendations – yield data can help producers assess the performance of varieties in their area. However, data from a single location can be limited, particularly for new varieties. More comprehensive information is contained in the Saskatchewan Ministry of Agriculture publication, *Varieties of Grain Crops 2013*. Seed quantities for new varieties listed herein may be limited for 2013.

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Table 1. Growing Season Precipitation (mm) at Scott, Glaslyn and Melfort in 2012

Month	Scott	Glaslyn	Melfort
May	53	63	73
June	185	85	112
July	56	55	98
Total	**294**	**203**	**283**
Long Term Average	158	161	188

Table 2. Average Yield of Crop Species on Fallow expressed as a % of hard red spring wheat (AC Barrie) at Scott, Glaslyn and Melfort. For most crops, data presented is based on yields averaged over the past 15-20 years. Only 5 years data are averaged at Glaslyn.

	Cultivar	**Scott**		**Glaslyn**		**Melfort**	
Bread Wheat	AC Barrie	100	(3480)	100	(4132)	100	(3978)
Utility Wheat	AC Andrew	136	(4742)	128	(5391)	133	(6282)
Extra Strong Wheat	Burnside	121	(4225)	106	(4978)	102	(5038)
Durum Wheat	Strongfield	117	(4081)	---		101	(4644)
Triticale	AC Certa	125	(4350)	---		131	(4781)
Barley	AC Metcalfe	133	(4626)	136	(5268)	121	(4682)
Oat	CDC Dancer	154	(5363)	130	(5545)	130	(4929)
Canola	46A65	*88	(3058)	*58	(2407)	88	(3446)
Flax	CDC Bethune	*55	(1914)	*53	(2141)	53	(1937)
Mustard (Juncea)	Cutlass	*79	(2742)	---		----	
Mustard (Alba)	AC Pennant	*53	(1848)	---		---	
Field Pea	Cutlass	68	(2362)	101	(3970)	100	(4364)
Lentil	CDC Milestone	56	(1938)	---		51	(1885)

* Less than 4 years of data

Table 3. Yield of Flax Cultivars at Scott, Glaslyn and Melfort 2012

	2010 Yield (kg/ha)			**Long Term Average Yield (% of CDC Bethune)**					
Cultivar	**Scott**	**Glaslyn**	**Melfort**	**Scott**		**Glaslyn**		**Melfort**	
	hailed out								
CDC Bethune		1659	1425	100		100		100	
AC Bravo		1691	1675		*	77	*	118	*
CDC Glas		2067	1813		*	95	*	127	*
CDC Sanctuary		2131	1329	82	*	116	*	87	
Prairie Sapphire		2195	1795		*	101	*	110	*

***** Less than 3 years of data

Table 4. Yield of Spring Wheat Cultivars at Scott, Glaslyn and Melfort 2012

	2012 Yield (kg/ha)			Long Term Average Yield (% of AC Barrie)		
Cultivar	**Scott**	**Glaslyn**	**Melfort**	**Scott**	**Glaslyn**	**Melfort**
Bread Wheat	hailed out					
AC Barrie		4192	4305	100	100	100
AC Bailey		3948	3665	93 *	101 *	96 *
AC Redwater		4024	3777	*	94 *	88 *
Carberry		4372	4034	113	108	93
Cardale		4248	4345	*	99 *	97 *
CDC Kernen		4346	4072	102 *	102 *	103 *
CDC Plentiful		4500	4472	*	105 *	106 *
CDC Stanley		4994	4016	110 *	93 *	101
CDC Thrive		4134	4226	107 *	96 *	102
CDC Utmost VB		4370	4310	103 *	97 *	104
CDC VR Morris		4418	4301	105 *	110 *	109 *
Glenn		4478	4044	109	111	99
Muchmore		4374	3639	108	107	90
Shaw VB		4358	4099	113	110	110
Stettler		4310	4397	111	110	105
Unity VB		4358	-	114	112	117
Vesper VB		4388	4797	99 *	106 *	115
Whitehawk		2946	2999	84 *	80 *	81 *
Utility Wheat						
Burnside		5300	3165	121	112	97
CDN Bison		6170	3509	121	122	111
CDN NRG003		6132	4281	116 *	130 *	109 *
Conquer VB		5736	4727	120 *	136 *	129
Enchant		5612	3701	*	124 *	102 *
Minnedosa		5440	4371	121	115	106
Pasteur		6204	4074	138 *	139 *	117 *
Sadash		5534	3885	150	133	117

* Less than 3 years of data

Table 5. Yield of Durum Cultivars at Scott and Melfort 2012

Cultivar	2012 Yield (kg/ha)		Long Term Average Yield (% of Strongfield)	
	Scott	Melfort	Scott	Melfort
Strongfield	Hailed out	3298	100	100
Brigade		3520	95	106
CDC Verona		3750	98	102
CDC Vivid		3626	*	110 *
Enterprise		3394	93	98
Eurostar		3475	96	101
Transcend		3459	88 *	100

* Less than 3 years of data

Table 6. Yield of Oat Cultivars at Scott, Glaslyn and Melfort 2012

Cultivar	2012 Yield (kg/ha)			Long Term Average Yield (% of CDC Dancer)		
	Scott	Glaslyn	Melfort	Scott	Glaslyn	Melfort
CDC Dancer	4439	5397	2166	100	100	100
Bradley	4729	5251	2844	108	95	113
CDC Big Brown	4853	5805	2598	101 *	106 *	110
CDC Nasser	4367	5609	2848	104 *	103 *	115
CDC Seabiscuit	4347	5536	2856	111	107	114
Souris	4698	5285	3750	109	100	129
Stride	4892	5857	2824	110 *	105 *	119 *

* Less than 3 years of data

Table 7. Yield of Barley Cultivars at Scott, Glaslyn and Melfort 2012

Cultivar	2012 Yield (kg/ha)			Long Term Average Yield (% of AC Metcalfe)					
	Scott	Glaslyn	Melfort	Scott		Glaslyn		Melfort	
TWO ROW									
AC Metcalfe	4121	4552	3996	100		100		100	
AC Synergy	4587	5345	4148	96	*	97	*	101	*
Bentley	4305	4439	3553	119		111		107	
CDC Austenson	5051	5871	5143	127		127		123	
CDC Carter	3682	4095	3584	101		97		103	
CDC Clear	3405	4343	3761	91	*	95	*	104	*
CDC ExPlus	3027	3344	2715	89		74		101	
CDC Kindersley	3905	5107	4060	102		93		107	*
CDC Landis	4340	4846	4197	112		110		114	
CDC Maverick	3793	4610	3668	79	*	84	*	89	*
CDC Meredith	4671	5247	4425	120		116		109	
CDC PolarStar	4117	4451	3735	102	*	97	*	100	*
Gadsby	4875	5275	4575	113		107		113	
Major	4463	5185	4762	122		111		120	
Merit 57	4341	5348	4311	116		115		108	
SIX ROW									
Breton	4062	5393	4694					117	*
CDC Anderson	4270	4772	4504	101		106		115	
CDC Mayfair	3786	4974	4457	107		124		110	
Celebration	3813	4491	4533	108		107		106	
Chigwell	2982	4278	3988	109		129		112	
Innovation	3694	4686	4275	77	*	98	*	110	*
Muskwa	3211	5026	4599	67	*	105	*	115	*
Stellar ND	3768	4829	4246	100		107		118	

