# Spray Tips

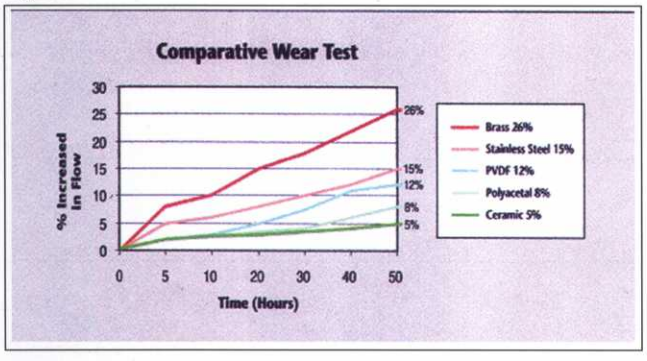
**By KEN ROST**
*Frost Services*

*Ken Rost*

I'm often asked the question, "How long will spray tips last before they should be changed?" The hair stands up on my neck and I choke back an automatic response of, "How should I know?" Instead I answer, "There is an easy way to find out for yourself!" and then we go through the steps below to help them find the answer. The fact is, if you haven't been calibrating and measuring the wear pattern of the spray tips on your sprayer at regular intervals, chances are you've been wasting valuable dollars on over-application of chemicals. There are so many variables that it makes it impossible to create a general rule of thumb that covers all applications. Turf applications use a variety of tank mixtures that vary in abrasive properties and the frequency of application is an obvious factor. Another factor is the material that the spray tip is made of. A common misperception is that stainless steel spray tips wear longer than tips made of engineered plastics. Polyacetal plastics are what most recent technology spray tips are made of. They wear better than stainless steel and they are a good bargain when compared to ceramic materials which have the longest life wear expectancy. *(Figure A)* The only way to know if a spray tip should be replaced is to measure it!

***A common misperception is that stainless steel spray tips wear longer than tips made of engineered plastics.***

Figure A




**Here are the simple steps:**

What you need: Stop watch, Calibration cup, spray tip rate chart and a calculator.

1) Know the ISO color code for the spray tip

*Example:* light blue

2) Know the flow rate at 40 psi from the rate chart *(Figure B)*

Example: 1.0 gal/min.

All spray tips are color coded to an ISO orifice standard that is universal. The standard is based on operating at 40 psi.

3) Set your sprayer boom pressure to 40 psi with the boom valve on. Make sure that the indicated pressure is as close to the spray tip as possible. The indicated pressure at the pump will likely be higher than the actual spray tip pressure at the boom due to potential restrictions between the pump and the spray boom.

4) Collect the spray for one minute with the calibration cup.

If the spray tip flow rate is too much for the collection cup, collect the spray for 30 seconds.

5) Divide the number of ounces collected by 128 to get gallons per minute.

*Example:* 140 ounces collected for 1 minute is: 140oz/128oz/gal = 1.09 gal/min.

If you collected for 30 seconds, multiply your result by 2.

*Example:* 70 ounces collected for 30 seconds is 70oz/128oz/ gal = .545gal x 2 = 1.09 gal/min.

6) Compare your result to the flow rate of the spray tip from when it was new (original).

Example: (Collected - original)/original i.e. (1.09 - 1.0)/ 1.0 = .09

This is the percent wear of your spray tips. That translates to your applying 9% more chemical to your turf than what you intended to apply.

7) Test every tip on the boom

Figure B

| ISO Color | gpm@ 40 psi |
|---|---|
| | 0.4 |
| | 0.5 |
| | 0.6 |
| | 0.8 |
| | 1.0 |
| | 1.5 |

The time to test each tip on a turf sprayer is minimal and the variation of flows may surprise you.

**Now the question is,** what amount of lost chemical dollars will warrant a change to new spray tips? Even if you applied chemical for one or two days at 9% over the intended application rate, the loss in dollars of chemical could have paid for a new set!

Keep these tools handy and make it a regular exercise to monitor the wear progression of your spray tips. That way, when someone asks you, "At what percent wear do you replace your spray tips?" you will know how to answer with confidence and more importantly, you'll know that you are not over-applying chemicals and wasting money.