

Air Quality Enhancement Activity – AIR04 – Use drift reducing nozzles, low pressures, lower boom height, and adjuvants to reduce pesticide drift



Enhancement Description

Use drift reduction technologies to reduce the drift of agricultural chemicals away from the intended target when spraying.

Land Use Applicability

Cropland, Pastureland

Benefits

Drift reduction will reduce damage to non-target desirable plants and animal habitats and reduce pollution of water bodies. Reducing chemical drift will help to reduce both particulate matter (liquid droplets) in the air and the production of volatile organic compounds, which are an

integral part of the formation of ozone, a pollutant in the lower atmosphere. Reduced chemical drift will improve water quality by minimizing the delivery of chemical compounds through the air to water bodies. This enhancement assumes all chemical applications are done according to label directions.

Conditions Where Enhancement Applies

This enhancement applies to all crop or pasture land use acres.

Criteria

Implementation of this enhancement to reduce spray drift of agricultural chemicals requires the use of one or more of the following activities:

1. Use drift reduction nozzles, drops, shielding, pressure adjustment, electrostatic spray technology, or re-circulating spray technology to minimize drift of applied chemical away from targeted area while maintaining required efficacy of pesticide application.
2. Reduce sprayer pressures per the nozzle criteria to produce larger spray droplets, which have a lower tendency to drift. Do not exceed 40-45 psi sprayer pressure.
3. Reduce boom height to the minimum amount allowable (where full coverage is achieved just above the top of the plant canopy) to achieve coverage and minimize the amount of time droplets are in the air before contacting plant or soil surfaces.
4. Use spray adjuvants approved for use with the specific pesticide being applied to reduce evaporation of airborne spray droplets, keeping droplets larger so they will settle more quickly onto the targeted plants and soil.

Adoption Requirements

This enhancement is considered adopted when one or more of the above criteria have been implemented and documented to satisfy the NRCS State Office list of acceptable methods.



United States Department of Agriculture
Natural Resources Conservation Service

2013 Ranking Period 1

Documentation Requirements

Each year the following must be supplied:

1. Written documentation for the type of drift reduction technology used, and
2. Acres treated.

References

Ozken, H.E. 2012. New Nozzles for Spray Drift Reduction. Ohio State University Extension Fact Sheet AEX 523-98. <http://ohioline.osu.edu/aex-fact/0523.html>

Witt, J. M. 2012. Agricultural Spray Adjuvants. Oregon State University Extension. <http://psep.cce.cornell.edu/facts-slides-self/facts/gen-peapp-adjuvants.aspx>

