2007 Weed Control on Drip Germinated Lettuce

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Methods: Trial was established with John Pattullo of Boutonnet Farms in Salinas on a site with Salinas Clay Loam Soil. The stand was germinated by drip irrigation. The drip tape buried drip at 2-3" depth. Germination water started at 5:00 p.m. on July 19 and the herbicide treatments were sprayed at 7:30 a.m. on July 20. Germination irrigation continued until 12:00 noon on that day (4 hours after the completion of the applications). All materials were applied with two passes of a single tip wand (8008E) with a CO_2 backpack sprayer at 30 psi applying 72 gallons of water per acre. Each plot was one 40 inch bed wide by 30 feet long. There was warm temperatures and clear weather following application. Soil samples for Kerb analysis were collected on August 1 from the 4.0 lb/A Kerb and the untreated treatments. Soil samples were sent to Husein Ajwa's lab for analysis. Soil samples were collected at 0.5 inch increments down to 2.0 inches. Four subsamples per plot were collected and composited into one sample per soil depth. Weed evaluations were conducted on August 3 and 31.

Results: On August 3 the weeds were small and there were fewer purslane plants in the Prefar treatments than in the Kerb treatments (Table 1); however, by August 31 there were no difference in the number of purslane plants per plot between the Kerb and Prefar treatments indicating mortality of purslane seedlings in the Kerb treatment. Prefar provided better control of burning nettle on the August 3 evaluation date, but by August 31 the high rates of both Prefar and Kerb provided better control of this weed than the lower rates. Prefar provided better weed control of total weeds than Kerb on the August 3 evaluation date but there were no significant differences among the herbicide treatments on the August 31 evaluation date with both herbicides providing greatly improved weed control than the untreated.

An evaluation of the movement of Kerb in the soil was conducted to better understand the movement of Kerb in a situation where it is activated by water coming from drip tape as opposed to sprinklers which is the common method currently used in the Salinas Valley. The evaluation showed that about 75% of the 2.0 lb a.i. application of Kerb remained in the top 2.0 inches of soil (Table 2); 62.5% of the material was in the top 0.5 inch of soil which is the zone of active weed seed germination. These results help us to better understand the movement of Kerb in soils under this irrigation scheme and will need to be built upon in the future to better understand the movement of Kerb and how best to optimize its use in lettuce production.

Table 1. Number of weeds per 45 ft^2 on two dates

Material	Material/A	a.i./A	Purslane		Sow Thistle		Shepherd's Purse		Nightshade		Burning Nettle		Total Weeds	
			8/3	8/31	8/3	8/31	8/3	8/31	8/3	8/31	8/3	8/31	8/3	8/31
Kerb 50W	2.0 lbs	1.0	12.0	2.5	3.0	2.5	2.3	1.0	0.3	0.0	6.3	1.3	23.7	7.3
Kerb 50W	4.0 lbs	2.0	11.0	2.3	2.3	2.5	1.0	0.8	1.5	0.8	6.5	0.3	22.2	6.5
Prefar 4E	3.0 quarts	3.0	1.5	5.8	2.5	0.5	1.8	0.5	0.8	1.0	2.5	0.8	9.0	8.5
Prefar 4E	6.0 quarts	6.0	0.3	3.8	2.5	0.3	1.5	0.3	0.8	0.3	1.0	0.0	6.0	4.5
Kerb 50W Prefar 4E	4.0 lbs 6.0 quarts	2.0 6.0	0.3	1.8	1.5	1.3	1.8	0.0	2.8	0.3	1.0	0.3	7.3	3.5
Untreated	---	---	25.5	43.5	3.3	0.3	1.0	0.3	0.8	0.3	7.3	1.5	37.8	45.8
LSD (0.05)			7.7	13.4	n.s.	n.s.	n.s.	n.s.	1.4	n.s.	3.7	0.9	8.6	13.2

Table 2. Analyses of Kerb in soil on August 1.

Soil Depth	2.0 lbs a.i./A Kerb Treatment ppm Kerb	Percent of 2.0 lbs a.i./A Kerb application at each soil depth[2]	Untreated[1] Treatment ppm Kerb
0.0 – 0.5 inch	7.53 a	62.5	0.0
0.5 – 1.0 inch	0.70 b	5.5	0.0
1.0 – 1.5 inch	0.48 b	4.0	0.8
1.5 – 2.0 inch	0.30 b	2.5	0.0
LSD (0.05)	2.71	---	---

1 – One replication sampled; 2 – a total of 74.5% of the 2.0 lb a.i./A application was recovered in the top 2.0 inches of soil.