

Extension Pesticide Applicator Training Series #3: Treatment Area Measurements

Revised by Jane Breen Pierce and Phillip Lujan¹

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WHY KNOW SURFACE MEASUREMENT OF THE TARGET AREA?

All pesticides labeled by U.S. Environmental Protection Agency (EPA) have a specified rate of pesticide that can be legally applied to a unit area of land. To apply the legal amount of a pesticide, the surface area must be known. If more or less than the specified range is used, the use is a violation of federal law.

Even with products that are not labeled, such as soil amendments, surfactants, or liquid fertilizers, good management practices require knowing the economic and environmental effectiveness and efficiency of the application. This requires knowledge of the application rate.

FIELD MEASUREMENT NOTES

Recorded measurements and simple field drawings can be used to determine surface area. Basic sketches help by showing the sides measured, obstacles not targeted for application, transverse lines inserted for area calculations (described below), and other considerations. Once the area is accurately measured, field notes can be kept for future reference or revision.

Surface area measurements can be stored indefinitely as long as the plot size does not change. These records should be kept along with field pesticide application records.

For most jobs, a 100-foot measuring tape is adequate. Vinyl or plastic tapes are easier to move around the field and resist abrasion better than metal tapes. When measuring lengths greater than the tape measure, a set (6–10) of metal stakes or pins put in the ground can be used.

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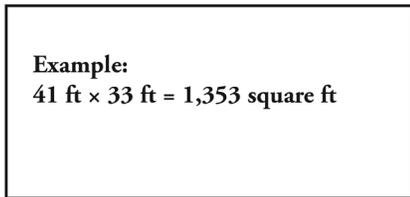
BASIC GEOMETRY FOR DETERMINING SURFACE AREA

A few basic geometry formulas can be used to calculate surface area. If you are applying pesticides to a small, easily measured area, the following formulas and examples will be helpful. However, for most applicators, it will be easier to use a simple cell phone or computer app for all but very small and easily measured plots. Software changes rapidly, but one currently available example is GPS Fields Area Measure, which is available at no cost for Android and Apple products.

Square and rectangular fields:

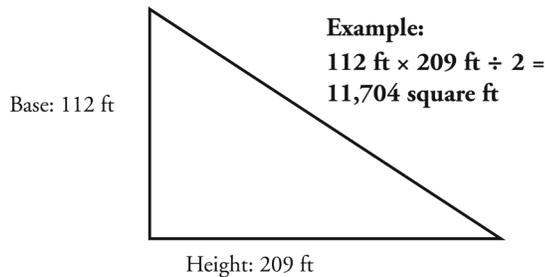
Length (L) × Width (W) = Area

Length: 41 ft

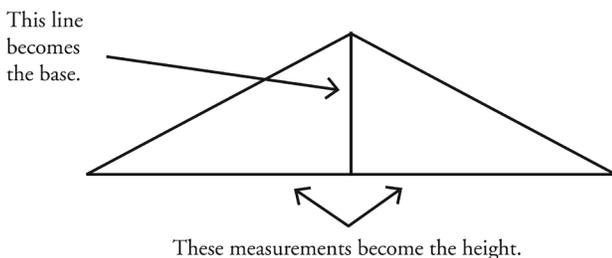


Width: 33 ft

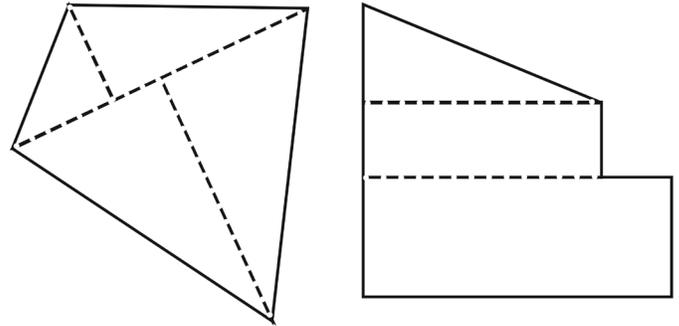
Fields with right triangles: Base × Height ÷ 2 = Area



Triangle shapes with no square corners: Create right angles by choosing a transverse line and measuring the length of the new side. Include the new lines in your field drawing.



Other straight-sided irregular shapes. As in the example above, divide irregular fields into squares, rectangles, and triangles by using strategically placed transverse lines.



OTHER USEFUL INFORMATION FOR DETERMINING SURFACE AREA

- Area of a circle = radius² × 3.14
- 1 acre = 43,560 square feet
- Square feet ÷ 43,560 = total acreage

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