



INFOSHEET #20

PEST MANAGEMENT

How to address concerns identified in your Environmental Farm Plan Worksheet #20



Based on
Environmental Farm
Plan Workbook,
4th ed. 2013

This infosheet outlines options to address concerns identified in your Environmental Farm Plan (EFP) as they relate to pest management.

For pest management activities that are located in a Source Water Protection Zone, the risk management measures needed to address the risk will be determined through the Source Water Protection process in your particular area. The measures may be the same as or more than required by EFP due to the proximity to a municipal drinking water supply. For more information, contact your local municipality or check their website under Source Water Protection Planning.

All options in this infosheet are classed as **Actions** or **Compensating Factors**.

- **Actions** address the identified concern, and will change the EFP rating to (3) or Best (4).
- **Compensating Factors** are alternatives that will adequately address the concern, but will not change the rating in the EFP worksheet.

In most cases you'll need more information before choosing and implementing options. Sources for more information are noted at the end of this infosheet.

For help with technical terms, please see the full glossary in your EFP Workbook.

20-1. Management skills

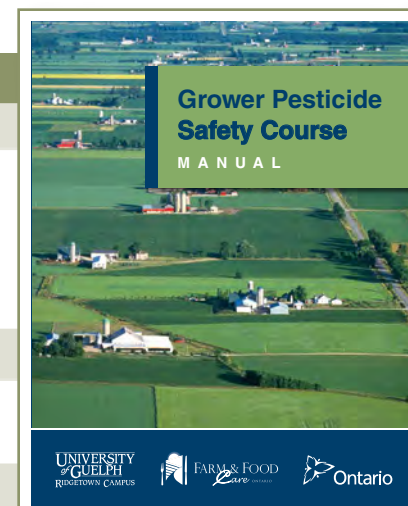
BACKGROUND	WHAT CAN YOU DO?
<p>Keeping up-to-date on the latest advances in pest management can help you reduce costs and time, improve yield, and lower environmental risk.</p> <p>New application methods and technological developments can mean more effective use of a pesticide, so that less product, fuel and labour are needed to get the same or better protection and production results.</p> <p>New types of pesticides may have less environmental risk or be more effective so that less is needed to get the same or better results.</p> <p>Non-chemical options to help control pests can lower input costs and environmental impacts, and contribute to soil health and productivity.</p>	<p>OPTION 1 – ACTION</p> <p>Attend information meetings at least once a year or read material on new crop or animal protection methods:</p> <ul style="list-style-type: none"> • look for meetings by agricultural groups, agri-environmental groups, and crop protection companies • seek out information – online, commodity groups, and in farm media. <p>OPTION 2 – ACTION</p> <p>Attend information meetings at least twice a year or read material on new crop or animal protection methods, and apply new knowledge:</p> <ul style="list-style-type: none"> • try out non-chemical alternatives, new pesticides, and better application methods in order to find a pest management plan that best suits your individual needs.



Constant advances in technology offer opportunities for production gains, input savings, and environmental benefits.

20-2. Pesticide training

BACKGROUND	WHAT CAN YOU DO?
<p>Any person handling pesticides must be certified through the Ontario Pesticide Education Program. (OPEP).</p> <div data-bbox="170 1146 659 1292" style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p>The Grower Pesticide Safety Course teaches how to handle and use pesticides safely. It does not include crop protection recommendations.</p> </div>	<p>OPTION 1 – ACTION</p> <p>Ensure at least one person on the farm is a Certified Farmer who supervises Trained Assistants handling pesticides, and all Grower Pesticide Safety Course recommendations are followed:</p> <ul style="list-style-type: none"> • any employees, family members or seasonal workers who handle Schedule 2 or 3 pesticides must be a Trained Assistant. <p>OPTION 2 – ACTION</p> <p>Ensure everyone who handles pesticides is a Certified Farmer and all Grower Pesticide Safety Course recommendations are followed.</p> <p>OPTION 3 – ACTION</p> <p>Have pesticides applied by a Custom Applicator.</p>



The Grower Pesticide Safety Course is now offered online. For details, see www.opec.ca.

