

# Calibrate Your Field Sprayer

Charles L. Peterson  
*Extension Agricultural Engineer*

Walter L. Moden, Jr.  
*Assistant Agricultural Engineer  
Agricultural Experiment Station*

Calibration of any field sprayer is essential to assure that the proper amount of chemical is mixed with a given volume of water and that the correct amount of spray mix is uniformly applied. The following procedure is a simple but accurate way to calibrate your sprayer.

## Pre-Calibration Steps

1. Make certain that the pump, tank, nozzle tip, screens and supply lines are free of dirt or other foreign materials.
2. Fill the tank with water and operate the sprayer to check that it is functioning properly at the desired pressure.
3. Check each individual nozzle. Measure the time it takes for each nozzle to fill a pint jar, or catch the outflow for a specific length of time and measure in a measuring cup as in Fig. 1. Replace any nozzle tip that varies more than 5 percent above or below the average output of all nozzles. All tips should be replaced when measurements indicate excessive wear.
4. Determine the throttle setting and transmission gear to be used during the spraying operation. The amount of solution supplied is directly proportional to the ground speed. Therefore, once the ground speed has been determined, maintain that speed as closely as possible in the field.



Figure 1. Measuring the flow from an individual nozzle.

## Calibration Procedure

After you have checked and determined the ground speed, operate the sprayer at the correct speed and pressure to find the exact application rate as follows:

1. Set two stakes 660 feet apart.
2. Refill the sprayer tank to a convenient level (operate the sprayer to be certain all supply lines are full) and record the water line on a measuring stick or at a convenient place on the tank.
3. Drive the sprayer *round-trip* between the two stakes at the selected speed and operating pressure. Open the control valves as the sprayer passes the first stake and close them as it passes the second stake in each direction. (Fig. 2)
4. Carefully measure the amount of water required to refill the tank to the same mark. Be certain the sprayer is resting in the original location.
5. To find the application rate in gallons per acre, multiply the gallons of water used to refill the tank by the constant selected from Table 1.

EXAMPLE: A boom sprayer with an effective spray width of 21 feet and operating for 1,320 feet required 16.8 gallons of water upon refilling. (Effective sprayed width equals the nozzle spacing times the number of nozzles on the boom.) From Table 1, the constant is 1.57 for a spray width of 21 feet. Therefore:

