

**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.



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### **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>

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**Note:**

Drift reduction techniques must be compatible with the product being applied. i.e. Label instructions must be followed relative to acceptable nozzles, pressures, boom heights and adjuvants for the crop, target pest and site conditions.

Control techniques noted in the below publications are acceptable in Minnesota for this enhancement.

**Reference:**

- **595- Integrated Pest Management**

**General guidance:**

Clemson University—Reducing Pesticide Drift

[http://www.clemson.edu/extension/pest\\_ed/safety\\_ed\\_prog/drift/reducing.html](http://www.clemson.edu/extension/pest_ed/safety_ed_prog/drift/reducing.html)

University of Nebraska—Spray Drift of Pesticides (G1773)

<http://www.ianrpubs.unl.edu/epublic/live/g1773/build/g1773.pdf>

University of Minnesota Institute of Ag Professionals—2009 Short Course, Fine Tuning Spray Droplet Size to Reduce Drift and Improve Product Performance

[http://www1.extension.umn.edu/agriculture/ag-professionals/cpm/2009/SpandlNicolai\\_SprayDroplets.pdf](http://www1.extension.umn.edu/agriculture/ag-professionals/cpm/2009/SpandlNicolai_SprayDroplets.pdf)

**Nozzles**

Iowa State University-Selecting the Correct Nozzle to Reduce Spray Drift (IPM 68)

<http://www.extension.iastate.edu/Publications/IPM68.pdf>

North Dakota State University—Selecting Drift-reducing Nozzles (FS919)

<http://www.ag.ndsu.edu/pubs/ageng/machine/fs919.pdf>

**Nozzles and Equipment**

Kansas State University

[http://www.ksda.gov/includes/document\\_center/pesticides\\_fertilizer/Drift/Eqpt\\_Red\\_Spray\\_Drift.pdf](http://www.ksda.gov/includes/document_center/pesticides_fertilizer/Drift/Eqpt_Red_Spray_Drift.pdf)

**Adjuvants.** Only adjuvants classified or labeled as drift retardants or drift reduction agents or drift control agents are acceptable.

Cornell University-Agricultural Spray Adjuvants

<http://psep.cce.cornell.edu/facts-slides-self/facts/gen-peapp-adjuvants.aspx>

University of Minnesota Institute of Ag Professionals—2004 Short Course, Adjuvants: Principles and Uses

<http://www1.extension.umn.edu/agriculture/ag-professionals/cpm/2004/DPennerNov23pr.pdf>

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