



HORT MATTERS



OMAFRA SPECIALISTS IN HORTICULTURE AND SPECIALTY CROPS

Bringing the Resources of the World to Rural Ontario

VOLUME 7, ISSUE 19

DATE: AUGUST 15, 2007

Crop Sub-group 4A, leafy greens added to Apron XL LS seed treatment label

J. Chaput, Minor Use Coordinator

The Pest Management Regulatory Agency (PMRA) recently announced the approval of a minor use label expansion for **APRON XL LS SEED TREATMENT** (metalaxyl-m) for control of *Pythium* damping-off on crop sub-group 4A, leafy greens seeds which includes amaranth, arugula, dandelion, chrysanthemum, endives, chervil, cress, purslane, lettuce, spinach, orach, parsley and radicchio.

Apron XL LS Seed Treatment was already labeled in Canada for management of *Pythium* damping-off on most cereal grains, legumes, sugarbeets, onions, spinach, cucurbits, sunflowers and turf seed. This minor use project was sponsored by the Quebec Horticultural Council (CQH) in the spring of 2003; however both Ontario and Quebec have been working towards this registration since early 2001.

This minor use registration addresses a significant minor use priority for producers of leafy greens in Canada who have a need for harmonized disease management options. Apron XL LS was registered on spinach in October of 2004; however the remainder of the leafy greens were not labeled until now.

Apron XL LS Seed Treatment can be applied at a rate of **20 – 40 mL product per 100 kg seed** as a seed treatment before planting.

Apron XL LS Seed Treatment should be used in an integrated pest management program and in rotation with other management strategies. Follow all other precautions and directions for use on the Apron XL LS Seed Treatment label.

We wish to thank the Quebec Horticultural Council and MAPAQ who have worked patiently and diligently in cooperation with OMAFRA for a number of years to secure this registration. Furthermore, we wish to thank the personnel of **Syngenta Crop Protection Canada Inc.** 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 new supplemental label contact Jennifer Allen, OMAFRA, Vegetable Crops Specialist (519) 826-4963, Jim Chaput, OMAFRA, Guelph, (519) 826-3539 or visit Syngenta Crop Protection at www.syngenta.ca

The Many Faces of Blossom-End Rot

Janice LeBoeuf, Vegetable Crop Specialist

Most growers are familiar with blossom-end rot in tomatoes, but it can look very different from fruit to fruit. The most unusual is probably internal blossom-end rot. This shows no external symptoms (or very subtle symptoms), but there is a large black area inside the fruit. In peppers, blossom-end rot often shows up on the side of the fruit, rather than the end. Below are some photos of blossom-end rot (BER) in tomatoes and peppers.



Blossom-End Rot of Tomato and Pepper: Causes and Management

Janice LeBoeuf, Vegetable Crop Specialist

Blossom-end rot develops when there is a localized calcium deficiency in the blossom-end of the fruit. This can occur even on soils with plenty of calcium, and in plants which show high tissue calcium levels in a foliar analysis, because calcium does not move about very easily in the plant. BER is most often caused by a fluctuation in the water supply in the plant, which interferes with the movement of calcium to the fruit.

High foliage to fruit ratios, due to cultivar characteristics or to over-fertilization with nitrogen, can increase BER. Ammonium fertilizers can aggravate BER, as they can interfere with the uptake of calcium by the plant. Keep in mind however, that ammonium ions are converted to nitrate ions by bacteria in the soil. The warmer the soil, the faster this reaction occurs.

BER can be worse under conditions which restrict calcium uptake or transport. Calcium uptake can be reduced due to root damage during cultivation, poor root systems (compaction or poor drainage), water stress, excess soil magnesium, potassium, or ammonium levels, low temperatures, or low soil pH (below 5.5).

Keep these factors in mind when preparing for and managing the tomato and pepper crops. Monitor soil pH and nutrient levels with regular soil testing. Keep your soil healthy. And if irrigation is an option, use an accurate scheduling method to prevent the moisture fluctuations which could still trigger BER.

Caution using ReTain on Stressed Trees

John Gardner, Apple Specialist

This is a good topic of discussion for 2007 as growers do anticipate earlier harvest dates for many of the apple cultivars that are worthy of long term storage. The earlier dates this year are related to bloom dates and seasonal stresses including moisture deficits, high heat loads in the orchard, excessive soil temperatures and high UV ratings through the summer. Indicator cultivars including early maturing apples and tender fruit show that varieties are coming on stream in 2007 much earlier than average and in some cases earlier than ever for growers with good record keeping systems.

It's not that long ago that we didn't really have any good way to control ethylene production and ensuing fruit maturity in the canopy of an apple tree in late summer. Crops more or less ripened when they wanted to and growers had to work around those dates. For many growers it did mean in some cases watching tonnes of fruit drop to the ground or loose storage potential as the season progressed. This was especially true with cultivars that produced high levels of ethylene in the orchard like the various McIntosh strains.

