SWEET CORN INSECTS

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There is a market for sweet corn - but not a market for cobs damaged by insects. Sweet corn fields are subject to invasion of pests from both within our country and those that are blown across our borders. It takes a vigilant and sometimes lucky grower to successfully manage the various sweet corn pests every year. The pests include European Corn Borer, Corn Earworm, Fall Armyworm, Aphids and Corn Rootworms to mention a few. What are some of the approaches to managing these pests?

**European Corn Borer**

Since the accidental importation in 1909 of European Corn Borer larvae in broom corn, this insect has caused and continues to cause the highest level of concern to our sweet corn growers. There are two types of corn borers in Ontario - the univoltine and bivoltine giving rise to different times of peak adult emergence. From a grower’s point of view, control measures are designed to address both these types. Developing spray application timing criteria for this insect researchers have designed numerous methods including tassel - bud ratios.

- degree day accumulation
- extended plant height
- counting egg masses
- moth emergence counts
- % leaf feeding damage

The control strategy is to eliminate the young larvae before the worm moves into the ear or stalks. To do this growers need to check their fields beginning at the early whorl stage. One scouting method is to look at several (10) locations within a field examining 10 consecutive plants at each location looking for insect feeding damage - pinholes or insect frass. Insecticides are applied when pinhole feeding is observed in at least 5% of the plants. Subsequent applications should be applied when 15% new leaf feeding damage is observed and/or 3 egg masses are found.

**Corn Earworm/Fall Armyworm**

Although these are two very distinct insects they often occur mid to the later part of the season in August or September. The best way to monitor these insects is to look into the ear silks. Since both insects belong to the cutworm family they are distinguished (larvae and/or worm stage) from corn borers by having stripes along the length of their bodies and when picked up and placed on the palm of your hand will curl. Due to the destructive nature of the Corn Earworm, an insect that is blown up from the USA, growers are advised tp spray whenever a single Corn Earworm moth is caught in a pheromone trap. If populations are high with pheromone catches of
5-10 moths per day, the spray interval may have to be shortened to 5 or even a 3 day spray schedule.

Armyworm damage is often seen on the foliage and a threshold of 15% leaf feeding damage is used to initiate a chemical control recommendation.

It may be useful to note that there are insecticides that lose some of their effectiveness depending on temperature. Most of the synthetic pyrethroids, e.g., Ambush, Pounce, Cymbush and Ripcord display a “negative temperature coefficient” meaning they lose some of their effectiveness at high temperatures, however, under cooler evening temperatures experienced in August and September they become very effective.

**Aphids**

Aphids have always been difficult to control. Many are tolerant to our presently registered aphicides, spray coverage is often difficult thus reducing control and even if we obtain 70% aphid control, under favourable weather conditions those remaining 30% build up so quickly. It is somewhat fortunate that in most cases they are not a serious problem in sweet corn. Some growers adjust their corn borer sprays using Furadan or Lannate to give additional aphid control. None of the presently used synthetic pyrethroids not Sevin control aphids.

**Corn Rootworms**

Last year many locations experienced an early season drought. This reduced the growth rate of many field corn operations but did not adversely affect the emergence of corn rootworm adults. Western and Northern corn rootworm adults are pollen feeders and due to the delay in pollen shed the adults had to search for alternative food sources. They attacked corn leaves. Growers saw long white streaks throughout the corn leaves. Once the ears silked out the adults attacked the silks searching for pollen destroying many of the silk tubes. We know that so long as there is at least a 1” silk tube extending out of the ear there is sufficient tissue for pollen germination and germ tube extension resulting in pollination. Many of the corn borer and earworm insecticides are also effective as corn rootworm adulticides.

Growers should be reminded that with all the corn rootworm adults feeding this past season, many eggs were laid in those fields. To avoid rootworm damage this coming spring consider applying a granular rootworm insecticide at planting if sweet or field corn are being considered or preferably rotate out of corn for a year.

**Conclusions**

It is important to understand the biology of these insects to understand the reasons behind the suggested control strategies. If insecticides are being used make sure they are applied correctly with care given to spray coverage. There are good reasons why ground applications of insecticides is coming back after a period of “testing” aerial pesticide applications for insect control in sweet corn.