* Less than 3 years of data

Table 8. Yield of Lentil Cultivars at Scott and Melfort 2012

Cultivar	2012 Yield (kg/ha)		Long Term Average Yield (% of CDC Maxim CL)	
	Scott	Melfort	Scott	Melfort
Maxim CL				100
Small Green	Hailed out			
CDC Imvincible		1537	132	84
CDC Viceroy		2063		128 *
Medium Green				
CDC Imigreen CL		950	84	58
CDC Impress CL		1386	96	74
Large Green				
CDC Greenland		1134	87	71
CDC Greenstar		1185	86	80 *
CDC Impower CL		898	86	50
CDC Improve CL		1136	83	67
CDC Plato		1234	95	68
Extra Small Green				
CDC Asterix		1609	57	93 *
French Green				
CDC Emerald		1947		116 *
CDC Peridot		1188	104	65
Extra Small Red				
CDC Impala CL		1451	116	83
CDC Imperial CL		1028	97	64
CDC Redbow		1886	121	99
CDC Robin		1209	97	71
CDC Rosebud		2151	119	106
CDC Rosetown		1781	119	98
CDC Rosie		1468	67	96 *
CDC Ruby		2102	102	90
Small Red				
CDC Dazil		1881	93	101 *
CDC Imax CL		1125	103	56
CDC Maxim CL		1617	123	100
CDC Redberry		1700	111	93
CDC Redcliff		1849	116	110
CDC Redcoat		1172	118	69
CDC Scarlet		2458	58	128 *

* Less than 3 years of data

Table 9. Yield of Pea Cultivars at Scott, Glaslyn and Melfort 2012

	2012 Yield (kg/ha)			Long Term Average Yield (% of Cutlass)		
Cultivar	**Scott**	**Glaslyn**	**Melfort**	**Scott**	**Glaslyn**	**Melfort**
Yellow						
Cutlass	749	1641	5803	100	100	100
Agassiz	1989	3188	6496	142	130	110
Argus	1144	2047	6326	117	92	111
CDC Amarillo	1891	3057	8170	115 *	98 *	130 *
CDC Golden	1379	2339	5891	122	100	104
CDC Hornet	1739	2143	5167	111	95	103
CDC Meadow	1471	2059	5953	116	108	114
CDC Prosper	1153	1673	5214	104	97	100
CDC Saffron	1407	2171	6576	119	94	111 *
CDC Treasure	1365	2449	5210	123	113	106
Hugo	843	1817	6569	121	95	114
Sorento	1164	2578	5951	105	105	98
Green						
CDC Limerick	1458	2363	5935	87 *	77 *	106 *
CDC Patrick	1377	2921	5152	125	114	97
CDC Pluto	1593	2413	5872	112	109	101
CDC Raezer	1756	2067	5007	90 *	59 *	100
CDC Striker	2406	2449	5927	134	101	93
CDC Tetris	1780	2291	6282	126	114	110
Cooper	1375	2157	4702	119	108	99
Mendel	778	1350	4394	89 *	49 *	74 *
Dun						
CDC Dakota	2634	2784	6796	134 *	99 *	117 *
Forage						
CDC Horizon	1283	2083	5009	57 *	53 *	95 *
Stella	759	1117	4849	87	62	90
Maple						
CDC Mosaic	1155	2172	5229	50 *	60 *	90 *

* Less than 3 years of data

Insect Pest Updates

Bertha Armyworm in Western Canada in 2012

O. Olfert, S. Meers, S. Hartley, J. Gavloski , J.Otani

The coordinated program for monitoring bertha armyworm (*Mamestra configurata*) throughout the prairie region was implemented again in 2012. The monitoring program provides an early warning of the risk of armyworm populations reaching a level of economic importance in the current growing season. Pheromone traps were installed by provincial agriculture departments on farms and were maintained by grower co-operators throughout the period of moth flight to determine the density and distribution of the adults. Site-specific interpretation of the trap counts can be difficult because the traps are based on male moth counts, while it is the female moth that selects where the eggs are laid. However, moth counts are generally a good estimate of the risk of an infestation in the following year because bertha armyworm pupae overwinter in the soil.

