



HORT MATTERS

OMAFRA Specialists in Horticulture and Specialty Crops.

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Options for Emergency Wind Control

Anne Verhallen, Soil Management Specialist (Hort.)

Spring has sprung and soils are drying rapidly. Historically we usually see the highest, sustained wind speeds in the first few weeks of May. Gusty winds during a storm or just high winds can move soil. If the soil is dry, loose and bare there is a good chance that some of it is on the move and with it your valuable soil fertility! Control erosion early to prevent crop damage and further soil blowing. Watch areas like sandy knolls, headlands, roadways and other traffic areas for the early signs of soil movement.

Ideally there should be a program of cover crops or grass windstrips, tree windbreaks etc. in place for wind control, but unplanned changes in land and rotations can throw you some surprises. Oat or barley interseeds are possible, particularly on muck soils but if you want to create wind strips from oats or barley it is too late for the early May planted crops. Spring cereal wind strips may still have a place for late May and June planted crops.

Here are some options to consider

Wind Control Option	What is it doing	Where it shines	Limitations or problems
Create wind barriers from snow fence, bales of straw, strips of wood etc	Slows wind speed across the field Can create microclimate effects – temperature +1-2 ° F, advanced crop maturity	<ul style="list-style-type: none"> • Large open fields with erosion prone knolls • Crops with harvest alleys 	Cost and sourcing the materials Cost of set up and removal (think soggy, half rotted straw bales) usually spaced too far apart for good wind abatement
Spreading residue like straw, corn cobs on fields that are bare of residue	Roughens the field surface Protects from scouring action	<ul style="list-style-type: none"> • Erosion prone knolls 	Getting the materials and anchoring it (larger particles stay in place better) Possible harvest concerns
Tillage	Roughens the field surface to reduce wind strength May bring moisture to the top	<ul style="list-style-type: none"> • Short term blow with very moist soils 	Destroying soil structure that is there Dries the soil and breaks up aggregates – for a longer wind event, this will cause more erosion
Seeding or interseeding a cover crop	Roughens the field surface Helps to hold soil particles and protect from scouring	<ul style="list-style-type: none"> • Headlands and harvest alleys • Interseeding in the crop 	Height of cover crop for protection removing interseeding in crop Moisture competition with crop

IN THIS ISSUE...

- The Weed World
- New products for berry growers in 08
- Copper for managing fire blight
- Codling moth programs
- Orchard renovation—rebuild and rejuvenate with cover crops
- Plum curculio movement into orchards will begin soon
- Soil test reports—new soil test categories
- Minor use updates
- Spring Apple Orchard Meeting

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

COMING EVENTS

2008 IPM Scout Training Workshops

April 30—Intro to IPM, Guelph
May 2—Tomatoes & Peppers, Ridgetown
May 5—Tender Fruit & Grape, Vineland
May 6—Cole Crops, Guelph
May 7—Apples, Simcoe
May 8 (am)—Vine Crops, Woodstock
May 8 (pm)—Asparagus, Woodstock
May 9—Lettuce, Celery,, Onions & Carrots, Guelph
May 13—Sweet Corn, Peas, & Beans, Woodstock
May 15—Strawberries & raspberries, Simcoe
May 30—Potatoes, Guelph

To register contact the Brighton Resource Centre at 613-475-1630 or Agricultural Information Contact Centre at 1-877-424-1300. For more information contact: Margaret Appleby, IPM Systems Specialist, OMAFRA Brighton 613-475-5850 Email: margaret.appleby@ontario.ca

May 8, **Spring Apple Orchard Meeting**, HES, Simcoe. For more information see the back page.

Ontario Pesticide Education Program—for a complete list of Grower Pesticide Safety Courses or Trained Agricultural Assistant Courses visit the Ontario Pesticide Education program website at: <http://www.o pep.ca/>

Nutrient Management Education, Training and Certification—visit the OMAFRA website at: <http://www.oma fra.gov.on.ca/english/nm/cert.html>

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Suggestions?

We'd like to hear from you

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Are Weeds a “Pane” for you?

Some growers might describe weeds as a pain. If this describes you, consider this simple scouting technique to help predict when weeds will start to emerge.

Place a clean pane of glass in contact with the soil surface. Choose a place where it won't be disturbed or broken by equipment or foot traffic. Check every few days, especially after sunny days or warm rains (yes, they will return!).

The glass will create a mini-greenhouse and encourage weeds to start germinating. This will give you a heads up of a couple of days – and help plan when to apply sprays or get your cultivator ready.



Stale Seedbed – Will it Work for Your Field?

