



Equipment Calibration – Tank Sprayers

Importance of Calibration

- Properly calibrated equipment affords applicators significant value including:
 - Effective product performance
 - Reduced potential for plant injury
 - Reduction in callback/cancellations
 - Enhanced reputation
 - Environmental stewardship
 - Regulatory compliance
 - Reduction in legal vulnerability
 - Economic efficiency

Importance of Calibration

- Case Study #1
 - 23.5 gallons of Dimension[®] 2EW covers 125 acres
 - Cost of product at correct rate \$6,110
 - Over apply product by 15% (**)
 - 2 GPM = 38 oz/M
 - New rate of 27 gallons (3.5 gal more)
 - Cost for product is now \$7,020
 - \$910 excess cost



(**) – A 15% over/under application rate is not unreasonable considering that there can be a 1/4 - 3/4 GPM variation depending on age of sprayer, application speed, etc.

Importance of Calibration

- Case Study #2
 - 23.5 gallons of Dimension[®] 2EW covers 125 acres
 - Cost of product at correct rate \$6,110
 - Under apply product by 15% (**)
 - 2 GPM = 38 oz/M
 - New Rate of 20 gallons (3.5 gal less)
 - Cost for product is now \$5,200
 - Savings of \$910



(**) – A 15% over/under application rate is not unreasonable considering that there can be a 1/4 - 3/4 GPM variation depending on age of sprayer, application speed, etc.

Importance of Calibration

- Case Study #2 (cont.)
 - Excessive crabgrass breakthrough
 - 37-½ acres (30% of total acreage)
 - Apply LESCO® Momentum Q™ (¥)
 - 8 pints/acre
 - Example: Cost of \$5,250
 - Total cost is now \$10,450
 - \$5,200 + \$5,250
 - Excess cost of \$4,340 (over correct rate)
 - Doesn't include additional labor & vehicle expenses



(¥) – LESCO® Momentum Q™ controls over 200 broadleaf weeds including dandelions and clover plus grassy weeds like crabgrass and foxtail all with one application.

Tools Needed For Calibration

- Calibrated 5 gallon bucket (gallon increments marked)
- Stop Watch
- Traffic Cones or turf marking paint
- Measuring tape or wheel
- Calculator



Sprayer Calibration

- Step #1 – Determine Nozzle Output
 - 1.5 GPM – Blue
 - 2.0 GPM – Yellow
 - 3.0 GPM – Green
 - 4.0 GPM – White



Sprayer Calibration

- Step #2 – Bucket Test
 - Fill your spray tank with 50 gallons of water
 - Perform a bucket check (determines flow of your pump and gun)
 - Spray into the 5 gallon bucket for one minute
 - Amount in bucket should match that of your nozzle
 - Example: Yellow nozzle is 2 GPM
 - Adjust pressure up or down so that you get 2 gallons of water in the bucket after one (1) minute

Sprayer Calibration

- Step #3 – Determine Effective Spray Width
 - Spray a concreted area (with water) & measure effective spray width
 - Divide 1,000 by the spray width
 - Example: $1,000 \div 8 = 125$ ft.
 - Using a measuring wheel, mark off the distance to travel with cones or paint
 - Example: Mark off 125 ft. start and finish

Sprayer Calibration

- Step #4 – Timed Application
 - Make a timed application of water to this area
 - Remember to use a consistent speed
 - Example: 1 minute to spray 1,000 sq. ft.
- Step #5 – Determine Application Rate
 - Multiply timed application by nozzle output
 - Determines amount being applied per 1,000 sq. ft.
 - Example: 1 (min.) x 2 (gal) = Rate of 2 gal/M

Sprayer Calibration

- Step #6 – Determine Tank Coverage
 - Divide total capacity in gallons of the spray tank by the rate per 1,000 sq. ft.
 - Example: $200 \text{ (tank size)} \div 2 \text{ (rate)} = 100$
 - One tank will cover 100,000 sq. ft.

Sprayer Calibration

- Step #7 – Determine Amount of Chemical
 - Referring to product label for correct application rate.
 - Example: LESCO® Three-Way™ has application rate of 1.5 oz. per 1,000 sq. ft.
 - Multiply tank coverage by application rate to determine correct amount of chemical for sprayer
 - Example: $100 \text{ (coverage)} \times 1.5 \text{ oz. (rate)} = 150 \text{ oz.}$
 - You would use 150 oz. of LESCO® Three-Way™ in your 200 gallon spray tank

Why Is This important?

- Over estimating coverage leads to under applying product
 - Actual rate might be 1 oz. per 1,000 sq. ft.
 - This rate may not kill targeted weeds
 - May need to go back and retreat
 - Additional costs for product & labor
 - Could harm companies reputation!

Why Is This important?

- Under estimating coverage leads to over applying product
 - Actual rate might be 3 oz. per 1,000 sq. ft.
 - This rate will kill the targeted weed, but might also kill desirable grass
 - May have to go back to customer and reseed lawn
 - Additional cost for seed, fertilizer, labor
 - Could harm companies reputation
 - Could be subject to fines and cease & desist orders if a complaint is filed with local Department of Agriculture office

Achieving the Correct Application Rate

- Many factors can influence rate including:
 - Walking speed, Wind, Age & condition of sprayer, Age & condition of gun and nozzles
- Maintain same walking speed all day
 - Applicators tend to slow down toward the end of the day
- Pull the hose to the farthest point in the yard and work back toward the vehicle

Achieving the Correct Application Rate

- Try not to overlap too much
 - Use LESCO® Tracker Green® (also available in blue) to know where you have sprayed
- Keep forearm parallel to the ground while spraying
- Swing forearm and not wrist



Common Problems with Spray Tanks

- Under-lapping
- Excessive over-lapping
- Clogged screen of the in-line filter
- Gun &/or nozzle worn out
- Nozzle clogged with debris
- Diaphragms wear out



Tank Sprayer Maintenance Tips

- Empty & rinse sprayer after end of round
 - Pump, in-line filter, hoses, etc.
- Calibrate sprayer at least once a month
 - Many factors can alter application rates
- Winterizing: RV Anti-freeze in pump, hoses, etc.
- Change Oil, O-Rings, Diaphragms, etc. once a year