



# HORT MATTERS

OMAFRA Specialists in Horticulture and Specialty Crops.

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## Avoid Getting Burned by Herbicide Residues

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### Herbicide residues in the tank can cause devastating yield losses:

Even if the sprayer has been "rinsed out" with water the addition of surfactants or liquid fertilizers (eg. AGRAL 90, 28% UAN) to the next tank load may cause inadvertent loosening of previous residues. If possible use a dedicated sprayer for herbicides. In strawberries for example, if you apply Poast Ultra + Merge or Venture L herbicide within two weeks of Sinbar application, the surfactants in the grass herbicides can increase uptake of Sinbar, causing noticeable phytotoxicity and potential yield loss.

Here are some pointers, along with information specified on the product labels that should be used to minimize the risk of contamination.

### General tank clean out steps:

1. Before cleaning the sprayer, dispose of surplus spray solution. The Grower Pesticide Safety Course suggests diluting the remaining spray solution with water at a 1:10 ratio. This diluted solution can be applied to the previously treated area provided that the maximum recommended product rate on the label is not exceeded.
2. Fill tank with water and add detergent, ammonia or other tank cleaner products (See [table 1](#)) and allow vigorous agitation for 10-20 minutes.
3. Flush the boom, hoses and nozzles with solution. Be sure to operate every circuit in the pumping system. Flush each boom section individually with full liquid flow. Important: When flushing the boom, open the boom ends to blow out particles and spray solution from the line. Drain tank.
4. Wash out any self-cleaning filters or strainers using your cleaning solution.
5. Wash outside of sprayer with soap and water.
6. Remove all screens, nozzles and wash separately in a bucket containing cleaning solution. Wash out any measuring containers with the cleaning solution.
7. Thoroughly rinse tank, booms, hoses, strainer and pump. These parts are often overlooked and can trap residues. Because of today's highly active, low-use-rate herbicides, it is essential to clean out every trace of herbicide.

### General Precautions:

- Wash water contains herbicide residues. Never allow wash water to run into any water source (i.e. a well, pond, lake).
- Do not leave puddles that may be accessible to children, pets, farm animals or wildlife.

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### Choose the right cleaner:

Each herbicide should have a recommended cleaning agent listed on the product label. The following table summarizes herbicide-specific cleaning agents found after several hours of combing through product labels. This is by no means a comprehensive list and therefore the pesticide label should always be consulted.

### What if the label doesn't specify a cleaning agent or a cleanout procedure?

Some product labels simply do not state a cleanout procedure. In that case, the 7 step cleanout procedure above along with one of the three "cleaning solutions" listed would be acceptable. For "group II" products like Pursuit, the preferred cleaning agent is household ammonia, according to the manufacturer.

### Cleaning Solutions

- Clean water rinse (i.e. triple rinse)
- Ammonia solution at 3%/100L water
- Strong detergent solution (i.e. 1.0 kg detergent/150 L water)

**Table 1. Recommended tank-cleaning agent for several herbicides used in Ontario**

<b>Herbicide(s)</b>	<b>Recommended Cleaner</b>
2,4-D	1% ammonia/100 L water
Assure II	Clean water
Basagran Forté	*Not specified on label
Chateau	3% ammonia/100 L water
Devrinol	*Not specified on label
Dual II Magnum	Clean water
Eptam	*Not specified on label
Frontier	*Not specified on label
Gesagard	*Not specified on label
Glyphosate	*Not specified on label
Goal 2XL	*Not specified on label
Gramoxone	Use a wetting agent (AGRAL 90 at 60 mL per 100 L of water, flush and spray out, then thoroughly rinse with clean water.
Ignite	Strong detergent
Lontrel	Clean water
Lorox	*Not specified on label
MCPA	*Not specified on label
Nortron SC	*Not specified on label
Pardner	*Not specified on label
Pinnacle	Clean water, followed by 3% ammonia/100 L water
Poast Ultra	Clean water containing detergent
Princep Nine-T	Clean water
Prism	Clean water
Prowl	*Not specified on label
Pursuit	3% ammonia/100 L water
Pyramin	Clean water containing detergent
Sinbar	Clean water
Venture	Detergent

# Frost injury in Heartnut walnut orchards

Todd Leuty, Agroforestry Specialist

Japanese walnuts are also known as 'heartnut' walnuts and have been growing in managed orchards in southern Ontario for a number of years. A few heartnut orchards are now in full production after thirty to forty years of growth. As a horticultural commodity, tree nuts produced in managed orchards share similar production challenges as fruit trees, and frost injury is a good example.