A stale seedbed can be a very effective technique to reduce early weed problems in seeded or transplanted crops. Here are the steps to plant a stale seedbed:

- Till the soil well before the expected planting date, to encourage as many weeds as possible to germinate. This will take at least 2 to 3 weeks.
- After several weeks, kill all emerged weeds without further disturbing the soil. Use non-selective herbicides like Ignite, Gramoxone or glyphosate (eg Roundup, Touchdown, etc), or kill the weeds with a flamer or steamer.
- Seed or transplant directly into the killed weeds with minimal soil disturbance. This allows the crop to establish before the second flush of weeds.
- For some crops, a herbicide can be applied after seeding but before the crop emerges:
 - Ignite is registered for this use in carrots, lettuce and onions.
 - Gramoxone or Reglone are registered for this use in beans, beets, carrots, cole crops, corn, onions, peas, cucumbers, potatoes, soybeans and turnips.
- Follow up with cultivation, hoeing or with postemergent herbicides where registered. Gramoxone, Reglone or Aim can also be used for inter-row weeding with special low pressure equipment using crop shields to avoid damaging the crop.

Where does the stale seedbed technique work well? Ontario growers have had success when seeding warm season crops like cucumbers, melons and pumpkins. Weed control levels are better for later seeded crops, since most weeds tend to germinate during May.

Where should the stale seedbed technique not be used?

Stale seedbed is not suitable for soils prone to wind erosion, because they are vulnerable after the first tillage before the weeds emerge. Also for early planted crops, there is often not enough time for adequate weed emergence after the initial tillage. As well, fields that have perennial weeds are not suitable, because most perennials do not reach their susceptible stage for glyphosate eg early flower bud for Canada thistle, before the weed flush needs to be burnt down.

Stale seedbed is most interesting where growers do not have a large choice of effective herbicides. Although it does not give perfect weed control, stale seedbed greatly reduces early weed pressure, and tips the balance in favour of good crop establishment during the critical period of weed control.



Dual II Magnum on Established Asparagus:

- Apply in the spring to dormant asparagus prior to emergence, or apply post-harvest.
- Apply once per year, with ground equipment.
- Apply 1.55 to 1.75 L product/ha (0.62 to 0.7 L/ac)
- Do not apply closer than 16 days to harvest.
- Labelled weeds (annual grasses and broadleaves)

Callisto on Established Cranberry Beds:

- Apply once per year, either:
 - Pre-emergent and early post-emergent (up to 2 leaf weeds) @ 0.3 L/ha
 - PRE – controls lamb’s-quarters, redroot pigweed, velvetleaf, wild mustard, suppressed common ragweed, vetch and creeping buttercup.
 - OR Late post-emergent (3 to 8 leaf weed) @ 0.21 L/ha + Agral 90 @ 0.2%v/v
 - POST – controls Eastern black nightshade, redroot pigweed, velvetleaf, and suppresses common ragweed, vetch and creeping buttercup
- For Bearing beds – apply between bud break and fruit set
- For Non-bearing beds – apply between bud break and 60 days before fall/winter flooding.
- Apply in 200 L water/ha (PRE) and 100-200 L water/ha (POST)
- Do not apply by air, by hand, or through irrigation equipment. Use only ground equipment.
- Pre-harvest interval is 60 days.
- Do not apply if rainfall or irrigation for frost protection is expected within 48 hours. Do not apply directly to water or if surface water is present.
- Wait 18 months before replanting cranberries.

New products for berry growers in 2008

Pam Fisher, Berry Crop Specialist

	Product (active Ingredient)	Registrant	Crop	Pests	Days to harvest (phi)
Herbicides	Callisto 480 SC herbicide (mesotrione)	Syngenta Crop Protection	cranberries	certain annual broad-leaved weeds (see label)	60 days
	Aim EC (carfentrazone-ethyl) <i>(Do not contact crop plants with this herbicide.)</i>	FMC	Strawberries, raspberries, bush berries (between rows, sprayer nozzles must have hoods for use in strawberries)	certain annual broad-leaved weeds (see label) post-emergence	1 day
	Sencor 75 DF (metribuzin)	Bayer Crop-Science	Newly planted blueberries	Pre-emergent for grass and broadleaved weeds (see label)	2 years
Fungicides	Serenade Max (<i>bacillus subtilis</i>)	United Agri Products	blueberries	suppression of Botrytis grey mould	0 days
			currants, gooseberries		
			raspberries		
			strawberries		
	Tanos 50 DF (famoxadone + cymoxanil)	E.I. DuPont	raspberries	cane diseases	0 days
Insecticides	GF-120 (spinosad)	Dow Agro-Sciences	blueberries	blueberry maggot	0 days
	Delegate (spinetoram)	Dow Agro-Sciences	blueberries	spanworm suppression	3 days
			strawberries	thrips	1 day
			raspberries	obliquebanded leafroller	1 day

