

Fine Tune Your Boom Sprayer for the Coming Season

Maximum economic return will be obtained with a finely tuned sprayer as it provides better disease control and is more cost-effective.

There are three factors which affect application rate:

1. Forward speed
2. Nozzle size
3. System pressure.

Forward speed affects both dose rate and volume rate – double the speed and you halve both. Remember to drive at a speed which provides a stable boom. Too fast results in boom bounce leading to incorrect nozzle height above the target. Too slow results in not applying pesticides in a timely manner, failing to cover the ground and keeping on top of pest outbreaks.

Nozzle Selection

Nozzle selection is so important. Droplets are measured in microns, 100 microns is about the thickness of a human hair. Remember large drops bounce, such droplets are over 300 microns and are created by using low pressures, too large a nozzle orifice and or worn nozzles. Too fine a droplet (less than 150 microns) will drift, resulting in damage to neighboring properties, nuisance complaints and equally important, reduced application to the target.

Select the correct nozzle for the target. Use a nozzle which creates a fine spray for fungicides and insecticides. A medium quality spray is ideal for herbicides. Coarse spray is ideal for applying liquid fertilizers and preemergent herbicides to bare soil.

Nozzle Wear

The rate of nozzle wear will depend upon the pressure used, type of pesticide being used

and nozzle material. Note that ceramic nozzle tips, whilst being expensive, do last much, much longer than cheap plastic nozzles. Nozzles made from a modern polymers are also superior to cheap plastics. Brass is the worst nozzle tip to use as it wears out so rapidly.

Nozzle Abuse

Nozzle abuse is a problem caused by operators using a piece of wire to clean out a blocked tip. Rodding out a ceramic tip with a piece of wire is the kiss of death, it will damage it thus affecting flow rate and spray pattern. Remember, good filtration and agitation will prevent nozzle blockage. If a nozzle does block, replace it with a spare and blow out the blockage with an airline or use a bristle brush, *never* kiss nozzles!

System Pressure

System pressure affects flow rate, nozzle life, droplet size, fan shape and penetration into the target. Too low a pressure will result in large droplets dripping off the target. Too high a pressure results in off-target drift and poor application. Beware that some automatic electronic controllers will alter flow rate by using a butterfly valve to change system pressure. Always work within the boundaries recommended in the sprayer manual.

Good pre-season maintenance and calibration is so important. Articles have been published by the author on this subject. They are also obtainable at: <http://aben.cals.cornell.edu/extension/pestapp/boom.html>

Remember good pesticide application is a wonderful blend of technology and common sense. Think you are a good sprayer operator? Take the test on page 12 to find out.

Andrew Landers

The Tool Box

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The Interrelationship Between the Factors Affecting Application Rate

	Sprayer speed	Nozzle size	System pressure
Application rate	X	X	X
Spray volume	X	X	X
Droplet size		X	X