

Alberta Crop Insect Update 2016

SUMMARY

Very high rainfall accumulation dominated the growing season news in 2016 but early season precipitation was low and it looked like a dry year was in the cards. Major issues were cutworm mostly in canola but also to a lesser extent in other crops as well. Pea leaf weevil was a very large concern to producers in central and southern Alberta this year. Producers in central Alberta were not familiar with the insect and many were over reactive and a lot of foliar spraying took place. Flea beetles were once again an issue but not as big a problem as the previous year. Aphids in lentils were at very high levels very early in southern Alberta.

OILSEED INSECTS

The cabbage seedpod weevil (*Ceutorhynchus obstrictus*) occurred above economic threshold throughout its “traditional” range in southern Alberta. 2016 was a higher than normal year in the traditional range with some very high populations noted. Scouting and spraying of early planted fields are routine management practices for canola producers south of the Trans-Canada Highway. In addition many fields north of Highway 1 were well above threshold this year and were sprayed for CSPW. Once again, CSPW was found in central Alberta along the Highway 2 corridor north of Lacombe. It appears as though this population has now established in these new northern range expansions. It will be interesting to see if this expansion persists or dies out as other northern range expansions have done in the past, especially if we receive the more normal winter conditions that are forecast. Our survey included 221 fields swept by program staff and 51 fields were reported using on line reporting tool.

Bertha armyworm (*Mamestra configurata*) moth catches were very low across the province in 2016. A total of 213 monitoring sites were set up thanks to excellent cooperation with the agricultural industry. Of the 213 locations, none had an elevated risk level above the low level (300 cumulative). There were no indications of spraying for bertha armyworm anywhere in the province. While our trap numbers are down from the high levels during the last outbreak many cooperators remain keen on participating in the monitoring in order to catch increases and the next potential outbreak. We are very appreciative of the efforts of the many agrologists that look after bertha armyworm traps for the network.

Diamondback Moth (*Plutella xylostella*). There were 39 trap locations established across Alberta in 2016 and monitored from April 25 to June 5. Only one location in Lamont county had elevated moth catches early in the season and these did not amount to anything of concern later in the summer. No spraying took place for DBM in 2016.

Striped flea beetle (*Phyllotreta striolata*) and *P. cruciferae* were less of a concern in 2016 than in 2015 largely because growing conditions for canola improved greatly after a very dry early spring. Early seeded canola appears to be at greatest risk especially due to damage from striped flea beetle including stem feeding on cool and/or windy days. Stem feeding is causing issues in interpreting thresholds. Although striped flea beetles are largely being blamed for damage to seedling canola, investigations by Syngenta show that both species are being found in fields throughout most of the province. The Peace River region is strongly predominately striped and southern Alberta remains predominately crucifer. There appears to be a growing trend to recommend an insecticide with early herbicide application because the grower is going to be on the field anyways. In these cases very little seems to be understood about thresholds.

Lygus bugs were less of a concern than in previous years throughout the province in the central Alberta Highway 2 corridor. Numerous reports of very low to zero lygus in canola this year. One agronomist commented that this was the lowest lygus bug population he had seen in canola in the past 15 years.

Root maggots (*Delia* spp.) were common throughout central Alberta again this year.

Cutworms were a major concern in 2016. Once again the dominate species was redbacked cutworm (*Euxoa ochrogaster*). Very serious reports of cutworms came from many different parts of the province but the largest volume of concerns were from central Alberta. Very few reports from southern Alberta. The majority were redbacked cutworm, followed by pale western, dingy and army cutworm. Proper and timely scouting for cutworms continues to be a major issue with some situations not noticed until very late after the cutworms had finished feeding. There were 62 reports of cutworm in the spring using the online reporting tool; the results are summarized below:

Crop	Affected	Previous
Canola	38	15
Wheat	4	28
Peas	18	4
Flax	1	0
Fababean	0	2
Barley	0	10
Soybean	0	1
	61	60

Species	Reports
Red back	46
Pale western	10
Dingy	3
Army	1
	60

Swede midge (*Contarinia nasturtii*) monitoring was set up as a surveillance program in canola in 2016. Results are not yet available from this seasons pheromone traps. A visual survey was conducted in 44 fields in east central Alberta at the end of flowering in early August 2016. Midge were found in very low numbers in 21 fields. Additionally flower damage consistent with midge was observed in 11 fields. Samples of midge larvae were collected from all positive fields and sent to Saskatoon for further genetic testing.

Leafhopper numbers appeared to be higher this year than normal although there was no concerted survey and there was some aster yellows in canola but incidence was very low.