Copper for managing Fire Blight

Kathryn Carter - Pome Fruit IPM Specialist; Michael Celetti - Plant Pathologist;
John Gardner - Apple Specialist; Margaret Appleby - IPM Systems Specialist

At this time of year, many growers are wondering whether they should apply copper to help suppress fire blight. Fire blight can be a devastating bacterial disease of apples and pears. Copper sprays applied from the silver tip to green tip bud stage of apples may (or may not) reduce the spread of fire blight inoculum from overwintering cankers. To be frank there is a lot of discussion over the effectiveness of copper sprays to manage fire blight, and very little hard research to document the effectiveness of the use of copper sprays help to manage fire blight. However, growers that have had fire blight in their orchards over the past two years may want to consider using early season copper sprays to reduce the spread and colonization potential of bacteria coming from cankers overwintering in the orchard. Orchards that have not had fire blight infections over the past few years usually do not have overwintering cankers, and thus would not benefit from the use of copper sprays except for scab control and possibly other types of wood rotting infections like anthracnose (fiddlestring canker).

The application of copper does not kill the bacteria. The copper residue provides an unfriendly environment over the bark and bud surfaces of the trees, preventing bacteria from getting established. The bacteria that cause fire blight are dispersed through the orchard before bloom when the initial infections occur. Generally, the greatest flux of bacteria onto the bark occurs at the tight cluster to the pink stage of apple. Copper sprays do not eliminate the need for the use of streptomycin at bloom, but they may reduce the population of overwintering fire blight bacteria.

Copper sprays can be applied from dormant through to green tip, but should never be applied after green tip due to concerns with phytotoxicity. David Rosenberger at Cornell University cautions the use of copper applications after green tip since they can result in **severe fruit russetting**. Due to concerns about phytotoxicity copper sprays may want to be avoided on high value cultivars such as honeycrisp. The effectiveness of copper sprays is affected by weather and in years with heavy rainfall between green tip and half-inch green to tight cluster, the copper residue may be washed off after 3.5 inches of rain, thereby diminishing the effect of the treatment. Rosenberger has found that copper residues are gone after 3.5 inches of rain, so in wet springs copper sprays may not work. In dry springs where there is no rain between the copper application and pink or bloom, even a copper application at green tip can result in fruit russetting.

In order for copper sprays to work effectively it is recommended they be applied to all of the trees in the block. Untreated trees (even non-susceptible varieties) provide a safe haven for the bacteria. Insect vectors can move the bacteria around easily. Copper sprays should be applied in high water volumes to achieve a washing action on bark surfaces (at least 1000 L/ha). Dormant copper applications have been shown to reduce or delay the production of inoculum in overwintering cankers.

Some copper formulations have been shown to be less likely to cause phytotoxicity. These formulations are grouped together as fixed coppers. Formulations of copper that are finely ground like the fixed coppers (copper oxychloride, copper hydroxide) tend to have better retention on plant surfaces and may have longer residuals resulting in better protection from bacteria. Some copper products must be applied as a Bordeaux mixture (copper sulfate, hydrated lime and water mix). The addition of lime to the copper sulfate reduces but does not entirely eliminate the phytotoxicity (burning action) that would occur if copper sulfate was used alone. For a list of products and rates of application see Table 1.0.

When preparing Bordeaux mixture, dissolve the copper sulfate in 1000 L water in the spray tank. Turn on the mechanical agitator. Premix the hydrated spray lime in a pail in enough water to make a slurry and pour the lime slurry through a 0.3 mm screen into the spray tank. Allow 15 minutes of mixing before starting to spray, and keep agitator running while spraying. Bordeaux mixture is not compatible with other pesticides. Apply as a dilute spray only, using 3000 L/ha. Do not use as a concentrate. Do not use Streptomycin after using bordeaux mixture, as the high pH of the Bordeaux will break down the streptomycin. Bordeaux mixture is corrosive and sprayers should be washed thoroughly after use. A protective coat of oil will prevent Bordeaux from sticking to paint.

There are no guarantees that copper applications will suppress fire blight, and the risk of russetting can make growers hesitant to use fire blight. If growers have not had high levels of fire blight in the last few years, the risks of copper sprays probably outweigh their benefits. But for growers who have had high fire blight pressure in their orchard, the use of copper before green tip may help suppress fire blight in some years. When using copper, be aware that it can result in severe fruit russetting. The best way to avoid fruit russetting is to apply the copper before green tip, however in dry springs, russetting may occur even if applied at this timing. For information on the use of copper products in apple orchards refer to table 1.0.

