

# The Ontario Berry Grower

SEPT/OCT 2009

## North American Strawberry Grower's Association Annual Meeting and Conference December 7-10 2009 Grand Rapids Michigan

This year's NASGA Annual Meeting and Conference will begin on December 7 with workshops and educational sessions for strawberry growers, meeting in Grand Rapids, Michigan as part of the starting day of the [Great Lakes Expo](http://www.glexpo.com/index.php). <http://www.glexpo.com/index.php>

The Great Lakes Expo actually gets under way on Tuesday, December 8, through the 10th, and there will be additional berry sessions as part of the expo's program. More than 300 exhibitors are available at this conference, along with three full days of educational workshops on a variety of topics, from growing to farmers' markets, to managing your web site

The meeting starts off with two workshops for strawberry growers Monday morning, December 7th:

### NASGA Plasticulture Workshop

Growing strawberries on raised beds with plastic mulch and drip irrigation has been adapted by growers in the mid-Atlantic and northern states and provinces. By using short day varieties such as Chandler, Camarosa, Cavendish and Jewel and day neutral varieties with Seascape and Albion, growers can extend the season of locally grown high quality fruit. To achieve this, growers use different plant types, planting dates and varieties together with intensive management of soil and crop nutrition.

This workshop will introduce growers to various strawberry production systems on plastic. Recent developments in soil management and fumigation, coloured mulches and soil moisture management will round out the program. Guest speakers at this workshop include Dr. Barclay Poling and other regional specialists.

### Fundamentals of Strawberry Production

This workshop will be led by David Handley from the University of Maine. It will cover general strawberry culture as an introduction to new growers or a refresher for experienced growers. Some of the topics to be covered include strawberry plant growth, matted row production practices, varieties, and insect pest, disease and weed control. The workshop will conclude with plenty of time for questions and discussion. Moderator: David Handley, Univ. of Maine

Following the workshops is a dynamic speaker program. Check out the speaker line up at <http://www.glexpo.com/NASGA.php?id=88#details> and <http://www.glexpo.com/highlights.php>.

For more information please contact the NASGA office at 613-258-4587 or [info@nasga.org](mailto:info@nasga.org)



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# Herbicide resistant weeds not just in field crops

Kristen Callow, Weed Management Program Lead - Horticulture

With far less herbicide options in horticultural crops as compared to field crops, horticulture producers tend to accept more weed escapes. The reality of this practice is that we could be harbouring and increasing herbicide resistant weeds in our fields and orchards. The following list documents the confirmed herbicide resistant weed species in the province of Ontario by herbicide Group: <http://www.plant.uoguelph.ca/resistant-weeds/>

| Herbicide Group* | Weed Species              | Location(s)   |
|------------------|---------------------------|---|
| 2                | Pigweed – redroot & green | Bruce, Elgin, Essex, Hamilton-Wentworth, Huron, Kent, Lambton, Middlesex, Oxford, Perth, Stormont, Dundas and Glengary , Wellington |
| 2                | common lamb’s-quarters    | Elgin , Kent , Middlesex, Simcoe  |
| 2                | green foxtail             | Huron, Lambton, Perth, Wellington, Victoria   |
| 2                | giant foxtail             | Lambton   |
| 2                | common cocklebur          | Lambton   |
| 2                | eastern black nightshade  | Bruce, Elgin, Huron, Middlesex  |
| 2                | common ragweed            | Elgin , Essex, Haldimand/Norfolk, Huron, Kent, Lambton, Middlesex, Oxford, Perth  |
| 2                | waterhemp                 | Bruce, Lambton, Essex   |
| 4                | wild carrot               | Halton, Wellington  |
| 5                | common lamb’s-quarters    | Numerous counties throughout Ontario  |
| 5                | redroot pigweed           | Waterloo  |
| 5                | common ragweed            | Brant, Essex, Haldimond/Norfolk, Hamilton-Wentworth, Lambton, Lennox & Addington, Niagara, Wellington                               |
| 5                | barnyard grass            | Waterloo  |
| 5                | yellow foxtail            | York  |
| 5                | old witch grass           | Grenville, Grey, Haldimond/Norfolk, Prescott, Wellington  |
| 5                | late flowering goosefoot  | Brant   |
| 5                | wild mustard              | Glengarry   |
| 5                | common groundsel          | York  |
| 5                | common waterhemp          | Essex, Lambton  |
| 6                | redroot pigweed           | Essex, Kent   |
| 6                | smooth pigweed            | Essex   |
| 7                | green pigweed             | Middlesex   |
| 7                | redroot pigweed           | Simcoe  |
| 22               | Canada fleabane           | Essex   |
| 22               | Field peppergrass         | Essex   |