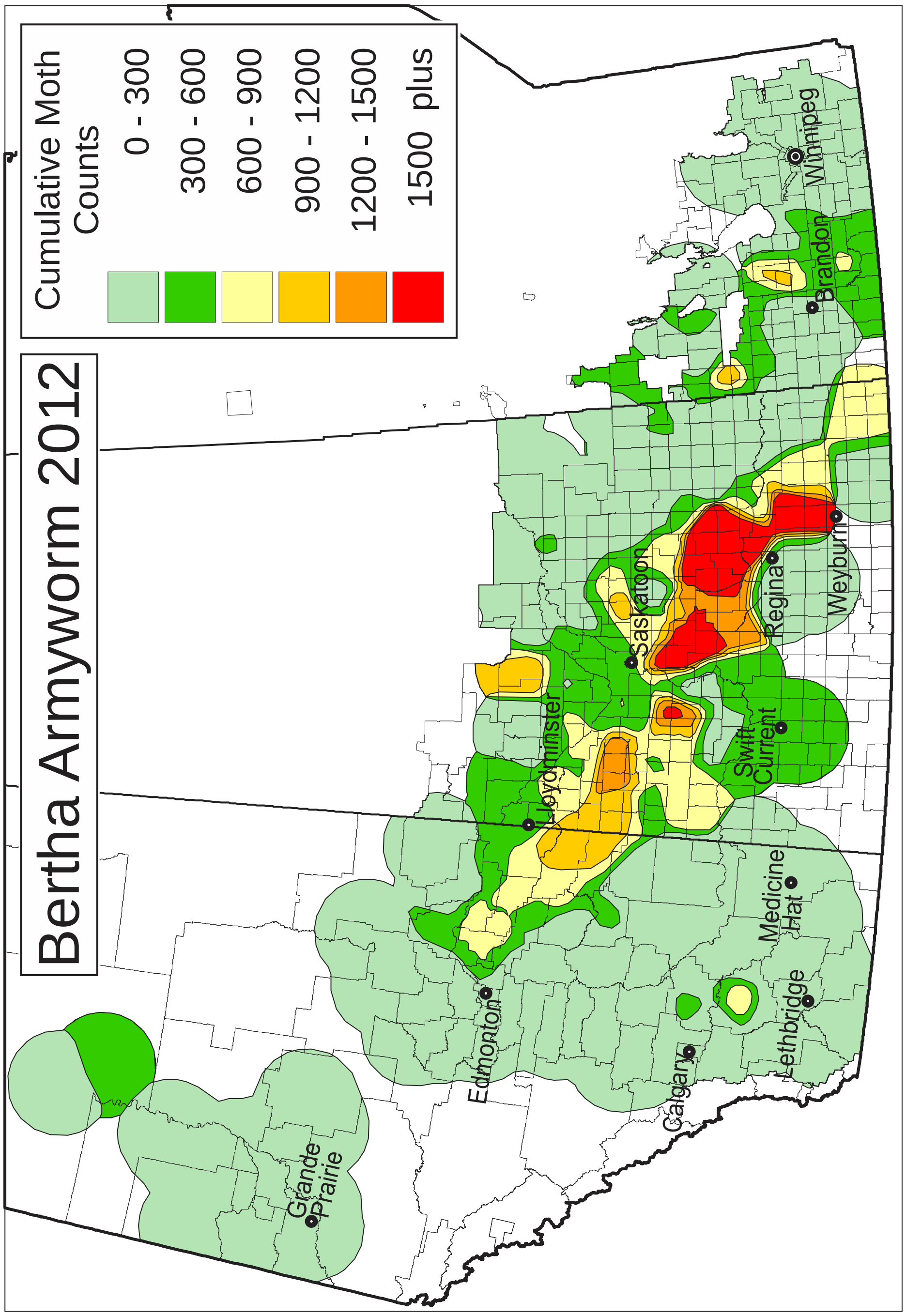
The network of traps indicated that bertha armyworm populations increased again over last year in throughout the prairies (Figure 1).The greatest increase is along a diagonal line from southeast Saskatchewan (Weyburn) through to Edmonton, Alberta. Although a cumulative moth count of 0 - 600 is considered a low risk category, actual larval density within the crop is typically very sporadic, which may cause large variations in infestations between fields.

In most years, bertha armyworm populations are controlled by natural control factors such as unfavourable weather, parasites, predators and diseases. As a result, outbreaks of bertha armyworm in western Canada have occurred at varying intervals. Increased canola production has coincided with an increase in the regularity of outbreaks which occur regionally about 8-10 years apart. These localized outbreaks rise, peak and generally subside over a three-year period. Outbreak peaks are not usually synchronized across the entire prairies with the last extensive outbreak occurring in 1994-1996.

The damage potential of bertha armyworm larvae is influenced by larval density & age, plant growth stage, and temperature. In areas where bertha armyworm is reported, and particularly in areas with higher populations of adults, growers should begin monitoring their crops about two weeks after peak trap catches to determine larval numbers. Monitoring should continue until the crop is sprayed or swathed. An insecticide application is recommended when the economic threshold of larvae in the crop is reached.

Additional information on the biology, monitoring, economic thresholds and control methods for the bertha armyworm can be found in Growing for Tomorrow - Bertha Armyworm Fact Sheet from government agencies and provincial extension personnel, or at:
http://www.agriculture.gov.sk.ca/Default.aspx?DN=defc273b-db17-48fd-a341-32a7c541fbe0

Funding for this survey was provided by the Canola Agronomic Research Program (CARP) through the provincial canola grower organizations in Manitoba, Saskatchewan and Alberta and the Western Grains research Foundation.. The network of pheromone traps was implemented and monitored by Alberta Agriculture, Food & Rural Development; Saskatchewan Ministry of Agriculture; Manitoba Agriculture, Food & Rural Initiatives; and Agriculture & Agri-Food Canada. The map was prepared by AAFC - Saskatoon.


Bertha Armyworm 2012
Cumulative Moth Counts
0 - 300
300 - 600
600 - 900
900 - 1200
1200 - 1500
1500 plus
Winnipeg
Brandon
Weyburn
Regina
Saskatoon
Swift Current
Lloydminster
Medicine Hat
Lethbridge
Calgary
Edmonton
Grande Prairie

The 2013 Prairie Grasshopper Forecast

O. Olfert, D. Giffen, S. Hartley, M. Vadnais, J. Gavloski, S. Meers, J. Otani

The impact of grasshopper infestations was slow to develop in Saskatchewan in 2012, however, there were a few regions of Alberta and Manitoba still had a significant number of grasshoppers, most notably the Peace River region (Figure 2).