Table 1.0 Copper products for use on apples in Ontario

Product Name	Copper 53 W	Copper spray	Triangular brand copper sulfate
PCP No.	09934	19146	24034
Ontario Classification	Schedule 2	Schedule 3	Schedule 3
Active Ingredient	Copper from tribasic copper sulphate 53%	Copper from copper oxychloride 50%	Cupric sulphate pentahydrate (metallic copper 25.2%)
rate of formulated copper	1kg	4kg	2 kg
rate of hydrated lime	6 kg	no lime required	6 kg

Generation	Program 1	Program 2	Program 3	Program 4	Program 5
1 st (June)	Calypso/Assail or Rimon or Intrepid	Calypso/Assail	Imidan (border sprays) or Calypso	Imidan	Rimon/Intrepid
2 nd (summer)	Imidan (border sprays)	Imidan (border sprays)	Calypso or Assail	Intrepid	Calypso/Assail or Imidan

Program 1

Early season control of codling moth with Calypo, Assail, Intrepid or Rimon provide effective control of codling moth populations. Please note in order to maximize the ovicidal activity of these products the timing should be 2-3 days earlier than traditional products (Guthion and Imidan) due to their activity against eggs. Late season control of CM with Imidan will provide subsequent control of apple maggot.

Program 2

Calypso and Assail are excellent products for managing codling moth and both will provide subsequent control of mullein bug/ leafhoppers/ and tentiform leafminers. Both Calypso and Assail are excellent products for codling moth. Please note in order to maximize the ovicidal activity of these products the timing should be 2-3 days earlier than traditional products (OP's). Late season control of CM with Imidan will provide subsequent control of apple maggot.

Program 3

Imidan and Calypso both provide good control of codling moth and both products have activity against plum curculio. The application of full cover late season codling moth sprays of Calypso will provide subsequent control of apple maggot, however the residual for this product is not as long as OP's. Please note in order to maximize the ovicidal activity of these products the timing should be 2-3 days earlier than traditional products (OP's). Calypso affects apple maggot by preventing oviposition into the fruit. As a result good coverage is important, as well as ensuring pesticide residue is present on the fruit.

The use of OP (Imidan or Guthion) border sprays (following a full block spray) covering a 20 m perimeter of the orchard have proven effective in reducing codling moth and plum curculio populations. Currently the efficacy of border sprays of neonicotinoids (Assail, Calypso) and insect growth regulators (Intrepid and Rimon) and Surround (Kaolin clay) have not been evaluated and as a result we do not recommend the use of border sprays with these products at this time.

Table 1.0 Products available for managing codling moth

Product	Chemical name	family	life stage targeted	Activity	Best timing	Residual	Mite Flaring potential
Imidan	phosmet	OP	eggs, larvae, adults	contact	1 st generation: 100 DDC (base 11) 2 nd generation 700 DDC	10-14 days	L-M
Intrepid	methoxy-fenozide	IGR (MAC)	eggs, larvae, adults (sub-lethal)	ingestion	Apply 2-3 days earlier than conventional insecticides (ovicidal activity). Residue over eggs.	14+	L
Assail	acetamiprid	neonicotinoid	eggs, larvae, adults (limited)	contact/ingestion	Apply 2-3 days earlier than conventional insecticides (ovicidal activity). Residue over eggs.	10-14 days	M
Calypso	thiacloprid	neonicotinoid	eggs, larvae, adults (limited)	contact/ingestion	Apply 2-3 days earlier than conventional insecticides (ovicidal activity). Residue over eggs	10-14 days	M
Rimon	novaluron	IGR (Chitin synthesis inhibitor)	eggs, larvae	contact/ingestion	Apply at petal fall	14+	?
Altacor	rynaxypyr	Ryanodine receptors	ovilarvicidal, larvicidal	primarily contact/ingestion (secondary)	Apply 2-3 days earlier than conventional insecticides	14+	?
Delegate	spinetoram	naturalyte	larvicidal	primarily contact/ingestion (secondary)	Apply 2-3 days earlier than conventional insecticides	14+	?

Ovilarvicidal-kills small larvae that hatch out and feed on the egg capsule

Orchard Renovation – Rebuild and Rejuvenate with Cover Crops!

Anne Verhallen, Soil Management Specialist (Horticultural Crops)

Orchard renovation offers the chance to make some changes. More than just a chance to change varieties or whole crops, you have an opportunity to build soil organic matter and to reduce nematode numbers.