20-3. Crop rotation used

BACKGROUND	WHAT CAN YOU DO?
<p>Crop rotation is an effective strategy in pest management, offering many benefits. Done correctly, it reduces pest habitat and pest food sources, lowers the risk of plant disease, increases yields and improves soil health.</p> <p>Choosing the right crops for rotations is important. Include:</p> <ul style="list-style-type: none"> • crops that can successfully compete with weeds, with those that cannot • crops that require different types of herbicides, with those that need little or no herbicides. <p>The longer the rotation, the shorter the opportunity for pests to become established.</p>	<p>OPTION 1 – ACTION</p> <p>Use a minimum three-crop rotation that includes cereals (no legumes underseeded):</p> <ul style="list-style-type: none"> • a three-crop rotation provides less opportunity for pests to become established, since the pest cycle is broken by planting a non-susceptible crop into the residue of the host crop. <p>OPTION 2 – ACTION</p> <p>Use a minimum three-crop rotation that includes legumes underseeded into cereals:</p> <ul style="list-style-type: none"> • this will establish a better soil structure, organic matter and nitrogen supply.



Including a legume crop in the rotation will improve soil structure, organic matter, and nitrogen supply.

20-4. Pest monitoring (including weeds)

BACKGROUND	WHAT CAN YOU DO?
<p>It is important to continuously monitor your crops for pests so that you know as soon as possible when a pest problem occurs. Through careful monitoring, the kind of pest, the number of pests, and the extent of pest damage can be discovered.</p> <p>Monitoring can be done with visual checks (on a representative plant or area of field), traps (lure pests into a container), and sweep nets (for foliar insects that can be dislodged).</p>	<p>OPTION 1 – ACTION</p> <p>Monitor crops for pests during EACH stage of crop development:</p> <ul style="list-style-type: none"> • fruit set • flowering • early development. <p>Adjust controls and treatments based on pest levels.</p> <p>OPTION 2 – ACTION</p> <p>Monitor crops for pests during critical periods of crop development:</p> <ul style="list-style-type: none"> • fruit set • flowering • early development. <p>Implement control measures ONLY when the pest population is large enough to do damage above economic injury threshold to the crop.</p>



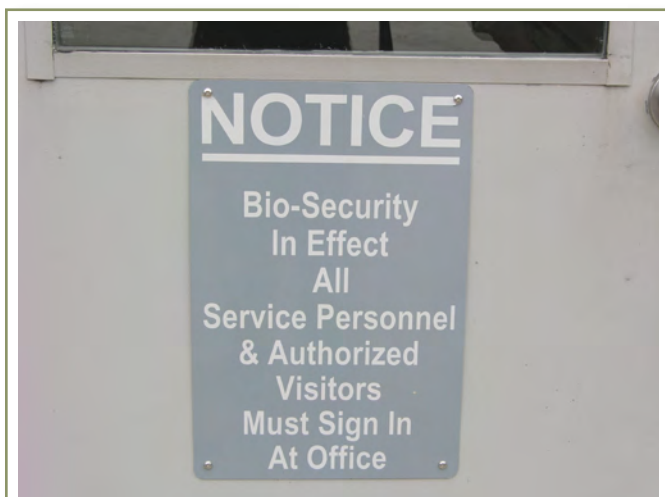
Scout fields regularly for weeds, insects and disease. By monitoring the pest situation on your land, you can make an informed decision as to whether pest control is needed.



For an introduction to the basics of integrated pest management (IPM), get this BMP booklet. It covers pest monitoring, thresholds, control options (crop, biological, and agronomic), and pesticide timing and application.

