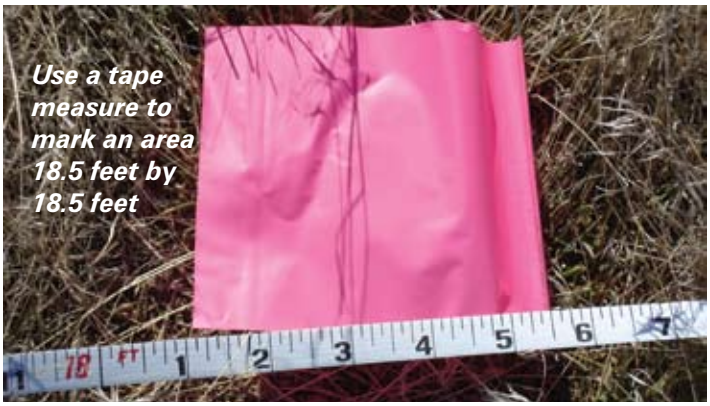
Photo 1. Backpack sprayers


Photo 2. Flat fan nozzle



Use a tape measure to mark an area 18.5 feet by 18.5 feet

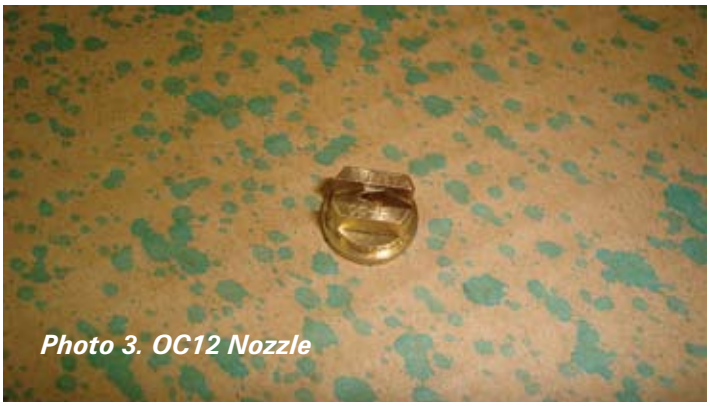


Photo 3. OC12 Nozzle

Calibrating sprayer most important step before treating weeds

When a landowner needs to spray weeds, the most typical questions asked are, "What kind of equipment, and how much chemical do I need?"

One very handy piece of equipment for a landowner is a backpack sprayer. They are convenient, are portable, and have the ability to spot treat targeted plants while preserving the desirable surrounding vegetation. A typical situation that may call for a backpack sprayer is spot treating along fence lines, ditch banks, around buildings, and areas difficult to access with a larger boom-type sprayer. Sizes usually range from 1 to 5 gallons. Backpack sprayers (Photo 1) are made by a variety of manufacturers and can usually be found at local farm and ranch stores and are also available online through equipment supply companies. Local weed and pest control districts or conservation districts may also have them available for rent, loan, or purchase. Prices generally range from $80 to $150.

When shopping for a backpack sprayer, you may also find there are a variety of nozzle choices. Many sprayers come with a flat fan (Photo 2), adjustable, hollow cone, and/or jet stream nozzles. They can be plastic, brass (Photo 3), or stainless steel. Different nozzles can put out different spray patterns and amounts of solution. For spot spraying applications, the most commonly used nozzle is an adjustable hollow cone. Flat fan nozzles are more useful for broadcast applications in larger treatment areas. If unsure which nozzle to use for your particular application, a local farm and ranch supply or weed and pest control district can offer advice.

The key: No matter which type of backpack sprayer, tip, or spray pattern used, calibration is a necessary step before spraying! Calibrating will help determine how many gallons per acre the sprayer will put out, how many tanks it will take to treat an acre, and how much chemical to add to each tank

The 1/128 calibration method:

STEP 1

Begin by marking out an area 18.5 feet by 18.5 feet or 340 square feet. This works well because 340 square feet equals 128th of an acre. There are also 128 ounces in a gallon; therefore, the number of ounces sprayed in the marked area will equal the number of gallons per acre the sprayer will treat.