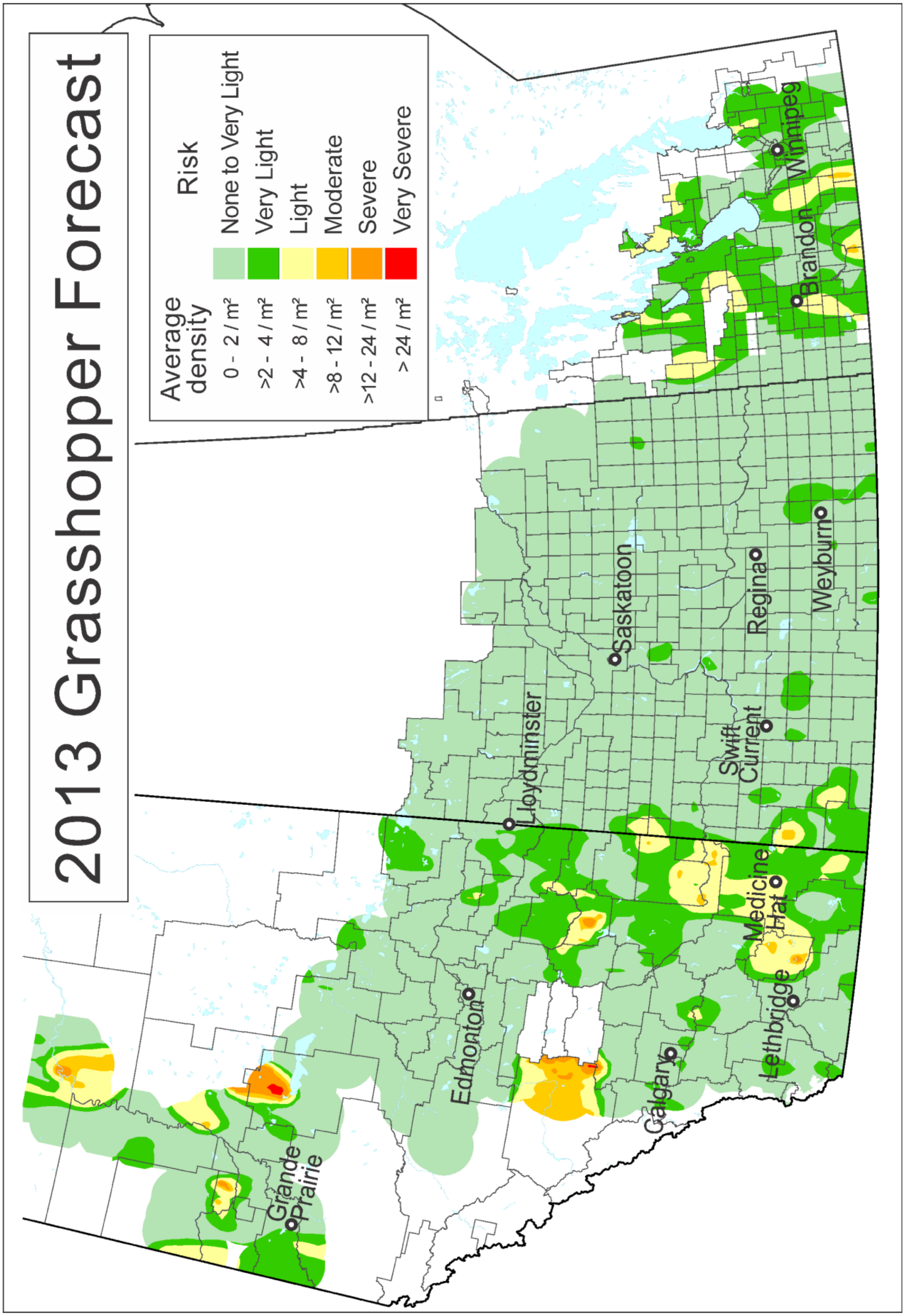
The grasshopper forecasts are based on estimates of adult grasshopper density obtained from an annual survey taken in the previous year, as well as on weather and biotic factors that affect grasshoppers. Grasshopper populations tend to be higher in the warmer zones of the prairies. Heat in late summer and fall encourages mating and egg-laying. A warm, dry fall enhances egg development and a warm, dry spring increases survival of the hatchlings and the potential for subsequent damage to crops. Producers should be aware that actual levels of infestation in field crops may differ from those predicted because of variations in the climatic factors.

For the most part, in 2012 the prairies experienced cool spring and early growing season temperatures that slowed grasshopper hatching and development. The more normal temperatures during summer encouraged growth and development. *Saskatchewan* – The areas of the province where crops risk is predicted to be moderate in 2013 are in the west central (Kindersley) and the extreme southwest. *Manitoba* – Most of the area that was surveyed is rated as very light risk going into 2013. Moderate risk of grasshopper problems were recorded in the area around Clearwater, Plum Coulee and Crystal City. *Alberta* – The risk of significant grasshopper numbers for 2013 is predicted to have lessened throughout most of Alberta. However, there are still a few areas of moderate and high risk of grasshopper scattered throughout North- central Alberta and the Peace region.

Field margins, roadsides and crops grown on stubble must be watched closely when hatching begins in the spring. Action thresholds for grasshoppers on most crops are when populations reach 8 - 12 grasshoppers/m^2, but in lentils, two or more grasshoppers/m^2 at flowering and podding stages can cause losses. Studies also indicate that two-striped grasshoppers feed preferentially on lentil pods thus causing direct and significant yield loss at a lower threshold.

When using broad spectrum insecticides, take note of precautions regarding user safety, correct use, presence of beneficial insects, *e.g*. honey bees, and proximity to environmentally sensitive areas, *e.g*. water, and to 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 in the Prairie region will be available in the spring.

Funding was provided by the Canola Agronomic Research Program (CARP) through the provincial canola grower organizations in Manitoba, Saskatchewan and Alberta and the Western Grains research Foundation. The surveys were implemented and monitored by Alberta Agriculture, Food & Rural Development; Saskatchewan Ministry of Agriculture; Manitoba Agriculture, Food & Rural Initiatives; and Agriculture & Agri-Food Canada (AAFC). The map was prepared by AAFC - Saskatoon.


2013 Grasshopper Forecast
Average density
Risk
0 - 2 / m²
None to Very Light
>2 - 4 / m²
Very Light
>4 - 8 / m²
Light
>8 - 12 / m²
Moderate
>12 - 24 / m²
Severe
> 24 / m²
Very Severe
Winnipeg
Brandon
Saskatoon
Regina
Weyburn
Lloydminster
Swift Current
Medicine Hat
Lethbridge
Calgary
Edmonton
Grande Prairie

The 2013 Forecast of Wheat Midge in Saskatchewan and Alberta

O. Olfert, S. Hartley, S. Meers, J. Otani, B. Elliott

The larval cocoon survey indicated that economic infestations in 2013 are predicted to more of an issue in Saskatchewan than in Alberta. The distribution of wheat midge, as illustrated in the 2013 Forecast map (Figure 3), is based on non-parasitized cocoons present in soil samples collected in a 2011 fall survey. Although a number of factors influence over-wintering survival of the midge, the survey and map provide a general picture of existing densities and the potential for infestation in 2012. Climatic conditions - mainly temperature and moisture - will ultimately determine the extent and timing of midge emergence during the growing season.