Let's take stock – what do we want to achieve with the cover crop? Build organic matter? Reduce nematode numbers? Or just cover the soil as cheaply as possible?

Goal	Conditions and Cover Crop Options
Build organic matter - assuming 1 season for cover crop	Early to mid summer Sorghum, sudangrass, sorghum sudan – <i>will need mowing, encourages deeper root growth</i> Late summer to early fall <ul style="list-style-type: none"> • Oats • Mixtures of cereal grasses and legumes • Oilseed radish with oats or rye
Reduce or suppress nematodes	Mustard var. Cutlass or other “hot” mustard – <i>plan for multiple planting, green foliage needs to be worked into soil</i> Sorghums - Sordan 79, Trudan 8
Cover soil to prevent erosion	Summer – rye, wheat Late summer – barley, oats

Getting Cover Crops Started

The key to getting the most benefit out of a cover crop is to grow as much biomass (top and roots) as possible, control weeds and ensure an even stand. To do this:

- It depends upon when you get the trees out but select a cover crop that makes sense for the growing season available; oats in October usually are usually not going to grow enough to make it worth the effort – switch to wheat or rye while sorghum sudan makes sense in late June and through early August but not once the calendar says September
- be aware of the fertility needs of the cover crop, species like oilseed radish and sorghum are good nitrogen scavengers but this also means that there needs to be some nitrogen available for the best cover crop growth
- use a drill to plant seed whenever possible, to get better seed placement both for soil moisture and seed distribution
- herbicide residues may reduce the stand or evenness of your cover crop

Cover Crop Seed Sources

Common cover crop species like rye, oats and wheat can usually be sourced through your local agricultural supplier. Less common species like oilseed radish may require a bit more research to find a supplier. The OMAFRA website features a cover crop seed supplier listing (<http://www.omafra.gov.on.ca/english/crops/resource/covercrp.htm>). You can search either by supplier or by cover crop species. Farm publications also often have advertisements for cover crop seed. Take care when buying cover crop seed. Cheap seed isn't a bargain if it has low germination or introduces weeds. Buy good quality



How to order copies of OMAFRA publications

The 2008 editions are out! Be sure to get the revised versions of Pub. 75, Guide to Weed Control, Pub. 360, Fruit Production Recommendations and Pub. 363, Vegetable Production Recommendations – through our new ordering system:

1. Your local OMAFRA Resource Centre
2. Visit ServiceOntario website at www.ServiceOntario.ca/publications
3. Contact ServiceOntario Publications Contact Centre at: 1-800-668-9938 or 416-326-5300 (TTY 1-800-268-7095)

Plum curculio movement into orchards will begin soon

Hannah Fraser, Entomology Program Lead (Hort)

Plum curculio adults typically overwinter in protected areas adjacent to commercial orchard blocks. In orchards not subject to weed / ground cover management, the pest may also overwinter within the orchard.

Movement in the spring prior to petal fall is highly dependent on weather conditions, and stretches of warm weather during the pre petal fall period are conducive to concentrated emergence and immigration back into the orchard. Likewise, cool temperatures during the pre petal fall period may lead to extended immigration. Expect emergence to begin where the mean temperature is 13-16 °C for 3 to 4 days, is above 16 °C for 3 days, or if over 24 °C, for 2 consecutive days. Moisture also plays a factor in triggering migration and appears necessary early in the spring for any plum curculio activity to take place.

The particular stage of crop phenology is apparently not a reliable predictor of the onset of immigration, because this may occur as early as silver-tip or as late as the first week of fruit development, depending on spring (and potentially even winter) weather. However, research in other areas indicates that in most years, the majority of plum curculio adults (70-80%) have already moved into orchards from overwintering sites *before* petal fall in apple. Using a degree-day model, researchers determined that plum curculio migration back into orchards begins around 110 (cumulative temperatures starting January 1st base 6.1°C); fifty and eighty percent of the migration occur by 250 and 411 degree days, respectively.

Migration back into orchards can be monitored with some success using Circle traps and Tedder's pyramid traps placed along problem borders. Circle traps intercept weevils crawling up the tree trunk, while pyramid traps mimic tree trunks. Both have limitations in terms of the information they provide on pest pressure. Both types of traps aren't always reliable. Remember that plum curculio migration into the orchard is determined by weather: at temperatures over 20°C they may fly directly into orchard tree canopies and may not be picked up by these traps. Baits to enhance trapping are available, but these require additional work to optimize their effectiveness, and they do not appear to provide much benefit once trees have begun to push green tissues (tree volatiles are stronger odour stimulants).

