PI 175

UF UNIVERSITY of FLORIDA
IFAS Extension

Using Your Handheld Lawn and Garden Sprayer[1]

F. M. Fishel[2]

Introduction

Handheld lawn and garden sprayers are an efficient means to apply liquid fertilizers and pesticides in the home landscape. Although they are useful and may seem simple, they can be frustrating for homeowners. Having the right sprayer and understanding how to use it can make home gardening and landscaping more successful. It's important to apply fertilizers and pesticides at the recommended rate because:

- Applying less than the recommended amount of fertilizer or pesticide can result in plant damage from insufficient control of pests or nutrient deficiencies.
- Applying more than the recommended amount of fertilizer or pesticide can result in plant damage or death from the overdose.

Types of Handheld Sprayers

Compression (pump-up) sprayers (Figures 1 and 2): these sprayers have capacities from approximately 1 quart to several gallons of diluted product. They use the pressure from compressed air to force the dilute spray through a nozzle tip mounted on a wand. These sprayers are adjustable and deliver accurate doses of fertilizer or pesticide. Their nozzle tips can be set (Figure 3) to provide a fine mist to cover a wider area or to administer coarser droplets and minimize the drift of pesticides to susceptible plants and sensitive areas.

Figure 1. Handheld compression sprayer with a 44-ounce capacity.

Steps to using the compression sprayer:

1. Read the label (Figure 4) to determine if the product you want to use is suitable for applying through a compression sprayer. Make sure to follow all the label directions for the product's use. Unless

1. This document is PI 175, one of a series of the Agronomy Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date January 2009. Visit the EDIS Web Site at http://edis.ifas.ufl.edu.
2. Frederick M. Fishel, associate professor, Department of Agronomy, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL, 32611.

Figure 2. Handheld compression sprayer with a 2-gallon capacity.

Figure 3. The nozzle tip can be rotated to adjust the delivery.

the label contains wording that prohibits the use, then the sprayer is acceptable.

Figure 4. Always read the product label.

2. Fill the sprayer one-third to one-half full of clean water (Figure 5).

Figure 5. Always use clean water when checking a sprayer.

3. Tighten the lid and pressurize the sprayer using the hand pump (Figure 6). Most compression sprayers don't have a pressure gauge, but you can feel the tension on the plunger to make sure that pressure is remaining fairly constant.

Figure 6. Pressurizing the compression sprayer.

4. On a hard, dry, flat surface, such as a driveway, check the output swath of the sprayer (Figure 7). If you'll be applying the product at a *specified label rate per unit area*, practice on your driveway at the same walking pace you'll use when you apply the pesticide. Check for uniformity of delivery with no gaps and a small amount of overlap. Practice setting your pace so that you can be sure you're applying the product evenly and consistently.

If applying at a *specified label diluted concentration*, speed is not a factor. Products with

dilution type of directions will have statements such as:

- "Thorough uniform coverage of foliage is necessary."
- "Spray thoroughly, covering both sides of leaves, stems, and branches."
- "Spray with a solution of 2 teaspoons of product in 2 gallons of water."

Figure 7. Checking the output of a compression sprayer.

5. If the output appears satisfactory in your test, depressurize the sprayer, remove the lid, add the specified amount of product into the sprayer (Figure 8), and fill to capacity. Repeat step 3, and the sprayer will be ready for the application.

Figure 8. Adding product to the compression sprayer.

6. If there is leftover spray mix in the sprayer, apply it to a site or a plant for which the product is approved (check the label) (Figure 9).

Figure 9. Apply any leftover mix to a site or plant for which the product is approved (check the label).

Compression Sprayer Example

The label instructions say to apply the product at 1 teaspoon in 1.6 to 3.2 pints of water per 200 square feet (Figure 10). You intend to treat a small, yellow nutsedge-infested area of turfgrass. You measure the problem area and determine that it is 14 by 14 feet, or 196 square feet. Then you measure the swath width of the spray pattern on the driveway, and determine that it is 18 inches, or 1.5 feet (Figure 11). All this means that you'll need to spray 9 slightly overlapping bands to treat the area.