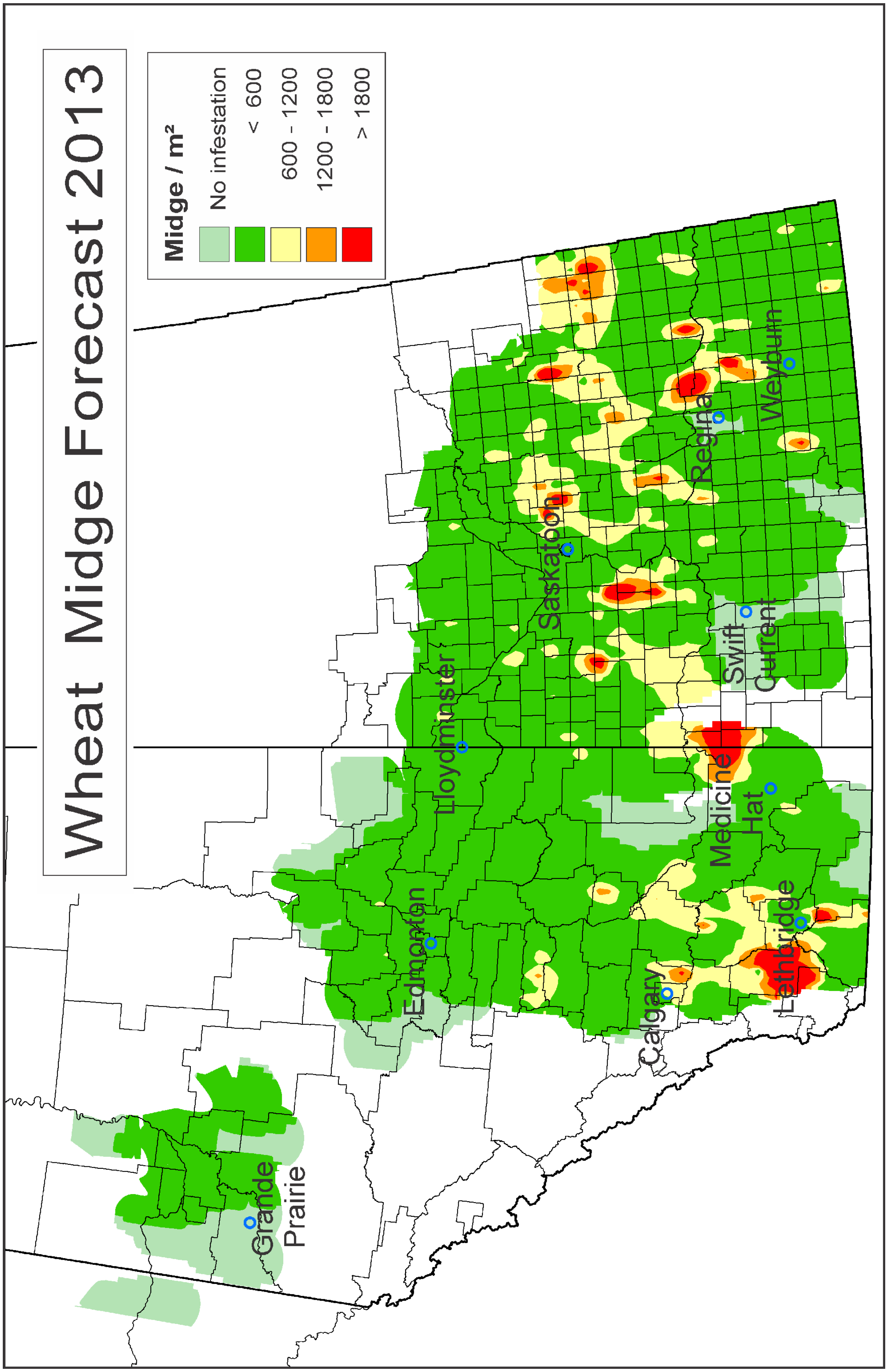
In Saskatchewan, the most severe midge population levels will be scattered throughout a wide band of central Saskatchewan, extending from Rural Municipality 271 in the east through to 319 in the west. Several pockets of high populations in the soil were also recorded in the southeast around Regina and Moose Jaw. In Alberta, isolated areas of moderate to high risk were recorded from soil samples in central and southern Alberta. Wheat midge was once again confirmed in the Peace River Region in 2012 at low levels.

Wheat midge larvae feeding on kernels can affect grain yield, grade and quality. Severely damaged kernels that are lost during threshing will lower yield whereas moderately damaged kernels that are harvested will reduce the grade. All areas, even those indicating less than 600 midge per square metre, are susceptible to significant crop damage. Growers in all areas where wheat midge is present are urged to monitor wheat fields during the susceptible period (emergence of the wheat head from the boot until flowering begins) and while midge are flying.

Typically, an insecticide application is recommended when adult midge density reaches one per 4-5 heads during the period when the wheat head emerges from the boot leaf until the initial stages of anthesis (*i.e*. when the yellow anthers appear). However, in areas where growing conditions are favourable to production of No. 1 Grade wheat, insecticide should be used if the adult midge population reaches one per 8-10 heads during the susceptible period. By anthesis, the wheat develops resistance to the midge larvae and insecticides are not cost-effective since larvae would have already entered the florets and caused damage, and the late-hatching larvae are poorly developed and therefore not a significant threat to the crop. Late applications should also be avoided due to the adverse effect on biological control agents such as parasitic wasps.

Parasitism of midge larvae by small wasps can keep midge populations below the economic threshold. Parasitism rates can range from 0 to 90%. Midge densities on the forecast maps represent populations of non-parasitized larvae. Agriculture and Agri-Food Canada will monitor degree-day conditions during 2012 determine the expected emergence and flight of wheat midge adults. Updates of current conditions and wheat midge emergence will be provided during the growing season.

The survey was conducted by Sharon Nowlan, Alberta Agriculture, Food & Rural Development, and Agriculture & Agri-Food Canada. The survey was funded by Saskatchewan Crop Insurance; Alberta Agriculture, Food & Rural Development; and the Western Grains research Foundation.. The forecast was prepared by AAFC- Saskatoon.


Wheat Midge Forecast 2013
Midge / m²
No infestation
< 600
600 - 1200
1200 - 1800
> 1800
Weyburn
Regina
Saskatoon
Swift Current
Lloydminster
Medicine Hat
Lethbridge
Edmonton
Calgary
Grande Prairie

Cabbage Seedpod Weevil in Alberta and Saskatchewan for 2012

O. Olfert, S. Meers, S. Hartley, J. Otani

Due in part to suitable moisture conditions in some areas of Alberta and Saskatchewan, cabbage seedpod weevil (*Ceutorhynchus assimilis)* populations remained prominent and increased in abundance in parts of the prairies in 2012 (Figure 4).