Mating occurs in the spring, before fruit set. Plum curculio females may be ready to lay eggs before the required fruit resources are available. When this occurs, they will simply hold their eggs, feed on green tissue and developing blossoms, and wait. *In any event, there is little need to manage the population until oviposition begins following petal fall or in stone fruit, at*

shuck split. The question is really "how long are developing fruit at risk from overwintering plum curculio?"

In years with high pre petal fall temperatures, whole block sprays around petal fall should yield excellent control of the majority of the population. Subsequent monitoring for any signs of new damage (difficult on some tree fruit) can help determine the need for reapplication of pest control products.

A model for feeding and oviposition has been developed at Cornell University (New York) to determine how long insecticide residual coverage is needed to prevent economic damage after petal fall (apples). Starting with petal fall as the Biofix, insecticide coverage is required until 171 degree days (base 10°C) have been accumulated. The strategy involves a block spray at petal fall; the need for subsequent border sprays is determined by the model. We are attempting to validate how well the oviposition model will fit in Ontario apple IPM programs.

Growers now have several products available for managing plum curculio in apples and / or pear (including several organophosphates, carbamates, pyrethroids, neonicotinoids, Surround, and the naturalyte Delegate for suppression). We are still waiting for a comparable tool kit for use in stone fruit. Keep in mind that products vary in terms of their residual efficacy and mode of action / insecticidal activity (lethal, curative, antifeedant, repellent / oviposition deterrent). Some examples include the neonicotinoids with antifeedant and oviposition deterrent properties, and Guthion and the neonicotinoids with curative activity against larvae that are already in fruit.



Photo credit: Clemson University - USDA Cooperative Extension Slide Series, www.ipmimages.org

Soil Test Reports: New Soil Test Categories

Christoph Kessel, Horticulture Crop Nutrition – Program Lead

Previously, Soil Test Reports provided a rating for how much nutrient was extracted in the soil test as either: **Low, Medium, High, Very High or Excessive** (Column A below).

Since January 1, 2008, a **Response Category** replaces the soil test ratings on a Soil Test Report. These new categories (Column B below) reflect the probability of a crop responding any applied nutrients.

This new approach does not change current crop fertilizer recommendations.

A	B	
Soil Test Rating (prior Jan 1, 2008)	Response Category (after Jan 1, 2008)	This means:
Low (L)	High Response (HR)	Applied nutrients will improve crop yields in most cases.
Medium (M)	Medium Response (MR)	Applied nutrients will improve crop yields in about half of the cases.
High (H)	Low Response (LR)	Improvement in early crop growth resulting from a starter fertilizer effect
Very High (VH)	Rare Response (RR)	Applied nutrients will not improve crop yield enough to cover costs of applied fertilizer. Improvement in early crop growth may result from a starter fertilizer effect. Nutrients applied to replace nutrients removed by the crop or to provide nutrients to isolated pockets of lower fertility.
Excessive (E)	No or Negative Response (NR)	Not profitable to apply nutrients. Applying nutrients from either organic or inorganic sources may reduce crop yields or quality by interfering with the uptake of other nutrients. Examples: Phosphate additions can induce zinc deficiency on soils low in zinc and increase the risk of water pollution. Potash additions may induce magnesium deficiency on soils low in magnesium

New Nitrogen Recommendations for 2008

Annual nitrogen recommendations for the following crops have been revised:

Carrots on established muck soils	No nitrogen is required
Ginseng	40 kg N/ha
Processing Tomatoes (Fertigated)	Coarse textured soils with <3.2% OM: apply up to 300 kg N/ha, with 40% applied pre-plant and the balance through the drip line. All other soils: apply up to 80 kg N/ha, with 60% applied pre-plant and the balance through the drip line.
Woody Nursery Stock (Established)	In second and subsequent years apply 100 - 150 kg N/ha in 2 to 4 applications for coniferous and deciduous stock.

More information: www.omafra.gov.on.ca/english/crops/facts/fert-rec-tables-toc.htm

OMAFRA Publication 363 Vegetable Production Recommendations

OMAFRA Pub 383 Nursery & Landscape Plant Production & IPM

OMAFRA Publication 610 Production Recommendations for Ginseng

Control of downy mildew on greenhouse ornamentals added to the Acrobat 50 WP fungicide label via the minor use program in Canada

The Pest Management Regulatory Agency (PMRA) recently announced the approval of a minor use label expansion for **Acrobat 50 WP** Fungicide (dimethomorph) for control of downy mildew on selected greenhouse ornamentals in Canada.

Acrobat 50 WP Fungicide was already labeled in Canada for control of late blight of potatoes. These new registrations are the 1st minor use label expansions for the Acrobat 50 WP fungicide formulation in Canada.