20–5. Biosecurity

BACKGROUND	WHAT CAN YOU DO?
<p>Disease and plant pest outbreaks affect not only the profitability of an individual business, but can potentially close borders to trade and result in serious economic hardship to entire industries – as well as the rural communities they support.</p> <p>Protecting the agricultural plant resource base from disease, pests and pathogens strengthens the sustainability of Ontario’s agricultural sector, and helps it meet current and future market demands.</p>	<p>OPTION 1 – ACTION</p> <p>Complete a Farm Biosecurity Self-Assessment:</p> <ul style="list-style-type: none"> • share ideas and experiences with peers and help develop a strategy with BMPs to improve on-farm biosecurity in an effective and practical way. <p>OPTION 2 – ACTION</p> <p>Put in place a biosecurity program that meets national biosecurity standards:</p> <ul style="list-style-type: none"> • use BMPs to prevent, minimize or control the introduction, spread and release of diseases, insects, weeds or other pests on the farm.



A biosecurity plan will reduce the risk of a disease or plant pest outbreak.

The Farm Biosecurity Program supports the implementation and adoption of national standards for biosecurity. It is designed to build producer awareness of health risks and ways that Ontario’s farmers can implement and/or improve upon existing biosecurity measures.

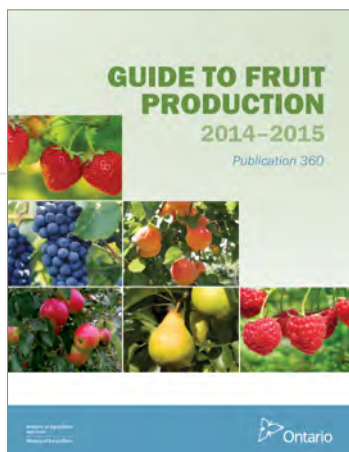
More information and advice on how to develop a biosecurity program and complete an application form are available from OMAFRA:

- toll-free at 1-888-479-3931
- email at biosecurity.omafra@ontario.ca
- web: www.omafra.gov.on.ca/english/about/growingforward/fbprog3.htm

20–6. Methods of control

BACKGROUND	WHAT CAN YOU DO?
<p>Many pest control options are available. Using a variety of pest management methods slows the development of pest resistance compared to reliance on a single management method, which reduces selection pressure.</p> <p>Use low-risk methods of pest control when possible.</p>	<p>OPTION 1 – ACTION</p> <p>Assess all options for pest control. Where possible and effective, use non-chemical methods of control. Where chemical control is used, implement BMPs to reduce impact on environment.</p> <p>Options, strategies and considerations include:</p> <ul style="list-style-type: none"> • site selection – choose sites less favourable for pest development • resistant or tolerant cultivars – select cultivars less susceptible to disease or insect pressure • crop rotation – some insects and diseases over-winter in crop refuse, so that rotating to a non-related crop where possible may help to break the pest cycle • certified planting/nursery stock – use disease-free or virus-free plants to reduce the likelihood of losses • sanitation – remove all sources of infection (cull piles and dropped fruit) from the field or orchard • elimination of alternative hosts – weeds and wild fruit trees, grapevines and brambles often act as alternative hosts to many crop pests, so maintain good weed control and eliminate wild hosts from the perimeter of the planting • inter-cropping – avoid inter-cropping plants with similar pest complexes, as non-related crops planted in close proximity can act as a barrier to insects and diseases • habitat modification – plant cover crops to promote beneficial organisms • pruning and training – prune and remove infected plants to reduce pest pressure – pruning and training plants also improves air movement within the canopy, and will improve spray coverage • water management – avoid planting in poorly drained locations, and use timely irrigation if needed to reduce plant stress during drought and increase tolerance to pests • nutrient management and plant health – manage nutrients to avoid excessively lush terminal growth, which attracts some pests • physical removal – remove weeds by cultivation, hand-weeding, or smothering with mulch trap crops (crops are used to lure pests away from primary crops) • biological control – use pest’s natural enemies to help suppress pest populations • chemical control – weigh effects such as residue, toxicity, effects on non-target crops, pollinators and other animals, and choose options that will have the least effect on the environment while still managing pest problems effectively.