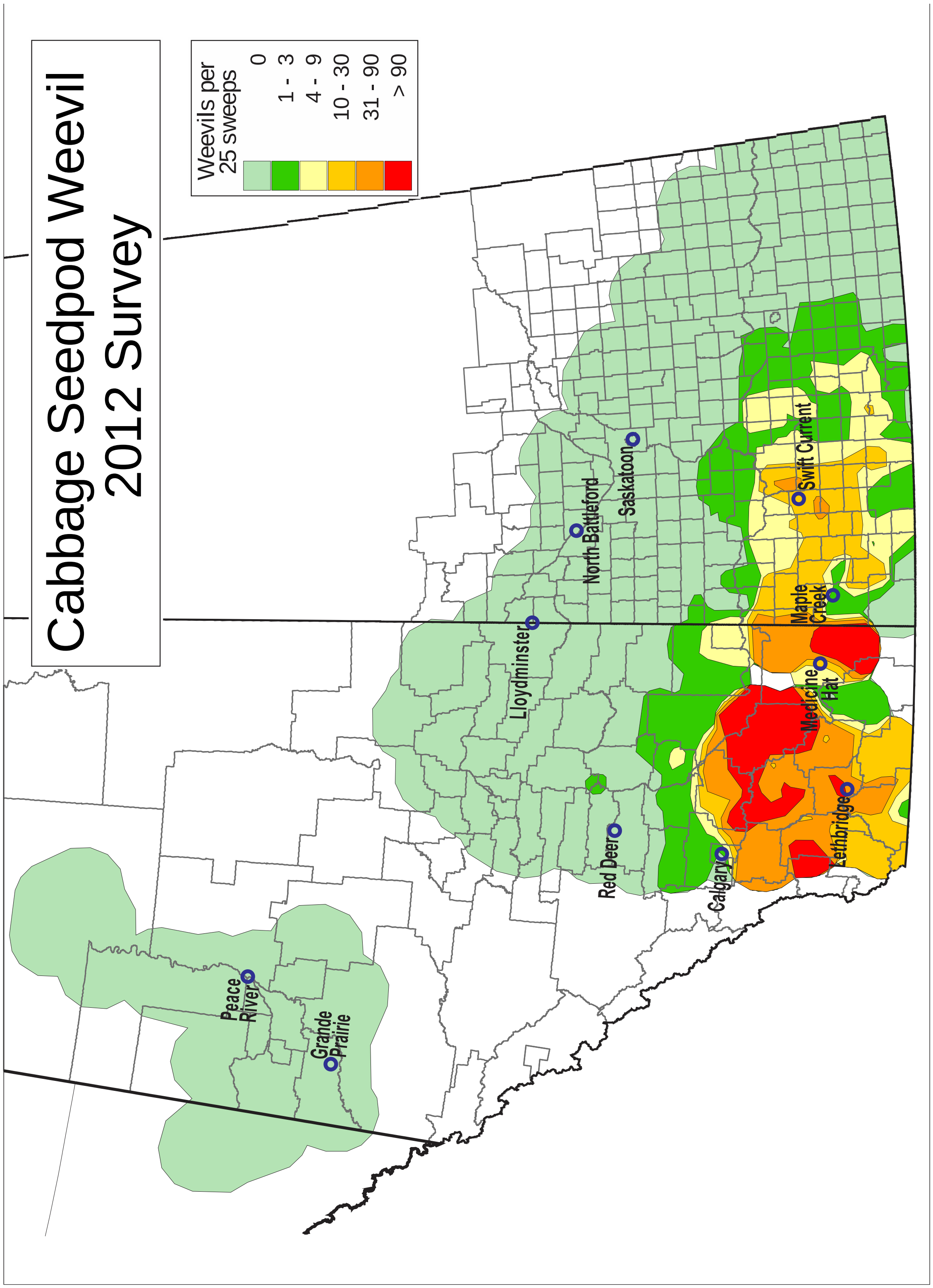
In Saskatchewan, a total of 429 fields were sampled in 2012 this is the highest number of fields visited over the ten years of survey. Weevils were collected in 69 fields compared to 73 fields last year. However, the average number of weevils in 25 sweeps at the 69 positive sites in 2012 was 8.3 compared to 6.0 in 2011 and 4.4 in 2010. As in previous years the highest densities were found in the southwest Saskatchewan. In Alberta, the 2012 survey encompassed all the canola growing areas including 257 fields in 42 municipalities. Generally, economic populations levels were still only found in southern Alberta. The northern ranges include (from west to east) Rocky View County, Kneehill County, Special Areas 2, Special Areas 3, and the MD of Acadia. Producers in Wheatland County had to consider control for the first time in 2010. Weevils were confirmed in low numbers at two fields in central Alberta west of Buffalo Lake. No weevils were recorded in the Peace River Region.

Both types of canola (Polish and Argentine) are susceptible to weevil damage. Brown mustard (*Brassica juncea*) is also at risk. White mustard (*Sinapis alba*), because of its hairy seedpods, and non-cruciferous crops (wheat, barley, corn, potatoes, sugar beet) are resistant to cabbage seedpod weevil.

Crop losses from cabbage seedpod weevil infestations can occur in several ways. Adults feeding on flower buds cause them to die off (bud-blasting). Larvae infested pods are prone to shattering even after the crop has been swathed. If humid conditions exist after larvae bore exit holes into canola pods, the pods can be invaded by fungal spores that germinate and destroy more seeds within the pods. Feeding by adults can also cause severe damage to late-seeded canola. When new generation adults emerge late in the season, they feed on seeds within green pods to build up fat stores for overwintering. This can be very destructive to the crop.

The cabbage seedpod weevil produces a single generation each year. Adults are ash-grey, 3 to 4 mm long, with a prominent curved snout typical of the weevil family of beetles. In winter, they remain dormant beneath leaf litter in areas like shelter belts. When spring air temperatures reach 10°C, they take flight in search of cruciferous plants like wild mustard, volunteer canola, flixweed and stinkweed. Adults are attracted to canola fields when the crop reaches the bud to early flowering stage. Female weevils lay eggs individually into recently formed seed pods. Canola and brown mustard fields should be monitored regularly from the bud stage until the end of flowering when weevil populations are highest. The best monitoring tool is a standard insect sweep net. Adult weevil counts should be made from a sample of ten, 180° sweeps taken at ten different locations within a field. The "rule of thumb" threshold weevil population that can cause economic damage is 3 - 4 weevils per sweep. Early in the invasion of a field, weevils may be more abundant on field edges; at least half of the samples should be taken more than 200 feet into the field from the field's edge to determine the weevil distribution within the field. Insecticides have now been registered for control of cabbage seedpod weevil: please check for details in the 2012 Crop Protection Guide at: http://www.agriculture.gov.sk.ca/Guide_to_Crop_Protection

The survey was conducted by Alberta Agriculture, Food & Rural Development; Canola Council of Canada; Saskatchewan Ministry of Agriculture; and Agriculture & Agri-Food Canada. The map was prepared by AAFC - Saskatoon.


