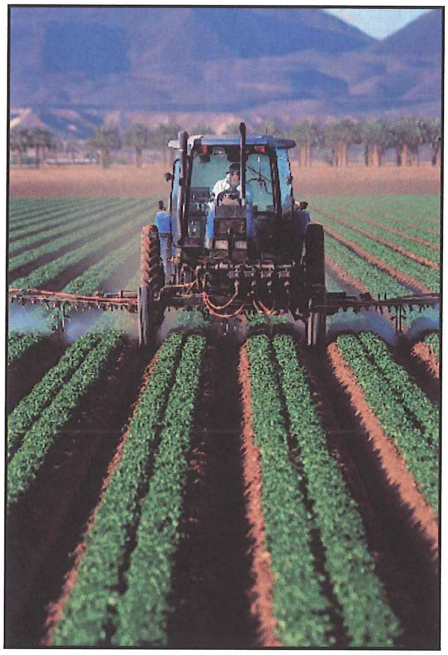
USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Water Quality and Air Quality Enhancement Activity –*AIR07 – GPS, Targeted Spray Application (SmartSprayer), or other chemical application electronic control technology*



Enhancement Description
Utilize electronically-controlled or managed chemical spray application technology to more precisely apply agricultural pesticides to their intended targets.

Land Use Applicability
This enhancement is applicable on crop, pasture, range and forest land.

Benefits
These activities will provide improvements in water and air quality by reducing the total amount of chemical applied, and reducing the potential for airborne chemical drift when agricultural chemicals are applied to crop and pasture land. This enhancement can be used only if chemical applications are done according to label directions. 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 production 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.

Criteria for utilizing electronic control technology
The implementation of this enhancement for precision pesticide application technology to reduce spray drift and the total amount of pesticide applied requires the use of GPS data loggers that document site-specific compliance with all label requirements for drift mitigation, and additionally, one or more of the following techniques:

1. Precision guidance systems that reduce ground or aerial spray overlap to less than 12 inches
2. Variable rate technologies (VRT) that allow the rate of pesticide application to dynamically change for site specific applications
3. "Smart sprayers" that utilize automatic sensors and computer controlled nozzles to turn individual nozzles on and off
4. Computer guided application systems that integrate real time meteorological data and computer model guidance to reduce pesticide drift from aerial application
5. Re-circulating spray technologies that capture and reuse overspray to reduce overall pesticide application rate and off-site spray drift

6. Electrostatic spray technologies to reduce overall application rate and off-site spray drift

Documentation Requirements for utilizing electronic spray application technology

1. Written documentation for each year of this enhancement describing these items, where applicable:
    - Type of electronic spray control technology used
    - Dates technology is used
    - Acres treated