

2009 Table Beet Weed Control Trials

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Methods: *Trial No. 1:* The trial was conducted in cooperation with John Gracia of Babe Farms in Santa Maria. The trial was planted on March 16. Treatments were applied on the same day and the field was sprinkler irrigated on March 17. Each plot was one 80-inch bed wide by 10 feet long and replicated 3 times in a randomized complete block design. Materials were applied with a CO₂ backpack sprayer using a one wand nozzle with an 8008E tip at 30 psi. Four passes with the wand were used to apply the material to each plot. The material was applied in the equivalent of 65 GPA of water. The soil type was Sorrento sandy loam. *Trial No. 2:* The trial was conducted in cooperation with Frank Heffren and Top Flavor Farms in San Juan Bautista. The trial was planted on August 4. Post plant preemergence treatments were applied on August 5 and the irrigation water was started the same day. Each plot was one 40 inch bed wide by 10 feet long and replicated 3 times in a randomized complete block design. Materials were applied with 2 passes of a one tip wand with an 8008E nozzle applying the equivalent of 72 gallons of water per acre. The soil type was Sorrento silt loam. See tables for dates and evaluations.

Results: *Trial No. 1:* The site had high weed pressure that was dominated by burning nettle and pineapple weed. There were 99.7 weeds per 6 ft² in the untreated on the March 30 evaluation date (Table 1); RoNeet had 50.3 and Dual Magnum at all rates had lower weed counts. On the April 13 evaluation date the number of weeds had increased to 142.3/6 ft² in the untreated check (Table 2); RoNeet had 71.3 and all rates of Dual Magnum were significantly lower. Phytotoxicity was highest at the 1.0 and 1.33 pints of Dual Magnum and there were no significant difference in plant population among the treatments. The number of weeds per plot began to decline due to competition by the May 4 evaluation date. There were 54.7 weeds per 6 ft² in the untreated control, 28.7 in RoNeet, 13.3 in the Dual Magnum 0.67 and 1.0 pint/A treatments (Table 3). Dual Magnum at 1.33 pints/A had 4.0 weeds 6 ft². Both Dual Magnum at 1.0 and 1.33 pint/A had unacceptable phytotoxicity, but Dual Magnum at 0.67 pint/A and RoNeet, both had acceptable phytotoxicity ratings. It took the equivalent of 194.4 hours/A to weed the untreated control; all of the herbicide treatments significantly reduced hand weeding. No yield evaluations of this trial were conducted.

Trial No. 2: The site had a moderate weed population dominated by malva and nettleleaf goosefoot. All treatments provided an equivalent level of weed control on the August 19 evaluation date (Table 4). On the September 1 evaluation date there were 24.3 weeds per 18 ft² in the untreated and 12.3 in the RoNeet treatment (table 5). Dual Magnum at 1.0 and 1.33 pints/A provided the most complete weed control. Dual Magnum at 1.33 pints/A had unacceptable phytotoxicity on this date and the other had moderate levels of phytotoxicity. Weeding time was lowest in all Dual Magnum treatments. There were no differences in yield among the treatments, but there is a clear trend indicating lower tonnage in the two higher rates of Dual Magnum.

Photos of trial No. 1 taken on May 3



Untreated



RoNeet 3.0 lbs a.i./A



Dual Magnum 0.63 lb a.i./A



Dual Magnum 0.95 lb a.i./A



Dual Magnum 1.27 lb a.i./A

Table 1. Trial No. 1. Weed counts (per 6 ft²) on March 30.

Treatment	lbs a.i./A	Material/A	Nettle	Shepherd's purse	Malva	Other weeds	Total weeds
RoNeet 6E	3.0	4.00 pints	25.7	4.0	0.0	19.7	50.3
Dual Magnum 7.63	0.63	0.67 pints	17.7	1.7	0.0	12.0	33.3
Dual Magnum 7.63	0.95	1.00 pints	9.3	1.0	0.7	7.3	22.0
Dual Magnum 7.63	1.27	1.33 pints	11.0	0.7	0.3	6.0	22.0
Untreated	---	---	48.7	9.3	1.0	21.7	99.7
Pr>Treat			0.011	0.002	0.591	0.002	<0.001
Pr>Block			0.828	0.283	0.489	0.041	0.813
LSD _{0.05}			19.9	3.4	NS	6.7	15.3

Table 2. Trial No. 1. Weed counts (per 6 ft²), phytotoxicity rating and stand count on April 13.

