Herbicide Management with Preemergence Herbicides in Roundup Ready Soybeans at Rosemount, MN - 2012. Gunsolus, Jeffrey L. and Douglas W. Miller. The objective of this experiment was to evaluate crop safety and weed control with Zidua and several other herbicides applied preemergence in a Roundup Ready weed control system. The experiment was conducted at Rosemount, MN on a Waukegon silt loam soil with pH 6.7 and 4.4% organic matter. Soil test P and K were 34 and 182 lbs/A respectively. Following corn, the experimental area was fall plowed. In the spring, 50 lbs/A P and 60 lbs/A K were applied on May 10 and area was field cultivated. The area was field cultivated a second time on May 15. Northrup King S19-A6 Roundup Ready soybeans were planted on May 16 at a rate of 150,000 seeds/A with 30 inch row spacing. The experimental design was a randomized complete block with four replications and plot size was 15 by 30 ft. Preemergence herbicide treatments were applied on May 16 to a center 10 ft strip with a CO_2 powered backpack sprayer utilizing a six nozzle boom with 20 inch nozzle spacing, 11002VS XR Teejet flat-fan nozzles, 30 psi pressure, and a spray volume of 20 gpa. Postemergence Roundup treatments were applied with a tractor mounted, air pressured sprayer to a center 10 ft strip an eight nozzle boom with 15 inch nozzle spacing, 11002VS XR Teejet flat-fan nozzles, 35 psi pressure, and a spray volume of 20 gpa. Application dates, environmental conditions, and weed data are presented below.

Treatment Date	**May 16**	**June 29**
Application	Preemergence	Postemergence Roundup
Air Temperature (°F)	65	74
Relative humidity (%)	28	55
Dewpoint (°F)	31	59
Soil Moisture	moist at 1”	dry to 1.5”
Soil Temperature (°F)	67	76
Sky	clear	50% clouds
Wind (mph)	variable 0-4	SW 0-2
Rainfall before Application		
Week 1 (inch)	0.06	0.01
Rainfall after Application		
Week 1 (inch)	0.14	0.04
Week 2 (inch)	1.92	0.20
Weed Heights (inches)		
Common Lambsquarters - Colq	--	1-6
Common Ragweed - Corw	--	1-6
Pigweed species	--	4-8
Nightshade	--	1-3
Wild Mustard - Wimu	--	10-16
Weed Density on 6-25 (plants/ft^2)		
Common Lambsquarters - Colq		2.3
Common Ragweed - Corw		1.3
Pigweed species		0.5
Nightshade - Ebns		1.4
Wild Mustard - Wimu		0.4

Rainfall amounts of 0.14, 0.59, and 0.57 inches fell on May 20, 24, and 25 respectively. Preemergence control of common lambsquarters was good to excellent with the exception of the Valor SX and Prefix treatments (fair control). Common ragweed control was good to excellent for all treatments except for Valor SX (fair to poor control) and Authority MTZ (poor control). Control of pigweed, nightshade, and wild mustard was excellent.

The postemergence Roundup application generally controlled remaining weeds. Plots with some larger size common ragweed at the postemergence application did not result in total kill of the ragweed as represented by counts of plants that still had green tissue at the growing points on July 16. These plants did not provide much competition to soybeans however and were nearly all dead by the September 24 rating date.

With the exception of the weedy check, soybean yields did not differ significantly between treatments.

Soybean Weed Control with Preemergence Herbicide Applications at Rosemount, MN - 2012. (Gunsolus and Miller)

Table. Weed control ratings

Herbicide Treatment[1]	Rate	Weed Control (June 25)					Corw		Soybean
		Colq	Corw	pigweed	Ebns	Wimu	Counts July 16	Control September 24	Yield
	(product/A)	(%)					(#/225 ft^2)	(%)	(Bu/A)
(Preemergence May 27) and (Postemergence July 13)									
(Zidua[2] + Sharpen[3]) + (Roundup[4] + AMS[5])	(2.5 oz + 1 oz) + (22 oz+ 4 pt)	94	91	100	100	100	6	99	44
(Optill PRO dry + Optill PRO liquid)[6] + (Roundup + AMS)	(2 oz + 10 oz) + (22 oz+ 4 pt)	100	97	100	100	100	1	100	46
(Verdict[7] + Outlook[8]) + (Roundup + AMS)	(5 oz + 16 oz) + (22 oz+ 4 pt)	90	91	98	100	100	4	100	47
(Valor SX[9]) + (Roundup + AMS)	(2 oz) + (22 oz+ 4 pt)	74	64	98	100	97	15	98	46
(Zidua + Valor SX) + (Roundup + AMS)	(1.5 oz + 2 oz) + (22 oz+ 4 pt)	91	86	98	100	98	6	99	46
(Prefix[10]) + (Roundup + AMS)	(2 pt) + (22 oz+ 4 pt)	71	88	100	98	100	5	99	47
(Authority MTZ[11]) + (Roundup + AMS)	(16 oz) + (22 oz+ 4 pt)	100	20	100	100	95	52	96	45
Untreated Check		-	-	-	-	-	-	-	9
LSD (P=.05)		13	13	ns	ns	ns	24	2	4

[1] Treatments and rates in parenthesis represent a single application.

[2] Zidua 85WG = pyroxasulfone.

[3] Sharpen 2.85 SC = saflufenacil.

[4] Roundup PowerMax 4.5L = glyphosate.

[5] AMS = N-Pak ammonium sulfate solution (3.4 lbs/gal).

[6] Optill PRO Co-Pack. Optill PRO dry 68WG = 17.8 % saflufenacil & 50.2 % imazethapyr and Optill PRO liquid 6EC = 6.0 lbs ai/gal dimethenamid-P.

[7] Verdict 5.57EC = 0.57 lbs ai/gal saflufenacil & 5.0 lbs ai/gal dimethenamid-P.

[8] Outlook 6EC = 6.0 lbs ai/gal dimethenamid-P.

[9] Valor SX 51WDG = flumioxazin.

[10] Prefix 5.29EC = 4.34 lbs ai/gal s-metolachlor & 0.95 lbs ai/gal fomesafen.

[11] Authority MTZ 45WG = 18% sulfentrazone & 27% metribuzin .