Heartnuts grow well in deep fertile loam to clay loam soil, in areas having a moderated climate, which is similar to other orchard commodities. In moderated regions, heartnuts are cold tolerant to Ontario winters with tolerance that is comparable to hardy apple cultivars.

In spring, bud break in heartnuts occurs later than other tree fruit, which helps to protect new shoots from frost injury. Late bud break however, may not be delayed enough in regions that are prone to spring frost. Experience is showing that heartnuts are very sensitive to spring frost injury after bud growth has started.

From recent experience it may be more suitable to locate heartnut orchards in areas that have optimum moderation from spring frost, such as in peach and apricot regions. Providing adequate air drainage is also important to help prevent the formation of frost pockets, which can form along dense windbreaks or low spots in the orchard.

In spring of 2007 and again in 2009, heartnut walnuts have been damaged by late frost that occurred after bud break. Frost injury in the spring of 2007 killed early vegetative buds and blossoms that were open, which eliminated most of the heartnut crop for 2007. Frost injury occurred again this past spring and damage is now visible on vegetative stems as black and brown leaves and stems. Unlike 2007, the flowers this year were not fully open when the frost occurred, it may not have damaged the flowers.

It is still too early to know if traces of frost injury that appeared on the open flowers in late May will affect pollination and nut development in heartnuts. Nut crop development will be observed as the 2009 season progresses.

Currently, most heartnut orchards in Ontario are small plantings of one to three acres in size where growers are still testing the potential for crop yield, ease of management and market interests. Wind machines that are installed in many Niagara vineyards, protecting existing crops against frost damage, have also prevented frost injury in adjacent heartnut orchards. In the future, if markets continue to grow and heartnut orchards become significantly larger, the cost of wind machines may be justified.



**Figure 1.** Frost injury on leaves and leaf stems has a burned appearance. Frost injury occurred most frequently on trees near the dense white cedar windbreak. Windbreaks consisting of spruce trees allow better air drainage for orchards.



**Figure 2.** Flower cluster of heartnut walnuts with a trace of darkened frost injury below the red pollen receptors. Heartnuts, like other tree nuts are pollinated primarily by wind, less by wild insect activity.

# Ontario, Nova Scotia, Manitoba and Alberta Dry Bulb Onion growers receive urgently needed emergency use registrations for thrips

J. Chaput, Minor Use Coordinator

The Pest Management Regulatory Agency (PMRA) recently announced the approval of an emergency use renewal registration for **CARZOL** SP Miticide-Insecticide (formetanate hydrochloride) for control of **onion thrips on dry bulb onions** in Nova Scotia, Ontario, Manitoba and Alberta. Carzol SP Miticide-Insecticide was already labeled in Canada for control of mites and leafhoppers on apples, pears, peaches and nectarines. In 2008, the emergency use registration of Carzol helped dry bulb onion producers manage this serious pest problem. Furthermore a complete minor use submission is under review to seek eventual, full registration of CARZOL for thrips control on dry bulb onions in Canada.

Onion thrips, *Thrips tabaci* (Lindeman) are a pest of onions around the world. In Canada, it is considered a key pest wherever onions are grown and the number one pest of onions in most provinces. Various life stages of onion thrips actively feed on onion leaves, reducing photosynthesis, reducing plant vigor and yield, and vector and transmit Iris Yellow Spot Virus (IYSV).

In the US, onion thrips were ranked as the number one pest requiring urgent attention due to lack of effective solutions at the 2005 US IR-4 Food Use workshop. Rapid resistance development to all available, registered materials has become widespread in North America and around the world. Carzol SP Miticide-Insecticide was identified as a viable solution to help manage onion thrips. There have been no new products registered in Canada for onion thrips management in several years and control failures continue to increase.

