

Entomology Program Annual Report

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Monitoring

Bertha Armyworm (*Mamestra configurata*)

There was excellent support from the industry this year for this monitoring program with 146 monitoring sites set up across Alberta. The survey consists of setting up a pheromone baited green unitrap. The traps are usually set up in pairs in canola fields in mid June. Of these, 8 locations showed an elevated level of risk above low level. Traps in Mackenzie (2), Two Hills, Beaver, Vermillion, Paintearth, Wheatland and Vulcan were at the uncertain risk level which is the first level of risk above low. There were reports of spraying in MacKenzie and Two Hills counties. The total area sprayed was close to 15,000 acres but there is some concern if all the spraying was necessary. There were also several reports of bertha armyworm that were noticeable in the crop at swathing time. Taken into account this all points towards a possible outbreak in 2012 and that monitoring will be very important once again. In the past couple years we have developed the ability for cooperators to send data in using their smart phones which has been a popular application (this is a web based function). There are no current research programs on BAW. A research proposal has been sent to the Canola Agronomic Research Program (CARP) for a small research program to investigate improvement of the BAW monitoring program. Scott Meers is the suggested principal investigator for the research.

Diamondback Moth (*Plutella xylostella*).

There were 29 trap locations established across Alberta in 2011. This was the first year in a reduced monitoring period for diamondback moth. The concept is to intercept the first wave of invaders of the spring and from there we can attempt to predict what the season has in store. The traps showed a medium sized flight into Alberta.

Throughout the season moderate to low numbers were reported from fields. No spraying took place specifically for DBM in 2011. There is need for a better forecasting system based on the trap catches. Several locations retained an extended monitoring season for research purposes.

Grasshoppers ASB's

There were grasshopper issues in the Peace Region as well as parts of northern central Alberta. The grasshopper survey is conducted in early August by the agriculture fieldmen. The grasshoppers are counted in a square meter. The survey also involves using a sweep net to determine the species at each location. The results are compiled by Maureen Vadnais and her program. Generally cropland hoppers are low in southern Alberta but there are some areas of higher numbers in grassland. Most of the concern with potential grasshopper problems are in northern central Alberta and parts of the Peace region. Almost all Agriculture Fieldmen participate in this survey. A publication is under development that will support the identification of grasshoppers for this survey.

Pea Leaf Weevil (*Sitona lineatus*)

The PLW survey was completed by AARD staff in late May through early June. This survey counts the level of the characteristic feeding damage caused by PLW. There are five locations in each field in which the number of notches are counted on each of 10 plants. 121 fields were surveyed in 21 counties. Spring flights were much later due to the cool wet weather and as a result feeding damage was lower than normal. The PLW is still not found north of Mountainview in the west and Special Areas 3 in the east. There has been no change in the range of the pea leaf weevil since 2007. A new study was initiated in 2011 looking into pheromone trapping of the PLW being led by Maya Evendon (UofA) which the AARD entomology program is involved in.

Wheat Midge (*Sitodiplosis mosellana*)

The survey was expanded into dryland wheat throughout southern Alberta in 2011. Wheat was treated for midge in several areas. In late August reports from the Peace suggested that there were midge being found in that area as well. In total 285 soil samples will be processed from Fort Vermillion to Warner (59 counties). Initial results show high levels of midge in some counties of southern Alberta. There was some spraying for wheat midge in 2011, but in many cases the wheat was ahead of the midge in development.

Wheat Stem Sawfly (*Cephus cinctus*)

A survey of 49 fields from 12 counties in southern Alberta was conducted after harvest. The WSS survey is much smaller now due to the fall in the population. We no longer survey in Wheatland, Rockyview, Foothills, Starland or Provost counties. The sawfly populations are once again generally lower but pockets of moderate to high damage remain especially in Forty Mile county and Newell county.

Cabbage Seedpod Weevil (*Ceutorhynchus obstrictus*)

Numbers were much lower in 2011 than in previous years. As part of a comprehensive canola survey 216 fields in 42 counties were surveyed. In addition agrologists reported their sweep net counts from 44 fields mostly in southern Alberta. The cabbage seedpod weevil was much less of a problem in southern Alberta than in previous years.

Although scouting and spraying are now routine parts of management for canola producers south of the TransCanada Highway, many producers did not have to treat their fields in 2011. Spraying was still common in the Lethbridge region but weevil numbers were also generally lower there as well. There were no fields sprayed for CSPW in the northern reaches of its range unlike in 2010. Once again CSPW did not expand its range in Alberta.