This minor use label expansion for Acrobat 50 WP Fungicide addresses a significant minor use priority for producers of greenhouse ornamentals across Canada.

For control of downy mildew caused by *Peronospora spp.* on greenhouse ornamentals use 48 grams Acrobat 50 WP per 100 litres of water. Acrobat 50 WP must be applied preventatively, before disease symptoms are evident, to be effective. Applications can be made on a 7 - 14 day interval throughout the production cycle. A maximum of 4 applications per season is permitted however producers should not apply more than 2 consecutive applications of Acrobat 50 WP fungicide without rotating to other fungicide groups. **DO NOT** apply on greenhouse cut flowers. Growers should consult the Acrobat 50 WP label for a listing of plant species noted on this minor use registration.

Follow all other precautions and use directions on the Acrobat 50 WP label carefully.

Acrobat 50 WP Fungicide should be used in an integrated pest management program and in rotation with other management strategies.

This minor use application was sponsored by Agriculture and Agri-Food Canada, Pest Management Centre (AAFC-PMC) in 2005 as a result of minor use priorities established by producers in collaboration with provincial minor use coordinators in Canada. Additionally we wish to thank the personnel of **Flowers Canada** Minor Use Registration group and **BASF 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 Jim Chaput, OMAFRA, Guelph, 519-826-3539, Graeme Murphy, OMAFRA, Vineland 905-562-4141 ext. 106 or visit the BASF label website at www.agsolutions.ca

Minor use label expansion granted for Milstop Foliar Fungicide for suppression of powdery mildew on stone fruit

The Pest Management Regulatory Agency (PMRA) recently announced the approval of a minor use label expansion for **MILSTOP FOLIAR FUNGICIDE** for suppression of powdery mildew (*Podosphaera clandestine*, *Sphaerotheca pannosa*) on stone fruits (peach, nectarine, apricot, cherry, plum) in Canada. **MILSTOP FOLIAR FUNGICIDE**, a unique bio-pesticide, was already labeled in Canada for management of powdery mildew on greenhouse vegetables and ornamentals, field peppers and grapes.

This will provide both organic and conventional stone fruit growers with a much needed disease management tool to manage one of their common disease problems.

MILSTOP FOLIAR FUNGICIDE can be applied as a foliar spray at the first sign of disease at a rate of 2.8 to 5.6 kgs per hectare in a minimum of 1000 L water per ha. For best protection, repeat at one to two week intervals until conditions are no longer favourable to disease development. Shorten the interval during rainy weather or periods of high humidity. Complete coverage of foliage, fruit and stems is essential.

The preharvest interval is 0 days.

MILSTOP FOLIAR FUNGICIDE 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 **MILSTOP** fungicide label.

This minor use label expansion was sponsored by the provincial minor use office of the Ontario Ministry of Agriculture, Food and Rural Affairs in response to minor use priorities established by stone fruit producers, extension personnel and researchers.

Furthermore, we also wish to thank the personnel of **Bioworks 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 minor use label contact Jim Chaput, OMAFRA, Guelph (519) 826-3539, Wendy McFadden-Smith, OMAFRA, Vineland (905) 562-3833 or visit www.bioworksinc.com or <http://www.koppertonline.ca>

New additions to the Canadian Reason 500SC Fungicide granted via the minor use program in Canada

The Pest Management Regulatory Agency (PMRA) recently announced the approval of a minor use label expansion for **Reason 500SC Fungicide (fenamidone)** for suppression of downy mildew on crop group 3, bulb vegetables and control of downy mildew of crop group 9, cucurbits in Canada.

Reason 500 SC Fungicide was already labeled in Canada for control of leaf blights of potato. These new registrations are the 1st minor use label expansions for Reason fungicide in Canada.

This minor use label expansion for Reason 500SC Fungicide addresses some significant minor use priorities for producers of specialty crops across Canada.

For suppression of downy mildew on bulb vegetables (dry onions, green onions, garlic, leeks, shallots, chives, etc.) apply 400 mL Reason 500SC per hectare. Begin applications as soon as crop and/or environmental conditions become favourable for disease. Applications can be made on a 5-10 day interval depending upon conditions. A maximum of 4 applications per season is permitted however producers should not apply more than 2 sequential applications of Reason 500SC or other Group 11 fungicides without rotating to other fungicide groups. The pre-harvest interval for Reason fungicide on bulb vegetables is 7 days.