The emergency use registration of Carzol SP will help in the interim to manage resistant thrips populations; however management of onion thrips will require 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 Carzol SP.

CARZOL SP Miticide-Insecticide can be used for control of onion thrips in dry bulb onions in Ontario, Nova Scotia, Manitoba and Alberta until October 31<sup>st</sup>, 2009 only. Carzol SP can be applied once at a rate of 1.4 kg product per hectare or Carzol can be applied twice at a rate of 0.84 kg product per hectare at a 7 – 10 day interval. Do not exceed 1.68 kg per hectare per year. A minimum spray volume of 94 L water per hectare is recommended and a 30 day pre-harvest interval is permitted.

Follow all other directions for use on the CARZOL SP Miticide-Insecticide label carefully.

CARZOL SP Miticide-Insecticide should be used in an IPM program and in rotation with other management strategies to adequately manage resistance.

We wish to thank Dr. Jennifer Allen for preparing the rationale documents on behalf of Ontario Nova Scotia, Manitoba and Alberta dry bulb onion growers as well as the personnel of Manitoba Agriculture, Alberta Agriculture and Nova Scotia Agriculture for their input, support and assistance. We also wish to thank the personnel of the Ontario Ministry of the Environment, Alberta Environment, Manitoba Conservation, Nova Scotia Environment and **Gowan 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. Special thanks are expressed to the Fresh Vegetable Growers of Ontario and Kroeker Farms Limited of Winkler, Manitoba who generously covered the submission fees for this emergency use registration.

For copies of the emergency use label contact Jennifer Allen, OMAFRA Vegetable Crops specialist at Guelph (519) 826-4963, Jim Chaput, OMAFRA, Guelph (519) 826-3539 or visit UAP Canada Inc. website at [www.uap.ca](http://www.uap.ca) or N. M. Bartlett's website at <http://www.bartlett.ca/bartlett/default.htm>

## Label Expansion for Rhapsody ASO Biofungicide for new crops and new diseases granted registration

AgraQuest Inc., UAP Canada and the Pest Management Regulatory Agency recently announced the registration of a significant label expansion for Rhapsody ASO Biofungicide for suppression of a number of commonly occurring diseases including *Botrytis*, powdery mildew, downy mildew, bacterial diseases and fungal leaf spots. Rhapsody ASO is derived from the bacterium *Bacillus subtilis* and offers growers the first biological control alternative for these diseases.

Rhapsody ASO is a broad spectrum, preventative biofungicide that can be applied as a foliar spray alone, or in an alternating spray program with other registered crop protection products. For maximum effectiveness it should be applied prior to or in the early stages of disease development. The biological mode of action of Rhapsody ASO means that it is suitable for use in a disease resistance management program with other registered fungicides.

The following table provides a **summary** of the new crop and new disease registrations on the Canadian label for Rhapsody ASO Biofungicide. For detailed instructions consult the full Rhapsody ASO label.

