Using SpotOn® Digital Meter for Boom Sprayer Calibration

Simerjeet Virk and Eric Prostko

Department of Crop & Soil Sciences, The University of Georgia



The SpotOn® Sprayer Calibrator is a digital flow meter produced by Innoquest Inc. as a tool for verifying nozzle output (desired flow rate is measured in gallons per minute; gpm) and calibrating a sprayer quickly and easily. The SpotOn® meter has three electrodes prepositioned inside the tube that sense the rising water level and provide a flow rate by measuring the time it takes to fill the meter's tube. The meter works only with fluids that conduct electricity, such as water. The procedure outlined here is for using a SpotOn® meter (model SC-1; Figure 1) for calibrating a boom sprayer.



Figure 1. The SC-1 model of the SpotOn® Sprayer Calibrator.

Calibration Procedure:

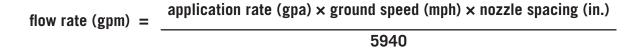
Table 1. Nozzle flow rates (gpm) at different speeds (mph) and application rates (gpa) for 18-in. nozzle spacing.

	Target application rate in gallons per acre (gpa)									
Speed in mph	5	7.5	10	12.5	15	17.5	20	25	30	
4.0	0.06	0.09	0.12	0.15	0.18	0.21	0.24	0.30	0.36	
5.0	0.08	0.11	0.15	0.19	0.23	0.27	0.30	0.38	0.45	
6.0	0.09	0.14	0.18	0.23	0.27	0.32	0.36	0.45	0.55	
7.0	0.11	0.16	0.21	0.27	0.32	0.37	0.42	0.53	0.64	
8.0	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.61	0.73	
9.0	0.14	0.20	0.27	0.34	0.41	0.48	0.55	0.68	0.82	
10.0	0.15	0.23	0.30	0.38	0.45	0.53	0.61	0.76	0.91	
11.0	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.83	1.00	
12.0	0.18	0.27	0.36	0.45	0.55	0.64	0.73	0.91	1.09	
13.0	0.20	0.30	0.39	0.49	0.59	0.69	0.79	0.98	1.18	
14.0	0.21	0.32	0.42	0.53	0.64	0.74	0.85	1.06	1.27	
15.0	0.23	0.34	0.45	0.57	0.68	0.80	0.91	1.14	1.36	
16.0	0.24	0.36	0.48	0.61	0.73	0.85	0.97	1.21	1.45	
17.0	0.26	0.39	0.52	0.64	0.77	0.90	1.03	1.29	1.55	
18.0	0.27	0.41	0.55	0.68	0.82	0.95	1.09	1.36	1.64	
19.0	0.29	0.43	0.58	0.72	0.86	1.01	1.15	1.44	1.73	
20.0	0.30	0.45	0.61	0.76	0.91	1.06	1.21	1.52	1.82	

Table 2. Nozzle flow rates (gpm) at different speeds (mph) and application rates (gpa) for 20-in. nozzle spacing.

	Target application rate in gallons per acre (gpa)									
Speed in mph	5	7.5	10	12.5	15	17.5	20	25	30	
4.0	0.07	0.10	0.13	0.17	0.20	0.24	0.27	0.34	0.40	
5.0	0.08	0.13	0.17	0.21	0.25	0.29	0.34	0.42	0.51	
6.0	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.51	0.61	
7.0	0.12	0.18	0.24	0.29	0.35	0.41	0.47	0.59	0.71	
8.0	0.13	0.20	0.27	0.34	0.40	0.47	0.54	0.67	0.81	
9.0	0.15	0.23	0.30	0.38	0.45	0.53	0.61	0.76	0.91	
10.0	0.17	0.25	0.34	0.42	0.51	0.59	0.67	0.84	1.01	
11.0	0.19	0.28	0.37	0.46	0.56	0.65	0.74	0.93	1.11	
12.0	0.20	0.30	0.40	0.51	0.61	0.71	0.81	1.01	1.21	
13.0	0.22	0.33	0.44	0.55	0.66	0.77	0.88	1.09	1.31	
14.0	0.24	0.35	0.47	0.59	0.71	0.82	0.94	1.18	1.41	
15.0	0.25	0.38	0.51	0.63	0.76	0.88	1.01	1.26	1.52	
16.0	0.27	0.40	0.54	0.67	0.81	0.94	1.08	1.35	1.62	
17.0	0.29	0.43	0.57	0.72	0.86	1.00	1.14	1.43	1.72	
18.0	0.30	0.45	0.61	0.76	0.91	1.06	1.21	1.52	1.82	
19.0	0.32	0.48	0.64	0.80	0.96	1.12	1.28	1.60	1.92	
20.0	0.34	0.51	0.67	0.84	1.01	1.18	1.35	1.68	2.02	

Equation 1. Formula to calculate the desired flow rate for any given nozzle spacing, application rate, and ground speed.



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