

# Backpack Sprayer Calibration

## No Math Version!!

**Step 1:** Establish a calibration plot that is exactly: 18.5 feet wide x 18.5 feet long

**Step 2:** Spray the calibration plot uniformly with water, noting the number of seconds required:

Time Required to spray plot = \_\_\_\_\_ seconds.

**Step 3:** Spray into a bucket for same number of seconds.

**Step 4:** Measure the number of ounces of water in the bucket:

Volume sprayed = \_\_\_\_\_ ounces

**Step 5:** The number of ounces collected from the bucket is equal to the number of gallons per acre the sprayer is delivering:

Gallons Per Acre (GPA) = \_\_\_\_\_

### ***Adding the Correct Amount of Herbicide to Tank for Liquid Herbicide Formulations***

**Step 6:** Record sprayer output in gallons/acre (calculated from Step 5).

Output (volume) = \_\_\_\_\_ GPA

**Step 7:** Determine volume of full spray tank.

Tank volume = \_\_\_\_\_ gallons

**Step 8:** From the herbicide label, determine amount of herbicide concentrate to apply per acre.

\_\_\_\_\_ Herbicide per Acre (quarts or pints)

**Step 9:** Determine the amount of herbicide to add to each gallon using Table 1 below.

**Step 10:** Calculate the amount of herbicide to add to each tank.

\_\_\_\_\_ Amount of herbicide/gallon x \_\_\_\_\_ number of gallons in a tank =

\_\_\_\_\_ Total amount of herbicide to add to a tank.

**Table 1. Spray Volume Amount of Herbicide to Add to Each Gallon**

	----- Recommended Herbicide Rate/Acre -----				
Gal. / Acre	1 pint	1 quart	2 quarts	3 quarts	4 quarts
15	6 tsp	2 fl. oz.	4 fl. oz.	6.25 fl. oz.	8.5 fl. oz.
20	5 tsp	10 tsp	3.25 fl. oz.	4.75 fl. oz.	6.33 fl. oz.
30	3 tsp	6 tsp	2 fl. oz.	3.25 fl. oz.	4.25 fl. oz.
40	2.33 tsp	4.75 tsp	1.66 fl. oz.	2.33 fl. oz.	3.25 fl. oz.
50	2 tsp	3.75 tsp	1.25 fl. oz.	2 fl. oz.	2.5 fl. oz.
60	1.66 tsp	3.25 tsp	6.33 tsp	1.66 fl. oz.	2 fl. oz.
70	1.33 tsp	2.75 tsp	5.5 tsp	1.33 fl. oz.	1.75 fl. oz.
80	1.25 tsp	2.33 tsp	4.75 tsp	7.25 tsp	9.5 tsp
90	1 tsp	2 tsp	4.25 tsp	6.33 tsp	8.5 tsp
100	1 tsp	2 tsp	3.75 tsp	5.75 tsp	7.66 tsp
120	0.75 tsp	1.5 tsp	3 tsp	4.75 tsp	6 tsp

**Example:** Assume that the calibration of your sprayer (Steps 1 – 5) yields an output of 30 GPA and your sprayer holds 3 gallons. Your herbicide label for the target weed species dictates a herbicide application rate of 1 pint/acre. Go to the chart and read across from 30 Gal. / Acre to the 1-pint column – the amount of herbicide to add per gallon is 3 tsp in the table. Since your sprayer holds 3 gallons of total solution, you would add 9 tsp of herbicide in addition to the water in each tank.