$$\text{GALLONS PER ACRE} = 16.8 \times 1.57 = 26.4$$

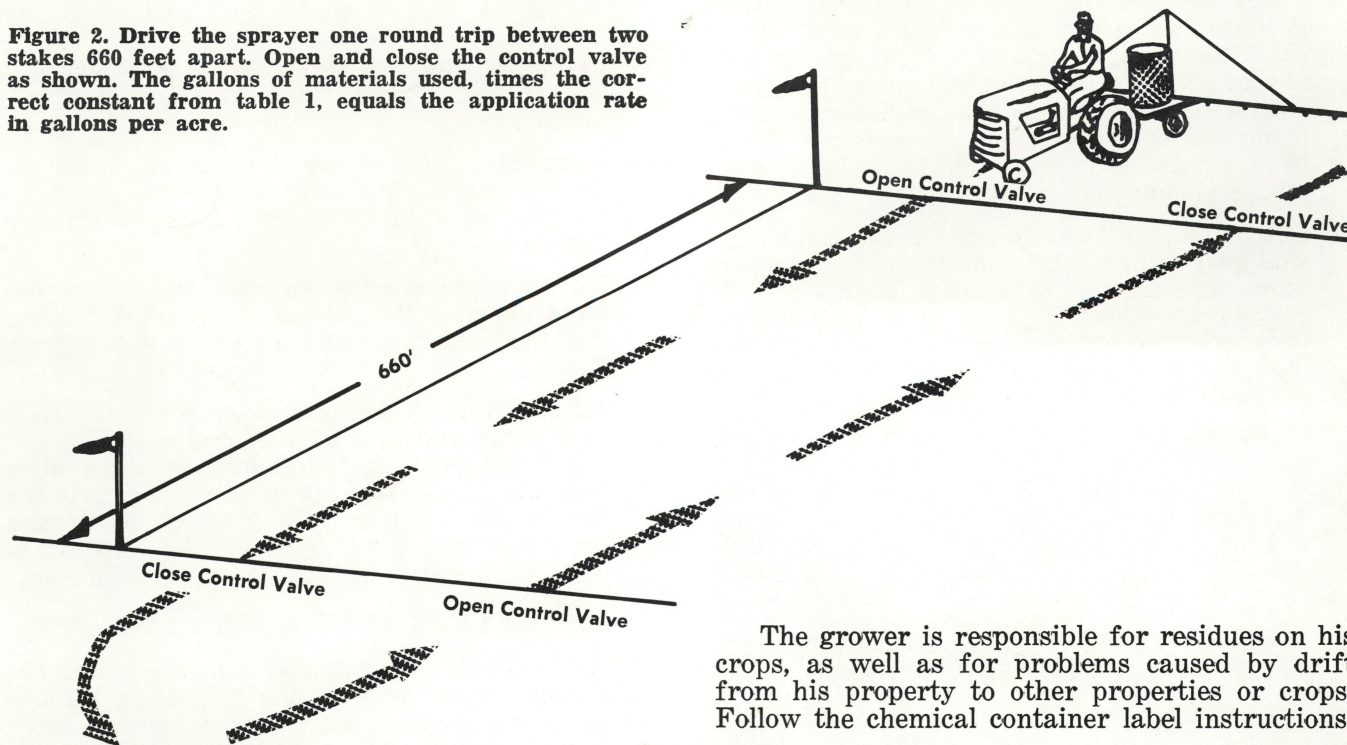
You can adjust the application rate within the operating speed range of the propelling vehicle. If larger adjustments are required, you may have to change nozzles and possibly pump capacity.

*Sprayers should be calibrated at least once each season. More often is desirable, particularly if you use the sprayer frequently.*

TABLE 1 — Calibration Constants For a Sprayer Operating A Distance Of 1320 Feet

Effective Sprayed Width (ft.)	Constant	Effective Sprayed Width (ft.)	Constant	Effective Sprayed Width (ft.)	Constant	Effective Sprayed Width (ft.)	Constant
1	33.00	26	1.27	51	0.65	76	0.43
2	16.50	27	1.22	52	0.63	77	0.43
3	11.00	28	1.18	53	0.62	78	0.42
4	8.25	29	1.14	54	0.61	79	0.42
5	6.60	30	1.10	55	0.60	80	0.41
6	5.50	31	1.06	56	0.59	81	0.41
7	4.72	32	1.03	57	0.58	82	0.40
8	4.13	33	1.00	58	0.57	83	0.40
9	3.67	34	0.97	59	0.56	84	0.39
10	3.30	35	0.94	60	0.55	85	0.39
11	3.00	36	0.92	61	0.54	86	0.38
12	2.75	37	0.89	62	0.53	87	0.38
13	2.54	38	0.87	63	0.52	88	0.37
14	2.36	39	0.85	64	0.51	89	0.37
15	2.20	40	0.82	65	0.51	90	0.37
16	2.06	41	0.80	66	0.50	91	0.36
17	1.94	42	0.79	67	0.49	92	0.36
18	1.83	43	0.77	68	0.48	93	0.35
19	1.74	44	0.75	69	0.48	94	0.35
20	1.65	45	0.73	70	0.47	95	0.35
21	1.57	46	0.72	71	0.46	96	0.34
22	1.50	47	0.70	72	0.46	97	0.34
23	1.43	48	0.69	73	0.45	98	0.34
24	1.37	49	0.67	74	0.45	99	0.33
25	1.32	50	0.66	75	0.44	100	0.33

Figure 2. Drive the sprayer one round trip between two stakes 660 feet apart. Open and close the control valve as shown. The gallons of materials used, times the correct constant from table 1, equals the application rate in gallons per acre.



The grower is responsible for residues on his crops, as well as for problems caused by drift from his property to other properties or crops. Follow the chemical container label instructions.

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*James E. Kraus*

JAMES E. KRAUS, Director