

# The Ontario Berry Grower

JULY 2009



## NASGA Summer Tour 2009

The North American Strawberry Growers Association (NASGA) will be hosting its annual summer tour out of Chicago Illinois. Two days of farm tours are planned for August 11<sup>th</sup> and 12<sup>th</sup>.

Join farmers from across the United States and Canada as they visit innovative and successful growers and marketers. Several long time NASGA members are on the itinerary.

**Day one** includes stops at Johnson's Farm Produce in Hobart, Indiana who grow a variety of crops including strawberries, sweet corn, and pumpkins. Johnson's also boast a full service garden center and farm market. The Johnson's pride themselves on quality product and service. At Krohne Plant Farms in Hartford, Michigan they specialize in the production of strawberry and Asparagus plants. Tour participants will get a first hand look at how nursery plants are grown and learn what varieties are the market leaders. We will also visit the Southwest Michigan Research & Extension Station Benton Harbor, MI. There are several areas of research in fruit and vegetable production including projects utilizing tunnels. More stops to be added before we head back to Chicago.

**Day two** will feature a visit to Tom's Farm Market and Greenhouses. Tom Halat is another long time NASGA member who was very focused on strawberries but has evolved his business to include a fabulous garden center and farm market. The farm hosts many activities and has a gift shop to compliment the greenhouse and garden center activities. At Knutson Country Harvest we will see a vertical hydroponic strawberry growing system. From the planting of a few apple and peach trees the farm has evolved into a 33-acre farm that includes raspberries, strawberries, blackberries, blueberries, and much more. The Thompson family from Bristol Wisconsin are long time NASGA members that rarely miss a summer tour or winter meeting. Thompson's have grown strawberries for more than 70 years and at one time grew 150 acres. Strawberries are still the focus at Thompson's but they also grow pumpkins that are sold PYO in the fall. Pumpkins are actually sold by the car load.

We also plan to see the new Filtrexx growing system in production. This system utilizes a growing sock where you can utilize different soil or growing media within the sock. It is a modular system that can be installed on almost any surface.

For more information visit [www.nasga.org](http://www.nasga.org) or contact Kevin Schooley at [info@nasga.org](mailto:info@nasga.org) or 613-258-4587

Reservation can be made at the **Four Points Sheraton Hotel Chicago O'Hare**  
10249 W. Irving Park Road  
Schiller Park, IL 60176  
HOTEL 847-671-6000 FAX 847-671-7552



### IN THIS ISSUE...

- Avoid getting burned by herbicide residues
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- Measuring weather conditions with hand-held weather stations

# Avoid Getting Burned by Herbicide Residues

Mike Cowbrough – Weed Management Program Lead – Field Crops

Helmut Spieser – Agricultural Engineer

Kristen Callow – Weed Management Program Lead – Horticulture Crops

## 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 phyto-toxicity 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.

## 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)

**Warning: Do not** mix ammonia with chlorine bleach. This can produce toxic chlorine gas.

**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

# On-Farm Food Safety Programs for Berry Growers

Jan Schooley - On-Farm Food Safety-Program Lead/OMAFRA

Ontario berries are nutritious and play an important role in a healthy diet. Because berries are a 'ready to eat' crop, growers must do everything possible to reduce food safety risks associated with production. By following good agricultural practices, berry growers can provide the safest possible product to consumers. Two comprehensive programs are now available to Ontario berry growers which will help to develop and implement on-farm food safety programs.

The OMAFRA Advantage GAP (Good Agricultural Practices) outlines food safety practices that can be used no matter what you grow. The general sections on water use, manure and compost application, and worker hygiene can be easily applied to berry production. The Advantage GAP production manual is available to growers free of charge. This manual clearly outlines how to do a risk assessment to identify production practices that could be improved. The manual also contains templates for records that are essential in a food safety program. Advantage Good Agricultural Practices templates can be found at <http://www.omafra.gov.on.ca/english/food/foodsafety/producers/recordtemplates.htm>. By clicking on <http://www.omafra.gov.on.ca/english/food/foodsafety/producers/weblinks.htm> producers will find many links that will be useful in working through a food safety program.