Pollinators are vital to crop production and the environment. Some insecticides used to protect crops from insect pests are toxic to pollinators. Producers need to implement BMPs, including IPM practices, and meet all requirements pertaining to the use of insecticide-treated seed. For more information, see www.omafra.gov.on.ca/english/crops/pollinators.html.



OMAFRA offers comprehensive field crop and horticultural production publications. For example, Publication 360 for fruit crops provides current pest management information, including resistance management, organic and biopesticide products, and nematode management. Pest management guidelines are presented in a handy calendar format. Soil and crop nutrition sections include information on soil pH, fertilizer requirements, micronutrients, use of cover crops, and tables for interpreting soil and tissue analysis.

20–7. Resistance management

BACKGROUND

Pests are resistant when they survive exposure to pesticides at rates that previously controlled them. Generally, resistance to a pesticide develops after repeated exposure to a specific chemical.

Resistance occurs because a few naturally occurring resistant individuals survive after each spray, while the susceptible portion of the population is killed. These resistant survivors multiply and gradually replace the susceptible ones. Eventually the resistant population dominates, and the pesticide loses its effectiveness.

Sprays applied to control one pest can affect the status of resistance of other pests within the complex.

Management programs for pesticide resistance (fungicide, insecticide, herbicide), host variety (genetic) resistance, and pest resistance emphasize an integrated approach that stresses prevention and avoids the overuse of a single strategy, product (chemical family or genetic resistance source) or technology.

All management strategies are susceptible to resistance. Without an integrated resistance management program, resistance problems are more likely to develop.



Scouting is a critical component of a resistance management strategy. Here, leafhoppers are being scouted in a lettuce field.

WHAT CAN YOU DO?

OPTION 1 – ACTION

Pesticide application is based on scouting, pesticides rotated, and monitoring for resistance and damage. Use some IPM measures and common refugia, and rotate crops:

- use pesticides as part of an IPM program
- use pesticides at recommended rates
- monitor weather conditions
- calibrate sprayer
- refer to previous scouting records to determine the disease problems in the field
- grow varieties that are resistant to or tolerant of the diseases that are present in the field (if available)
- record information to assist with future variety selection.

OPTION 2 – ACTION

Pesticide application is based on scouting, need and pest identification, and monitoring for resistant pests and damage. Use IPM measures, implement insect, weed and disease resistance management programs, and rotate different crops and resistant genes:

- apply pesticides when pests are most vulnerable (requires scouting, identification and understanding pest life cycles)
- monitor weather conditions
- calibrate sprayer
- tank-mix pesticides with multiple modes of action (if available) and rotate pesticides with different modes (sites) of action from year to year
- rotate crops with different pest spectrums
- integrate non-chemical control
- implement an insect resistance management (IRM) plan to reduce the risk of insect resistance and maintain the sustainability of transgenic technologies
- implement a weed resistance management plan to reduce the risk of weed resistance and maintain the sustainability of transgenic technologies
- rotate varieties with alternative sources of resistance
- monitor resistant or tolerant varieties for damage and determine if resistance is developing
- record information to assist with future variety selection.

20–8. Record-keeping

BACKGROUND	WHAT CAN YOU DO?
<p>By keeping detailed records of pest control methods, monitoring reports, weather conditions, cropping practices and yield data, you will have the information to understand what happened and how to improve things for the future.</p> <p>Records can help you to evaluate your results, plan pest control strategies for the future, and document costs of various control measures.</p> <div data-bbox="149 574 680 651" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>OMAFRA's <i>Field Pocket Guide</i>, Publication 820 is a handy aid to record cropping notes.</p> </div>	<p>OPTION 1 – ACTION</p> <p>Keep records for all pesticides used, with information on:</p> <ul style="list-style-type: none"> • date of application • type of chemical • rates applied • target pest • weather conditions. <p>OPTION 2 – ACTION</p> <p>Keep records for all pesticides used, including all of the information in Option 1 plus:</p> <ul style="list-style-type: none"> • stage of crop and pest development • chemical family/grouping number of pesticides.

