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 and 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.

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. See Ozken, H.E. in the references for more information on drift reduction nozzles.
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. See Witt, J.M. for more information on types of spray adjuvant.

Documentation Requirements

1. Documentation for each year of this enhancement describing these items, where applicable:
    a. Written documentation for the type of drift reduction technology used
    b. Acres treated

References

Ozken, H.E. 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. Agricultural Spray Adjuvants. Oregon State University Extension. http://psep.cce.cornell.edu/facts-slides-self/facts/gen-peapp-adjuvants.aspx

United States Department of Agriculture
Natural Resources Conservation Service

IDAHO ADDENDUM 2010
Water Quality and Air Quality Enhancement Activity - AIR04
Use Drift Reducing Nozzles, Low Pressures, Lower Boom Heights, and Adjuvants to Reduce Pesticide Drift

The producer must use at least ONE of the following methods to reduce drift:

- Drift reduction nozzles, drops, shielding, pressure adjustment, electrostatic spray technology or recirculating spray technology.
    - Good coverage is essential for insecticides and fungicides because of the small size of the target organism. Therefore, small-to-medium size droplets are desirable when applying insecticides and fungicides because they provide better coverage. Drops smaller than 150 micron in diameter pose the most serious drift hazard. Shields or shrouds should be used when smaller droplet size is needed. Drift is far less likely to be a problem when spraying with droplets of 200 micron and larger in size. Spray particles under 50 microns in diameter remain suspended in the air indefinitely and should be avoided.
    - Flat fan nozzles typically produce larger droplet size. The following nozzles are considered low drift. This is not a complete list of products available: Raindrop, DriftGuard, Turbo TeeJet, Turbo Flood, Turbo Drop, AI TeeJet
    - Sprayer modification devices to reduce drift include boom drops (aerial), shields, cones, hoods and shrouds
    - Specialized sprayers – these are typically used for high value vegetable crops, in vineyards, orchards, and greenhouses.
        - Electrostatic sprayers produce electrically charged spray droplets which are carried to the target (crop) in an air stream. Electrical charges on the surface of the spray particles cause them to be attracted to the target where they are directed.
        - Recirculating sprayers direct solid streams of highly concentrated pesticides directly across rows above a crop. Spray material not contacting the crop is caught in a box or sump on the opposite side of the row and re-circulated. Typically used to control weeds that are taller than the crop – specialized situations.

- Reduce sprayer pressure, within specifications for the selected nozzle (do not exceed 45 psi).

- Reduce boom height to the minimum amount, ideally to just above the plant canopy or ground. May need to use wider angle nozzles for complete coverage, but these may produce smaller droplet size.

- Utilize adjuvants (drift retardants, stickers, inverting agents) that are approved for use with the specific pesticide being applied.
    - Use chemical adjuvants proven to reduce pesticide drift – the adjuvant should be labeled specifically as a ***Drift Control Agent***. An invert emulsion designed specifically for drift control may be used, but the producer must identify the pesticide, the carrier (oil phase) and the emulsifier used. The use of adjuvants can impact the effectiveness of pesticides, so be sure to read all label specifications.

<u>ALL</u> spray applications should incorporate one of these techniques to reduce drift. Applications should always be made under appropriate weather conditions (temperature, wind, humidity, etc.).

This activity may NOT be used with the following enhancements: SOE03, WQL01, WQL19, WQL20, and WQL21.

No potential duplicate practices.