Table 1. Application Rate Table for Turf Application Rates[a]

Area to be Sprayed	200 sq ft	400 sq ft	1,000 sq ft	1 acre
Basagran T/O	1 teaspoon	2 teaspoons	5 teaspoons (0.75 fl oz)	2 pints
Water[b]	0.2-0.4 gallons (1.6-3.2 pints)	0.4-0.8 gallons (3.2-6.4 pints)	1-2 gallons	40-80 gallons

[a] For yellow nutsedge, apply no more than 0.75 fluid ounces per 1,000 square feet (2 pints per acre) at one time. Make a second application 10-14 days later. Apply no more than 1.5 fluid ounces per 1,000 square feet (4 pints per acre) in one season. For perennial ryegrass, apply no more than 0.75 fluid ounces per 1,000 square feet (2 pints per acre) at one time. Make a second application no less than 21 days later.
[b] Quantity of water required to uniformly spray this area with your sprayer. If unknown, refer to section **Sprayer Calibration Suggestions**.

Figure 10. Label directions stating amount of product to apply per unit area.

Figure 11. Measuring the swath width of a handheld sprayer.

Hose-end sprayers: These jar-type sprayers attach to a garden hose to deliver the spray mix, which is pressurized by the force of the running water. There are several variations of the hose-end sprayer:

- Some come pre-filled with a product that is delivered at a fixed dilution rate. The advantage of this sprayer is that you won't have to mix, measure, or calibrate the product because the jar is already calibrated correctly for the product that comes in it. The disadvantage is that the pre-filled jar sprayer can only be used with that product and can't be reused.

- Another variation of this sprayer is one that is not ready to use. This type doesn't have a dial for calibrating. These require you to measure and pre-mix a concentrate. This sprayer can be confusing to use because there is guesswork in knowing how much of a product is actually delivered to the target site. The jar on this sprayer will have varying capacities. Usually gallon increments are marked on the side of the jar. The label will list how much product to add per gallon of water. You'll put a measured amount of concentrate in the jar and then add water according to the directions in order to dilute the product to the proper concentration.

- Another hose-end sprayer type has a dial for calibrating (Figure 12). Set the dial to apply product at the rate recommended on the label. Like the compression sprayer, these apply a coarse spray (Figure 13) and can be used for many of the same types of applications. The advantage of this type of hose-end sprayer is that the directions are straightforward (Figure 14).

Figure 12. Dial hose-end sprayer.

Figure 13. Coarse spray through a dial hose-end sprayer.

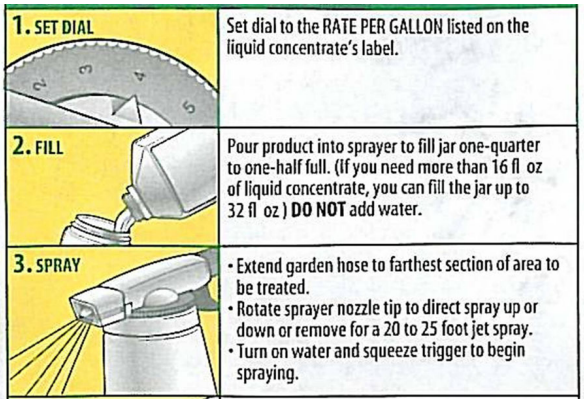

Figure 14. For use of a commercially available dial hose-end sprayer.

Additional Information

Fishel, F.M. 2006. Homeowner's guide to pesticide safety. UF/IFAS Extension Document PI-174. http://edis.ifas.ufl.edu/document_pi051 (accessed December, 2008).

Fishel, F.M. 2005. Interpreting pesticide label wording. UF/IFAS Extension Document PI-34. http://edis.ifas.ufl.edu/document_pi071 (accessed December, 2008).