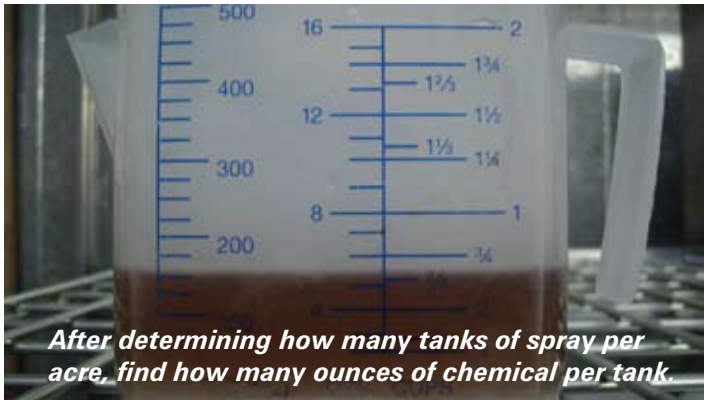
STEP 2

Measure the time, in seconds, it takes to evenly spray the marked area with water only. It can be helpful to add a spray dye indicator (Photo 4) to see where you have sprayed. These can be purchased through a chemical supplier. **It is very important to spray the marked calibration area consistently with the manner and speed you will actually be spraying in the field.** Repeat this step twice more, and take the average time in seconds.

Sprayed area

Photo 5.
Spray into bucket

Photo 4. Spraying area



After determining how many tanks of spray per acre, find how many ounces of chemical per tank.

STEP 3

Spray into a container for the average time, in seconds, it took to spray the marked area (Photo 5). Measure the number of ounces collected in the container. Remember, the **number of ounces collected is equal to the number of gallons per acre** your sprayer applies at the speed you spray.

EXAMPLE:

STEP 1

Measured area = 18.5 by 18.5 feet

STEP 2

Average time in seconds to spray marked area = 22 seconds (This is just an example. This time will vary from person to person.)

STEP 3

Amount collected in container for 22 seconds = 24 ounces

24 ounces/marked area = 24 gallons/acre

There! You know how many gallons per acre you and your sprayer apply.

Determining how much chemical to add to tank:

Whether you have more than an acre or less than an acre of weeds to spray does not matter. Chemical labels require that herbicides be evenly dispersed over an area in a certain quantity. These chemical rates are usually given in amounts per acre; therefore, determining how many gallons per acre your sprayer treats will help determine the rate to lay chemicals down so you can apply the correct amount of chemical to each tank.

Using the example above, you know your sprayer will put out 24 gallons of water per acre. Assume your tank size is 4 gallons.

24 gallons/acre divided by 4 gallons/tank = 6 tanks/acre

Always check the chemical label for the recommended chemical rate per acre. For example, say your 2,4-D product has a recommended rate of 1 quart per acre. It is useful to convert to ounces; there are 32 ounces in a quart.

32 ounces/acre divided by 6 tanks/acre = 5 1/3 ounces of 2,4-D per sprayer tank.

What if a person only wants one gallon for spot spraying weeds in his/her backyard? Divide 5 1/3 ounces by four gallons for the correct concentration. 5 1/3 ounces/4 = 1.3 ounces per gallon.

It is good practice to calibrate every time you modify your equipment, such as changing a nozzle, or at least once a year. Also, because each individual person using the sprayer may spray differently, each should do their own calibration.

For more specific information on weed control, please contact your county weed and pest control district office. Online contact information is at www.wyoweed.org/wp_dist.html. You may also find helpful information and links at www.wyoweed.org. A factsheet detailing this method and many other important pesticide education program factsheets are available at www.uwyo.edu/plants/wyopest/factsheets.html.

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