

## **Potential Tank-Mix Partners with Roundup Weather Max for Weed Control in Roundup-Ready Sugarbeets at Mitchell, Nebraska during the 2009 Growing Season.**

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A field study was initiated near Mitchell, Nebraska to examine the effect of various herbicides tank mixed with Roundup Weather Max for weed control in Roundup-Ready sugarbeets. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 40 feet long and were located on a silt loam soil with a pH of 7.8 and organic matter content of 1.1%. Sugarbeet 'BTS66RR70' were planted on May 5. The plot area was irrigated on May 5 and May 7 to enhance sugarbeet seed germination and emergence. Postemergence herbicide application began on May 27 when a majority of the sugarbeets reached the two true-leaf growth stage. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 20 gallons of water per acre at 32-psi pressure with Spraying Systems 11002 VS nozzles. Environmental conditions and weed and crop growth stages at the time of herbicide application are given in Table 1. Sugarbeet suffered hail damage on June 10 with approximately 75% of the leaf canopy destroyed. It took sugarbeets approximately 3 weeks to recover and by June 23 the crop had developed new leaves and herbicide application resumed.

Modest early season sugarbeet injury was observed in plots treated with Roundup Weather Max in combination with Nortron at the two true-leaf growth stage, Dual Magnum at the four true-leaf growth stage, RoNeet at the two true-leaf growth stage and areas treated with Sequence at the four true-leaf growth stage. Weed density in the plot area was moderate and consisted of common lambsquarters, hairy nightshade, redroot pigweed, and barnyardgrass at densities at 194, 101, 35, and 4 plants per 137 sq ft, respectively. Weed competition reduced sugarbeet root yield 65% compared to areas treated three times with Roundup Weather Max. Three applications of Roundup Weather Max at 0.75 lb/acre applied at the 2, 4, and 8 true-leaf growth stage provided excellent weed control and root yield averaged 29.3 tons/acre. All herbicide treatments provided excellent weed control.

Table 1. Environmental Conditions at the Time of Herbicide Application.

Date	Air temperature	Humidity	Wind speed & direction	Time of date	Sugarbeet growth stage	Weed heights			
						Colq	Hans	Rrpw	Bygr
	(F)	(%)	(mph)			----- (inches) -----			
May 27	67	35	Calm	8:30 AM	2 true leaves	1.75	0.5	0.75	--
June 4	71	46	2 NW	2:00 PM	4 true leaves	5	2.5	1	0.5
July 2	66	75	7 NW	10:00 AM	8 true leaves	7	5	4	3

Table 2. Potential Tank-mix Partners with Roundup Weather Max for Weed Control in Roundup-Ready Sugarbeets at Mitchell, Nebraska during the 2009 Growing Season.

Herbicide Treatment <sup>1</sup>	Rate	Time of Application <sup>2</sup>	Sugarbeet				
			Visual injury <sup>3</sup>	Stand	Root yield	Sucrose	SLM
	(lb/acre)		(%)	(plants/acre)	(tons/acre)	(%)	
Nontreated	--	--	0	32670	10.0	15.5	1.32
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	1	39090	29.3	16.4	1.27
Roundup Weather Max + Upbeet	0.75 + 0.016	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	0	36590	28.1	16.4	1.28
Roundup Weather Max + Upbeet + COC	0.75 + 0.016	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	5	38500	27.6	16.9	1.14
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max + Stinger	0.75 + 0.18	4 TL					
Roundup Weather Max	0.75	8 TL	0	40870	27.9	17.0	1.22
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max + Stinger	0.75 + 0.18	8 TL	1	39200	28.6	16.5	1.36
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max + Select Max	0.75 + 0.068	4 TL					
Roundup Weather Max	0.75	8 TL	5	36000	24.0	17.3	1.26
Roundup Weather Max + Nortron	0.75 + 0.09	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	8	37400	27.4	16.6	1.27
Roundup Weather Max + Progress	0.75 + 0.11	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	5	44200	27.7	16.6	1.13

Table 2. Potential Tank-mix Partners with Roundup Weather Max for Weed Control in Roundup-Ready Sugarbeets at Mitchell, Nebraska during the 2009 Growing Season – Continued.

Herbicide Treatment <sup>1</sup>	Rate (product/acre)	Time of Application <sup>2</sup>	Sugarbeet				
			Visual injury <sup>3</sup> (%)	Stand (plants/acre)	Root yield (tons/acre)	Sucrose (%)	SLM
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max + Dual Magnum	0.75 + 1.25	4 TL					
Roundup Weather Max	0.75	8 TL	10	41100	27.3	16.7	1.21
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max + Dual Magnum	0.75 + 1.25	8 TL	4	41300	25.3	17.5	1.17
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max + Outlook	0.75 + 0.84	4 TL					
Roundup Weather Max	0.75	8 TL	3	42100	24.6	17.5	1.17
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max + Outlook	0.75 + 0.84	8 TL	3	41600	27.1	17.3	1.18
Roundup Weather Max + RoNeet	0.75 + 1.5	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	12	43500	27.1	17.1	1.15
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max + RoNeet	0.75 + 1.5	8 TL	1	40150	26.3	16.8	1.17
Roundup Weather Max + Upbeet	0.75 + 0.016	2 TL					
Roundup Weather Max + Dual Magnum	0.75 + 1.25	4 TL					
Roundup Weather Max + Select Max	0.75 + 0.068	8 TL	8	39400	27.9	16.3	1.22
Touchdown Total	0.78	2 TL					
Touchdown Total	0.78	4 TL					
Touchdown Total	0.78	8 TL	0	36100	25.8	16.4	1.25