**Group 2 Herbicides** – are acetolactate synthase inhibitors (imidazolinones, sulfonyleureas, sulfonyleamino-carbonyl-triazolinones and triazolo-pyrimidines), such as Pursuit and Accent.

**Group 4 Herbicides** – are synthetic auxins (phenoxyacetic acids, benzoic acids and pyridines and quinoline carboxylic acids), such as 2,4-D, Dicamba and Lontrel

**Group 5 Herbicides** – photosystem II inhibitors (triazines, triazinones and uracils), such as Simazine, Sencor and Sinbar

**Group 6 Herbicides** – photosystem II inhibitors (benzothiadiazoles and nitriles) with the same site as groups 5 and 7 but different binding behaviour, such as Basagran and Buctril

**Group 7 Herbicides** – photosystem II inhibitors (ureas) with the same site as groups 5 and 7 but different binding behaviour, such as Lorox

**Group 22 Herbicides** – photosystem I electron diverters (bipyridilium), such as Gramoxone and Reglone

Glyphosate resistant giant ragweed is suspected and being investigated as well. Growers should be aware that these weeds are in horticulture production regions across the province and in the event of control failures herbicide programs will have to be altered.

You likely have a resistant weed population if you have a weed species that should have been controlled but is healthy while other susceptible species have been controlled or a weed control failure even when the correct herbicide rate was used and it was applied at the appropriate weed stage and under favourable environmental conditions.

You can report suspected resistant weeds by contacting the Agriculture Information Contact Centre 1-877-424-1300. By taking advantage of this toll-free number, suspicious weed species will be tested for resistance by the University of Guelph. Any information obtained from this service will allow weed researchers to develop control options for resistant weed populations.

You can also send samples directly to the University of Guelph. The University of Guelph will test, free of charge, suspected resistant weeds. Visit the link below for complete submission instructions.

<http://www.plant.uoguelph.ca/resistant-weeds/services/>

In order to prevent the development of herbicide resistant weeds growers should take into consideration the following practices:

1. Rotate herbicides with different modes of action. For example, do not use simazine (Princep Nine-T) continuously. Consider other pre-emergence broadleaf herbicide options. Avoid making more than two applications of the same herbicide in the same year.
2. Scout orchards and fields to identify weeds. Respond quickly to changes in weed population by controlling weeds before they spread throughout the entire orchard or field.
3. Use non-selective post-emergence herbicides (Round-up, Ignite, Gramoxone) in your weed management program.
4. Use herbicides only as-needed.

Gratitude is expressed to Dr. Peter Sikkema and Mike Cowbrough for their review of this article.

## Notes on EcoFilm – Liquid Mulch from the 2009 Weeds Tour – Elora Research Station

Erin Styles, Berry Crop Summer Student, OMAFRA Simcoe

**EcoFilm – Liquid Mulch** is a new liquid paper based mulch product from Engage Agro Corporation that can be used to inhibit weed emergence. EcoFilm is a unique blend of natural agricultural based polymers and recycled paper fibres. The agricultural based polymer, which is made of corn, wheat, soy and potato, gives EcoFilm its unique characteristics of long lasting residual activity once applied. The mulch is applied as a spray and forms a film on the soil surface. The film allows water to penetrate into the soil, and helps maintain soil moisture, increases soil stability, and can inhibit the growth of certain weeds.