The Canadian Horticultural Council (CHC) has developed a food safety program specific to small fruit production for use across Canada. The CHC Small Fruit Producer, Storage Intermediary and Packer Manual is available through your provincial berry organization and through the Ontario Fruit and Vegetable Growers Association. For more information about the CHC farm food safety programs visit the CHC website at <http://www.hortcouncil.ca/FSHome.htm>. The CHC website will tell you about their national programs and the auditing options available to producers.

Both of these programs are excellent. If you are selling to major chains or packers, your buyers will tell you what program they expect you to follow. Whatever program you choose, you will need to keep records of everything you do that affects food safety. In the food safety world, 'if you haven't written it down, you haven't done it'. Take time to formalize or document what you do. An on-farm food safety program can protect you from creating a potentially hazardous situation. It can also help to protect your reputation and your markets.

*The food safety programs available to you are based on science and as research uncovers new and better ways to reduce risk, the programs will change by adding new practices. Keep up to date on new developments by watching for and attending OMAFRA food safety workshops.*

## Measuring Weather Conditions with Hand-held Weather Stations

Dr. Jason S.T. Deveau, Application Technology Specialist

Everyone talks about the weather...

Most sprayer operators realize that weather conditions influence the effectiveness of spray applications and the potential for wastage (such as run-off and drift). What is actually happening and how should an operator modify their practices when the weather changes? The four principal environmental factors to consider are:

- wind,
- temperature,
- relative humidity, and
- precipitation

Most are easily measured and monitored using handheld instruments or a small weather station and they should be recorded for every application.

### Measuring Weather Conditions

It is quick and easy to measure weather conditions when planning to spray, or even during spraying if you suspect a change. Use a combination of weather forecasts, a standard compass or windsock and a nifty gadget called a "Handheld Weather Station". For temperature or relative humidity, use the station to take readings in the shade and wait a minimum of 15 seconds for accurate readings. If your hat is wet, it is probably raining – no weather station required. For wind speed, hold the meter at a height of 1.5 m above ground or the height of the spray boom; whichever is greater. Depending on the fullness of the canopy, wind speed is higher at the outer rows and the top of an orchard or vineyard canopy, so use a pole to lift the meter to canopy height and then check the recorded average. Winds should be monitored over 2-3 minutes to determine the maximum and average wind speed and direction.

## Sourcing a Handheld Weather Station

The actual cost of a handheld weather station will vary depending on the features required, but ~\$175.00 CAD is the average cost of due diligence. Features to look for include a durable body, a hard case and lanyard, a backlit display and the ability to measure wind speed, relative humidity and temperature (see Figure 1). The following tables list common models and retailers (see Tables 1 and 2).

So, when planning to spray, consider local forecasts and consult the label for product specifications such as optimal application conditions, drying time, absorption rate and retention time. Use a handheld weather station to adapt your application method to changing weather conditions. If conditions become too adverse it is sometimes necessary to stop spraying until they improve. You can't change the weather, but with accurate information you can work with it to achieve the best results.

Table 1: Brands of Handheld Weather Stations

†Model	Manufacturer	Location
Kestrel	Nielsen-Kellerman	(PA, USA)
Skywatch Xplorer	JDC Electronic	(WI, USA)
ADC	Brunton	(WY, USA)
Windmate or Skymaster	Speedtech Instruments	(VA, USA)
Mini Thermo-Anemometer	Extech	(MA, USA)

Table 2: Sourcing Handheld Weather Stations

†Company	Phone
Green Lea Ag. Center	1.800.661.5019
Graham Agriservices	1.905.786.2934
HJV Equipment Ltd.	1.866.476.2424
Phillips Farm Supplies	1.800.811.6238
Commercial Solutions	1.877.233.2255
Forestry Suppliers Inc.	1.800.647.5368
Haltech Environmental	1.866.425.5832
Hoskins Scientific	1.905.333.5510

†No discrimination is intended and no endorsement by the author or OMAFRA is implied. Information subject to change.