Cabbage Seedpod Weevil
2012 Survey
Weevils per
25 sweeps
0
1 - 3
4 - 9
10 - 30
31 - 90
> 90
Saskatoon
North Battleford
Swift Current
Maple
Creek
Lloydminster
Medicine
Hat
Lethbridge
Red Deer
Calgary
Peace
River
Grande
Prairie

Wheat Stem Sawfly in Alberta for 2012

O. Olfert, S. Meers, H. Carcamo

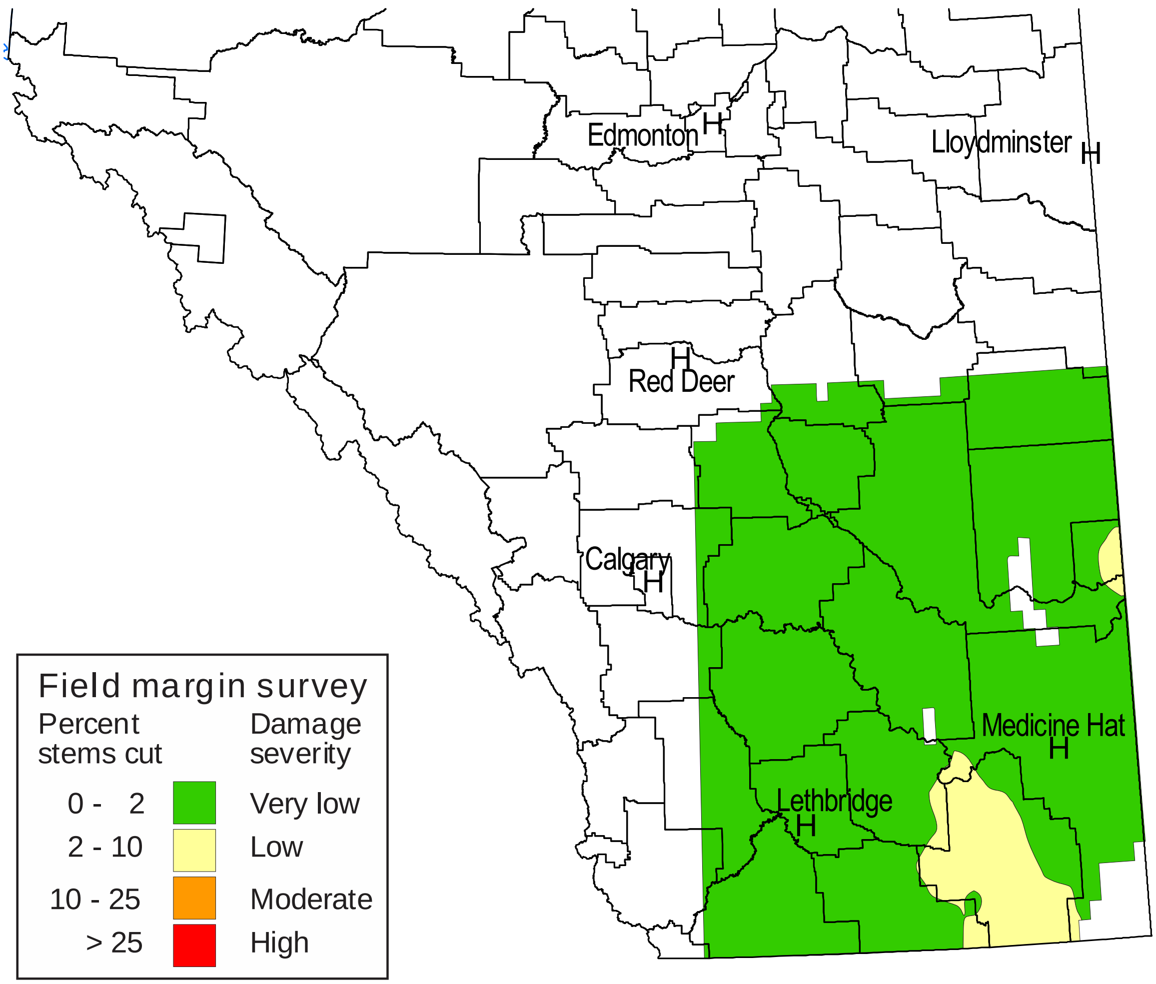
Wheat stem sawfly (*Cephus cinctus*), has long been an agricultural pest of wheat in Canada and has recently become a major problem due in large part to the warm and dry summers in the last few years. The adult is not a very strong flier so warm, sunny, calm weather following spring rains supports the dispersal of the insect. Excessively wet conditions tend to be detrimental to both sawfly and parasite populations and activity. The primary hosts for the wheat stem sawfly are cultivated cereal crops with the preferred hosts being spring and durum wheat although rye, triticale and barley can also be affected. All broadleaf crops such as canola, flax and alfalfa are not susceptible to wheat stem sawfly. Sawfly damage presented in the map is based on cut stem counts sampled in the fall.

A survey of Alberta wheat fields (71 fields in 17 counties) conducted in 2012 indicated that the area at risk of economic sawfly populations in 2013has decreased and will be limited to only a few areas (Figure 5). The most significant populations are in southern Alberta (Fourty Mile County). This continued downward trend is likely the result of the use of solid stem wheat together with naturally-occurring parasitoids.

Sawfly damage may result in economic losses due to reductions in yield and/or lower quality. Many producers consider the wheat stem sawfly to be a problem only in field margins. Although crop injury by the wheat stem sawfly is usually more prevalent within the first 20 metres of the field edges, the survey showed that damage is not confined to the margins. In extreme cases entire fields have been affected, some with estimates of more than 50 per cent damage. As there are no insecticides registered for control of wheat stem sawfly; management is primarily through agronomic and cultural practices. The most effective strategy is that of planting resistant cultivars and/or crops. If wheat is in the current rotation, solid stem wheat varieties (AC Lillian, AC Eatonia, AC Abbey) should be grown as they are significantly more resistant to sawfly than hollow-stem cultivars. Producers are encouraged to consider management strategies if 10 - 15 per cent of stems suffered damage the previous year.

The survey was conducted by Alberta Agriculture, Food & Rural Development; Agricore United; Chinook Applied Research Association; County of Lethbridge; United Farmers of Alberta . The map was prepared by AAFC - Saskatoon.

