

Solida for weed control in irrigated potato. Harlene Hatterman-Valenti and Collin Auwarter.

This study was conducted at the Northern Plains Potato Grower's Irrigation Research site near Inkster, ND to determine the efficacy and selectivity of SOLIDA compared to Matrix FNV on Russet Burbank Potato. Wheat was the previous crop in 2009. Plots were 4 rows by 20 ft arranged in a randomized complete block design with four replicates. Seed pieces (2 oz) were planted on 36 inch rows and 12 inch spacing on May 20, 2010. Treatments were applied on June 4 (2 days after hilling) for the PRE applications and June 23 for the POST applications to the middle 2 rows. Crop injury and weed control were evaluated 14 and 45 days after application "A" (DAA A). Water was not limiting as irrigation was scheduled every 3 to 4 days once potatoes had emerged following hilling. Potatoes were machine harvested September 29 and graded a few weeks later. Application, environmental, crop, and weed data are listed below:

Date:		6/4/10	6/23/10
Treatment:		PRE	POST
Sprayer:	GPA:	20	20
	PSI:	40	40
	Nozzle:	8002	8002
Air temperature (F):		67	65
Relative humidity (%):		77	83
Wind (MPH):		7	7
Soil moisture:		Adequate	Adequate
Cloud cover (%):		0	100

There was no observed crop injury during this trial. The primary weeds that were examined were common lambsquarters, redroot pigweed, and green foxtail. Common lambsquarters was the most abundant of the three, followed by green foxtail, and then redroot pigweed. At 14 DAA A, all PRE treatments provided between 88-91% common lambsquarters control. At 45 DAA A or 26 DAA B, all POST treatments provided significantly greater common lambsquarters control compared to the PRE treatments (>93% and <86%, respectively).

Tuber yields indicated no significance differences among treatments even though yields differed as much as 171 cwt/A. The highest yielding treatment was SOLIDA @ 0.047 lb ai/a + Preference @ 0.25% v/v POST at 600 cwt/a. The treatment with the lowest yield was the untreated at 429 cwt/a.

Table 1. Weed Control 14 and 45 DAA A.

Name	Rate	Unit	App Code	-----6/18/10-----			-----7/19/10-----		
				Colq	RRpw	Grft	Colq	RRpw	Grft
-----% Control-----									
Untreated				0 b	0 b	0 b	0 c	0 b	0 b
Solida	0.0117	lb a/a	A	89 a	100 a	96 a	85 b	98 a	98 a
Solida	0.0234	lb a/a	A	88 a	100 a	91 a	86 b	99 a	98 a
Solida	0.047	lb a/a	A	91 a	100 a	99 a	86 b	98 a	100 a
Matrix	0.0234	lb a/a	A	89 a	100 a	99 a	85 b	100 a	100 a
Solida Preference	0.0117 0.25	lb a/a % v/v	B B				94 a	100 a	99 a
Solida Preference	0.0234 0.25	lb a/a % v/v	B B				93 a	100 a	100 a
Solida Preference	0.047 0.25	lb a/a % v/v	B B				94 a	100 a	99 a
Matrix Preference	0.0234 0.25	lb a/a % v/v	B B				94 a	100 a	100 a
LSD (P ≤.05)				4	0	6	3	2	4

Table 2. Effect of herbicides on yield and grade.

Name	Rate	Unit	App Code	Total	----- Cwt/a -----				
					<4 oz	4-6 oz	6-12 oz	>12 oz	>4 oz
Untreated				429 a	134 a	124 a	146 a	25 a	295 a
Solida	0.0117	lb a/a	A	589 a	203 a	182 a	188 a	16 a	386 a
Solida	0.0234	lb a/a	A	449 a	161 a	158 a	118 a	12 a	288 a
Solida	0.047	lb a/a	A	555 a	196 a	176 a	164 a	19 a	359 a
Matrix	0.0234	lb a/a	A	588 a	173 a	180 a	203 a	33 a	415 a
Solida Preference	0.0117 0.25	lb a/a % v/v	B B	498 a	163 a	151 a	153 a	31 a	335 a
Solida Preference	0.0234 0.25	lb a/a % v/v	B B	518 a	168 a	160 a	163 a	27 a	350 a
Solida Preference	0.047 0.25	lb a/a % v/v	B B	600 a	188 a	168 a	201 a	43 a	412 a
Matrix Preference	0.0234 0.25	lb a/a % v/v	B B	598 a	179 a	174 a	204 a	41 a	419 a
LSD (P ≤.05)				208	62	75	80	33	155