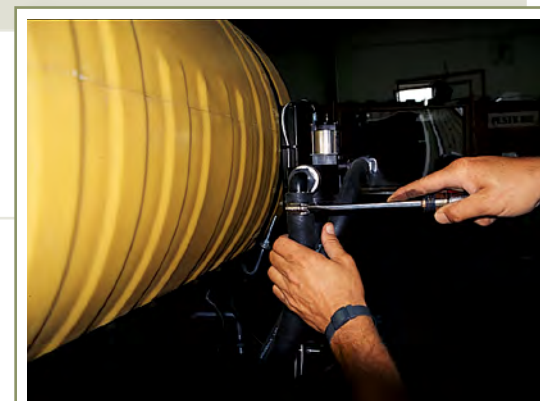


Record-keeping is a daily job throughout the season.

20–9. Sprayer calibration and maintenance

BACKGROUND	WHAT CAN YOU DO?
<p>If sprayers aren't calibrated properly, many problems can occur. Uneven or inconsistent application rates can miss a significant number of pests in your field, leave excessive residue levels on food products, and deposit too much product on sensitive crops.</p> <p>With proper sprayer calibration, you can verify that the equipment is functioning properly, ensure that you are applying the recommended dosage, and accurately predict the number of tanks and total application time.</p>	<p>OPTION 1 – ACTION</p> <p>Service and calibrate spray and granular equipment before the start of each crop season, and rinse and recalibrate the sprayer between application of different pesticides:</p> <ul style="list-style-type: none"> • always calibrate before the crop season so that no damage is done to crops due to uneven application. <p>OPTION 2 – ACTION</p> <p>Service and calibrate spray and granular equipment before the start of each crop season, and rinse and recalibrate the sprayer between application of different pesticides:</p> <ul style="list-style-type: none"> • repeat calibration at least once during the growing season • keep records of calibration details.

See also this OMAFRA factsheet:
 • *Farm Pesticide Storage Facility*, Order no. 11-005



Service and calibrate spray and granular equipment before the start of each crop season.

20–10. Pesticide drift control and pattern uniformity

BACKGROUND	WHAT CAN YOU DO?
<p>Drift is the airborne movement and deposition of particles or droplets outside the target area. There are several types of drift.</p> <p><i>Spray drift</i> involves the aerial movement (by wind or air currents) of pesticide droplets after release over the area being treated. Large or coarse droplets normally move short distances laterally, falling close to the point of release. On the other hand, small particles can remain suspended on air currents for long periods, and be carried and deposited at varying distances from the point of discharge and out of the target area.</p> <p><i>Vapour drift</i> is the movement of vapours generated by volatilization or evaporation of the pesticide by wind to non-target areas. Evaporation may occur from droplets at the time of application or following deposition on plant or soil surfaces after application.</p> <p><i>Fugitive drift</i> is the movement of dust containing particles of seed treatment (to control certain insect pests) from vacuum planter exhausts during corn and soybean planting. This drift can land on non-target foraging sources of pollinators.</p> <p>The factors causing drift can be complex, involving environmental conditions and spray practices. The environmental conditions of greatest importance are wind direction and velocity, air turbulence, relative humidity, barometric pressure, and air temperature.</p> <p>In general, equipment that produces spray of large droplet size has less potential for creating problems of spray drift. Droplet sizes can most easily be increased by altering the sizes and types of nozzle. Equipment can be chosen and adjusted to produce a minimum of fine droplets.</p> <p>The most important spray practices involve the size of spray nozzles, the height of spray release above the target or canopy, and the spray pressure. Once released, spray droplets decrease in size through evaporation and/or volatilization.</p>	<p>OPTION 1 – ACTION</p> <p>Select equipment and techniques to maximize coverage and minimize drift:</p> <ul style="list-style-type: none"> • select appropriate nozzle types to maximize spray coverage and minimize spray drift • reduce the distance between the nozzle and the target when spraying • keep nozzles and equipment free-flowing at all times and check nozzles frequently for wear and blockage • clean or replace nozzles when required • calibrate each nozzle to determine when excessive wear has occurred • choose and adjust spray equipment (air blast, boom type, boomless type and wiper/wick sprayers) to produce a minimum of fine droplets • become familiar with the pesticide product's toxicity, volatility and formulation, and how these influence the product's drift potential – the same pesticide may be available in other formulations that are less volatile • spray only when there is no wind or when the velocity is low • do not spray when the air temperature is very high (above 30°C) or predicted to become high within hours, and when the relative humidity is low • use the required seed lubricant and planter deflectors, and follow the recommended best management practices to minimize pollinator exposure to insecticide-contaminated dust. <div data-bbox="1037 894 1484 1471" style="text-align: center;"> <p>BEST MANAGEMENT PRACTICES</p> <p>Pesticide Storage, Handling, and Application</p> <p>© Ontario Agriculture and Agri-Food Canada</p> </div> <p>This BMP publication provides an overview of safe, practical and effective on-farm pesticide management. Issues and options for storage structures, handling techniques, transportation, mixing and loading, spills management, spraying calibration, and maintenance are presented.</p>

