Information and Resources
Pesticide Application Equipment and Calibration
for Non-Agricultural Applicators

What is calibration?
• Adjustments you make to application equipment and the procedures you must follow so you know you’re applying the correct amount of pesticide to a treatment area

When should you calibrate?
• Beginning of the season
• Anytime something changes that can affect the application (output rate, travel speed, nozzles, product, person making the application)

Tools needed for calibration
• Stopwatch
• Measuring tape, flags, flagging tape, stakes
• Pocket calculator, paper pencil
• Calibrated container, pressure gauge, flow meter for liquid applications
• Small scale, tarp, funnels or cups for granular applications

Getting started
• Read the label to determine application rates
• Determine size of area to be treated or the number and size of trees and shrubs
• Be sure equipment is clean
• Wear personal protective equipment (PPE)
• Use clean water
• Choose the correct type of equipment based on formulation type and application site

Liquid application equipment
• Parts of a sprayer
  • Tank (holds the pesticide mixture)
  • Pump (hand or motor-operated to move the pesticide from the tank to the nozzles)
  • Nozzles (affect application rate, determine droplet size, and spray pattern)
    • Materials: brass, stainless steel, aluminum and nickel-copper alloy, plastic, tungsten carbide and ceramic
    • Types: flat-fan, off-center flat-spray, even flat-spray, cone, solid stream, flood, broadcast
  • Hoses, wands
  • Larger applicators may have pressure regulators, fans, filter screens, control valves, booms, agitators
Liquid application equipment (continued)

• Hand-operated equipment
  • Trigger pump sprayers
  • Compressed air/gas sprayers
  • Backpack sprayers
  • Wick applicators
• Powered application equipment
  • Powered backpack sprayers
  • Low-pressure sprayers
  • Controlled droplet applicators (ultra-low volume (ULV) foggers)
  • High-pressure hydraulic sprayers

Dust and granule application equipment

• Hand-operated applicators (strapped at chest and operator turns a crank)
• Mechanically-driven applicators
  • Wheeled rotary applicators
  • Drop spreaders
• Powered applicators (backpack applicators powered by small gas engines)

Drench and injection for application of root-absorbed systemic insecticides

• Soil drenching
  • Measure pesticide in a bucket, dilute it, pour it onto soil around base of the tree trunk
• Soil injection
  • Pressurized soil injector (delivers pesticide to tree roots without runoff)
• Tree injection
  • Pressurized devices force pesticide into a tree
  • Self-contained devices that release pesticide slowly
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Key resources:

Find your county extension office
- California: University of California Department of Agricultural and Natural Resources (http://ucanr.edu/County_Offices/)
- Other states: National Pesticide Information Center (http://npic.orst.edu/countyext.htm)

Pest identification and management methods
- UC Statewide IPM Program (www.ipm.ucanr.edu/)
- UC Weed Research and Information Center (http://wric.ucdavis.edu)

Information about pesticide products and safety
- California Department of Pesticide Regulation (www.cdpr.ca.gov/)
- U.S. Environmental Protection Agency (http://www.epa.gov/pesticides/)
- USDA Agricultural Research Service (www.ars.usda.gov)
- National Pesticide Information Center (http://npic.orst.edu/gen.htm)
- Pesticides and Urban Water Quality (http://www.ipm.ucanr.edu/WATER/U/index.html)
- WaterTOX water-related risks of pesticides (http://www.ipm.ucanr.edu/TOX/simplewatertox.html)
- EXTOXNET (http://extoxnet.orst.edu/)
- Pesticide Wise (www.pw.ucr.edu)

Laws and Regulations
- DPR regulations in the California Code of Regulations (CCR) (http://www.cdpr.ca.gov/docs/legbills/regshome.htm)

Publications