



HORT MATTERS

OMAFRA Specialists in Horticulture and Specialty Crops.

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The Multi-Tasking Tree Leslie Huffman, Apple Specialist

We are approaching summer, and apple trees are managing as many important tasks simultaneously as their growers are!

Apple **fruitlets** are growing by making more cells, responding to signals from the maturing seeds that were pollinated during bloom. At a later time, these cells will be filled with stored carbohydrates, which will eventually change to the sweetness and flavours that we enjoy at harvest. But the size and shape of each fruit is controlled right now, by the number of cells produced at this time.

As well, **shoots** are still growing, and have been since bloom or shortly afterwards. But elongation is now nearing completion. By the end of June, **terminal buds** will be set at the end of each shoot and shoot elongation will stop. This will signal a change in flow within the tree, as the tree begins to send carbohydrates to the roots for winter storage.

But the truly hidden task in fruit trees at this busy time of year is the on-going **initiation of fruit buds** for next year's crop. By mid-July, you can slice across a bud that is destined to be a fruit and actually see distinct flower parts (under a microscope). This emphasizes the importance of supplying proper levels of nutrients, water, and sunlight (through proper pruning) at this time. This also explains why early thinning will provide better return bloom next year – early removal of fruitlets prevents the tree from putting energy into unnecessary fruit growth, and instead, will direct its energy into creating fruit buds for next year's crop.

So have new respect for your apple trees, which may be the original multi-taskers. Remember of all these processes going on in your fruit trees now and until early July, and help your trees out by providing irrigation, foliar fertilizers and reducing the crop load as needed. Your report card will be how many flowers are produced next year.

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Apple Twilight Meeting, June 18, Ruthven

Come out to Nickels Orchards at 1498 County Road 34, on Thursday, June 18, starting at 7 pm. This is your opportunity to see a side-by-side comparison of apple IPM using reduced risk pesticides, looking at both the efficacy and the economics of this program. Other topics of discussion will include The Hidden Cost of Damaged Nozzles, Apple Production Update, Apple Pest Management in 2009 and Recognizing Black Rot in Your Orchard.

This workshop is a follow-up to the Apple IPM workshop in April (locally at Mastronardi Winery), and is a joint project between OMAFRA's Apple Team with funding by the Pesticide Risk Reduction Program of Agriculture Canada's Pest Management Centre. We hope you are enjoying your new Pub. 310, Apple IPM Manual that was also funded by this project.

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<http://www.ontario.ca/crops>

COMING EVENTS

June 23, 24, **Soil & Water Management Demonstration**, Niagara-on-the-Lake/St. Catharines, Lincoln. For information visit <http://www.omafra.gov.on.ca/english/crops/conferences/20090623.htm>

July 22, **Summer Tree Fruit Orchard Meeting**, Cedar Springs Research Station, Blenheim. 2:00-6:00 p.m. For further information contact John Zandstra at jzandstr@ridgetownc.uoguelph.ca

August 18, **Simcoe Vegetable and Alternative Crop Open House**, 1:30 p.m., Simcoe Research Station. Please RSVP by Aug 14 to 519-426-7127, ext 323. For more info visit: <http://www.omafra.gov.on.ca/english/crops/conferences/20090818.htm>

Permit to Take Water Workshop—9:00 a.m. or 1:00 p.m., Simcoe OMAFRA office.

• October 15, November 19, December 17
For more information call 519-426-4920 or visit http://www.omafra.gov.on.ca/english/engineer/facts/ptw_course.htm

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Suggestions?

We'd like to hear from you

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Ontario sweet corn producers receive urgently needed emergency use registration for corn earworm

J. Chaput, Minor Use Coordinator

The Pest Management Regulatory Agency (PMRA) recently announced the approval of an emergency use registration for **DUPONT CORAGEN** insecticide (chlorantraniliprole) for control of **corn earworm on sweet corn** in Ontario. Coragen insecticide is labeled in Canada for control of several insects pests on a range of vegetable crops. The active ingredient, chlorantraniliprole is also registered as Altacor for use on fruit crops. Furthermore a complete joint, minor use submission is already underway via the Agriculture and Agri-Food Canada, Pest Management Centre (AAFC-PMC) and US IR-4 program to seek eventual, full registration of Coragen insecticide for corn earworm control on sweet corn in Canada and the USA.