New Crop(s) addition	Disease(s) addition	Rate (litre/100 litres of water)	Application Instructions
Crop group 9 (cucurbits) in the greenhouse including transplants	Gummy stem blight, Cercospora leaf spot, Downy mildew, Powdery mildew	1.0 - 2.0	Begin applications soon after emergence or transplant when environmental conditions in the greenhouse and plant stage are conducive to rapid disease development. Repeat as necessary on 7 to 10 day intervals. Thorough coverage is essential.
Crop Group 4 (Leafy vegetables): in the greenhouse including transplants	Sclerotinia rot	1.0 - 2.0	Head and leaf drop: Apply as a directed spray with multiple nozzles to each seed line in sufficient water to ensure thorough coverage of lower plant leaves and surrounding soil surface within 7 days of thinning or transplanting. Repeat applications on 10-14 day intervals if conditions for disease development persist.
Crop Group 4 (Leafy vegetables): in the greenhouse including transplants	Grey mould	1.0 - 2.0	For suppression, begin applications soon after emergence or transplant and continue as necessary on a 7 to 10 day interval. When environmental conditions in the greenhouse are conducive to rapid disease development, use Rhapsody in a rotational program with other registered fungicides. Thorough coverage is essential.
	Powdery mildew	1.0 - 2.0	Begin applications when conditions are conducive to disease development. Repeat as necessary on a 7 to 10 day interval. Apply in sufficient water to ensure complete coverage of entire plant.
Lettuce only	Downy mildew ( <i>Bremia lactucae</i> )	1.0 - 2.0	Begin application soon after emergence or transplant and when conditions in the greenhouse are conducive to disease development. Repeat as necessary on a 7 to 10 day interval.
Crop Group 5 (Brassica vegetables): in the greenhouse including transplants	Downy mildew ( <i>Peronospora parasitica</i> )	1.0 - 2.0	Begin applications when environmental conditions in the greenhouse are conducive to rapid disease development and repeat as necessary on 7 to 10 day intervals. Thorough coverage is essential.
	Pin rot ( <i>Alternaria</i> / <i>Xanthomonas</i> complex)	1.0 - 2.0	
	Powdery mildew	1.0 - 2.0	Begin application soon after emergence or transplant and when conditions in the greenhouse are conducive to disease development. Repeat as necessary on a 7 to 10 day interval.

New Crop(s) addition	Disease(s) addition	Rate (litre/100 litres of water)	Application Instructions
Peppers in the greenhouse including transplants	Grey mold, Bacterial spot, Bacterial speck	1.0 – 2.0	Begin application soon after emergence or transplant and when conditions in the greenhouse are conducive to disease development. Repeat as necessary on a 7 to 10 day interval.
Crop Group 8 (Fruiting vegetables): in the greenhouse including transplants	Bacterial blight	1.0 – 2.0	Begin applications when environmental conditions in the greenhouse are conducive to disease development and repeat as necessary on 7 to 10 day intervals.
Ornamentals (greenhouse and outdoor)	<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Phytophthora</i>	1.0 – 2.0	Apply finished mixture as a DRENCH to thoroughly soak the root zone. Begin applications during or after seeding, sticking of cuttings or after transplanting to propagation beds, containers, pots or trays. Optimal performance is obtained with preventative treatments repeated every 21 – 28 days throughout the growing season.
Roses (greenhouse and outdoor)	Black spot	1.0 - 2.0	Apply on a 7 day schedule. Under high disease pressure, use higher rate or in a rotational program with other registered fungicides. Thorough coverage is essential.

Rhapsody ASO biofungicide should be used in an integrated disease management program and in rotation with other management strategies. Follow all other precautions and directions for use on the Rhapsody ASO label.

This minor use project sponsored by the Minor Use office of OMAFRA was submitted in June 2008 in response to minor use priorities identified by producers and extension personnel. Because of the size of the submissions, PMRA converted the submission to a Category B submission; however we worked very closely with the registrant and PMRA to maintain the review as though the projects were still label expansion submissions.

We also wish to thank the personnel of **Agraquest Inc. and UAP 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 labels contact Jim Chaput, OMAFRA, Guelph (519) 826-3539 or visit <http://www.uap.ca>

## **Assail registered for OFM control in stone fruits** Wendy McFadden-Smith, Tender Fruit & Grape IPM Specialist, OMAFRA

Assail 70 WP is now registered for control of oriental fruit moth and plum curculio in stone fruit (apricot, sweet and tart cherry, nectarine, peach, plum, fresh prune and plumcot). It is a Group 4 (neonicotinoid) insecticide so therefore provides an additional rotational partner for our arsenal of insecticides for OFM management. It has translaminar activity (moves across the leaf from the sprayed side to the unsprayed side). It is also rainfast once the spray has dried. No more than 4 applications can be made per season with a spray interval of 12 days. The pre-harvest interval is 7 days and the re-entry interval is 12 hours for all activities except hand-thinning, which has a re-entry period of 6 days. Research in the US indicates that Assail also has some effectiveness against plant bugs and stinkbugs and fair activity against San Jose scale, and Japanese beetle, although these are not on the Canadian label.