Wheat Stem Sawfly - 2012



Pea Leaf Weevil in Alberta and Saskatchewan for 2012

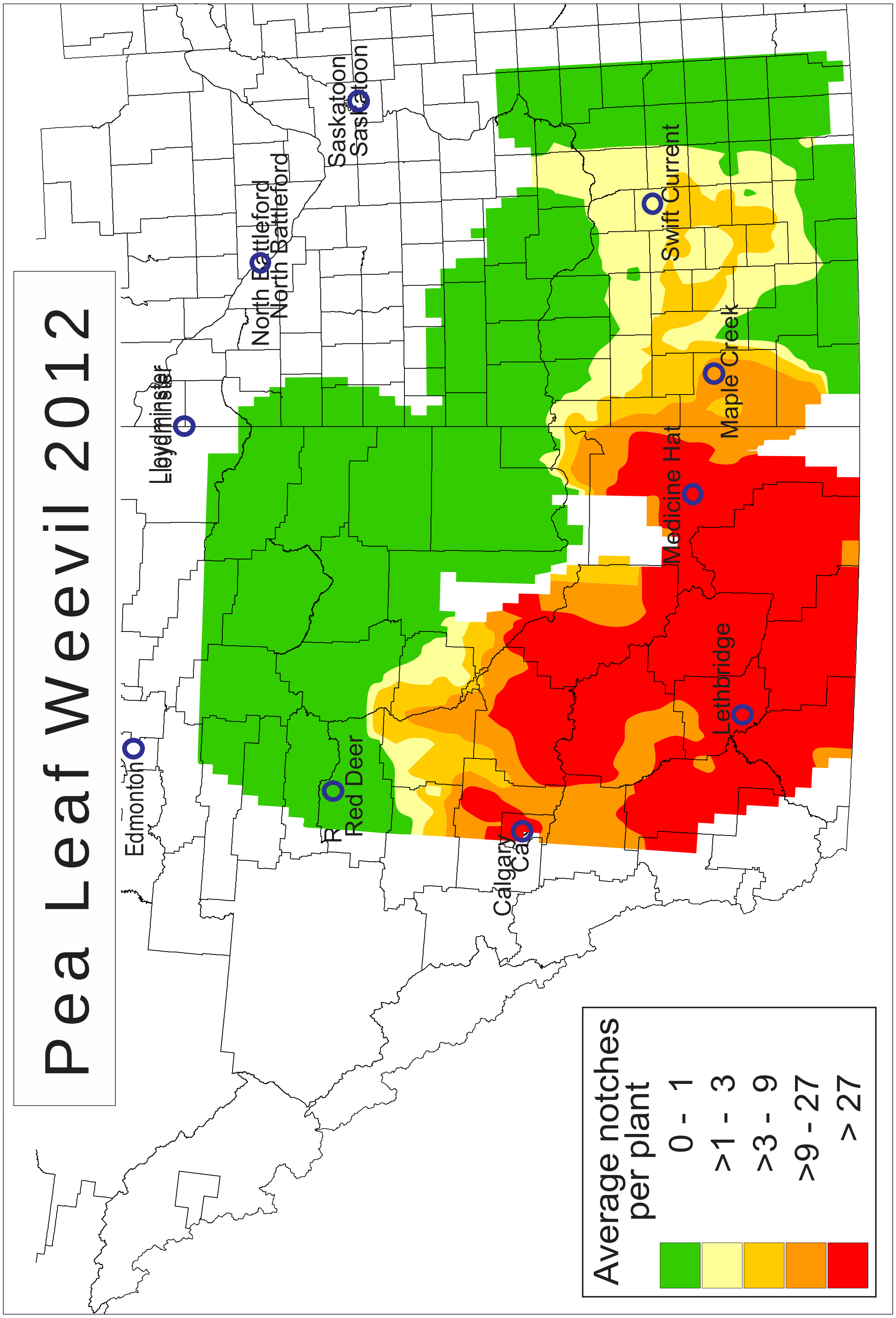
O. Olfert, S. Meers, H. Carcamo, S. Hartley

Native to Europe, pea leaf weevil (*Sitona lineatus*) has recently become an economical insect pest of field peas in southern Alberta. The known distribution of pea leaf weevil on the prairies is currently limited to central Alberta and south west Saskatchewan. The weevil was first recorded attacking peas near Lethbridge in 2000 and was found in southwest Saskatchewan in 2007. Feeding by the adults produces a characteristic notched appearance on leaves. The survey is conducted when field peas are in the two to three node stage by determining the average number of leaf notches per plant.

The distribution of pea leaf weevil damage to field peas remained relatively unchanged in 2012 (Figure 6). In Saskatchewan, the most severe infestations were recorded near Maple Creek (RM 111). Damage to pea crops was noted across southwest Saskatchewan, from the Alberta border and east to Mortlach/Limerick. Weevil damage was also noted north of the South Saskatchewan River in the Kindersley area. In Alberta, damage once again increased in severity in Wheatland County but otherwise damage to pea crops was similar to areas in 2011. As a result, there is risk of damaging levels of pea leaf weevil in 2013 in the region south of Highway #1 and including Wheatland, Newell and Cypress Counties..

Host plants include a range of cultivated and wild legumes. Field peas and Faba beans are the major crops at risk in southern Alberta and Saskatchewan. Although adults feed on leaf tissue, larval feeding on nitrogen-fixing nodules results in greater economic losses for producers. However, in extreme cases adult feeding on leaves and growing points of seedlings can also result in significant plant damage. In western Canada, pea leaf weevil produces one generation per year. Adults overwinter in alfalfa or other perennial legumes. Females can lay up to 1500 eggs in the soil near or on, younger plants in May through June. Upon hatching, larvae migrate to plant nodules and begin to feed, resulting in minor or significant inhibition of nitrogen fixation by the plant. Mature larvae pupate in the soil and emerge as adults later in the growing season (late July through August). Adult beetles feed on leaf margins and growing points of legume seedlings. Pea leaf weevil feeds on a number of plant species and because they are small and cryptic in habit, they can easily be transported in host-plant material. Adults can also be present in sheltered areas on non-host plants next to or in farm buildings and equipment. Adults will generally only fly when temperatures are above 17 °C. Literature suggests that relatively few of newly emerged adults leave the crop by flight, preferring to remain in the soil or walk to overwintering sites. Flight however could be one avenue of spread, especially with prevailing winds. Although the greater damage is caused by larval feeding, soil treatment for larvae is not practical. Management of this pest is best achieved by controlling adults before egg-laying commences, using a foliar-applied insecticide. Therefore, it is important to apply insecticides when the pea plant is very young. The action threshold is to spray at the 2 to 3 node stage when 30% of the pea seedlings have one or more feeding notches on the most recently emerged leaves (clam leaf). If feeding damage is evident only on the lower leaves and not on the clam leaf, the adults have probably already laid eggs and there is no point in spraying. Producers experiencing severe damage to field peas this past year may also wish to consider using seed treatment in 2012 to reduce the impact of pea leaf weevil.

The survey was conducted by Alberta Agriculture, Food & Rural Development and the Saskatchewan Ministry of Agriculture. The map was prepared by AAFC - Saskatoon.


Pea Leaf Weevil 2012
Saskatoon
North Battleford
Lloydminster
Swift Current
Maple Creek
Medicine Hat
Lethbridge
Edmonton
Red Deer
Calgary
Average notches per plant
0 - 1
>1 - 3
>3 - 9
>9 - 27
> 27