Ontario sweet corn producers have identified poor control of corn earworm as a top insect priority in recent years. Resistance to currently registered insecticides has been confirmed in samples from Ontario and the US in 2007. Emergency uses (US FIFRA Section 18) have also been approved recently in nearby US states in an attempt to address this problem pest.

Without access to Dupont Coragen insecticide, the Ontario sweet corn industry faced the risk of very serious losses to corn earworm in 2009.

The emergency use registration of Coragen insecticide will help in the interim to manage resistant corn earworm populations; however management of corn earworm requires a comprehensive IPM and resistance management program with access to all available tools and strategies. The following is provided as general information only. Users should consult the complete label before using Dupont Coragen insecticide.

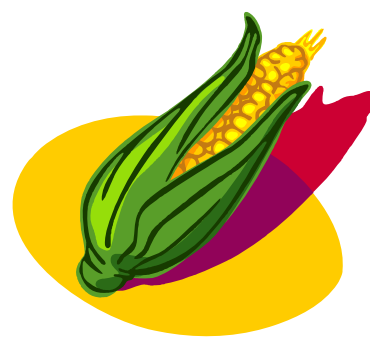
Coragen insecticide can be used for control of corn earworm in Ontario until October 31st 2009 only. Coragen can be applied at a rate of 250 to 375 mL product per hectare in a minimum of 100 L water per hectare. Reapply if monitoring indicates it is necessary. A maximum of two (2) applications per year can be made. A 1 day pre-harvest interval is permitted.

Follow all other directions for use on the Coragen insecticide label carefully.

Coragen insecticide should be used in an IPM program and in rotation with other management strategies to adequately manage resistance.

We wish to thank Elaine Roddy (OMAFRA) and the Fresh Vegetable Growers of Ontario (FVGO) for preparing the rationale documents on behalf of Ontario sweet corn producers. We also wish to thank the personnel of the **Ontario Ministry of the Environment** and **E. I. du Pont Canada Company** for their support of this registration and the personnel of the **Pest Management Regulatory Agency** for evaluating and approving this important pest management tool.

For copies of the emergency use label contact Elaine Roddy, OMAFRA Vegetable Crop specialist at Ridgeway (519) 674-1616, Jim Chaput, OMAFRA, Guelph (519) 826-3539 or visit E. I. du Pont Canada Company website at www2.dupont.com/Crop_Protection/en_CA/



Late spring hazelnut pests – Aphids, leafrollers and that weird green beetle

Melanie Filotas, Specialty Crops IPM Specialist
Todd Leuty, Agroforestry Specialist

With the onset of warm weather, insects are out and active in hazelnut plantings. Here are a few that we've been seeing.

Aphids

Aphids have been observed in large numbers on the underside of hazelnut leaves. Aphids are small, soft-bodied, pear-shaped insects with straw-like mouthparts that they use to pierce plant tissue and suck out the fluids of a variety of crops (Figure 1). There are winged and wingless forms. Aphids can be identified by the presence of two “tail-pipes”, called cornicles, near the end of the body. They are usually found in groups, or colonies. Several aphid species have been reported from other hazelnut producing areas, including filbert aphid, hazelnut aphid and green peach aphid. We are currently in the process of identifying the aphids present in hazelnut in Ontario.

Aphids are reproducing machines - a single female can produce up to 100 offspring in a week, without mating or laying eggs. Under the right conditions, these offspring, called nymphs, can develop to reproducing adults in less than two weeks. This means that aphid populations can increase very rapidly, especially when temperatures are high. Aphids are active throughout the growing season.

Aphid feeding drains fluid and nutrients from leaves, which can distort plants and cause them to wilt. They also secrete a sticky substance, called honeydew, which can promote development of a black sooty mold, which can reduce photosynthesis. Large populations of aphids can decrease yield.