# Label Expansions for Serenade MAX and ASO Biofungicides for new crops and new diseases granted registration

J. Chaput, Provincial Minor Use Coordinator

AgraQuest Inc., UAP Canada and the Pest Management Regulatory Agency recently announced the registration of significant label expansions for Serenade MAX and Serenade ASO Biofungicides for suppression of a number of commonly occurring fungal and bacterial diseases. Serenade MAX and ASO are derived from the bacterium *Bacillus subtilis* and offer growers an effective biological control alternative for these diseases.

Serenade MAX and ASO are broad spectrum, preventative biofungicides that can be applied as a foliar spray alone, or in an alternating spray program with other registered crop protection products. For maximum effectiveness they should be applied prior to or in the early stages of disease development. The biological mode of action of Serenade MAX and ASO means that they are suitable for use in a disease resistance management program with other registered fungicides.

The following table provides a **summary** of the new crop and new disease registrations on the Canadian labels for Serenade MAX and ASO Biofungicides. For detailed instructions consult the full Serenade MAX and ASO labels.

New Crop(s) addition	Disease(s) addition	Rate ASO (L per ha)	Rate MAX (kg per ha)	Application Instructions
Crop group 13; Berries	Bacterial blight	4 - 12	1 - 3	Apply before fall rains and again during dormancy before spring.
Blueberries (highbush, low-bush)	Mummy berry	24	3.5 - 6	Begin applications at the bud break stage. Repeat as necessary on a 7 - 14 day interval
Crop Group 5 (Brassica vegetables)	Downy mildew, Pin rot ( <i>Alternaria/Xanthomonas</i> complex)	8 - 15	2 - 3	Make the 1 <sup>st</sup> application at emergence or immediately following transplanting. Repeat applications on 10 - 14 day intervals if conditions for disease development continue.
Soybeans	Sclerotinia stem rot	4 - 15	1 - 3.5	Begin application soon after emergence and when conditions are conducive to disease development. Repeat as necessary on a 7 - 10 day interval.
	Brown spot, frog eye leaf spot	1 - 4	0.25 - 1	
Peanuts	Leaf spot ( <i>Cercospora</i> and <i>Cercosporidium</i> )	4 - 12	1 - 3	Begin application soon after emergence and when conditions are conducive to disease development. Repeat as necessary on a 7 - 10 day interval.
Crop Group 1 (Root and tuber vegetables)	Sclerotinia white mold	8 - 15	2 - 4	Begin application soon after emergence and when conditions are conducive to disease development. Repeat as necessary on a 7 - 10 day interval.
Potatoes	Early blight	8 - 15	2 - 4	Begin application soon after emergence and when conditions are conducive to disease development. Repeat as necessary on a 7 - 10 day interval.
Crop group 9 (cucurbits)	Downy mildew	5 - 15	1 - 3	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat as necessary on a 7 to 10 day interval. When environmental conditions and plant stage are conducive to rapid disease development, use Serenade MAX in a rotational program with other registered fungicides.
Tomatoes, Peppers	Bacterial spot	4 - 15	1 - 3	Begin application soon after emergence or transplant and when conditions are conducive to disease development. Repeat as necessary on a 7 to 10 day interval. When environmental conditions and plant stage are conducive to rapid disease development, use Serenade MAX in a rotational program with other registered bacteriacides.

