

2011 SMFD WEED MANAGEMENT

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Weed Management

Greg Kruger

UNL Extension Cropping System Specialist

Lowell Sandell

UNL Weed Science Extension Educator

2011SMFD-Weeds (1)

Spray droplet size, off-site movement potential, and pesticide efficacy

- Application drift regulation
- Efficacy on glyphosate resistant weeds

2011SMFD-Weeds (2)

Table 1. Droplet size measurement when spraying Roundup PowerMax (22 oz/A) through an AI11003 nozzle tip at different carrier volumes and pressures.

GPA	Pressure	Dv10 (µm)	Dv50 (µm)	Dv90 (µm)	<105 µm (%)	<150 µm (%)	<210 µm (%)	>730 µm (%)	Relative span
5	40	171	460	753	3.41	7.84	14.30	11.54	1.26
5	60	145	392	666	4.84	10.70	19.57	4.41	1.33
5	80	138	364	635	5.23	11.85	22.18	3.11	1.36
10	40	192	500	824	2.68	6.31	11.72	18.08	1.26
10	60	164	425	699	3.76	8.39	15.87	6.63	1.26
10	80	160	404	677	3.89	8.72	17.07	5.14	1.28
15	40	217	528	827	2.03	4.87	9.34	20.02	1.15
15	60	182	445	697	2.97	6.73	13.19	5.87	1.16
15	80	164	405	652	3.67	8.29	16.36	2.80	1.20
20	40	225	527	800	1.89	4.46	8.69	17.58	1.09
20	60	199	468	731	2.49	5.56	11.11	9.14	1.14
20	80	178	425	669	3.05	6.87	13.95	3.59	1.15
water	40	244	575	856	1.58	3.83	7.52	26.23	1.06
water	60	195	496	781	2.62	6.03	11.37	14.31	1.18
water	80	158	428	688	4.26	9.09	16.24	5.39	1.24

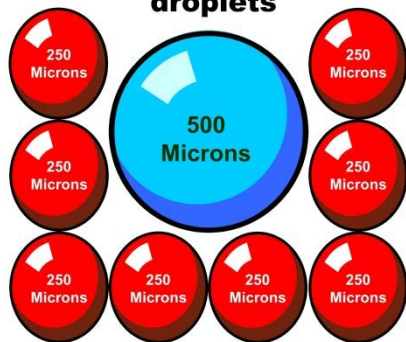
2011SMFD-Weeds (3)

Table 2. Droplet size measurement when spraying Roundup PowerMax (22 oz/A) through an XR11003 nozzle tip at different carrier volumes and pressures.

GPA	Pressure	Dv10 (µm)	Dv50 (µm)	Dv90 (µm)	<105 µm (%)	<150 µm (%)	<210 µm (%)	>730 µm (%)	Relative span
5	20	83	645	386	18.41	34.58	52.72	0	1.51
5	40	63	561	322	30.13	49.74	69.01	0	1.72
5	60	54	539	284	36.84	57.92	76.73	0	1.75
10	20	83	653	398	18.01	33.98	51.78	0	1.55
10	40	64	583	317	30.01	49.72	69.12	0	1.69
10	60	56	576	281	35.38	56.76	76.27	0	1.68
15	20	82	617	388	18.30	34.13	52.33	0	1.52
15	40	63	597	312	29.43	48.88	68.78	0	1.63
15	60	55	549	276	35.36	56.27	76.31	0	1.64
20	20	87	663	413	16.15	30.99	48.29	0	1.51
20	40	65	604	324	28.05	47.18	66.88	0	1.65
20	60	57	577	288	33.63	54.22	74.12	0	1.65
water	20	94	238	419	13.05	25.41	42.01	0	1.37
water	40	67	170	340	25.44	43.09	62.47	0	1.61
water	60	58	148	307	31.73	50.81	70.11	0	1.69

2011SMFD-Weeds (4)

Cutting droplet size in half results in eight times the number of droplets



2011SMFD-Weeds (5)

Spray droplet classification

Classification	Symbol	Color	Approx VMD
Very fine	VF	Red	<100
Fine	F	Orange	100-175
Medium	M	Yellow	175-250
Coarse	C	Blue	250-375
Very Coarse	VC	Green	375-450
Extremely coarse	EC	White	>450

Source: ASAE Standard S-572

2011SMFD-Weeds (6)

How far will particles go?

Droplet	Diameter (in μm)	Time to fall 10 feet	Travel distance in 3 mph wind
Fog	5	66 min	3 miles
Very fine	20	4.2 min	1,100 feet
Fine	100	10 sec	44 feet
Medium	240	6 sec	28 feet
Coarse	400	2 sec	8.5 feet
Fine rain	1,000	1 sec	4.7 feet

Source: *Herbicide Spray Drift*, NDSU Extension

2011SMFD-Weeds (7)