**Liquid Conversions:**

tsp = teaspoons    TBS = tablespoons    fl. oz. = fluid ounces

3 tsp = 1 TBS

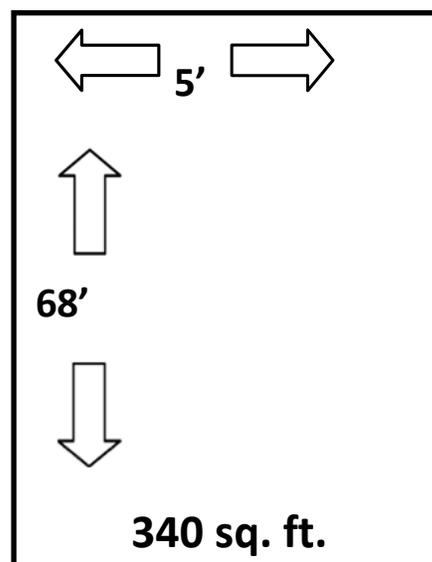
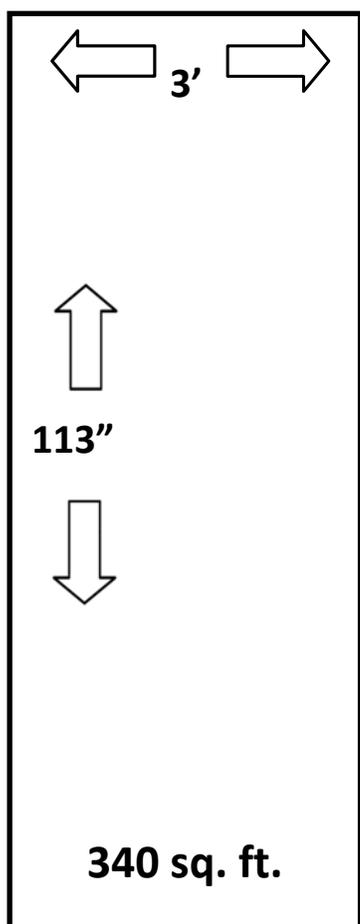
2 TBS = 1 fl. oz.

16 TBS = 1 cup

8 fl. oz. = 1 cup

# Easy Backpack Sprayer Calibration

- 1) Measure spray swath.
- 2) Use 340 square feet. Because 340 sq. ft. = 1/128 of an acre. 1 Oz = 1/128 of a gallon.
- 3) 3 ft. swath x 113 = 340                      5 ft swath x 68 = 340
- 4) Time how long it take to walk 340 square feet. (45 sec)  
Collect water for this length of time. (45 sec)  
If collect 10 oz. of water = 10 gallon per acre.
- 5) Mustang Max rate is 4 oz. per acre  $4 / 10 = 0.4$  oz./gal x 3 gallon sprayer is 1.2 oz. per tank.



## ***Improving the Backpack Sprayer***

<b><i>Conversion/Part Description</i></b>	<b><i>Problem Solved</i></b>	<b><i>Source</i></b>
Barbed Swivel (11990-61) for use only with (4727) Valve Handle	No more twisted hoses.	TeeJet
Valve Handle (4727) use with (6466) trigger valve	Allows you to switch to other handles. (MeterJet Spray Gun)	TeeJet
Trigger Valve (6466) brass	No trigger lock – long trigger.	TeeJet
Curved Extension (6671-24")		TeeJet
CF Pressure Regulating Valves – 11/16" thread Y11-16SYV – 14.5 psi R11-16SYV – 21 psi B11-16SYV – 29psi	Designed to give constant flow to the nozzle. Low pressure for drift situations. High pressure to penetrate foliage.	G.A.T.E. Technologies
Quick TeeJet Nozzle Body (QJT-NYB) 11/16" nozzle body	Get at least 4 for quick nozzle changes.	TeeJet
Strainers (4514-NY-10) 50 mesh (8079-PP) 50 mesh (8079-PP) 25 mesh	Strainers need to be slightly smaller than the nozzle orifice to prevent clogging.	TeeJet
Turbo FloodJet Nozzle (TF-VS2 or VS3)	Can provide a 5 ft spray width held a couple of feet off the ground with minimal drift.	TeeJet
XR TeeJet 11004 VS Nozzle	Provides medium size droplets at 110° angle of spray. Better than 80° since it is held closer to the target.	TeeJet
XR TeeJet 8004 VS Nozzle	Standard flat fan nozzle providing small medium sized droplets.	TeeJet
Gasket – Nylon (CP8635-NY)	Get extras – easy to pinch.	TeeJet
Quick Nozzle Caps (CP 25607)-3-NY (Red)	Caps without notches work with most nozzles. Get 3 or 4 for quick nozzle changes.	TeeJet
Rubber Seal Gasket (CP18999-EPR)	For unexpected leaks.	TeeJet
Measuring Syringes (13044N)	Plastic disposable syringes.	Nasco Farm and Ranch
Plastic Tubing (C08273N)	Important to prevent spills when measuring small amounts.	Nasco Farm and Ranch
Meter Jet Gun 2362430L	For spot sprays	TeeJet

## ***Supplier Information***

Ag Spray Equipment (formerly Schaben Industries) (TeeJet Supplier) <a href="https://www.agspray.com/">https://www.agspray.com/</a>	Newton, KS	1 (800) 394-7662
Nasco Farm and Ranch <a href="https://www.enasco.com/">https://www.enasco.com/</a>	Fort Atkinson, WI	1 (800) 558-9595
G.A.T.E. Technologies <a href="http://www.gatecfv.com/">http://www.gatecfv.com/</a>	Sebastian, FL	1 (800) 303-2099