Although EcoFilm is not organic, it is all natural, and a good alternative to chemical weed control. Like cedar mulch, EcoFilm works more effectively to protect against incoming weed seeds when a thicker layer is applied to soil. Within fifteen to twenty minutes of application, EcoFilm begins to harden, and will totally harden within 24 hours provided that there is no rain during this period. Thus far, target markets of EcoFilm include municipal consumers, who can apply EcoFilm despite the recent Cosmetic Pesticides Ban, as well as the landscaping and nursery markets and some specialty agriculture including vineyards. Most recently, a large municipal trial has been conducted in the city of Brampton. EcoFilm is a viable option as a top dressing for container pots during transportation and can be useful in moisture retention for outdoor ornamental growers. It is available in natural, red and black spray colours, making it useful in aesthetic gardening.

Despite its many promising uses, it is currently too expensive to be a viable option for field application, costing roughly \$2500 - \$5000 per treated acre. Engage Agro is continuing to evaluate and develop EcoFilm. If you would like more information on EcoFilm, please contact Sean Chiki at [seanchiki@engageagro.com](mailto:seanchiki@engageagro.com).



Millions of acres of farmland are cultivated under plastic mulch worldwide. In Ontario, strawberry growers have adopted the use of plastic mulches for day neutral and some June-bearing strawberry production. These mulches are laid over the soil to warm the soil, suppress nutrient leaching and weed growth, and to conserve soil moisture. Despite being effective and affordable during crop production, the disposal of the mulch is increasingly costly and environmentally sensitive. It is estimated that for each acre of plastic, pick up and disposal costs are between \$25 and \$100 for labour and land-fill fees (Rangarajan, 2006).

## What Are Biodegradable Mulches?

Biodegradable plastic mulches are made primarily from plant starches and can be tilled at the end of the season, reducing labour costs for plastic removal and disposal. They can be broken down by micro-organisms in the soil such as bacteria, fungi and algae.

## How Well Do They Work?

Prior to the onset of degradation, biodegradable plastics have a comparable level of performance to standard plastics. However, grower feedback has indicated that some degradable films breakdown unevenly, leading to large pieces of film blowing off the field and creating litter. Breakdown is primarily affected by temperature, sunlight, moisture, soil type, crop cover and weed pressure. This means that conditions which favour good crop growth also aid in mulch breakdown. Warmth, rain and UV exposure lead to increased micro-organism activity in the soil, speeding up plastic biodegradation. Soils with high levels of organic matter also tend to have high levels of microbial activity, increasing the speed of breakdown. As the mulch begins to degrade, weeds that grow through the gaps in the mulch with stretch it out and further speed breakdown (Rangarajan, 2006).

## How to Succeed with Biodegradable Mulch?

The mulch must be stored in cool, dry temperatures, since it will begin to degrade in warm or moist environments. It should be stored upright on its ends, to avoid tearing holes in the roll which will be sites of early degradation once laid. During application tension should be kept off the roll, and laying should be done in the cooler temperatures of the early morning to reduce stretch, which promotes faster mulch breakdown. Mulch should be laid immediately before planting, since exposure to sunlight and moisture will initiate breakdown (Rangarajan, 2006).

## What Have Researchers Found?

Much research is in progress to find the most suitable alternative to black plastic mulches in fruit and vegetable production. Using melons as a test crop, a product called Mater-Bi was similar in field application to black plastic, having good

stretch and similar soil temperatures early in the season, and although breakdown in late July was apparent, no difference in yield or average fruit size could be found (Rangarajan, 2006). A product called Garden Bio-Film has also been tested with basil as a test crop. Despite some slight early degradation the Bio-Film was found to lead to taller plants and a higher plant weight (Miles et al., 2007). A study using strawberries as the test plant included three brands of biodegradable mulch; BioTELO, Ecofilm and BioBag AgroFilm Commercial. The researchers found that while BioBag did not lay as well as the other brands, and began to degrade quite early, the other biodegradable mulches performed as well as standard polyethylene mulch (Smith et al., 2008).

Growers who have used both plastic and biodegradable mulches for at least two growing seasons were satisfied with how it laid, lasted and dissolved in the field after either rototilling or disking at the end of the season, although part of the mulch can become tangled in an interseeder or rototiller. Some growers noted that the mulch is not typically strong enough to grow crops with close spacing, such as onions or garlic, and cannot hold up if frequently stepped on, as in staked tomato production.

