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### IPM scout training

Scouts, growers, and agronomists are invited to attend the berry pest management scouting workshop, on Thursday May 17, 2007, in Simcoe. This one-day session for strawberry and raspberry scouts includes presentations on pest biology and identification, a chance to study samples in the lab, and a field visit. The berry pest management workshop is part of a series of IPM workshops hosted annually by OMAFRA specialists. For a complete list of workshops see “Conferences and Meetings” on the OMAFRA crops page <http://www.omafra.gov.on.ca/english/crops/conferences/index.html#hort>

You must pre-register, contact the OMAFRA agricultural information contact center at 1-877-424-1300. Registration is free, but lunch will be provided for \$10.

Workshop materials include OMAFRA publication #360 *Fruit Production Recommendations* and OMAFRA publication #513, *Growing Strawberries in Ontario*. These can be purchased in advance or on site.

In addition, workshops on blueberry pest management can be arranged on request. Strawberry and raspberry scouting workshops can also be arranged for groups in other regions, on request. Contact Pam Fisher [pam.fisher@ontario.ca](mailto:pam.fisher@ontario.ca)

## Reducing Weeds in Berry Crops

*Leslie Huffman, Weed Management Specialist (Horticultural Crops), OMAFRA, Harrow*

Berry growers have many pest challenges growing their crops, and weeds are often at the top of the list. Whether you are producing berries organically, on plasticulture or conventionally, there are many things you can do to reduce weeds in your crop. Many of my comments will refer to strawberries but some of these ideas will also apply to raspberries, blueberries and other bush berries.

If we had the perfect herbicide – one application each spring, controlling the whole spectrum of weeds for the entire season, with no crop injury and no risk to the environment – we wouldn't even be talking about this. But we know that each of the herbicides we use has its limitations, and each treatment can fill one niche of our weed management program. Even the newer reduced risk herbicides in development do not offer the prospect of perfect weed control in berries – so we need to focus on an integrated weed management program – and an important aspect of IWM is reducing weeds in your fields.

In this column, I'd like to focus on what to do before you plant your next berry field – to reduce weed problems:

**1. Site selection:** Every grower knows which field has the lowest weed pressure. This is important for annual weeds like pigweed and lamb's-quarters, but especially important for perennial weeds like nut sedge, ox-eye daisy, and toadflax, where we don't have good herbicide options. Some farms are limited by soil type in where they can rotate berries, or prefer using well-placed fields for retail or PYO visibility. If you have to return to fields with high weed pressure, it is important to focus efforts on cleaning up weeds before you plant.

**2. Crop rotation:** The longer I'm in this business, the more respect I have for the benefits that can be achieved by a well-planned rotation, especially when planting perennial crops like berries. Berry growers have used long rotations to reduce disease, nematodes or insects, but a good rotation can also reduce weed pressure. Growing field corn can give you many options of effective herbicides to reduce weed populations in general. Including a winter cereal can break the life cycle of many weeds, and also gives you the option of an inexpensive treatment like 2,4-D or Buctril to clean up broadleaf weeds like thistles or dandelions. Growing Roundup Ready crops like soybeans can reduce annual weed pressure from pigweed, lamb's-quarters and annual grasses, especially if 2 applications are used. And some cover crops can be used to suppress weeds in general. Ensure that herbicide residues from previous crops will not harm berries though.

**3. Preplant cleanup:** The year before planting berries should be focused on all opportunities to reduce weeds. A spring burndown with glyphosate is a good start. Weed scouting, spot treatments, and effective herbicides are very important in the preplant year. In the fall, glyphosate, amitrole or 2,4-D applications can effectively reduce many perennials or winter annuals.

In the next issue, I will focus on things you can do at planting time to reduce weeds.

## **Phytophthora Root and Crown Rot in Berry Crops this Spring**

*Michael Celetti, Plant Pathologist, Horticulture Crops Program Lead, OMAFRA, Guelph*

Root and crown rots of berry crops caused by soil borne *Phytophthora* spp. may become more prevalent this coming spring due to the long cool wet fall we experienced here in Ontario during 2007. *Phytophthora* spp. are fungal-like organisms that infect the roots of plants growing in heavier wet soils or soils that retain water for a long period of time. Unfortunately, many soils were saturated and some had standing water in low areas during the 2007 fall months. These prolonged wet soil conditions are ideal for *Phytophthora* pathogens to continuously infect roots and crowns allowing the disease they cause to progress for an extended period of time.

Berry plants infected with *Phytophthora* frequently appear stunted and often occur in patches. They wilt very quickly under hot weather conditions. Symptoms are first noticed in low areas of a field or row where water accumulates for extended periods after irrigation or a heavy rain. Eventually the disease moves along the row from the initially infected plants.



Symptoms of *phytophthora* root rot in raspberries include flagging and wilting of primocanes.

Actively growing plants can tolerate a certain amount of root and crown rot and may limit the advancement of the disease. Dormant plants, however, or slow growing plants, are most vulnerable when the pathogen is still active, which appears to be the situation this past fall and the early part of winter. Plants growing on heavier soils, particularly if there has been a previous

history of *Phytophthora* root and crown rot, are at higher risk of disease than plants growing on sandy or light soils.

There is no cure once the disease has become established. Managing root diseases caused by *Phytophthora* requires an integrated approach. To avoid root diseases caused by *Phytophthora*, select well-drained fields with light soils. If well-drained or light soils are not available, choose resistant or tolerant cultivars or plant in raised beds. Always grow disease-free nursery stock or transplants to avoid introducing the pathogens into your fields. Aliette WDG (fosetyl-al) and Ridomil Gold 480 EC (metalaxyl-M) are fungicides registered in Ontario for *Phytophthora* root disease control in strawberries and raspberries. As with any pesticide, always read and follow the product label prior to use. Pay attention to timings. Ridomil should not be applied in the spring to bearing strawberries or raspberries. For best results, Aliette should be applied before infection takes place, either in spring or early fall.

## Research Brief

### Effect of rate and timing of gypsum soil amendments on the incidence and severity of red stele in strawberries

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A trial was set-up to investigate the effectiveness of application timing (spring vs fall) and rate (6 vs 4 tonnes/ha) of gypsum ( $\text{CaSO}_4$ ) amended to soil to reduce the incidence and severity of red stele in strawberries. The gypsum amendments were compared to untreated soil and plants that received Ridomil Gold 480 EC (metalaxyl-M) applied as a soil drench at 1 L/ha twice per season during the fall. Strawberry transplants cv. 'Jewel' spaced 0.3 m apart in matted rows with 1.2 m centers were planted across all treatments. Treatments were replicated four times and arranged in a randomized complete block design. Ridomil Gold 480EC applied in the fall significantly reduced the incidence and severity of red stele infected strawberry plants the following spring, compared to all gypsum amended soil treatments and the untreated checks. Gypsum applied at 6 tons/acre either in the fall or spring prior to planting strawberries significantly reduced the incidence and severity of red stele in the spring, one year after planting compared to untreated soil. The severity of red stele remained significantly lower in plots amended with gypsum applied at 6 tons/acre in the spring, compared to untreated plots for up to 2 years after application. Combined total yield over two years was highest in plots treated with Ridomil Gold 480EC. Strawberry yields were also higher in plots amended with 6 tons/acre of gypsum applied in the fall and at both 4 and 6 tons/acre applied in the spring prior to planting, compared to untreated plots.

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