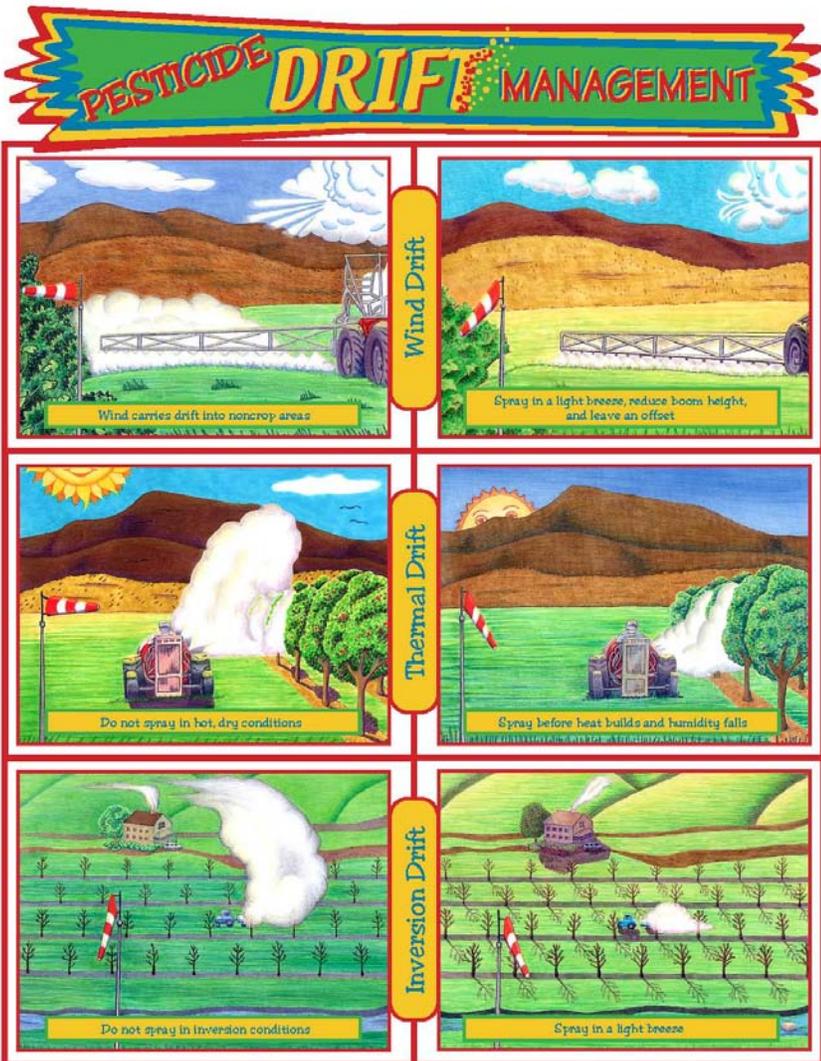
AIR QUALITY ENHANCEMENT ACTIVITY

AIR04 – OR

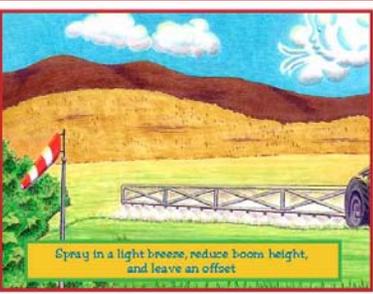
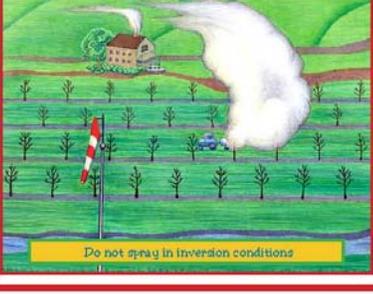
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Oregon Criteria

All of the methods included in this publication, available at: <http://ipmnet.org/>, are acceptable for reducing risk of pesticide drift in Oregon:



PESTICIDE DRIFT MANAGEMENT

 <p>Wind carries drift into noncrop areas</p>	<p>Wind Drift</p>  <p>Spray in a light breeze, reduce boom height, and leave an offset</p>
 <p>Do not spray in hot, dry conditions</p>	<p>Thermal Drift</p>  <p>Spray before heat builds and humidity falls</p>
 <p>Do not spray in inversion conditions</p>	<p>Inversion Drift</p>  <p>Spray in a light breeze</p>

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Wind carries drift into noncrop areas

- Never spray when wind speeds exceed 9 mph.
- Check nozzle output frequently to maintain calibration, and replace worn nozzles.
- Maintain proper nozzle spacing, boom height, and boom suspension to minimize causes of drift.

Wind Drift

Spray in a light breeze, reduce boom height, and leave an offset

- Spray at wind speeds of 2-9 mph and at temperatures of less than 70°F.
- With boom sprayers:
 - Minimize boom height by using correct nozzle spacing.
 - Moderate ground speed to avoid boom wobble and bounce.
 - Adjust flow rates and pressures to the middle range for the nozzle.
- On marginal days, use an offset to protect sensitive downwind sites.

Do not spray in hot, dry conditions

- Spray drops evaporate rapidly, particularly above 70°F and when humidity is less than 40 percent.
- Drops become so small they fail to land on the crop and drift away.

Thermal Drift

Spray before heat builds and humidity falls

- Use weather forecasts and spray in cooler conditions.
- With air-blast sprayers:
 - Adjust nozzles to target the tree.
 - Turn off sprayer at row ends when turning.
 - Spray inwards in outer rows.
 - Moderate ground speed, nozzle flow rates, and air speeds.
- Use unsprayed offsets and buffers to protect sensitive downwind sites.

Do not spray in inversion conditions

- Clouds of spray drift may remain buoyant and mobile in light breezes when there is an inversion.
- They can move large distances away from the spray site.
- Avoid cool, stable conditions with low surface mixing.

Inversion Drift

Spray in a light breeze

- Spray at wind speeds of 2-9 mph to enable surface mixing that carries the spray cloud into the crop canopy.
- On marginal days, increase drop size by moderating nozzle pressures and flow rates.