See OMAFRA factsheet:

- *Pesticide Drift from Ground Applications, Order no. 11-001*

20–11. Spray application accuracy

BACKGROUND	WHAT CAN YOU DO?
<p>Proper placement of spray will:</p> <ul style="list-style-type: none"> • reduce pest resistance selection • deliver optimum or proper product rate to target • reduce pesticide cost and unintended plant damage potential. 	<p>OPTION 1 – ACTION</p> <p>Apply the pesticide using a proper and accurate method to ensure continuous spray coverage without excess overlaps for ALL spray applications.</p> <p>This can be achieved by using the following:</p> <ul style="list-style-type: none"> • foam marker • tram lines • GPS • proper boom height.



A foam marker at the end of the spray boom will show the edge of the spray line to help ensure continuous spray coverage without excess overlaps.

20–12. Protective clothing and personal protective equipment

BACKGROUND	WHAT CAN YOU DO?
<p>Pesticides can be extremely hazardous to humans if they are not handled properly. Safety precautions that need to be taken during pesticide handling include wearing clean clothing, a respirator, chemical-resistant gloves with cuffs turned back, chemical-resistant apron (not leather), safety goggles, waterproof boots, and a face shield or mask.</p> <p>It is important to wear protective clothing not only when handling pesticides directly, but also when handling materials contaminated with pesticides. Gloves should be the last item of protective clothing removed, and should be rinsed before they are taken off to prevent exposure to pesticides.</p> <p>Protective clothing should be inspected regularly for holes and tears, and should be replaced as soon as possible if holes are detected.</p>	<p>OPTION 1 – ACTION</p> <p>Always check the pesticide label for safety precautions, and use protective clothing and personal safety equipment:</p> <ul style="list-style-type: none"> • read and abide by all precautions for each pesticide before use – products have varying toxicity, so it is important that appropriate product-specific safety measures are taken during handling, application and cleanup • wear protective clothing, including clean clothing, chemical-resistant gloves and apron, and waterproof boots • wear safety equipment, including a respirator, safety goggles, and face shield. <p>OPTION 2 – ACTION</p> <p>Always check the pesticide label for safety precautions, use protective clothing and personal safety equipment, and clean and properly maintain all protective clothing and safety equipment:</p> <ul style="list-style-type: none"> • test respirator and replace cartridge when needed • inspect clothing for holes and tears and replace when necessary • wear gloves when cleaning clothing and equipment to prevent exposure.



When handling pesticides, always wear the proper safety equipment.