"Retain" has been used with various degrees of success now for several years in Ontario and in the Great Lakes Region on different cultivars. It has helped growers manage their harvest operations and stretched out the windows of opportunity during the harvest season. What does happen when Retain is used successfully is that crops are delayed in their maturity, producing fewer drops, and resulting in better post harvest quality (reduced cracking in the stem bowl and factors like watercore are controlled). This response is the result of an inhibition of ethylene production in maturing apples.

When ethylene is managed, crops hang longer in the canopy and maintain best quality attributes longer in the canopy allowing the grower to get more quality fruit into the bin on a per acre basis. There are very few apple cultivars out here that hang well naturally without quality degradation on the tree. "Silken" does come to mind as one cultivar that has a very wide window of opportunity naturally without the use of any ethylene management tools. Silken is however not considered to be a candidate for long term storage.

Cultivars vary in their sensitivity to Retain. Gala strains, Honeycrisp and Jonagold are very sensitive to Retain and higher rates can inhibit the development of characteristic colour and other fruit quality attributes. For this reason rates are usually cut in half for these cultivars. Growers should use the 4- 5 week Standard when determining use dates for this product. For a cultivar like Gala it should be used four weeks ahead of the anticipated second picking date.

It has been my experience that Retain will likely not override the effects of treatments used in the orchard that have been shown to accelerate fruit maturity. This would include aggressive treatments of various formulations of calcium in the attempt to combat disorders like Bitterpit in cultivars like "Honeycrisp". It has been shown that aggressive use of calcium sprays can put ethylene levels in maturing fruit way over threshold levels several days ahead of control trees.

Chances of getting a response from Retain on stressed trees or trees with poor foliage health (small, tattered and thin looking canopies) is not good. As with all growth regulators, water volume and coverage are important in getting a response to using Retain. Don't irrigate for at least 8 hours after application.

Follow label instructions for use of this and other growth regulators used in apple production in Ontario. Publication 360 also has a good section on the use of Retain and other growth regulators available online at:

- Apple Growth Regulators <http://www.omafra.gov.on.ca/english/crops/pub360/7groreg.htm>
- Recommendations for use of ReTain <http://www.omafra.gov.on.ca/english/crops/pub360/7groreg.htm#retain>

Late season pests of apples

Kathryn Carter, Apple IPM specialist

As harvest of early season varieties (Paula reds) begins, things become even busier in the orchard. With harvest in full swing, it can be difficult to find the time to continue monitoring for pests and applying control measures. However, there are some important late season pests of apples that left uncontrolled can be a nightmare at harvest.

Insects

Codling moth—Second generation codling moth flight has begun and insecticides have been applied in most areas of the province. There has been an increase in codling moth damage in apples over the past few years. There are several potential reasons why this may be occurring including pesticide resistance, improper spray timing and coverage. Dr. Ian Scott a toxicologist from Agriculture and Agri-food Canada is hoping to conduct some research to evaluate the development of pesticide resistance in codling moth populations. In the meantime, growers should be sure to keep their crop protected from this pest. Since codling moth flight can continue into the end of August, growers should maintain coverage for this pest. Preferred products for codling moth at this time of year are border sprays of OP insecticides (in orchards that are uniform in shape and size and have not had a history of damage over the past few years.) or cover sprays of neonicotinoids. OP insecticides (Imidan, Guthion) should be re-applied every 18-21 days to ensure an adequate residual. Cover sprays of neonicotinoids such as Calypso and Assail provide control of both codling moth and apple maggot. These products should be applied every 10-14 days to ensure adequate residual. Rimon and Intrepid are also registered for controlling codling moth; however, they do not provide subsequent control of apple maggot.

Apple maggot—Despite the hot dry weather, monitoring by apple consultants suggest that apple maggot pressure is high this year. Apple maggot is a quarantine pest and there is zero tolerance for damage. The application of OP insecticides or neonicotinoids to control codling moth will also control apple maggot.

Oriental fruit moth—In 2001 and 2002 apple growers in Norfolk, Leamington, and Niagara were seeing considerable crop loss from Oriental fruit moth. With no products registered, growers had few options available for managing this pest. Over the past few years growers have done a great job of managing OFM using mating disruption and/or insecticides (Assail, Calypso, Intrepid, Rimon), and as a result there has been very little incidence of damage from at harvest. However, it is important to remember that OFM has not been eradicated from orchards.

There are many wild hosts for OFM and although we are not seeing damage from this pest in orchards, we still need to manage it. This year we have started to see an increase in OFM damage in orchards that have stopped using mating disruption and/or reduced insecticide applications targeting this pest. Late season OFM can cause considerable damage to apples, and damage can go undetected through a packing line resulting in quality issues.

