

Management of pesticide spray drift: an applicator's summary guide



Spray drift is the airborne movement of droplets or particles of pesticides outside of a target area. Drift can occur during or shortly after pesticide spraying. It can be minimized to help protect human health and the environment. A successful pesticide spray program requires a uniform application of pesticide with minimal product loss.

Factors impacting spray drift

Environmental factors

Weather

High temperature and low relative humidity increases evaporation which can result in smaller droplets that are more prone to drift.

Winds

Spraying is best done when there is a light wind. Dead calm conditions can create potential for spray drift due to thermal inversion which can trap and subsequently move large amounts of spray drift outside the target area. High winds also increase potential for drift.

Technical factors

Droplet size

Nozzle selection guides offered by manufacturers are useful tools to determine the appropriate nozzle type to use, the appropriate pressure and the volume of pesticide solution to spray. The larger the droplets the less drift will occur. Applicators are responsible for adjusting spray parameters such as nozzle type, flow rate, spray pressure and tractor speed to ensure that the labelled spray quality is met during applications.

Equipment

Lowering horizontal booms on field sprayers, using protective shields or shrouds over the boom or using ducted conveyors (such as towers) on airblast sprayers will minimize the risk of spray drift. Using a slower operating speed improves coverage and canopy penetration, which reduces drift. Equipment should be subject to regular maintenance and cleaning schedules, including replacement of worn or damaged nozzles. Damaged and dirty equipment can lead to increased spray drift.

Before spraying a pesticide

Carefully read the **pesticide label** and follow the directives including:

- Specific site, crop, and pest combinations
- Mode of application permitted
- Favourable weather conditions
- Drift reduction measures such as buffer zones, and runoff reduction measures such as vegetative filter strips
- Spray quality (droplet size), volume of spray, nozzle type and boom height

Users must follow the instructions on the labels. Using a pesticide contrary with the label directions is a violation of the *Pest Control Products Act*.

Spray drift factors at a glance

Factors that REDUCE drift	Factors that INCREASE drift
Environmental factors	
Air temperature <i>lower</i> than 25 °C Relative humidity <i>higher than</i> 40% Light winds Stable winds Spraying with a crosswind	Air temperature higher than 25 °C Relative humidity lower than 40% Dead calm (no winds) High winds Gusty winds Non-target area wind direction (downwind)
Technical factors	
Large droplet size Low spray pressure Low boom height Slow operating speed Clean and non-damaged nozzles Addition of a low drift adjuvant in the pesticide spray Boom protective shields or shrouds Low drift nozzles (air-induction) Ducted conveyors (airblast) Calibrated sprayer equipment Narrow fan angles to produce larger droplets	Small droplet size ($\leq 150 \mu\text{m}$) High spray pressure High boom height Fast operating speed Low volume applications Dirty or damaged nozzles Nozzles oriented in the airstream (airblast and aerial applications)

Buffer zones

The risk of spray drift can be mitigated by observing a spray buffer zone between the edge of the swath and the edge of a sensitive habitat. Applicators opting to reduce the size of the labelled spray buffer zones can use the Pest Management Regulatory Agency [Spray buffer zone calculator](#). Applicators who use buffer zone reductions must maintain their application records for at least one year to justify the reduced buffers.

Record keeping

Maintaining application records for future reference is recommended. Recording detailed spraying information, such as actual weather conditions, crop, rate and pesticide and equipment used is a good management practice.

Read the label

All pesticides registered in Canada have a Health Canada-approved label with a registration number. Read the pesticide label carefully, as it contains specific information on how to use it. To find the most up-to-date label, use our online [label search tool](#) or search for “Health Canada pesticide labels” using your favourite search engine.

For more information

Detailed information on best practices for the [Management of pesticide spray drift](#). *This guide is the official Health Canada document. In the event of any discrepancy with the content of this factsheet, the content of the guide shall prevail.*

Health Canada's Pesticide Compliance Program (PCP) is responsible for the enforcement of the *Pest Control Products Act*. Visit: canada.ca/pesticide-compliance