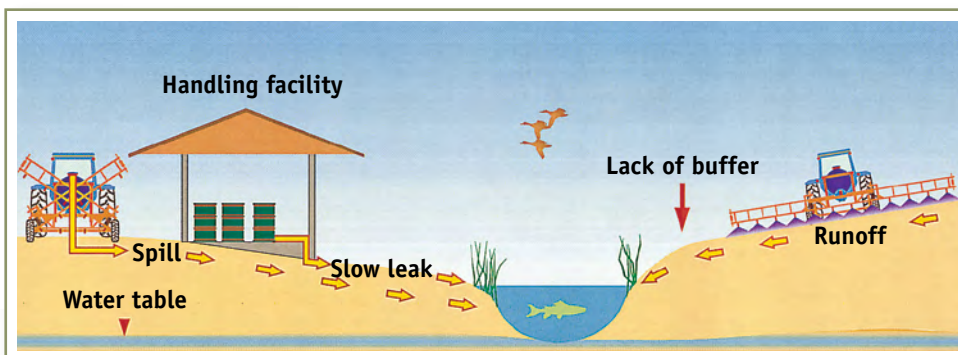
20–13. Weather conditions (spraying for pest control)

BACKGROUND	WHAT CAN YOU DO?
<p>Pesticides should not be applied when heavy rains are expected, because they can easily wash off and contaminate surface and ground water supplies. Other weather-related factors such as temperature can affect the breakdown of pesticides.</p> <p>Pesticides should not be applied during strong wind conditions due to the risk of off-site drifting.</p>	<p>OPTION 1 – ACTION</p> <p>Base spraying plans on 24-hour forecasts for rain and wind. However, if rain or high winds begin (greater than 10 km/hr), stop spray operations.</p> <p>OPTION 2 – ACTION</p> <p>Do not spray if winds are greater than 10 km/hr:</p> <ul style="list-style-type: none"> • this wind speed causes small branches to move in the wind and would result in substantial pesticide drift. <p>Do not spray when heavy rain is expected within 24 hours:</p> <ul style="list-style-type: none"> • heavy rains may wash pesticides into nearby surface water.



20–14. Separation distance of pesticide application from surface water

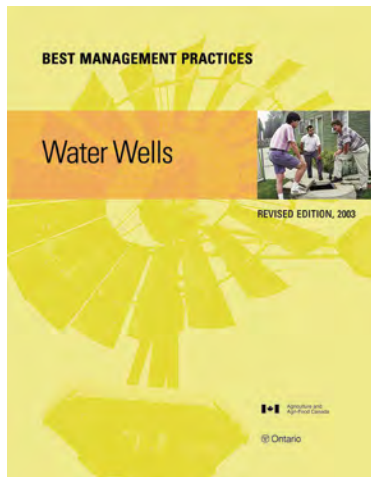
BACKGROUND	WHAT CAN YOU DO?
<p>It is important that a minimum separation distance be kept between pesticide application and any surface water. Generally, the risk of spray drift or runoff decreases as the separation distance increases. Rates of runoff increase with slope, lower infiltration rate (e.g. clay soils), and higher volume of water due to rainfall.</p> <p>Label instructions reflect all the known properties of the product. Follow the directions carefully to minimize risks to people, livestock, wildlife and water.</p>	<p>OPTION 1 – ACTION</p> <p>Spray more than 15 m (50 ft) from surface water/sensitive areas or at the separation distance stated on the product label.</p> <p>OPTION 2 – ACTION</p> <p>Spray more than 15 m (50 ft) from surface water/sensitive areas or at the separation distance stated on the product, whichever is greater.</p>



Surface waters can be contaminated by pesticides through leakage, spills, and surface runoff.

