

**Calibration of Air Blast Sprayer Step by Step** by Mark Halcomb, UT Extension

*Calibration is merely determining how many gallons of water the sprayer is applying per acre, making adjustments if desired and figuring out how much pesticide to add to the tank.*

Nursery \_\_\_\_\_ Date \_\_\_\_\_  
 Brand of sprayer \_\_\_\_\_ Tank size \_\_\_\_\_  
 Tractor \_\_\_\_\_  
 Gear \_\_\_\_\_ rpm \_\_\_\_\_ psi \_\_\_\_\_

1. **Accurately time how long it takes to spray a tank out.** If you normally cut the sprayer off while moving from one area to another, don't this time, let it run continuously. Clean all filters first. \_\_\_\_\_ minutes \_\_\_\_\_ seconds

2. Accurately mark of a course of several hundred feet, perhaps 500 feet, but definitely more than 200 to be more accurate. **Accurately time the tractor** moving at the same speed and RPM that spraying will be done at. \_\_\_\_\_ feet; \_\_\_\_\_ minutes \_\_\_\_\_ seconds

Tractor speed in miles per hour (mph) is obtained by dividing (course length in feet multiplied by 60) by (time in seconds to drive the course multiplied by 88).

MPH =  $\frac{\text{course length in feet} \times 60}{(\text{time in seconds to drive the course} \times 88)}$       MPH = \_\_\_\_\_

3. **Determine the average width of your blocks.** Ha! This may be the hardest part. Come up with an average figure. \_\_\_\_\_ feet

The gallons sprayed per minute (**GPM**) or the **flow rate** is determined by dividing the gallons sprayed out of the tank by. (Convert the minutes and seconds to a decimal value, by dividing the seconds by 60). Twenty minutes and 10 seconds equals 20.16 minutes; 20 minutes and 20 seconds equals 20.33 minutes, etc.

GPM =  $\frac{\text{gallons sprayed out of the tank}}{\text{the time required to empty the tank}}$       GPM = \_\_\_\_\_

The **Gallons per Acre** is determined by dividing (the gpm multiplied by 495) by (the mph multiplied by the average block width in feet).

$\frac{\text{gpm} \times 495}{\text{mph} \times \text{average block width in feet}}$  = **Gallons per Acre**, from 1 side = \_\_\_\_\_  
 from 2 sides, overlapping = \_\_\_\_\_

We assume the blocks will be sprayed from 1 or 2 sides, not 4. Where blocks are sprayed from 2 sides and a total overlap is achieved, the rate per acre is doubled.

A block of 2 inch trees will require more water per acre than a block of liners. The number of rows per block, plant density, foliage density and plant height affects coverage. An air blast uses air plus water to distribute the pesticide. Twenty gallons of water may be adequate sometimes, while 100 gallons per acre may be required for some blocks to achieve control of scale or borers, for example, which is difficult to control. Some air blast sprayers (Jacto) have an adjusting valve to change output (gallons of water applied per acre); otherwise changing tractor speed and nozzle sizes are normal ways of changing output.

The valve can be adjusted to apply less water per acre to a block of young liners and changed to apply more water per acre to a block of 6 foot arborvitae. Making additional passes will increase output also.

Contact me for assistance, questions or provide me with the information required and I will calculate it for you or merely check yours. Phone is 931-473-8484; fax 931-473-8089 or E-Mail [mhalcomb@utk.edu](mailto:mhalcomb@utk.edu) Additional forms available under Insect/Disease at <http://www.utextension.utk.edu/mtnpi/index.html>

To determine acres sprayed per tank:  $\frac{\text{Gallons in tank}}{\text{Output (gal per acre)}}$  (if spraying from 2 sides, overlapping) = \_\_\_\_\_ Acres sprayed per tank

Use this formula to determine the amount of pesticide to add to the tank.

$\frac{\text{Gallons in tank}}{\text{Output (gal per acre)}} \times \frac{\text{Amount of Product}}{\text{Desired per 100 gal or acre}} = \text{Amount to add to Tank}$

The pesticide rate for most insecticides and fungicides is based on a rate per 100 gallons, not a rate per acre like herbicides. Generally, the rate per 100 gallons can be used as the rate per acre for large plants, but coverage is the key. Inspect plant interiors for dampness (spray coverage). Regardless of the pesticide name, the rate is the issue.

If spraying from 1 side    If spraying from 2 sides, overlapping

1 pint/100 gal	_____	_____
1 qt/100 gal	_____	_____
1.5 qt/100 gal	_____	_____
2 qts/100 gal	_____	_____
_____	_____	_____
_____	_____	_____

Comm/Equip/Air Blast Sprayer/Calib of AirBlast Sprayer Step by Step 6-07, 9-09, 7-12  
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