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Herbicide Treatment <sup>1</sup>	Rate (product/acre)	Time of Application <sup>2</sup>	Sugarbeet				
			Visual injury <sup>3</sup> (%)	Stand (plants/acre)	Root yield (tons/acre)	Sucrose (%)	SLM
Touchdown Total	0.78	2 TL					
Sequence	1.96	4 TL					
Touchdown Total	0.78	8 TL	7	38600	25.2	16.6	1.19
Touchdown Total	0.78	2 TL					
Touchdown Total	0.78	4 TL					
Sequence	1.96	8 TL	5	38400	27.7	17.1	1.22
LSD at 0.05	--	--	7	NS	3.1	1.1	NS

<sup>1</sup>All Roundup Weather Max and Touchdown Total herbicide treatments were combined with ammonium sulfate (AMS) at 17 lb/100 gallons of spray solution.

<sup>2</sup>Timing of herbicide application: 2 true-leaves (2 TL), 4 true-leaves (4 TL), 6 true-leaves (6 TL), and 8 true-leaves (8 TL).

<sup>3</sup>Visual sugarbeet injury evaluated on a scale from 0 to 100 with 0 equal to no injury and 100 equal to death of the plant.

Table 2. Potential Tank-mix Partners with Roundup Weather Max for Weed Control in Roundup-Ready Sugarbeets at Mitchell, Nebraska during the 2009 Growing Season – Continued.

Herbicide Treatment <sup>1</sup>	Rate	Time of Application <sup>2</sup>	Percent weed control 7/17 <sup>4</sup>				
			Common lambsquarters	Hairy nightshade	Redroot pigweed	Barnyardgrass	Average
	(lb/acre)		----- (%) -----				
Nontreated	--	--	0	0	0	0	0
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	99	99	99
Roundup Weather Max + Upbeet	0.75 + 0.016	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	99	99	99
Roundup Weather Max + Upbeet + COC	0.75 + 0.016	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	99	99	99
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max + Stinger	0.75 + 0.18	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	99	99	99
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max + Stinger	0.75 + 0.18	8 TL	99	99	99	99	99
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max + Select Max	0.75 + 0.068	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	97	99	98
Roundup Weather Max + Nortron	0.75 + 0.09	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	97	99	98
Roundup Weather Max + Progress	0.75 + 0.11	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	99	93	97

Table 2. Potential Tank-mix Partners with Roundup Weather Max for Weed Control in Roundup-Ready Sugarbeets at Mitchell, Nebraska during the 2009 Growing Season – Continued.

Herbicide Treatment <sup>1</sup>	Rate	Time of Application <sup>2</sup>	Percent weed control 7/17 <sup>4</sup>				Average
			Common lambsquarters	Hairy nightshade	Redroot pigweed	Barnyardgrass	
	(product/acre)		----- (%) -----				
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max + Dual Magnum	0.75 + 1.25	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	99	99	99
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max + Dual Magnum	0.75 + 1.25	8 TL	99	99	99	99	99
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max + Outlook	0.75 + 0.84	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	99	99	99
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max + Outlook	0.75 + 0.84	8 TL	99	99	99	99	99
Roundup Weather Max + RoNeet	0.75 + 1.5	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max	0.75	8 TL	99	99	99	99	99
Roundup Weather Max	0.75	2 TL					
Roundup Weather Max	0.75	4 TL					
Roundup Weather Max + RoNeet	0.75 + 1.5	8 TL	99	99	99	99	99
Roundup Weather Max + Upbeet	0.75 + 0.016	2 TL					
Roundup Weather Max + Dual Magnum	0.75 + 1.25	4 TL					
Roundup Weather Max + Select Max	0.75 + 0.068	8 TL	99	99	99	93	98
Touchdown Total	0.78	2 TL					
Touchdown Total	0.78	4 TL					
Touchdown Total	0.78	8 TL	96	99	99	74	92
Touchdown Total	0.78	2 TL					
Sequence	1.96	4 TL					
Touchdown Total	0.78	8 TL	99	99	99	99	99

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Herbicide Treatment <sup>1</sup>	Rate (product/acre)	Time of Application <sup>2</sup>	Percent weed control 7/17 <sup>4</sup>				Average
			Common lambsquarters	Hairy nightshade	Redroot pigweed	Barnyardgrass	
			----- (%) -----				
Touchdown Total	0.78	2 TL					
Touchdown Total	0.78	4 TL					
Sequence	1.96	8 TL	99	99	99	99	99
LSD at 0.05	--	--	2	NS	2	16	4

<sup>1</sup>All Roundup Weather Max and Touchdown Total herbicide treatments were combined with ammonium sulfate (AMS) at 17 lb/100 gallons of spray solution.

<sup>2</sup>Timing of herbicide application: 2 true-leaves (2 TL), 4 true-leaves (4 TL), 6 true-leaves (6 TL), and 8 true-leaves (8 TL).

<sup>3</sup>Visual sugarbeet injury evaluated on a scale from 0 to 100 with 0 equal to no injury and 100 equal to death of the plant.

<sup>4</sup>Percent weed control calculated from weed counts taken on July 17.