New Crop(s) addition	Disease(s) addition	Rate ASO (L per ha)	Rate MAX (kg per ha)	Application Instructions
Crop Group 4 (Leafy vegetables)	Sclerotinia rot	5 - 15	1 - 3	Make the 1 <sup>st</sup> application at planting. Make a 2 <sup>nd</sup> application as a directed spray with multiple nozzles per seed line in sufficient water to ensure thorough coverage of lower plant leaves and surrounding soil surface within 7 days of thinning. Repeat applications on 10 -14 day intervals if conditions for disease development persist.
Crop Group 4 (Leafy vegetables)	Grey mold	4 - 12	1 - 3	Begin applications soon after emergence or transplant and continue as necessary on a 7 to 10 day interval. When environmental conditions are conducive to disease development use Serenade MAX in a rotational program with other registered fungicides.
Crop Group 4 (Leafy vegetables)	Powdery mildew	4 - 12	3 - 6	Begin applications at the 1 <sup>st</sup> sign of disease or when conditions become conducive for disease development. Repeat as necessary on a 7 - 10 day interval.
Spinach	White rust	4 - 8	1 - 2	Begin applications at the 1 <sup>st</sup> sign of disease or when conditions become conducive for disease development. Repeat as necessary on a 7 - 10 day interval.
Crop group 12 (Stone fruits)	Brown rot	8 - 12	2 - 3	Begin application at early bloom and repeat as necessary through petal fall on a 7 day interval.
Radish, turnip and rutabaga	Downy mildew	10	2.5	Begin application when environmental conditions are conducive to disease development and repeat on 7 -10 day intervals.
Canola	Sclerotinia stem rot	1 - 4	0.25 - 1	Ground and aerial application: begin application at 20 - 30 % bloom. A 2 <sup>nd</sup> application may be made 7 - 10 days later at approximately 50% bloom and prior to significant petal fall if conditions for disease development remain favorable. Use higher rates in fields with a history of heavy disease pressure.

### Post Harvest Disease Protection

New Crop(s) addition	Disease(s) addition	Rate ASO (mL per tonne)	Application Instructions
Potatoes (PH) [potatoes treated post harvest may not be exported to USA]	Silver scurf	85 - 175	<p>Potatoes: for post harvest application to aid in the control of silver scurf. Sanitation and other cultural practices should also be employed.</p> <p>Conveyer Line Application: prepare the equivalent of 5 - 10 liters of Serenade ASO in 100 liters of water. Spray 2 liters of the Serenade ASO/water suspension per tonne of potatoes. Potatoes must rotate along the conveyer line into the storage area to ensure complete coverage.</p>

Serenade MAX and ASO biofungicides should be used in an integrated disease management program and in rotation with other management strategies. Follow all other precautions and directions for use on the Serenade MAX and ASO labels.

This minor use project sponsored by the Minor Use office of OMAFRA was submitted in June 2008 in response to minor use priorities identified by producers and extension personnel. Because of the size of the submissions, PMRA converted the submission to a Category B submission; however we worked very closely with the registrant and PMRA to maintain the review as though the projects were still label expansion submissions.

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## Two-spotted spider mite in strawberries

Pam Fisher, Berry Crop Specialist

Two spotted spider mite has been reported from strawberry fields in many areas. Scouts should watch closely for these pest especially in the bloom to preharvest period. Outbreaks are not predictable, however Mira, Annapolis and Dareslect seem to be especially susceptible varieties.

Spider mites feed on plant sap, causing white flecking or stippling visible on the upper leaf surface. Leaves develop a bronze cast. Webbing is visible on the lower leaf surface if mite populations are high. Mites can also cause fruit and sepal bronzing if populations are high during the green fruit stage

When scouting for mites, the first step is to look for a bronzed, dull or speckled appearance on the older lower leaves close to the soil surface. Examine the lower surface of suspicious looking leaves. Use a 10- 14x magnifying hand lens to see mites properly. Overwintering adults are orange in colour. Otherwise, adult mites are 0.3- 0.5 mm (1/100- 1/50 in.) and greenish yellow with two dark spots on the back. Nymphs are similar in appearance only smaller. Eggs are clear and round. All stages occur predominantly on the lower leaf surface.

If mites are observed, further assessment is needed. Walk the field in a zig-zag pattern, periodically stopping to pick a middle-aged leaf (not the oldest, not the youngest). Collect a sample of 60 leaflets from 40- 60 random plants of the variety in question. A leaflet is one of the trifoliates that make up a strawberry leaf. Take the leaflet from fully expanded leaved, avoiding the lower, oldest leaves next to the ground.

Examine each leaflet and note the stages present: eggs, nymphs and adults. There are two ways to estimate mite populations.