Hazelnut growers are assisted in their efforts to control aphids by numerous natural enemies. Lady beetles and other predators are often found feeding on aphid colonies on hazelnut. Aphids are also susceptible to a number of fungal diseases and also tiny parasitic wasps, which lay their eggs inside the aphids. The developing wasp larva essentially eats the aphid from the inside out, killing it. When scouting for aphids, look for the presence of mummies (Figure 2), which look like papery, brown, swollen aphids – which is all that is left of the aphid after a parasitoid completes its development and the adult wasp emerges. Parasitoids can be extremely effective biological control agents. The presence of a parasitic wasp of filbert aphid in Oregon has replaced the need for chemical controls in some areas, so you may want to hold off on spraying if you observe large numbers of aphid mummies when scouting.



Figure 1 – Aphids feeding on the underside of hazelnut leaves.



Figure 2 – Aphid mummies – note that they are enlarged and the skin appears papery

Leafrollers

Leafrollers have also been observed in hazelnuts, as well as other tree nuts. Leafrollers are the immature stages of a variety of species of moths. These caterpillars typically become active in early spring as soon as green tissue appears, feeding on leaves and buds. As leaves expand, the caterpillars roll up leaves using silken webbing, where they hide during the day. These rolled leaves serve as a protection from predators and also protects them from insecticide treatments. Japanese heartnuts in southern Ontario have been extensively defoliated by leafrollers in recent years.

In Oregon, the obliquebanded leafroller (OBLR) can be a serious pest in hazelnut orchards, with caterpillar feeding on nuts rendering them stained, misshapen or aborted. Although we have not observed extensive defoliation, adult OBLR have been caught in pheromone traps in Ontario hazelnut orchards in recent weeks. In Ontario, OBLR is a pest in apple orchards, where it has two generations per year. The overwintering generation hatches in late summer, feeds through September, overwinters as larvae and feeds again in the early spring. Adults from this overwintering generation are active now, mating and laying eggs for the summer generation of larvae. In Oregon, it is this summer generation which is the most damaging to hazelnut.

We don't yet know whether OBLR will cause significant damage to Ontario hazelnuts, so it is a good idea to monitor for this pest. Adult moths are light tan to dark brown with darker bands on the wings (Figure 3), while the caterpillar is up to 20-30 mm in length and light to dark to yellowish green, with a dark brown to black head (Figure 4). The segment just behind the head is often similarly dark, with a white or cream edge between it and the head capsule. OBLR adults can be monitored with commercially available pheremone traps.



Figure 3 – Adult obliquebanded leafroller.
Photo courtesy of Kathryn Carter, OMAFRA.



Figure 4 – Obliquebanded leafroller larvae.
Photo courtesy of Kathryn Carter, OMAFRA.

Green weevil

We have had a number of questions about green beetles feeding on the foliage of various tree nuts, including hazelnut. The insect in question is a green leaf weevil (Figure 5). Weevils are members of a very large group of beetles known as Curculionidea characterized by a well-developed snout, which can be quite long and narrow – they are commonly referred to as snout beetles. Green leaf weevils are members of the genus *Polydrusus*, feed on the leaves of a wide range of trees. They are quite common in nurseries and orchards at this time of year. Although they happily eat the foliage of apples, heartnuts and other trees, it appears that the trees are able to compensate and consequently they are usually considered only a minor pest.



Figure 5 – Pale green leaf weevil.

OMAFRA Crops Content Corner

For Fruit Growers: Codling moth adults are now flying in most areas, and we have now adopted the new degree day prediction model for codling moth. Read more in “Codling moth controls”, now online at <http://www.omafra.gov.on.ca/english/crops/hort/news/hortmatt/2009/10hrt09a1.htm>

For Berry Growers: Strawberry harvest is slowly beginning, about 5-7 days behind normal, and disease pressure is high!. Read more in The Berry Bulletin for June 12”, now online at <http://apps.omafra.gov.on.ca/scripts/english/crops/agriphone/article.asp?ID=1692>

For Vegetable Growers: Wireworms are on the rise in vegetable crops such as potato, sugar beet, carrot, and cole crops, and we’d like to find them – for a nation-wide wireworm tracking survey. Read (or listen to) more in “Down to the Wire! Winning the war on Wireworms”, now online at <http://www.omafra.gov.on.ca/english/crops/updates/soundadvice/jun09r2.htm>
<http://www.omafra.gov.on.ca/english/crops/updates/soundadvice/jun09r2-w.mp3>

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