

Roundup Timing and Tank Mixtures with Roundup WeatherMax Over-the-Top of Roundup Ready® Sugarbeets.

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A field study was initiated near Mitchell, Nebraska to compare the effectiveness of various herbicides tank mixed with Roundup WeatherMax for weed control in Roundup Ready sugarbeets. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 45 feet long and were located on a sandy loam soil with a pH of 8 and organic matter content of 1%. Sugarbeet, 'BTS66RR50', were planted on April 22. The plot area was irrigated on April 25 for seed germination and early season plant growth. Postemergence herbicide application began on May 29 when sugarbeets were in the 2 true-leaf growth stage. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 20 gallons of water per acre at 36-psi pressure with Spraying Systems 11002 VS nozzles. Environmental conditions, rainfall following herbicide application, and growth stages at the time of herbicide application are given in Table 1.

Modest early season sugarbeet injury was observed in plots treated with Roundup WeatherMax in combination with Stinger (applied at the 4 true-leaf growth stage), Progress (applied at the 2 true-leaf growth stage), Dual Magnum (applied at the 4 true-leaf growth stage), or Outlook (applied at the 4 true-leaf growth stage) (Table 2). Sugarbeet injury was reduced when Stinger, Dual Magnum, or Outlook were applied at the 8 true-leaf growth stage compared to the 4 true-leaf stage.

Weed density in the plot area was moderate and consisted of common lambsquarters, hairy nightshade, toothed spurge, kochia, and wild proso millet at densities of 198, 69, 32, 11, and 3 plants/247 sq ft, respectively. Weed competition reduced sugarbeet root yield 50% compared to areas treated three times with Roundup WeatherMax. Three applications of Roundup WeatherMax at 0.75 lb/acre applied at the 2, 4, and 8 true-leaf growth stage provided 91% common lambsquarters and 77% toothed spurge control. Common lambsquarters and toothed spurge control increased when Stinger was combined with Roundup WeatherMax applied at the 8 true-leaf growth stage.

Table 1. Environmental conditions at the time of herbicide application.

Date	Air temperature (F)	Humidity (%)	Wind speed & direction (mph)	Time of day	Sugarbeet growth stage	Weed heights ----- (inches) -----				
						Colq	Hans	Tosp	Kocz	Wipr
May 29	80	27	11 NW	3:00 pm	2 TL	2	1	1	1	1
June 9	71	22	7 NW	1:00 pm	4 TL	5	3	2	3	2
July 23	81	36	1 NE	11:00 am	8 TL	14	6	4	10	5

Rainfall before and after herbicide application:

Date	Amount (inches)	Date	Amount (inches)	Date	Amount (inches)
May 26	0.15	June 5	0.13	June 20	0.47
June 1	0.06	June 15	0.08	June 26	0.02
June 4	0.52	June 16	0.17		

Herbicide treatment ¹	Sugarbeet													
	Rate (lb/acre)	Time of application ²	Visual injury ³		Stand 7/17 (plants/acre)	Root yield less tare		SLM (%)	Percent weed control 7/17 ⁴					
			6/18 ----- (%) -----	7/9 ----- (%) -----		10/16 (tons/acre)	Sucrose (%)		Colq	Hans	Kocz	Tosp	Wipr	Avg
Roundup WeatherMax + AMS	0.75	2 TL	7	0	20394	26.5	16.3	1.5	99	99	99	81	99	96
Roundup WeatherMax + Dual Magnum + AMS	0.75 + 1.25	4 TL												
Roundup WeatherMax + AMS	0.75	8 TL												
Roundup WeatherMax + AMS	0.75	2 TL	0	0	20328	26.8	17.3	1.3	98	99	93	84	99	95
Roundup WeatherMax + AMS	0.75	4 TL												
Roundup WeatherMax + Dual Magnum + AMS	0.75 + 1.25	8 TL												
Roundup WeatherMax + AMS	0.75	2 TL	7	0	18942	27.2	16.4	1.4	99	99	99	69	99	93
Roundup WeatherMax + Outlook + AMS	0.75 + 0.84	4 TL												
Roundup WeatherMax + AMS	0.75	8 TL												
Roundup WeatherMax + AMS	0.75	2 TL	0	0	20262	28	15.3	1.4	99	99	99	92	99	98
Roundup WeatherMax + AMS	0.75	4 TL												
Roundup WeatherMax + Outlook + AMS	0.75 + 0.84	8 TL												
LSD at 5%	—	—	3	1	NS	6	2	0	4	4	4	20	5	4

¹ Spray additives were combined with the spray solution at the following rate: ammonium sulfate (AMS) at 17lbs/100 gal and methylated seed oil (MSO) at 1.5%.

² Time of application: 2 true-leaves (2 TL), 4 true-leaves (4 TL), and 8 true-leaves (8 TL).

³ Visual crop injury evaluated on a scale from 0 to 100 with 0 equal to no injury and 100 equal to death of the plant.

⁴ Percent weed control calculated from weed counts taken on July 17. Weed abbreviations: common lambsquarters (Colq), hairy nightshade (Hans), kochia (Kocz), toothed spurge (Tosp), and Wild proso millet (Wipr).