

Errata to "Illinois Pesticide Safety Education Manual: Rights-of-Way (SP 39-5)"

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The following pages correct errors on pages 56 and 57 of the Rights-of-Way manual.

The corrections have been highlighted.

Step 5.

Determine how many tankfuls will be required to treat the area.

$$\frac{1,940 \text{ gallons total required}}{500 \text{ gallons per tankful}} = 3.88 \text{ tankfuls}$$

Step 6.

Calculate the acres treated per tankful

$$\frac{500 \text{ gallon tank}}{20 \text{ GPA}} = 25 \text{ acres per tankful}$$

Step 7.

Determine how many quarts of herbicide are required per tankful

$$25 \text{ acres per tankful} \times 1 \text{ quart per acre} = 25 \text{ quarts}$$

Step 8.

Convert quarts into gallons

$$\frac{25 \text{ quarts}}{4 \text{ quarts per gallon}} = 6.25 \text{ gallons}$$

Example 2

You are going to spray a roadside ditch for brush control using a spray gun with a 500-gallon tank. The herbicide label calls for a 1.5 percent spray mixture. How much formulation do you need to add to the spray tank for a full load?

Step 1.

Determine what 1.5 percent equals.

$$1.5\% = \frac{1.5\%}{100\%} = 0.015$$

Because you are using a 500-gallon tank, you need to determine what 0.015 of 500 gallons equals, which will be the amount of herbicide you need to add.

$$500 \times 0.015 = 7.5 \text{ gal of product}$$

Example 3

You will be using a herbicide to make a high-volume leaf and stem spray to control brush. The label calls for a tank mixture of 3 quarts of product per 100 gallons of spray solution. Your sprayer has a 400-gallon tank. How many gallons of product do you need to add for a full tank of spray solution?

Step 1.

Determine how many batches of 100-gallon spray solution your tank will hold.

$$\frac{400\text{-gal tank}}{100 \text{ gal}} = 4 \text{ batches of 100 gal}$$

Step 2.

Determine the total quarts of product needed.

$$4 \text{ batches of 100 gal} \times 3 \text{ gal product per batch} = 12 \text{ quarts of product}$$

Step 3.

Convert quarts into gallons

$$\frac{12 \text{ quarts}}{4 \text{ quarts}} = 3 \text{ gallons of product}$$

Example 4

The label for the herbicide you are using to make low-volume basal bark and cut stump treatments recommends a mixture of 20 to 30 gallons of product in enough oil to make 100 gallons of spray solution. You have decided to go with a 25 gallons of product per 100 gallons of spray solution rate. You will be using a 5-gallon-capacity backpack sprayer. How many quarts of the formulation do you need to add for one tank load of spray?

Step 1.

Because the rate is given in terms of 100 gallons of spray solution and you need only 5 gallons of total spray solution, you need to convert the formulation application rate into a percentage.

$$\frac{25 \text{ gal}}{100 \text{ gal}} \times 100 = 25\%$$

Step 2.

Determine the total amount of product needed. This amount will be 25 percent of the 5 gallons of total spray solution.

$$5 \text{ gal} \times \frac{25\%}{100\%} = 1.25 \text{ gal}$$

Step 3.

Convert gallons to quarts for more accurate measuring.

$$1.25 \text{ gal} \times 4 \text{ qt per gal} = 5 \text{ qt}$$

Example 5

You are making broadcast applications along railroad rights-of-way to control broadleaf weeds and woody plants. For the first application of the year, you made an application with a Brand A of herbicide that has 1 pound of acid equivalent (ae or a.e.) of the active ingredient per gallon. You applied 1.5 gallons of this product per acre. For the second application of the season, you have switched to Brand B herbicide, which has 4 pounds of acid equivalent of the same active ingredient per gallon of product. The labeled rate for Brand B is 1 to 8 quarts of product per acre. It also states on the Brand B label that you can not apply more than 8 pounds of the acid equivalent of the active ingredient in the herbicide per acre per year. What is the maximum amount of product, measured in quarts, that you can apply per acre of the second herbicide?

Step 1.

Determine how many pounds of acid equivalent of the active ingredient you applied in your first application.

$$1.5 \text{ gal of product per acre} \times 1 \text{ lb a.e. per gal} =$$

$$1.5 \text{ pounds a.e. applied per acre}$$

Step 2.

Determine the maximum amount of ae you can apply in your second application using the second herbicide brand.

$$8 \text{ pounds a.e. per acre per year} - 1.5 \text{ pounds a.e. per acre first app} =$$

$$6.5 \text{ pounds of a.e. per acre}$$

Step 3.

Determine how many gallons of the second herbicide brand contain the 6.5 pounds of a.e.

$$\frac{6.5 \text{ pounds of a.e. per acre}}{4 \text{ pounds a.e. per gal}} = 1.625 \text{ gallons}$$

Step 4.

Convert gallons to quarts

$$1.625 \text{ gal} \times 4 \text{ quarts per gallon} = 6.5 \text{ quarts}$$

Mixing Adjuvants

It is often recommended that a small amount of an adjuvant, such as a spreader sticker or a surfactant, be added to the chemical you plan to spray. The amount to be added is frequently given as percentage concentration by volume. See example 2 for how to handle these types of calculations.