For control of downy mildew on cucurbit vegetables (cucumbers, melons, pumpkins, squash, etc.) apply 400 mL Reason 500SC per hectare in a spray volume of 300 – 600 L per hectare. Begin applications as soon as crop and/or environmental conditions become favourable for disease. Applications can be made on a 5-10 day interval depending upon conditions. A maximum of 4 applications per season is permitted, however producers should not apply more than ONE sequential application of Reason 500SC or other Group 11 fungicides without rotating to other fungicide groups. The pre-harvest interval for Reason fungicide on cucurbit vegetables is 14 days.

Follow all other precautions and use directions on the Reason 500SC label carefully.

Reason 500SC Fungicide should be used in an integrated pest management program and in rotation with other management strategies.

The minor use application for bulb vegetables was sponsored by Agriculture and Agri-Food Canada, Pest Management Centre (AAFC-PMC) in 2006 as a result of minor use priorities established by producers in collaboration with provincial minor use coordinators in Canada. The minor use application for cucurbit vegetables was sponsored by the minor use office of OMAFRA in early 2007. Additionally

we wish to thank the personnel of **Bayer CropScience 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 Jim Chaput, OMAFRA, Guelph, 519-826-3539, Elaine Roddy, OMAFRA, Ridgetown 519-674-1616 or visit the Bayer CropScience website at www.bayercropscience.ca

Minor use label expansion granted for Poast Ultra Herbicide at a reduced PHI for weed control on spinach

The Pest Management Regulatory Agency (PMRA) recently announced the approval of a minor use label expansion for **POAST ULTRA** herbicide (sethoxydim) at a reduced pre-harvest interval (PHI) of 15 days for control of labeled weeds on spinach in Canada. Poast Ultra herbicide was already labeled for use on spinach at a longer PHI and on a wide range of Canadian specialty and minor crops.

This minor use submission was sponsored by minor use office of OMAFRA in 2007 in response to minor use priorities identified by Ontario spinach producers and extension personnel.

Weed management has been a high priority for spinach producers and the registration of Poast Ultra herbicide at a reduced PHI will provide spinach producers with a more effective and useful weed management tool that is more harmonized with their US counterparts.

Poast Ultra herbicide can be applied at a rate of 0.33 to 1.1 L product per ha in one post emergent application in a water volume that ensures thorough coverage as per the current label directions. Poast Ultra herbicide should be applied at the 1-6 leaf stage of annual grasses and the 1-4 leaf stage of wild oats and volunteer cereals. The pre-harvest interval for spinach is now 15 days.

Poast Ultra herbicide should be used in an integrated weed management program and in rotation with other management strategies. Follow all other precautions and directions for use on the Poast Ultra herbicide label.

This minor use submission was sponsored by the provincial minor use office of OMAFRA as a result of priorities established in consultation with producers. We also wish to thank the personnel of **BASF 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 minor use label contact Leslie Huffman, OMAFRA, Harrow (519) 738-1256, Jim Chaput, OMAFRA, Guelph (519) 826-3539 or visit <http://www.agsolutions.ca>

Spring Apple Orchard Meeting

**Thursday May 8th, 2008 (9:30- 11:30 AM)
Horticultural Experiment Station, Simcoe**

Growers are invited to an informal orchard meeting to discuss pest control and weed management strategies, new pesticides and herbicides for 2008, review chemical thinning approaches, and learn more about tree fruit nutrition, fertility and the role of foliar feeding. This event is being hosted by the University of Guelph and the Ontario Ministry of Agriculture, Food and Rural Affairs and sponsored by the OMAFRA/University of Guelph Sustainable Production Systems Research Program.

Please meet in front of the main building or in the auditorium (in the event of rain).

PROGRAM

9:30 am	Coffee and Refreshments	
9:45	Mating Disruption for Codling Moth	Bernie Solymár, EarthTramper Consulting Inc., Simcoe
10:05	New Reduced Risk Pesticides	Kathryn Carter, Pome Fruit IPM
10:25	Thinning Primer and Strategies for 2008	John Cline, Pomologist, University of Guelph, Simcoe
10:45	Spiralling Costs of Fertilizers – Spread	Christoph Kessel, Nutrition/Horticulture
11:05	Weed Strategies and New Herbicides	Leslie Huffman, Weed Management - Horticulture Program Lead, OMAFRA Harrow
11:25	Adjourn	

Directions:

Horticultural Experiment Station is located approximately 5 km east of Simcoe (Hwy#24 and Hwy#3) and 200 metres north of Hwy#3 on Blueline Road ([click here](#))

Information

For further information, please contact Dr. John Cline, of the University of Guelph (jcline@uoguelph.ca) ; Tel: 519-426-7127 ext 331) or Ms. Kathryn Carter of the Ontario Ministry of Agriculture, Food & Rural Affairs (kathryn.carter@ontario.ca; Tel: 519-426-4322)



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