

MEASURING INSECTICIDE FOR BACKPACK SPRAYERS AND SMALL

PLANTINGS

Growers with diverse crops and small planting often need to be able to apply pesticide to beds or plots of several hundred square feet. It can be difficult to figure out how to calibrate a backpack sprayer for a spraying a small area. Some labels give rates for backpack sprayers (ie amount per gallon of water) and some only provide rates per acre (ie amount per land area treated). Rates may have to be calculated by converting from the rate per acre (ie, per 43,560 sq ft) to rates for a few hundred square feet. Careful division gives you the amount you need. However, this can result in needing to measure extremely small amounts of some products.

Why does it matter? Why do you need to be careful about these rates?

1. Effective control of the pest depends on correct rates.
2. You are legally responsible for following the label instructions. If you sell the crop to the public this is a serious matter.
3. Safety of applicator, workers and the public depends upon correct rates as well as following the label.

Read the label. Find and follow the following instructions:

- Personal protective equipment
- Agricultural Use Requirements
- Crops and pests listed. THE PESTICIDE MUST BE LABELED FOR THE TARGET CROP
- Restricted Entry Interval (REI)
- Days to Harvest (DH)
- Rate per acre (for tractor sprayer) or per gallon (for backpack sprayer)
- Mixing instructions (especially for backpack sprayers)

Mixing Method 1: Amount of insecticide per gallon to cover 330 sq ft per gallon.

If you calibrate your walking pace to use the desired amount of water on the desired amount of land area, then you can measure both water and product to match your pace and your target area. We believe this is one the simplest approaches to backpack sprayer rates.

Test your pace so that you walk and spray at a rate that uses 1 gallon per 330 sq ft.

1. Fill sprayer with 1 gallon
2. Mark an area 330 square ft (eg, 110 X 3 ft., 55 X 6 ft, or 30 X 11 ft). Walk and spray. Use the desired amount. If you are off, try it again and change your pace.

CROP AREA

110 ft. x 3 ft. = 330 sq. ft.

(110 ft. x 3 ft. bed width or row spacing)

3. Measure the size of the bed you want to spray. (length X width = square feet)
4. Multiply to get the amount of water. Use the table below if applicable.
5. Determine the amount of insecticide you need. Use the table below if applicable.
6. Mix the amount of insecticide needed to cover the area you want to spray.
7. Follow label instructions. Add insecticide to part of the water, mix, then add more water to reach the desired total. Spray at your measured pace.

Table 1. Below are rates for two insecticides (general use, allowed for organic) that can be used on a number of different vegetable pests.

Product	Rate Per Acre	Amount Per 1/2 Gallon (165 sq. ft.)	Amount Per Gallon (330 sq. ft.)	Amount Per 2 Gallon (660 sq. ft.)	Amount per 3 Gallons (990 sq. ft.)
Entrust* (Spinosad)	2.2 oz/A	0.25 gram	0.5 gram	1.0 gram	1.5 gram
Surround*	50 lb/A	1 1/2 Cups	3 Cups	6 Cups	9 Cups

**NOTE: Both products above are dry powder. Some labels provide conversions of volume to weight, but many do not. If gram scale is unavailable, then it is possible to measure Entrust by volume. Based on repeated samples, our average volume was 1.7 gm per teaspoon (shaved level and tamped slightly) of Entrust powder. One ounce (dry weight) equals 28.45 grams. Liquid measure in (fluid) ounces is already a volume so it is easier to measure. One fluid ounce equals 29.6 milliliters (ml). An inexpensive measuring device for ml can be found in the children's medicine section of drug stores.*

*--Ruth Hazzard and Pam Westgate, University of Massachusetts
Extension Vegetable Progra
Prepared for Small Farmer Training, June 2006*

Updated June 2006

Where trade names or commercial products are used, no company or product endorsement is implied or intended. Always read the label before using any pesticide. The label is the legal document for product use. Disregard any information in this newsletter if it is in conflict with the label.