

Oakes Irrigation Research Site

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Weed Control and Crop Response on Russet Burbank Potato

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Field research was conducted in 2014 at the Oakes Irrigation Research Site south of Oakes, ND, to evaluate different rates of F9312-3 alone and tank mixed with Sencor and Matrix. We also looked at F9314-3 at two rates and F9350-1 compared to standard grower recommended herbicide applications. Russet Burbank potato seed pieces (2 oz) were planted on May 16 with 36" rows and 12" spacing using a Harriston Double Row planter. On June 2, we hilled and sprayed treatments with a CO₂ backpack sprayer at 40 psi using 8002 flat-fan nozzles and 20 gpa. Potatoes were harvested on September 19 and graded December 10.

Table 1. Tuber count.

Trt			Rate		Tuber Counts in 20'				
Name	Rate	Unit	< 4 oz	4-6 oz	6-12 oz	> 12 oz	Total	> 4 oz	
F9312-3	0.122	lb ai/a	82.0 a ¹	47.5 a	51.8 a	8.8 a	190.0 a	108.0 a	
F9312-3	0.144	lb ai/a	69.5 a	49.0 a	55.5 a	9.3 a	183.3 a	113.8 a	
F9312-3	0.191	lb ai/a	72.0 a	44.5 a	60.5 a	12.0 a	189.0 a	117.0 a	
F9312-3	0.29	lb ai/a	83.0 a	52.8 a	48.8 a	7.5 a	192.0 a	109.0 a	
F9312-3 + Sencor 75DF	0.122	lb ai/a	72.3 a	43.8 a	63.8 a	11.5 a	191.3 a	119.0 a	
	0.375	lb ai/a							
F9312-3 + Sencor 75DF	0.144	lb ai/a	77.5 a	44.5 a	55.5 a	10.3 a	187.8 a	110.3 a	
	0.375	lb ai/a							
F9312-3 + Matrix	0.122	lb ai/a	98.8 a	56.3 a	58.3 a	6.0 a	219.3 a	120.5 a	
	0.016	lb ai/a							
F9314-3	0.2	lb ai/a	75.5 a	41.0 a	58.8 a	11.5 a	186.8 a	111.3 a	
F9314-3	0.258	lb ai/a	89.0 a	42.3 a	54.5 a	10.5 a	196.3 a	107.3 a	
F9350-1	2.7	oz/a	86.0 a	42.8 a	55.5 a	10.0 a	194.3 a	108.3 a	
Sencor 75DF	0.375	lb ai/a	83.3 a	49.8 a	64.8 a	7.5 a	205.3 a	122.0 a	
Boundary	2.68	lb ai/a	101.3 a	55.8 a	51.3 a	6.5 a	214.8 a	113.5 a	
Matrix	0.016	lb ai/a	82.5 a	50.0 a	63.0 a	5.5 a	201.0 a	118.5 a	
Fierce	0.166	lb ai/a	79.3 a	37.8 a	44.5 a	12.5 a	174.0 a	94.8 a	
LSD (<i>P</i> = 0.05)			32.4	14.3	13.2	5.6	32.7	17.0	

¹Values in the same column followed by the same letter are not significantly different at the 0.05 level.

Table 2. Tuber weight.

Trt Name	Rate	Rate Unit	Row A CWT/ac	Row B CWT/ac					
				< 4 oz	4-6 oz	6-12 oz	> 12 oz	Total	> 4 oz
F9312-3	0.122	lb ai/a	534.0 a ¹	84.9 a	107.8 a	189.5 a	59.3 a	441.4 a	356.6 a
F9312-3	0.144	lb ai/a	560.5 a	71.9 a	112.4 a	204.6 a	61.2 a	450.1 a	378.1 a
F9312-3	0.191	lb ai/a	519.5 a	67.0 a	101.2 a	229.3 a	83.2 a	480.8 a	413.7 a
F9312-3	0.29	lb ai/a	547.9 a	90.1 a	118.3 a	183.6 a	51.7 a	443.8 a	353.7 a
F9312-3 + Sencor 75DF	0.122	lb ai/a	561.8 a	72.5 a	101.4 a	241.9 a	82.2 a	498.0 a	425.5 a
	0.375	lb ai/a							
F9312-3 + Sencor 75DF	0.144	lb ai/a	538.8 a	74.4 a	101.4 a	205.8 a	65.9 a	447.4 a	373.0 a
	0.375	lb ai/a							
F9312-3 + Matrix	0.122	lb ai/a	574.8 a	101.0 a	127.2 a	214.8 a	38.5 a	481.6 a	380.5 a
	0.016	lb ai/a							
F9314-3	0.2	lb ai/a	596.4 a	76.5 a	91.6 a	222.4 a	72.0 a	462.5 a	386.0 a
F9314-3	0.258	lb ai/a	589.9 a	89.2 a	96.6 a	202.0 a	73.4 a	461.2 a	372.0 a
F9350-1	2.7	oz/a	530.6 a	88.7 a	97.9 a	211.1 a	66.8 a	464.5 a	375.8 a
Sencor 75DF	0.375	lb ai/a	554.3 a	83.4 a	112.1 a	238.5 a	54.2 a	488.2 a	404.8 a
Boundary	2.68	lb ai/a	551.8 a	106.2 a	123.4 a	190.2 a	43.4 a	463.2 a	357.0 a
Matrix	0.016	lb ai/a	560.9 a	82.9 a	115.1 a	232.2 a	37.8 a	467.9 a	385.0 a
Fierce	0.166	lb ai/a	482.8 a	84.4 a	84.4 a	163.8 a	80.2 a	412.8 a	328.4 a
LSD (<i>P</i> = 0.05)			82.5	32.6	32.6	51.9	38.1	55.6	67.4

¹Values in the same column followed by the same letter are not significantly different at the 0.05 level.

All treatments had sufficient weed control. Increasing the rate of F9312-3 or tank mixed with metribuzin or rimsulfuron did not show any benefits for controlling redroot pigweed, common lambsquarter, nightshade (hairy and eastern black) and foxtail (green and yellow) 17 and 36 DAA. Weed average counts in border rows that were not sprayed in one square foot were eight redroot pigweed, 10 common lambsquarter, two foxtail, and one nightshade. No potato injury was observed.

Potato yields were not affected by any of the treatments. Yields varied from 413 to 575 cwt/acre with the lowest in both the A and B rows when Fierce was applied at 0.17 lb/acre with 483 and 413 cwt/acre, respectively. F9312-3 tank mixed with Matrix had the highest yield in row A with 575 cwt/acre. Stand counts 9 DAE showed row A had a slightly higher stand than row B. Row B's highest yielding treatment was F-9312-3 (0.122 lb ai/acre) tank mixed with Sencor with a yield of 498 cwt/acre.

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