Treatment	lbs a.i./A	Material/A	Nettle	Shepherd's purse	Pine- apple weed	Malva	Groundsel	Other weeds	Total weeds	Phyto ¹	Beet Plants/A
RoNeet 6E	3.0	4.00 pints	45.0	1.7	16.0	0.7	1.3	6.0	71.3	1.0	98,588
Dual Magnum 7.63	0.63	0.67 pints	23.0	1.3	9.0	0.7	1.3	6.0	41.3	1.7	89,295
Dual Magnum 7.63	0.95	1.00 pints	12.3	0.7	5.3	1.0	0.7	3.0	23.0	3.3	70,710
Dual Magnum 7.63	1.27	1.33 pints	10.3	1.0	6.3	1.0	0.7	3.0	22.3	3.7	93,797
Untreated	---	---	67.0	12.7	21.0	1.3	1.7	5.7	142.3	0.0	90,747
Pr>Treat			0.027	0.001	0.079	0.778	0.795	0.475	<0.001	0.001	0.162
Pr>Block			0.427	0.348	0.042	0.081	0.328	0.028	0.850	0.256	0.151
LSD _{0.05}			35.5	4.6	NS	NS	NS	NS	30.0	1.4	NS

Phytotoxicity rating: Scale = 0 no crop damage to 10 crop dead.

Table 3. Trial No. 1. Weed counts (per 6 ft²), phytotoxicity rating and weeding time on May 4.

Treatment	lbs a.i./A	Material/A	Nettle	Shepherd's purse	Pine-apple weed	Malva	Groundsel	Other weeds	Total weeds	Phyto	Weed time hrs/A
RoNeet 6E	3.0	4.00 pints	12.7	0.7	12.3	0.3	0.7	1.7	28.7	0.3	52.2
Dual Magnum 7.63	0.63	0.67 pints	4.0	0.7	5.7	0.7	0.7	1.7	13.3	1.7	31.6
Dual Magnum 7.63	0.95	1.00 pints	4.3	1.0	4.3	0.0	0.7	3.0	13.3	4.7	19.8
Dual Magnum 7.63	1.27	1.33 pints	0.0	0.0	2.7	0.0	0.0	1.3	4.0	6.0	17.0
Untreated	---	---	25.3	5.0	8.7	1.3	0.7	2.7	54.7	0.0	194.4
Pr>Treat			0.001	0.002	0.104	0.296	0.822	0.760	<0.001	<0.001	0.006
Pr>Block			0.192	0.158	0.059	0.509	0.547	0.030	0.468	0.103	0.446
LSD _{0.05}			8.9	1.9	NS	NS	NS	NS	11.7	1.0	83.4

Table 4. Trial No. 2. Phytotoxicity rating on August 19 and weed count (per 18 ft²) on August 24.

Treatment	lbs a.i./A	Material/A	Phyto	Malva	Nettleleaf goosefoot	Other Weeds ¹	Total weeds
RoNeet 6E	3.0	4.00 pints	2.0	1.3	0.0	3.7	5.0
Dual Magnum 7.63	0.63	0.67 pints	2.0	2.0	0.0	2.3	4.3
Dual Magnum 7.63	0.95	1.00 pints	2.0	2.3	0.3	3.3	6.0
Dual Magnum 7.63	1.27	1.33 pints	2.7	2.3	0.0	2.3	4.7
Untreated	---	---	0.0	7.3	5.0	14.7	27.0
Pr>Treat			<0.001	0.011	0.005	0.002	<0.001
Pr>Block			0.410	0.263	0.605	0.941	0.929
LSD _{0.05}			0.5	3.0	2.4	5.2	5.3

1 – other weeds included shepherd's purse, nettle and sow thistle.

Table 5. Trial No. 2. Weed count (per 18 ft²), phytotoxicity and weed time on September 1 and yield evaluation on October 9.

Treatment	lbs a.i./A	Material/A	Malva	Shep. Purse	NLGF	Sow thistle	Nettle	Other weeds	Total weeds	Phyto	Weed time (hr/A)	Yield plants/A	Yield ton/A
RoNeet 6E	3.0	4.00 pints	1.7	5.0	3.0	1.0	0.7	1.0	12.3	3.3	8.23	153,549	28.5
Dual Magnum 7.63	0.63	0.67 pints	1.3	2.7	3.3	1.0	0.0	1.0	9.3	3.0	4.30	141,381	27.9
Dual Magnum 7.63	0.95	1.00 pints	0.7	3.0	0.3	0.0	0.0	0.3	4.3	3.3	4.33	120,162	22.0
Dual Magnum 7.63	1.27	1.33 pints	0.0	2.3	1.3	0.0	0.0	0.3	4.0	6.3	4.65	133,288	23.5
Untreated	---	---	4.3	5.0	7.3	1.7	1.3	4.7	24.3	0.0	15.38	139,845	29.3
Pr>Treat			<0.001	0.634	0.037	0.103	0.149	0.002	0.003	0.006	<0.001	0.108	0.087
Pr>Block			0.700	0.477	0.065	0.891	0.240	0.024	0.543	0.509	0.379	0.289	0.113
LSD _{0.05}			1.4	NS	4.2	NS	NS	1.7	8.4	2.6	2.5	NS	NS