- Using a binocular microscope count the number of mites on each of 50-60 leaflets. Determine the average number of mites per leaf.
- Using a hand lens, record the number of leaflets with one or more mites. 25% of the leaflets (15/60) infested with mites corresponds to a population of 5 mites per leaf. 50% of leaflets infested corresponds to a population of 20 mites per leaf.

Thresholds have been suggested for mite control on strawberries ranging from 5 to 20 mites per leaflet. Consider these thresholds and apply miticide if damage is evident and populations increase from week to week. Use the low threshold before harvest, or on plants suffering from other stresses. Use the higher threshold after harvest or in non-bearing plants.

A list of registered products and their use patterns is provided in the table on the next page.

For more information, see OMAFRA publication #360 and [ontario.ca/cropipm](http://ontario.ca/cropipm)



Two-spotted spider mite adults, nymphs and eggs and webbing on lower leaf surface



Spider mite damage on strawberry leaf

Table 5-20: Miticides registered on strawberries  
(from OMAFRA Publication 360, Fruit Production Recommendations)

	Mite species controlled	Stage of mite controlled	Comments	Preharvest interval
Apollo SC	Two-spotted spider mite	Eggs, very young nymphs	Should be applied when most mites are in the egg stage. This miticide works best if applied early in the season, when generations tend to be most synchronous.	15 days
Agri-Mek 1.9% EC	Two-spotted spider mite, cyclamen mite	Adults, nymphs	Translaminar (locally systemic). Absorbed best by new, expanding leaves. Registered for both cyclamen mite and two-spotted spider mite. DO NOT USE A SURFACTANT WITH THIS PRODUCT ON STRAWBERRIES	3 days
Kelthane 50 W	Two-spotted spider mite	Nymphs	A slow-acting older product, no longer being manufactured. Resistance to Kelthane has developed where it has been used repeatedly.	7 days
Oberon	Two-spotted spider mite	Eggs, nymphs	Prevents egg hatch. Nymphal development is arrested and adults do not lay viable eggs. Very slow acting but long lasting miticide.	3 days
Pyramite Nexter	Two-spotted spider mite	Adults, nymphs	A contact miticide providing rapid knockdown of adults and nymphs. Use the highest labeled rate for two-spotted spider mites.	10 days

## OMAFRA Crops Content Corner

**For Fruit Growers:** How much does it cost to apply pesticides through damaged nozzles? Read (or listen to) more about this in “The Hidden Cost of Damaged Nozzles”, now online at <http://www.omafra.gov.on.ca/english/crops/updates/soundadvice/may09r3.htm>  
<file:///X:/english/crops/updates/soundadvice/may09r3-w.mp3>

**And For Berry Growers:** Day neutral strawberries are making a comeback. These varieties are planted in early spring will produce blossoms and fruit from mid-July through October. Read (or listen to) more in “Day Neutral Strawberries”, now online at <http://www.omafra.gov.on.ca/english/crops/updates/soundadvice/may09r4.htm>  
<file:///X:/english/crops/updates/soundadvice/may09r4-w.mp3>

**For Vegetable Growers:** Downy mildew is a serious disease of cucurbit crops grown in Ontario, and must be controlled preventatively. Read more in “2009 Downy Mildew Control Strategy for Cucurbits” now online at <http://www.omafra.gov.on.ca/english/crops/hort/2009-downy-mildew-cucurbits.htm>.

**For Specialty Crop Growers:** Ginseng growers and garden walkers have started seeing evidence of cut seedlings emerging through the straw. Read more about this problem in “Ginseng Gnawing 101 - Cut Stems and the Creatures that Cause Them”, now online at <http://www.omafra.gov.on.ca/english/crops/hort/news/hortmatt/2009/08hrt09a1.htm>

**Agricultural Information Contact Centre: 1-877-424-1300**  
**E-mail: [ag.info.omafra@ontario.ca](mailto:ag.info.omafra@ontario.ca)**  
**Northern Ontario Regional Office: 1-800-461-6132**

**[www.ontario.ca/omafra](http://www.ontario.ca/omafra)**