Alberta Crop Insect Update 2013

SUMMARY

The noctuid family takes top billing of insect issues for 2013 in Alberta crops. Bertha armyworm was once again an issue in central Alberta and parts of the Peace River region. Army cutworms also were a concern in southern Alberta early in the crop year. Wheat midge has made major inroads in the southeastern part of the Peace River region with producers easily locating midge larvae while combining and dockage already report for 2013's harvest. Cereal leaf beetle continued to show up in new areas and increased in severity in parts of its established range. In all it was another eventful insect year in Alberta.

OILSEED INSECTS

The cabbage seedpod weevil (*Ceutorhynchus obstrictus*) occurred above economic threshold throughout its "traditional" range in southern Alberta as is the case every year. Scouting and spraying are routine management practices for canola producers south of the Trans-Canada Highway. Spraying was common south of Highway 1 in 2013. Initial data from the 2013 survey suggests that CSPW expanded its range in Alberta into Paintearth and Stettler counties.

Bertha armyworm (*Mamestra configurata*) numbers were very high once again in central Alberta. A total of 285 monitoring sites were set up thanks to excellent cooperation with the agricultural industry. Of these 285 sites, 40 sites were part of an intensive study studying the pheromone monitoring system. Pheromone trap counts for 2013 included 203 sites categorized as "low risk", 78 sites were "uncertain risk", 3 sites were moderate" and only 1 site was categorized as "high risk". Economically significant populations of larvae were scattered throughout Alberta but with much lower larval counts in Two Hills and Minburn counties (where problems were most significant last year). There were a couple hotspots around Stettler and in Paintearth county. Spraying was very much a field to field decision with widely varying numbers within short distances (including Smoky Lake, Provost, Wainwright, Vermillion, St Paul and Bonnyville). Serious infestations resulted in severe damage to some fields before control operations could be carried out. Area sprayed in 2013 is certainly approaching 100,000 acres once again. Within Northern Lights County, fields near Manning also dealt with bertha armyworm with densities exceeding the economic threshold (e.g., ~ 5,000 acres sprayed). In both areas, rumours of insecticide applications in the absence of monitoring OR at lower densities of 8-10/m^2 exist which suggests fields NOT needing control were likely sprayed.

It is also interesting to note that we checked several fields in Lamont County that had high moth catches, evidence of early feeding on lower leaves but very little to no population later in the season. As the season progressed many reports were made of dead

and dying BAW from what appeared to be both virus and fungal infections.
BAW feeding was reported on fababeans in several locations and is certainly something to watch for in the future.

Diamondback moth (*Plutella xylostella*) was monitored in Alberta at 38 sites across the province. Very low numbers of DBM adults were caught in the traps and low numbers of larva and adults were the story throughout the season. It remains a challenge to determine the best time to put out the traps as the growing season varies greatly between southern, central and northern regions of the province

Striped flea beetle (*Phyllotreta striolata*) once again caused damage in areas of the Peace River region. Flea beetles caused little concern in the balance of the province in 2013. In many parts of the province, there have been numerous reports of flea beetles at harvest. This foreshadows potential problems for the spring of 2014. In southern Alberta *P. striolata* is becoming more common, although at harvest the crucifer flea beetle (*P. cruciferae*) was being found commonly on green plants.

Lygus bugs were once a gain a problem in canola but less so than in 2012. Southwestern Alberta and the foothills were the areas with the most severe issues. High numbers were found in Central Alberta but control wasn't usually considered. Areas of the Peace River region were sprayed to control *Lygus* at early pod stage due to high numbers of nymphs rather than adults. Generally thick canola canopies plus intermittent, light showers from late flower through to early pod stages also made sweep net monitoring difficult in these fields. In some cases, the high numbers of *Lygus* nymphs at early pod stages, appeared to be a rude surprise requiring prompt action.
Low numbers of leafhoppers were reported throughout the province in 2013. Producers were very nervous about aster yellows and some sprayed as a preventative measure. There were high numbers of froghoppers (superfamily **Cercopoidea**) in some situations that producers may have mistaken them for leafhoppers leading to spraying operations. In the end low levels of Aster yellows were seen in Alberta. An interesting situation with garlic emerged with Aster yellows being carried through in bulbs planted carrying the disease through. Look for more on this situation in the Alberta disease report.

Froghopper immatures are spittlebugs and there were many reports of spittlebugs on virtually everything although no spraying took place.

Root maggots (*Delia* spp.) were common throughout the province in 2013 and in some cases very severe damage was observed. It appears the worst damage was on plants in thin stands. Severe damage was also reported in cabbage and other Brassicaceae in horticultural production situations.

Bedstraw hawkmoth (*Hyles gallii*) larvae were commonly found in canola this year. They were always associated with fields with cleavers and they were not feeding on canola. Purple lined sallow (*Pyrrhia exprimens*) larvae were found in association with canola as well. They were never in large numbers but it is a large noctuid larva that does

catch attention. They were feeding on the canola. Literature on this species notes that it has a preference to feed on the flowers and fruits of host crops.

