

Maintaining Application Equipment

- Regularly inspect spray components.
- Check nozzles for damage, wear, or clogs.
- Inspect filters/strainers, the inside of the tank, O-rings and seals, hoses, nozzle bodies, and pressure check valves.
- Keep extra parts on hand in case other pieces break.

Keep a maintenance journal for tracking upkeep of the equipment. It may also be worthwhile to create Standard Operating Procedures (SOP) for cleanup. The SOP's may be a checklist of steps taken to clean each specific type of sprayer. Each sprayer is different, so there may be varying methods for cleanup. A written list or procedure for the equipment ensures that the proper steps are taken each time when cleaning the equipment.

Never assume that a tank/boom is cleaned. "When in doubt, rinse it out."

Specific Information for Backpack/Spreader Sprayers

Backpack sprayers

- Inspect the sprayer for damage to the pump, wand, strainer, pressure gauge/regulator, and hoses. Make sure there are no leaks or obstructions.
- Consider using pressure regulators on a wand to maintain constant pressure.
- Check the label for application rate, nozzle type/pressure, type of application.

Important operation information:

- Swath width and nozzle height
- Ground speed (maintain walking speed)

- Discharge rate
- Choose the correct nozzle (based on the label) and install accordingly.
- Fill tank with water and adjust to recommended pressure. Measure the discharge rate by using a flow meter or using a collection cup and stopwatch.
- Adjust the sprayer's pressure or change the nozzle, as needed.

Cleanout procedures

- Triple rinse all mixing and containment equipment.
- Remove nozzles, screens, valves and other related equipment and rinse separately.
- Triple rinse spray tank, hoses, and boom. Consider using spray tank cleaner/ammonia when appropriate.
- Collect the rinsate for application at the treatment site.
- Dispose of bags and disposable utensils used for measuring or mixing.

Spreaders

- Wash after each use to avoid buildup.
- Check spinner cups for wear or damage.
- Be aware that solvents may be necessary depending on the type of product used in the spreader.
- Check the operator's manual for the appropriate lubricant to use on parts that require lubrication.

- Keep proper replacement parts for the spreader on hand, in case of damage.
- Store the spreader in a cool, dry place.
- Check the distribution pattern.

Using a spreader calibration kit that contains:

- Collection pan
- Baffles
- Clear tubes and tube racks
- Find the spread width
- If using a sprayer/spreader together, compare spray width to ensure coverage
- Calculate the application rate
- Check the calibration and adjust

Specific Information for Airblast/Boom Sprayers

Airblast sprayer

- Measure ground speed
- Adjust the direction of air and spray
- Match the air volume to the canopy
- Select nozzle tips
- Measure nozzle output
- Verify spray coverage

Boom sprayer

Pre-calibration checks

- Service lines and strainers, check hoses and fittings for damage, check to ensure the pump/section pressure gauge is working properly
- Nozzle output and pattern: check for uniformity of output and spray angles and nozzle spacing
- Tank capacity: know the capacity of your tank

Additional Resources

General Pesticide Questions

National Pesticide Information Center

Phone: 1.800.858.7378

Hours: 8-12 PST Monday – Friday

Email: npic@ace.orst.edu

Pesticide Disposal

Oregon Department of Agriculture

Phone: 503.986.4635

Oregon Department of Environmental Quality

Phone: 503.229.5696

503.229.6742 (disposal rules)

Oregon Metro Recycling

Phone: 503.797.1700 (Portland metro)

1.800.732.9253 (outside Portland)

Spill Information

Oregon Emergency Response System

Phone: 1.800.452.0311

National Response Center

Phone: 1.800.424.8802

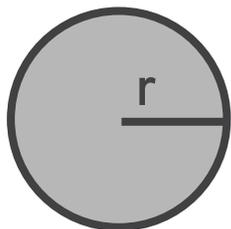
Emergency Treatment

Oregon Poison Center

Phone: 1-800-222-1222

In an emergency, call 911

Calculations

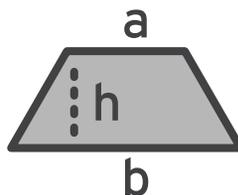
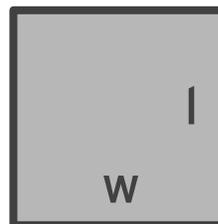


Circle

$$\text{Area} = 3.14 \times r^2$$

Rectangle

$$\text{Area} = l \times w$$

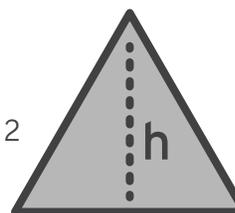


Trapezoid

$$\text{Area} = [(a+b) \div 2] \times h$$

Triangle

$$\text{Area} = (l \times h) \div 2$$



$$\text{Square feet (ft}^2\text{)} = (\text{Acres} \times 43,560 \text{ ft}^2)$$

Calculate the application rate

$$\text{Gallons per acre} = (\text{Miles per hour} \times \text{width}) \div (\text{Gallons per minute} \times 5,940)$$

$$\text{Ground speed (mph)} = \text{Distance (ft)} \div [\text{Time (sec)} \times 1.47]$$

$$\text{Discharge rate (gpm)} = [\text{Application rate} \times \text{ground speed} \times \text{swath width}] \div 5,940$$

Nozzle calibration

$$\text{Discharge rate (gpm)} = \text{Ounces collected} \div (\text{Collection Time} \times 2.13)$$



Maintaining / Calibrating Pesticide Equipment

Cleaning

After an application, rinse the inside and outside of the equipment, including the nozzles, strainers, valves, and hopper openings. If necessary, using a spray tank cleaning product or ammonia can help remove leftover pesticides from the equipment.

Rinsate from cleaning the equipment should not be released into water systems like drains, sewers, wells, or water bodies. Collect and apply rinsates at labeled sites at or below the application rate. If rinsates cannot be used, dispose of them according to the label, as if it were pesticide waste.

Wear personal protective equipment (PPE) while cleaning out equipment. Also, be aware of environmental risks during cleanout or rinsing of equipment.

Storing application equipment

Remove all pesticides before storing pesticide application equipment. Lock the equipment (when relevant) and lock the area where it is kept. Consider installing electronic security systems as another method to keep intruders out of the area and keep the equipment safe. When storing equipment during the winter, remove nozzles, valves, etc. as rain and freezing temperatures could break them.

Rinse/clean equipment with clean water at the end of the day. Pesticide residue left in a tank overnight could be inadvertently mixed in with the next treatment.



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