

SPORTS TURF MANAGER

... for safe, natural sports turf

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16th ANNUAL STA FIELD DAY

Mark your calendar now! On Wednesday, September 17, sports turf industry professionals including indoor and outdoor exhibitors will be gathering in Scarborough for our popular annual event. This year's keynote speaker is Larry Noon, Turf Manager of Edmonton's Commonwealth Stadium. See page 11 for further information and stay tuned for a detailed brochure and registration package.



Sprayer Calibration

DO IT RIGHT AND DO IT OFTEN! **Helmut Spieser, OMAF**

The mere mention of sprayer calibration makes some people cringe. Everyone knows that calibration is an essential part of the spraying system but nobody likes to do it. There are many calibration techniques available including calibration bottles, jugs, calibration calculators and many more.

Calibration means different things to different people. Depending on your definition of sprayer calibration, various techniques give you more information than others. If your calibration technique involves spraying a given amount of water over a known area, the only thing you know with confidence is the average output of the boom per unit area. Variability within nozzle to nozzle or boom section to boom section will not be evident using this method.

Ranking Calibration Techniques

1. Check every nozzle measuring true ground speed, nozzle spacing, etc.
2. Spray a known amount of water on a known area.

3. Start with full sprayer, spray known area, measure water added to fill sprayer.

Proper calibration of a sprayer should tell you two things. First, calibration will show you the exact application rate, gallons/1000 ft², of your sprayer with the nozzles, spray pressure and travel speed that you have chosen. This application rate is then used to calculate the amount of product required per tankful of spray.

Second, calibration will show you the uniformity of output of each nozzle across the boom. As you apply 1 gallon/1000 ft² and higher, any small differences in internal diameter of fittings or differences in internal hose resistance may... → page 12



Cover Story Continued... The Necessity of Sprayer Calibration

DO IT RIGHT AND DO IT OFTEN! BY HELMUT SPIESER, OMAF, RIDGETOWN

... affect flowrate to a whole boom section. A plumbing fitting that is slightly smaller in internal diameter can cause up to a 20% reduction in flow for a whole wing section. Visually you cannot see this difference in nozzle output. When you calibrate your sprayer check each and every nozzle on your boom.

Many operators are adding rate controllers to any new sprayers purchased. Rate controllers don't calibrate your sprayer. Rate controllers, as their name implies, make adjustments to the sprayer to deliver a pre-selected application rate. This is a great technology that maintains the desired sprayer output as travel speed fluctuates.

Rate controllers deliver constant application rates with a high degree of accuracy. If, however, a hose were to plug or collapse, the rate controller would increase pressure to compensate for this restriction and deliver the intended application rate. The rate controller will make adjustments regardless of problems with the nozzles or the plumbing. So, even if your sprayer has a rate controller, you still need to calibrate it properly.

When to Calibrate

- at least once a year for each set of nozzles that you use

- every time water volumes are changed
- every time nozzles are replaced

Things to Do Before You Calibrate

- ensure that the sprayer has been cleaned thoroughly both inside and outside
- remove and clean all nozzles with a nozzle tip brush
- remove and clean all nozzle screens with a nozzle tip brush
- remove and clean all screens and strainers in the plumbing system
- gather all the equipment needed for the calibration technique that you plan to use
- enlist the aid of a friend or helper – with two people, one person can operate the stop watch while the other collects the liquid from the nozzles

Once you have checked all the nozzles, look at your nozzle output values that you recorded. Any nozzle outputs that differ significantly from other nozzles should be cleaned and rechecked. If the output from these nozzles did not change, move the nozzle to a different part of the boom. Recheck the nozzle output again. If the output problem went with the nozzle, it's

time to replace it. If the output problem stayed with the original nozzle location on the boom, you may have a plumbing problem at that nozzle location. As a general rule, any nozzle that varies more than 5% of the average nozzle output should



be replaced. While you are doing the calibration on your sprayer take note of the nozzle spray patterns. Each nozzle should have a uniform spray pattern without heavy streaks or skips. Nozzles with distorted spray patterns should be replaced.

Keep Notes

- of all calibration parameters
- nozzle make and size
- spray operating pressure
- gear and throttle settings
- application rate
- turf conditions and date ♦

Editor's Note: Try it! Visit the OMAF web site to utilize the *Sprayer Calibration Calculator* at www.gov.on.ca/OMAFRA/english/crops/sprayer/ep75.htm

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