Red turnip beetle (*Entomoscelis americana*) was common again in 2013, no significant damage but was relatively easy to find in canola fields in central Alberta.

CEREAL INSECTS

Wireworm (Elateridae). Fewer reports this year from producers frustrated with poor control of wireworm using registered seed treatments. The problem still hasn't gone away and many producers are now seed treating but not satisfied with the short term protection we are getting with our current insecticidal seed treatments.

Severity of wheat stem sawfly (*Cephus cinctus*) damage was lower again in southern Alberta. There are still some areas of concern left in southern Alberta around Foremost. We have found a few individual fields with slightly higher sawfly cutting levels in our 2013 fall survey that are outside of the core area, maybe part of resurgence. This will be something to watch next year.

Wheat midge (*Sitodiplosis mosellana*) caused serious damage in the Peace River region near Manning and near Falher in an area including Eaglesham to High Prairie (~70km) and north to Nampa (~60km). Some head samples showed up to 50% kernel damage. The fall 2012 survey did not show the potential risk partially because of the few samples that were taken in that area. In southern Alberta around Claresholm some producers did spray and there was not a high level of damage.
Scouting continues to be a concern for producers and agrologists. It is very difficult to scout the vast amount of acres that individuals are responsible for within the narrow application window. Some initial work with pheromone baited sticky cards is showing some promise to indicate the timing of the flight. A serious monitoring concern relates to evening scouting north of 55° to detect wheat midge flight at dusk: In July, there are few hours of dark and dusk last several hours plus evening temperatures remain warm well into the wee hours.

We now perform soil core surveying over the entire province and will process over 300 samples this year. In the last two years, surveying in the Peace River region has expanded to include more sites which will hopefully better represent wheat midge activity within our northern wheat producing region. In the spring we did an intensive look for parasitoids associated with the larval cocoons and found parasitized midge from Manning and High Prairie although densities of these beneficial insects were very low.

Cereal leaf beetle (*Oulema melanopus*) is established in southern Alberta. The highest densities in 2013 occurred north of Taber in the Vauxhall area. There were several fields sprayed and at least some of them were approaching threshold levels. The cereal leaf beetle also showed up in a couple new areas, one south of Lethbridge and also in the Red

Deer-Olds area. The population in the Edmonton area continues to grow with various agrologists reporting CLB larvae. There is continuing need to maintain relocation programs for its primary parasitoid, *Tetrastichus julis*.

It was an interesting year for cutworms (Noctuidae) in 2013. The major issue occurred very early in the spring with several very badly damaged fields that were attacked by Army cutworm (*Euxoa auxillaris*). Most of the affected fields were between Lethbridge and Vauxhall. Because these cutworms overwinter as partially developed larvae they were big enough to cause severe damage very early. Several new alfalfa fields were damaged as was some winter wheat. In all cases the fields had significant growth of weeds or crops the previous fall. From the 2012 report "There was a large flight of *Euxoa auxilaris* this summer. It will be interesting what, if anything, will come of it."

Cutworms were an issue in the north of the province near LaCrete in June with black army cutworms in large numbers within a few canola fields that had volunteer-alfalfa issues. Hand-collecting near LaCrete also resulted in dingy, glassy/yellow-headed cutworms which were reared as part of the prairie-wide CARP Cutworm Project. There were reports of pale western (*Agrotis orthogonia*) and redbacked (*Euxoa ochrogaster*) cutworms in several locations from central Alberta.

Producers are very interested in the new seed treatment from DuPont and its potential activity on cutworms. In 2014 producers and agrologists will need to continue to be diligent in scouting to avoid cutworm damage.

Wheat head armyworm (*Dargida diffusa* previously *Faronta diffusa*) was reported at harvest time but was not as common as in 2012.

PULSE CROP INSECTS

In 2013, pea leaf weevil (*Sitona lineatus*) damage was found in the same general area with no real change in the range since 2007. Producers have been struggling with deciding to treat their seed or not. Seed treatment is the most effective but much like flea beetles there are years when it doesn't pay. There are still acres that have foliar treatment even though there is likely not an economic return from doing so. Feeding damage survey was carried out late May through early June. There were several reports of PLW damage to alfalfa seedling stands. Also as the acreage of fababeans increases the PLW damage to those fields will need to be monitored closely as fababeans are a strongly preferred host.

Four surveillance sites were set up for Western Bean Cutworm (*Striacosta albicosta*) and none were found.