Darkling beetles (Tenebrionidae) were found in canola in the Youngstown area (southeastern AB). Specimens were collected and sent to Wim Van Herk (AAFC-Agassiz) for identification. They are in the genus *Eleodes* but species identification will not be possible from the larvae.

Several reports of severe damage to seedling canola by red turnip beetles was reported from the Westlock area. At least one field was sprayed.

Orange maggots were noted in sclerotina infested canola stems from a number of fields across Alberta. Field collections of canola stems were carried out to determine the species. Canola stems were moist chambered and are now in the cooler to see if we can force pupation. Initial indications are that the larvae are from flies of the family Cecidomyiidae.

CEREAL INSECTS

Wireworm (Elateridae). There were lots of concerns about wireworms again this season. The larvae are now being found easily in most fields if you look hard enough. Generally producers were reasonably happy with the control provided by current options this year but most are looking forward to options that will reduce populations rather than just control damage. Generally wireworms appear to be more widespread although not always causing significant crop emergence issues. There are a number of producers with very severe problems that have become a perennial issue. We are finding wireworm issues further north into central Alberta.

Wheat stem sawfly (*Cephus cinctus*) is still at low levels throughout its traditional range. Our annual survey showed very few fields with elevated levels of sawfly although there remains a population in Willow Creek and western Lethbridge counties. Following up on reported sawfly cutting in central Alberta showed a population continuing to be present there. The area with sawfly in central Alberta expanded in 2016 but the population was heavily parasitized and larvae in many cut stems have succumbed to fungal infections in the stubs. Ninety -five fields have been surveyed for the 2017 wheat stem sawfly forecast.

The forecast for wheat midge (*Sitodiplosis mosellana*) was generally low going into 2016

but the wet growing season will likely result in higher forecast in 2017. Very few acres were sprayed for wheat midge in 2016. We continue to encourage producers to use midge tolerant wheat in areas where wheat midge pose the biggest risk. The soil samples are all collected and they will form the forecast for 2017 that is due out in November. This year we plan to process over 350 soil samples again from all the wheat growing areas of Alberta. We also had 32 pheromone trap locations including some with a project studying the effects of weather on insect development that helped with the reporting on wheat midge activity.

There were no reports of serious cereal leaf beetle (*Oulema melanopus*) in 2016 as populations are pretty much all less than threshold but there were reports of fairly high cereal leaf beetle damage in the Lacombe with occasional populations as high as one every two flag leaves. Damage typical of cereal leaf beetle was reported from a wide range in central and southern Alberta although at very low to low levels. There was a new report of cereal leaf beetle damage south of Falher. This represents the first incidence of cereal leaf beetle for the Peace River region of Alberta. Thanks to Hector Carcamo (AAFC-Lethbridge) for rearing parasitoids of cereal leaf beetle for release at the site south of Falher as well as other locations in Alberta.

Cereal grain aphids were very common in southern and central Alberta in 2016. No spraying was necessary as natural enemies appeared to keep them below threshold levels. Again this year, most of the reports were English grain aphids (*Sitobion avenae*).

There were no reports of wheat head armyworm in 2016 (*Dargida diffusa*).

Leaf miners were noted again in low numbers in wheat fields in central Alberta, the incidence appeared to be higher than previous years. This is the same species that Ken Fry identified several years ago in the Olds area. Family Agromyzidae: (*Cerodontha lateralis*).

European corn borer was found in very high levels in two fields, one north of Brooks and another hotspot near Ponoka. Both fields were planted to non-*Bt* varieties. As a response we surveyed 11 fields in the area around Brooks and found evidence of corn borer in all but one of the fields. Producers in the vicinity of the severely attacked fields will be encouraged to switch to *Bt* varieties.

PULSE CROP INSECTS

Pea leaf weevil (*Sitona lineatus*) continued its northern expansion in 2016. This insect is being found well north and west of Edmonton in fababean and pea crops. Very severe damage occurred throughout west central Alberta south of Edmonton and damage in southern Alberta was more severe than normal. We still are unclear about the true pest status of this insect in the higher organic matter soils of central Alberta. In addition we need to work with producers to properly time foliar sprays if those decisions are made. 167 pea and 23 fababean fields were surveyed for pea leaf weevil. We will discontinue our survey in fababean in 2017.

Five surveillance sites were set up for Western Bean Cutworm (*Striacosta albicosta*) and none were found. Producers and agrologists continue to suggest that this insect is in Alberta but we have yet to find it in pheromone traps.

Lygus damage in fababeans was much lower in 2016, although it was easy to find lygus in fababeans field as other crops dried down.