20–15. Separation distance of pesticide application from well

BACKGROUND	WHAT CAN YOU DO?
<p>In general, the potential for your well water to become contaminated decreases as the distance between the well and source of contamination increases. Maintaining as much distance as possible between the water well and potential contaminant source is an excellent BMP to help protect well water quality.</p> <p>Soil type indicates whether additional attention and water testing are warranted. Finer-textured soils slow water movement, allowing more opportunity for filtering and cleaning. However, a low-permeability soil type (clay) doesn't guarantee full protection, just as a high-permeability soil type (sand) doesn't necessarily mean that your water is or will be contaminated. Since bedrock is often fractured, exposed bedrock or shallow soil depths over bedrock/water table offer very little or no protection.</p>	<p>OPTION 1 – ACTION</p> <p>Spray pesticides more than 24 m (76 ft) from a drilled well and more than 47 m (151 ft) from a bored/dug well:</p> <ul style="list-style-type: none"> • these distances reduce the potential for runoff or drift to reach water wells. <p>OPTION 2 – ACTION</p> <p>Spray more than 90 m (300 ft) from any private well.</p> <p>Spray more than 100 m (330 ft) from a municipal well.</p>



This BMP book can help you protect your well water quality. It describes all facets of common well types: components, maintenance, new well construction requirements, and procedures for unused wells. It also explains risk factors for water quality, and measures to mitigate them.



Maintain a minimum separation distance between pesticide applications and any well.

See also OMAFRA factsheet:

- *Pesticide Contamination of Farm Water Supplies*, Order no. 10-097

FOR MORE INFORMATION

Ontario Ministry of Agriculture, Food and Rural Affairs

Many sources of supplementary information are available. Below are some suggestions to get you started. Most can be found online at www.ontario.ca/omafra or ordered through ServiceOntario.

FACTSHEETS

Farm Pesticide Storage Facility, Order no. 11-005

Pesticide Contamination of Farm Water Supplies, Order no. 10-097

Pesticide Drift from Ground Applications, Order no. 11-001

PUBLICATIONS

Agronomy Guide for Field Crops, Publication 811

Field Pocket Guide, Publication 820

Guide to Fruit Production, Publication 360

Guide to Weed Control, Publication 75

Ontario Field Vegetable Guide, Publication 839

Vegetable Crop Production Guide, Publication 838

For more information about reducing the risk to pollinators, and specifically “Pollinator Protection and Responsible Use of Insecticide-Treated Seed”, see: www.omafra.gov.on.ca/english/crops/pollinators.html

BEST MANAGEMENT PRACTICES

BMP publications are available at no charge to Ontario farmers. Below are a few sample titles. To order, see ServiceOntario information.

Buffer Strips

Controlling Soil Erosion on the Farm

Cropland Drainage

Establishing Tree Cover

Field Crop Production

Integrated Pest Management

Irrigation Management

Managing Crop Nutrients

No-Till: Making it Work

Nutrient Management Planning

Pesticide Storage, Handling and Application

Soil Management

Water Management

Water Wells

Inquiries to the Ontario Ministry of Agriculture, Food and Rural Affairs

Agricultural Information Contact Centre

Ph: 1-877-424-1300

Email: ag.info.omafra@ontario.ca

Web: www.ontario.ca/omafra

Ontario Ministry of the Environment and Climate Change

Water Wells & Groundwater Supplies: the Protection of Water Quality in Bored and Dug Wells, 2003

Water Wells & Groundwater Supplies: the Protection of Water Quality in Drilled Wells, 2003

Order through ServiceOntario

Online at ServiceOntario Publications – www.ontario.ca/publications

By phone through the ServiceOntario Contact Centre

Monday–Friday, 8:30 am–5:00 pm

416-326-5300

416-325-3408 TTY

1-800-668-9938 Toll-free across Ontario

1-800-268-7095 TTY Toll-free across Ontario

Additional Resources

Ontario Pesticide Education Program: Grower Pesticide Safety Course Manual – www.opecp.ca

ACKNOWLEDGEMENTS

At the request of the Ontario Farm Environmental Coalition, consisting of Farm & Food Care Ontario, the Ontario Federation of Agriculture, and the Christian Farmers’ Federation of Ontario, the following people and organizations contributed to the revision of this infosheet:

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Best Management Practices books present in-depth explanations, tips and advice for Ontario farmers.