Diseases

Pin Point apple scab—Despite the hot dry year, apple scab is present in many apple orchards across the province. The presence of this inoculum increases the vulnerability of the crop to pin point scab. Pin point scab develops when fruit become infected during the last several weeks before harvest. Fruit with late season infections may not exhibit symptoms at harvest, however lesions can develop on the fruit during the first 30-45 days in cold storage. Optimum conditions for pin point apple scab include: 1) abundant scab inoculum 2) lack of fungicide residue before harvest. 3) wetting periods longer than 30-36 hours occur after the fungicide residue is depleted. Late season Captan cover sprays should be applied leading up to harvest in orchards with optimum conditions for pin point scab.

Black rot—There has been an increase in the incidence of black rot in orchards in recent years. One of the reasons there is more black rot showing up in recent years is due to cold injury in some orchards a few years ago. The black rot fungus colonizes wounded branches, causing cankers, and acts a source of inoculum. Chemical thinners that leave small fruit are very susceptible to colonization of the black rot fungus resulting in mummification which then acts as a source of inoculum for mature fruit near harvest. . These mummified small fruit left on trees from chemical thinning become infected with black rot and late season rains and dews spread the fungus from the fruit mummies onto developing fruit. Although the heaviest infections from black rot occur during the four to six week period following petal fall, secondary infections can occur throughout the summer. Keep fruit protected with Captan, Sovran or Flint.

Flyspeck and Sooty blotch—Flyspeck and sooty blotch are summer diseases that begin to appear on apples from mid summer through harvest. Flyspeck and sooty blotch can be controlled by most fungicides that manage scab except Nova and Nustar. Where flyspeck and sooty blotch are a concern fungicide programs should be initiated in August and September and continued through harvest.

Precipitation Maps

Ian Nichols—Weather Innovations Incorporated (WIN)

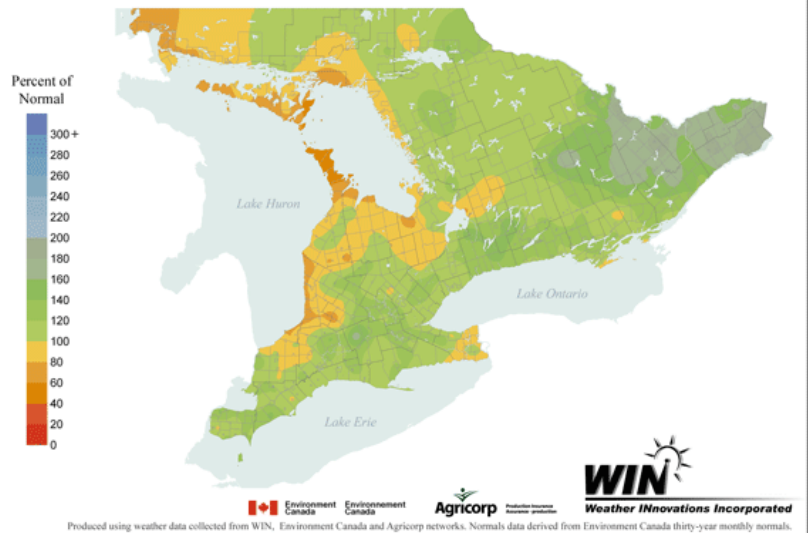
Weather Innovations Incorporated (WIN) is a full service ag meteorology program based in Chatham, ON. WIN produces precipitation maps based on information that is gathered across Ontario, and beyond. This summary produced for Hort Matters helps to explain the extent of the dry weather patterns experienced in 2007 and 2006.

These maps represent the percentage of normal precipitation for the combined three months of May, June and July. Producers are fully aware that timing is often as important as quantity, and the seasonal summaries presented here do not explore that issue. If you have a normal sum over a selected period, you may have received none of the required rain at the proper time! Generally, over a three month period, the wetter weeks and the drier weeks would tend to cancel out. The 2006 May/June/July map looks fairly normal for precipitation. However, many “Hort Matters” readers in southern Ontario experienced a fairly normal May; a horribly dry June and a very wet July. The pattern averaged out for many in 2006. The 2007 May/June/July map indicates – at least from Windsor to Toronto – that you had such little precipitation that there was no averaging effect of wet and dry periods. Three months of spotty and minimal rain sums up to a slightly less spotty condition, but overall a very, very dry period.

This is a newsletter and that is not news for most of us, but at least you can see that many of your neighbours are not a lot better off - small comfort. Your cousins in the East appear to be much better off in the precipitation department this summer. That requires a detailed look and a decision as to whether two months of exceptionally dry weather, followed by a month that included a “monsoon season”, is really that much of an advantage. Weather Innovations Incorporated provides programs to Ontario agribusiness to help answer those questions. We can be contacted through our web site:

www.weatherinnovations.com

Rainfall: Percent of Normal May 1 - July 31, 2006



Rainfall: Percent of Normal May 1 - July 31, 2007