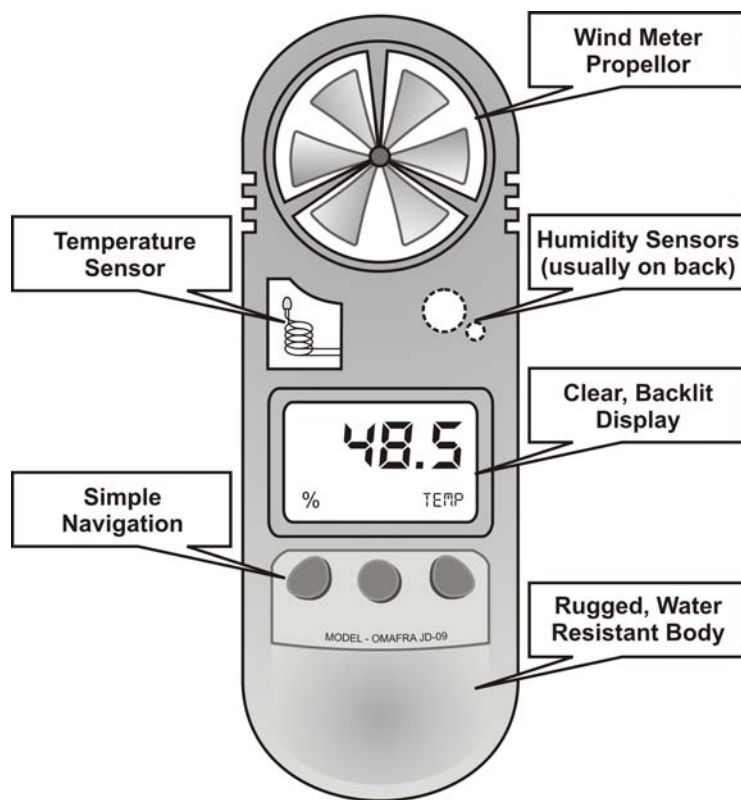


Figure 1: Anatomy of a Generic Handheld Weather Station

## MARK YOUR CALENDARS.....

- September 16, 2009 **Ontario Berry Growers' Association season wrap-up and farm tour:** Whittamores Farm, Markham. Contact Kevin Schooley, [kconsult@allstream.net](mailto:kconsult@allstream.net), 613-238-4587.
- September 23, 24, **Handle with Care Symposium, Guelph Food Technology Centre, Guelph.** Connect with innovation and global experts in gentle processing. For more information about registration, contact Denise Horseman 519-821-1246 ext. 5068 or [dhorseman@ftc.ca](mailto:dhorseman@ftc.ca)
- **Permit to Take Water Workshop**—9:00 a.m. or 1:00 p.m., Simcoe OMAFRA office. October 15, November 19, December 17  
For more information call 519-426-4920 or visit [http://www.omafra.gov.on.ca/english/engineer/facts/pttw\\_course.htm](http://www.omafra.gov.on.ca/english/engineer/facts/pttw_course.htm)
- September 16, **Ontario Berry Growers' Association season wrap-up and farm tour,** Whittamores Farm, Markham. Contact Kevin Schooley, [kconsult@allstream.net](mailto:kconsult@allstream.net), 613-238-4587
- October 15, **Raspberry and Blackberry High Tunnel Open House,** Cornell University, East Ithaca farm, 1 to 4 p.m. For more information contact Cathy Heidenreich at 315-787-2367 or [mcm4@cornell.edu](mailto:mcm4@cornell.edu)

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