Very high aphid numbers were reported in the Foremost area on lentils (pea aphid *Acyrtosiphon pisum*). Many fields were sprayed south of highway 3 in southern Alberta. Populations also developed in peas, alfalfa and even fababeans as the season proceeded but very little spraying took place in those crops. Most producers further north in Alberta chose not to spray for aphids in lentils. Also noted was the appearance of aphids and lady bugs in lentils (red and green) at mid to high (visual only) levels in fields at dessication timing that were sprayed earlier with insecticide.

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 2016. Seed producers reported serious problems controlling alfalfa weevil in the Brooks area. A quick bioassay showed that the population appears to be tolerant to applications of synthetic pyrethroids.

European skipper numbers were lower in 2016 than in previous years. (*Thymelicus lineola*)

More than 200 potato psyllid (*Bactericera cockerelli*) were found in Alberta through monitoring done as part of the Potato Psyllid and Zebra Chip Monitoring Program. Over 1,374 cards from potato fields and another 100 more from weed patches in potato growing areas were assessed by Dan Johnson's Lab. All potato psyllids found were tested for Lso, the Zebra chip pathogen, by Lawrence Kawchuk, Agriculture and Agrifood Canada, and all were found to be negative. Evidence is mounting that there is a low level resident population of potato psyllids in western Canada. At this point this is mostly good news but that would change if the zebra chip pathogen were to make it into our potato psyllid population. Contact dan.johnson@uLeth.ca for more information.

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 reticulatus*).

A continued survey in cooperation with the Canadian Grain Commission is finding lesser grain borer (*Rhyzopertha dominica*) around grain handling facilities in southern Alberta. So far at this point it is not showing up in grain shipments.

Grasshopper numbers were generally down throughout Alberta but there are some important exceptions. Clear winged grasshopper numbers were very high in Mackenzie county (Fort Vermillion) and two striped grasshoppers increased in northern Lethbridge, southeast Vulcan and northwest Taber counties. Both of these areas remained dry much longer than the rest of the province. We are progressing very well with the compilation of the grasshopper survey. Agriculture Service Boards have pretty much all sent in their final reports from the August survey. At this point 60 counties have reported their grasshopper survey numbers. *Entomophaga grylli* was noted killing high numbers of *Camnula pellucida* (clear winged grasshopper) in a wide swath from the north-central sites (Whitecourt) to southern BC (Cranbrook and Creston) and also Fort Vermillion but not in southern Alberta.

Sowthistle blister gall midge, *Cystiphora sonchi*. Sowthistle leaves were gathered to see if we could rear the midge from the larva. We were able to get the midge to move from the galls. Some pupated others died. We also were able to rear some parasitoid wasps from the larvae. The midge are pinned, while the parasitoid wasps are waiting for identification. They will remain in CDCS reference collection.

HORTICULTURAL CROP INSECTS (Thanks to Jim Broatch and Robert Spencer)

There was a limited survey of spotted wing drosophila (*Drosophila suzukii*) with captures in August. We do not know if the population overwintered or are arriving on weather or other events originating in British Columbia. Spotted wing drosophila was also reported from one orchard in central Alberta, with positive collections in sour cherry.

No reports of brown marmorated stinkbug (*Halyomorpha halys*) in 2016.

Swede midge (*Contarinia nasturtii*) in horticultural crops. Samples were collected in malaise traps in Lacombe had midge that appeared to be swede midge, but the samples sent to Tyler Wist in Saskatoon were identified as a similar looking midge.

Root maggot study (*Delia* spp) Over 1000 puparia/larvae were collected from Brassica vegetable production and submitted to Dr. Josee Owen (AAFC, Fredericton) and/or Dr. Jade Savage (Bishops University). Most root maggot puparia were from production that utilized x2 or x3 chlorpyrifos treatments. The adult flies will be tested for resistance.

Early on in the season, there was a fair bit of concern about forest tent caterpillars, and a substantial flight occurred later in the season so likely another year of this infestation in some areas.

Edmonton and area horticulturists highlighted a number of insect pests, including apple maggot, yellow headed spruce sawfly, pitch mass borers and pitch blister moths (pine), poplar borers.

A report of cottony cushion scale (citrus) was forwarded to CFIA and was followed up by their inspection group. Although not a crop in Alberta, this situation shows that we must always remain vigilant about the importation of new insect pests

Willow leaves with mines were collected in Brooks area and reared to find the cause. Willow flea weevil (*Isochnus rufipes*) is causing quite a bit of late season browning in laurel leaf willow in area.

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