While biodegradable plastic mulches appear to offer promising results, more research will need to be done in order to produce mulch which can break down more fully in the field and can withstand the stress of being laid by machines. Also, the price of biodegradable mulch compared to conventional plastics is still a barrier to widespread use (Ngouajio, 2008). However, this rapidly advancing technology shows promise for berry growers.

## References:

- Miles, C., Klingler, E., Nelson, L., Smith, T., and Cross, C. 2007. Alternatives to plastic mulch in vegetable production systems. Washington State University; Vancouver Research and Extension Unit, Research Report 2007.
- Ngouajio M., R. Auras, R.T. Fernandez, M. Rubino, J.W. Counts Jr., and T. Kijchavengkul. 2008. Field performance of aliphatic-aromatic copolyester biodegradable mulch films in a fresh market tomato production system. HortTechnology 18: 605-610.
- Rangarajan, A. and Ingall, B. 2006. Biodegradable mulch product testing. Cornell University Department of Horticulture. Research Report 2006.
- Smith, B.R., Deyton, D.E., Sams, C.E. 2008. Biodegradable films as an alternative to plastic mulch in strawberry production. SRFC Research Funding. Progress Report for SRFC Project #2007-08.

## Introducing Oberon, a new miticide in strawberries

Strawberry growers can now look to a new option for two spotted spider mite control. Oberon is a recently registered miticide in a totally new class of chemistry (group 23). This is great for resistance management. Oberon also has the advantage of working on all mite stages. It is effective at controlling eggs, nymphs and female adults. Treated mite eggs do not hatch, treated nymphs get trapped in their quiescent (or resting) stage and are prevented from emerging to their next stage and treated female adults do not deposit viable eggs. As a result of the way Oberon works, it is not a knockdown miticide and should be targeted toward the early life stages of mites which are the fastest life stages to develop. Early applications result in faster control and help to prevent mites from building up to high numbers. One of the significant advantages of Oberon is its long lasting control. It adheres strongly to the waxy surface of the leaf. In strawberries, Oberon has a short re-entry period of 12 hours and a short pre-harvest interval of 3 days. Oberon is a reduced risk pesticide and is soft on beneficials.



Obsolete pesticides, livestock medicines and used sharps collection program

October 20-22, 2009

Dispose of your obsolete pesticides, unused animal health products and used sharps in a safe, environmentally responsible manner—and its free! Visit the AGCare website for a list of collection locations.

### Where do I get more information?

- Visit the AGCare or Ontario Farm Animal Council websites: [www.agcare.org](http://www.agcare.org) or [www.ofac.org](http://www.ofac.org).
- Call the Ontario Farm Animal Council/AGCare: 519-837-1326
- Contact the Ontario Ministry of Agriculture, Food and Rural Affairs Agricultural Information Contact Centre  
Toll Free: 1-877-424-1300 Local: 519-826-4047 Email: [ag.info.omafra@ontario.ca](mailto:ag.info.omafra@ontario.ca)

### MARK YOUR CALENDARS.....

- October 15, 2009. **Fourth Annual Raspberry and Blackberry High Tunnel Tour**, Ithaca, NY. For more information contact Cathy Heidenreich, [mcm4@cornell.edu](mailto:mcm4@cornell.edu), 315-787-2367.
- November 8-10, 2009. **Southeast Strawberry Expo**, Sheraton Imperial Hotel, Research Triangle Park, NC. For information, contact the NC Strawberry Association, phone 919-542-4037, [info@ncstrawberry.com](mailto:info@ncstrawberry.com).
- December 7, 2009 **North American Strawberry Growers Association Annual Meeting** at Great Lakes Expo, Grand Rapids Michigan Dec. 8-10, 2009 [www.nasga.org](http://www.nasga.org)
- Dec. 8-10, 2009 **The Great Lakes Fruit, Vegetable and Farm Market EXPO** and the Michigan Greenhouse Growers Expo, Grand Rapids Michigan <http://www.glexpo.com/index.php>

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