Calibrating Spray Gun Applications to Turf
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Before applying a pesticide proper identification of the suspected pest is necessary to determine the proper treatment and Integrated Pest Management technique. If pesticide is to be applied, the application equipment must be calibrated and the proper amount of pesticide determined for responsible, accurate, and effective use.

1. **Select the spray application rate**, guided by the pesticide label. The application rate will be the total gallons (carrier and pesticide) applied per $1000ft^2$. The flow rate from your spray gun must provide the recommended amount of carrier. To check this, follow the calibration steps on the back of this sheet.

2. **Find the area of the treatment**. Use a tape measure or measuring wheel to determine the actual area to be sprayed. Do not count driveways, sidewalks, flowerbeds, or any area not to be treated. Odd shaped areas can be found by approximating the shape with circles, rectangles, and triangles.

   Rectangle = Length X Width

   Triangle = ½ X Base X Height

   Circle = $\pi\ r^2$ (π is approximately 3.14)

3. **Find the pesticide use rate per $1000ft^2$** for the pest you are trying to control. If the recommendation is in terms of product or formulation per $1000ft^2$, use the stated amount. If the recommendation is in terms of acres or active ingredient (AI), use this conversion information and refer to Illinois Pesticide Applicator Training Manual 39, General Standards.

   Lbs per acre X .37 = ounces per 1,000 square feet

   Qts per acre X .73 = fluid ounces per 1,000 square feet

   $$\text{Lbs AI recommended} \times \frac{100\%}{\%\text{AI}} = \text{lbs product per area}$$

   $$\frac{\text{Lbs AI recommended}}{\text{Lbs AI per gallon of product}} = \text{gallons of product per area}$$

4. **Find the total amount of pesticide** needed to treat the area. (Pesticide rate X area)

5. **Find the total amount of water** needed to treat the area. (Application rate X area, then minus amount of liquid pesticide added)

Example: A pesticide label calls for the application of 1.25 fluid ounces in 0.5 to 5.5 gallons of water per 1000 square feet. The lawn to be treated is 80 ft by 125 ft. The spray gun is calibrated to apply 2.5 gallons per 1000 square feet. How much water and pesticide are needed for this treatment?

Answer:

1. The spray gun applies 2.5 gallons per 1000 square feet, which is within the label directions of 0.5 to 5.5 gallons of water plus 1.25 fluid ounces pesticide.

2. The area to treat is 80 ft. X 125 ft. = 10,000 square feet.

3. The pesticide is to be applied at 1.25 fluid ounces per 1,000 square feet.

4. The amount of pesticide is $\dfrac{1.25 \text{ fluid ounces} \times 10,000 \text{ square feet}}{1,000 \text{ square feet}} = 12.5 \text{ fluid ounces}$

   Which is… 12.5 fluid ounces divided by 128 ounces per gallon = 0.098 gallons

5. The amount of spray applied is $\dfrac{2.5 \text{ gallons} \times 10,000 \text{ square feet}}{1,000 \text{ square feet}} = 25 \text{ gallons}$

   So the amount of water is 25 gallons – 0.098 gallons pesticide = 24.902 gallons

Appendix - calibrating your spray gun

It is essential that you understand how much liquid is being applied when using your spryer. To help achieve accurate and responsible applications, spray guns must be properly calibrated before use. Use only clean water for calibration.

1. Spray a calibration course of 1,000 square feet using proper technique and record the amount of time the nozzle is actually spraying. This includes using 100% spray overlap, or "double coverage." This is achieved by offsetting each swath by ½ the swath width.

Swath 1
Swath 2
Swath 3
Swath 4
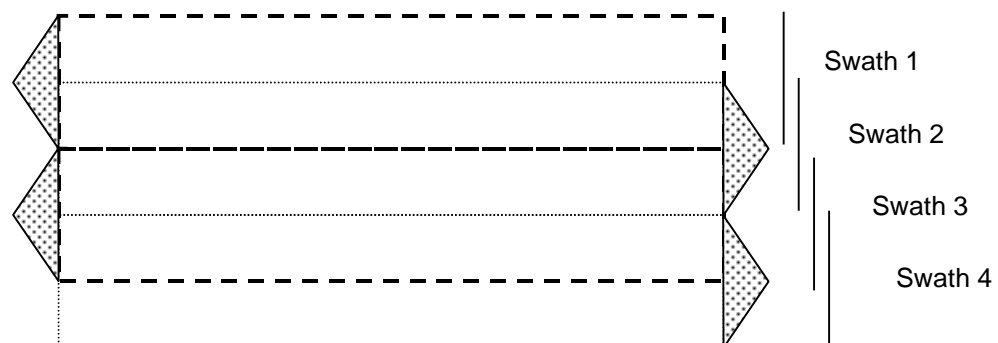
2. Spray the gun into a container for the same amount of time recorded in step 1. The amount of water collected in the container is the amount of spray the gun would apply per 1,000 square feet. For example, 1.5 gallons collected = 1.5 gallons per 1,000 square feet.