Lygus and Leafhoppers

Lygus and leafhoppers were surveyed as part of the canola survey. These were using the canola sweep net samples but pulling them out of them. These numbers are used in long term monitoring and research programs being carried out by Agriculture and AgriFood Canada in Saskatoon. Lygus bugs were found in canola in moderate to high densities in the early flowering stage throughout much of southern Alberta. This is despite the traditional thinking that dry weather favors lygus buildup. There were high levels of lygus in many fields as swathing time approached in southern Alberta. Some fields were sprayed and others elected to push the swathing date forward a few days. There was some concern of very high lygus numbers in canola late in the season in situations where there was no prior indication of lygus.

Potato Aphids

Suction traps were maintained at three locations: Brooks (Crop Diversification Centre South), Taber east (SLM Farms) and Taber west (McCain). Results summary Brooks: 1 Green Peach aphid, 18 Potato aphids 1837 other aphids; SLM: 3 Green Peach aphid, 16 Potato aphid and 1723 other aphids McCain: 0 Green Peach aphid, 9 Potato aphid and 2529 other aphids. Russian Wheat aphid was also part of the suction trap survey as a surveillance effort. No RWA were found in any of the suction trap samples. A meeting was held to gauge the potato industry's willingness to participate in a aphid reporting system. A follow up meeting with agrologists is pending.

Cutworm rearing

9 larvae from 2 locations were attempted to rear to the adult stage. This yielded 4 moths, one parasitoid and one fungus killed larva. Cutworm rearing was started as a way to confirm the species affecting crops in Alberta. There has been some discussion about the various species involved. A major research project has been proposed to be lead by Kevin Floate AAFC – Lethbridge. No word yet if this project has been asked to do a full proposal.

Miscellaneous insects

In the spring pupae collected from bean field stubble that was impacted by seed corn maggot. Three (3) flies emerged and are waiting for identification. During the summer there was a concern over a leaf miner in wheat. We received several affected leaves only one fly emerged from the resulting pupa. Over the past several years a leaf miner in peas has been reared and there are several specimens that need to be identified.

Alfalfa Blotch Leafminer an on-going study of activity timing and levels in the Brooks area. Weekly sweeps of alfalfa fields (3 hay and 3 seed) were carried out to determine the seasonal activity of the fly. This will be used to develop degree day models for the activity of the adult.

Western Bean Cutworm Traps were set up in 6 locations on corn or dry beans. No WBC moths were found although several specimens that looked similar to WBC were caught in the traps. Some variations of dingy cutworm moths look very similar to WBC moths. Traps were in Newell county (3), Taber county (1), Forty Mile county (1) and Lethbridge county(1).

Flea beetles (striped, Phyllotreta striolata and crucifer, P. cruciferae) were monitored at 3 sites by entomology program staff. This is part of a species shift study being led by Julie Soroka AAFC – Saskatoon that has just finished the final year. Striped flea beetles are becoming much more common throughout Alberta.

Research

Canola Research

We were involved in a major canola research project with Hector Carcamo – AAFC Lethbridge. The intent of this research is to determine the impact of spraying cabbage seedpod weevil at the early flowering stage of canola. The project involves selecting fields with farmer cooperators. Each field is set up with 4 sprayed and 4 check plots each plot is 30 meters by 100 meters. The plots are swept prior to spraying and then the farmer sprays the plot either by air or ground. The plots are then swept weekly until swathing. Yield clippings are taken and then dried before threshing. Yield mapping using the producers combine GPS system is also done. This project places a summer student in our lab from May 1 to August 31. 10 fields were done by our staff Cypress (2) Newell (2) Wheatland (2) Vulcan (4) and 10 fields more by Hector Carcamo's staff based out of Lethbridge.

PLW pheromone study

In cooperation with Maya Evenden (University of Alberta) we worked on a potential monitoring tool in PLW. An aggregation pheromone was previously identified for PLW and using this pheromone a preliminary trial was run using a modified boll weevil trap and pitfall traps. Very positive results from the first year will be used to develop a larger more comprehensive study. This study was done in fields in the following counties: Newell (1), Forty Mile (2) Vulcan (3).

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Communications

Forecast maps have been set up on Roping the Web and the system has been working well. Changes are being planned to increase access to the maps.

Web Alberta Insect Pest Monitoring Network has a new web page [Alberta Insect Pest Monitoring Network Home Page](#). It will serve a focal point to access current insect information.

Call of the Land was a major part of the communication plan and will continue to be in the future. In the growing season weekly COTL presentations were made on the current issues in the crop insect world. The insect updates are recorded on Wednesday and go to the air on Thursdays. This same approach is planned for the 2012 growing season.

You Tube videos were produced: 1) on the insect forecasts and 2) on how to put together a bertha armyworm traps. New forecast videos have been recorded and will be available very soon in the new year.

Email list has continued to grow with more agrologists, researchers, AARD staff and farmers signing on to receive the weekly emails during the summer. This will continue to be an important part of the communications plans in the coming year.