

Weed control using CHA-023 on irrigated potato. Harlene Hatterman-Valenti and Collin Auwarter.

A study was conducted at the Northern Plains Potato Growers Association Irrigation Research site near Inkster, ND to determine the efficacy and selectivity of CHA-023 applied pre and early post to Russet Burbank potatoes. Seed pieces (2 oz) were planted on 36 inch rows and 12 inch spacing on May 28, 2009. Plots were 4 rows by 25 ft arranged in a randomized complete block design with 4 replicates. Extension recommendations were used for cultural practices throughout the year. The herbicide treatments were applied to the middle 2 of 4 rows using a CO₂ backpack sprayer equipped with 8002 flat fan nozzles with an output of 20 gpa and a pressure of 40 psi on June 16 ('A') and June 25 ('B'). Weed control evaluations were done on June 22 (6 DAA 'A'), July 1 (15 DAA 'A', 6 DAA 'B'), July 16 (30 DAA 'A', 21 DAA 'B'), and August 13 (58 DAA 'A', 49 DAA 'B'). Potatoes were harvested on September 26. Plants in this trial emerged rather quickly as this land was first tilled the day before planting and deep ripping was not available, hence the seed pieces were not planted as deeply as planned (4 inches versus 6 inches below the soil surface) and were in slightly warmer soil. At hilling, plants were beginning to emerge (5%) and the disk cultivator was unable to get enough soil to throw on top of the hill to properly cover emerged potato plants and weeds. When application 'A' was applied, common lambsquarters were at 2-3 leaves and about half inch tall.

<u>Application Date:</u>	<u>6/16/09</u>	<u>6/25/09</u>
Air Temperature (F):	67	76
Rel. Humidity (%):	76	36
Wind (mph):	8	5
Soil Moisture:	Below Normal	Adequate
Cloud Cover (%):	100	0

Weed control evaluations.

No.	Name	Rate	Unit	Code	Colq	Colq	Rrpw	Grft	Colq	Rrpw	Grft	Colq	RRpw	Grft	Yield cwt/a
					6/22/09 % Control	-----7/1/09----- -----% Control-----	-----7/16/09----- -----% Control-----	-----8/13/09----- -----% Control-----							
1	Untreated				0	0	0	0	0	0	0	0	0	0	239
2	CHA-023	0.75	oz/a	A	50	61	63	71	64	73	78	73	80	88	340
3	CHA-023	1.5	oz/a	A	68	65	65	73	65	73	88	69	69	100	310
4	CHA-023	3	oz/a	A	63	61	61	63	81	83	78	65	76	88	295
5	Matrix	1.5	oz/a	A	75	68	68	76	68	69	68	65	75	75	358
6	CHA-023	0.75	oz/a	B	0	90	90	91	91	94	100	100	100	100	356
	Preference	0.25	%v/v	B											
7	CHA-023	1.5	oz/a	B	0	90	90	91	95	99	74	100	100	100	341
	Preference	0.25	%v/v	B											
8	CHA-023	3	oz/a	B	0	91	91	90	98	99	100	100	100	100	369
	Preference	0.25	%v/v	B											
9	Matrix	1.5	oz/a	B	0	90	90	93	94	94	100	100	100	100	354
	Preference	0.25	%v/v	B											

Rrpw = redroot pigweed, Colq = common lambsquarters, Grft = green foxtail

Common lambsquarters was the only weed rated on June 22, and Matrix @ 1.5 oz/a (treatment 5) showed the best results with 75% control. If there would have been a surfactant tank mixed with application timing “A” treatments, the results may have improved. The pre-emergence treatments (2-5) struggled throughout the year, but did show better results as the season went on. CHA-023 @ 0.75 oz/a pre-emergence (treatment 2) had the best results of the pre treatments by the end of the year with 73% control of common lambsquarters and 80% of redroot pigweed. The post-emergence treatments, with the surfactant (Preference @ 0.25% v/v), provided the best season-long weed control. All had 100% control of common lambsquarters, redroot pigweed, and yellow foxtail. The highest yielding treatment was CHA-023 @ 3 oz/a + Preference @ 0.25% v/v (treatment 8) with 369 cwt/a, followed by Matrix @ 1.5 oz/a (treatment 5) with 358 cwt/a. The untreated control yielded 239 cwt/a.