Some damage to faba bean seed quality, dark spots, was noted in south central and southern Alberta, which is likely caused by lygus bugs or a related insect. One seed producer in the Vauxhall area reported that clients from Japan rejected seed because of this damage. A survey from fields in the Lacombe area and plots in Lethbridge and Vauxhall are looking at the correlation of this damage with lygus abundance

GRASS CROPS, PASTURES AND GENERAL INSECTS

In alfalfa there was a concern with alfalfa weevil (*Hypera postica*). Their populations are causing concern in hay (if left late) and alfalfa seed crops through either poor control with existing registrations or low rates of insecticides. Alfalfa weevil occurred early and in high numbers again in 2013.

European skipper (*Thymelicus lineola*) was common in central and southern Alberta again this past summer. This insect has not been reported as a problem in timothy production fields but it is something that will need to be watched closely because timothy is reported as a favored food source.

The red clover casebearer (*Coleophora deauratella*) was easily collected again in red clover grown for seed in 2013. A substantial change in cropping practices has occurred in the legume seed production areas of the Peace River region: Alsike clover acres were up while red clover seed acres are at an all-time historical low. The red clover casebearer causes little damage in alsike whereas devastating damage has been recorded in red clover grown for seed. Multiple parasitoid species have been reared from *C. deuaratella* collected near Beaverlodge so hopefully the weather will cooperate for fall 2013 surveying intended to confirm how widespread these parasitoids may be.

Spotted Wing Drosophila (*Drosophila suzukii*) was surveyed across Alberta (mostly in U-pick operations) In 2013, low levels of SWD (<3-4/trap) were captured and identified in traps in Central Alberta in late August and mid-September. Captures were in raspberry crops, although other potential host crops are also present in the capture sites. Although low in number, these sites will be monitored for overwintering success in 2014. More extensive monitoring is planned, including more sites and traps, as well as the monitoring of harvested fruit for larvae.

Potato Psyllid (*Bactericera cockerelli*) was not found despite a concerted monitoring effort by Dan Johnson in cooperation with the Alberta Potato Growers and agrologists.

Once again there were several reports of slug damage in various crops. The most serious concerns were once again in canola. This is most likely the common grey garden slug (*Derocerus reticulates*).

Sap beetles (Nitidulidae), such as *Glischrochilus quadrisignatus*, were noted in the Taber region in sunflower head or corn cobs causing some concern to a few growers. However, these beetles only attack rotting plant material.

Brown marmorated stinkbug (*Halyomorpha halys*) pheromone baited traps (5) were set out in two locations, one in Red Deer and the other in Innisfail by Ken Fry. No BMSB were found.

Bumble flower beetles (*Euphoria inda*) were found in a corn field south of Taber. The producer was initially very concerned but the beetles had all accumulated on one cob and no other infested cobs were found.

Grasshopper (*Melanoplus* spp and *Camnula pellucida*) numbers and concerns increased in 2013. Serious infestations were recorded in parts of the Peace River region. There were many comments on grasshoppers being in higher numbers throughout Alberta at harvest. Survey numbers are still being compiled as of October 1. The long open fall will favor egg laying and may facilitate increases in 2014.

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Report Compiled by Scott Meers scott.meers@gov.ab.ca
Alberta Agriculture and Rural Development
Crop Diversification Centre South
301 Horticultural Station Road East
Brooks, AB T1R 1E6

Table 2: Alberta Crop Area and Yield

Crops	2012r Seeded	2012r Harvested	2012r Yield	2013p Seeded	2013p Harvested	2013p Yield	10-year Avg Yld	Yield % change 13 vs 12	Yield % change 13 vs Avg
	('000 acres)		(bu/acre)	('000 acres)		(bu/acre)			
Winter Wheat	130.0	130.0	58.5	155.0	145.0	60.7	50.7	3.8%	19.7%
Spring Wheat	5,800.0	5,735.0	47.6	6,410.0	6,135.0	52.9	44.9	11.1%	17.9%
Durum Wheat	580.0	580.0	46.4	620.0	610.0	52.5	41.5	13.1%	26.6%
All Wheat	**6,525.0**	**6,445.0**	**47.7**	**7,195.0**	**6,890.0**	**53.0**	**44.6**	**11.1%**	**18.8%**
Oats	640.0	420.0	80.0	600.0	410.0	87.8	73.0	9.7%	20.2%
Barley	3,770.0	3,400.0	60.3	3,550.0	3,120.0	71.8	62.2	19.1%	15.5%
Fall Rye	30.0	30.0	45.0	30.0	..	..	41.5	---	---
Flaxseed	50.0	50.0	33.0	80.0	75.0	38.7	27.4	17.3%	41.2%
Canola	6,600.0	6,550.0	34.3	6,080.0	5,820.0	39.5	34.7	15.2%	13.9%
Dry Peas	1,075.0	1,060.0	41.9	1,075.0	1,015.0	50.0	37.6	19.3%	32.9%
Total	**18,690.0**	**17,955.0**	**---**	**18,610.0**	**17,330.0**	**---**	**---**	**---**	**---**