

Weed control in sweet corn at Waseca, MN - 2014. Roger Becker, Vince Fritz, Charlie Rohwer, Tom Hoverstad, Douglas Miller, and Brad Kinkaid. The objective of this experiment was to evaluate weed control and crop response with preemergence and postemergence herbicides in sweet corn. The experiment was conducted at Waseca, MN on a Nicollet-Webster clay loam soil with pH 6.4 and 6.2% organic matter. Soil test Bray-P and K were 54 and 364 lbs/A respectively. The previous crop was field corn. In the spring of 2014, 120 lbs/A urea was applied and the area was field cultivated prior to planting. Five gallons/A 10-34-0 was applied at planting on May 30. Two rows each of the sweet corn varieties ‘GSS 1477’ (east two rows) and ‘Jubilee’ (west two rows) were planted in each plot. The experimental design was a randomized complete block with three replications and plot size was 10 by 30 ft plot seeded at a population of 23,000 seeds/A. Herbicide treatments were applied with a plot sprayer delivering 20 gpa at 30 psi with 8002 nozzles. Plots were visually rated throughout the growing season. Application dates, environmental conditions, and weed data are presented below. Crop injury data are presented in Table 1. Weed control data are presented in Tables 2 and 3.

Treatment Date	June 3	June 27
Application	Preemergence	Postemergence
Air Temperature (°F)	85	82
Relative humidity (%)	25	65
Soil Moisture	wet	medium
Soil Temperature at 4" (°F)	72	78
Wind (mph)	10	11
Rainfall before Application		
Week 1 (inch)	3.64	0.08
Rainfall after Application		
Week 1 (inch)	0.88	0.81
Week 2 (inch)	4.58	0.32
Week 3 (inch)	3.36	0.22
Sweet Corn		
Stage	--	3 leaf
Height (inch)	--	3
<u>Weed height (inches) / Leaf #</u>		
Common Lambsquarters	--	2" / 4 lf
Common Ragweed	--	3" / 4 lf
Giant Foxtail	--	3" / 3 lf
Redroot Pigweed	--	2" / 4 lf
Velvetleaf	--	2" / 3 lf
Wild Buckwheat	--	2" / 3 lf
Yellow Foxtail	--	3" / 3 lf

The trial area historically is considered well drained and level. However, precipitation for the month of June was over 8 inches above normal and delivered in multiple events. One 1-inch rainfall and four that exceeded 2 inches occurred, such that standing water generally was a minimal issue but leaching was. The preplant-applied nitrogen and at planting starter N was leached from the system with severe nitrogen deficiencies apparent by mid-July. We did not apply any foliar nitrogen or side-dress to compensate. Sweet corn showed N deficiency chlorosis/necrosis on older leaves from the tip down the mid-vein: by July 24, some showing leaf-tip kill. Rainfall was conducive to good performance for both PRE and POST applications. An activating rain of 0.84 in occurred 4 days after PRE applications, and a rain-free period extended to the next day before trace amounts, and to 2 days after POST applications before measurable rainfall of 0.61 in occurred.

There was no difference in injury between the sweet corn varieties 'GSS 1477' and 'Jubilee' or among treatments. There was no stand reduction that could be attributed to herbicide injury. Growth reduction could not be attributed to herbicide treatment injury, rather reflected microsite variability in soil saturation and nitrogen loss. An exploratory screen looked at adjuvants with what became the Revulin Q (nicosulfuron + mesotrione + isoxadifen-ethyl) label in 2015, but none of the adjuvant additions to Revulin Q treatments reflect what became the label, as it turned out. COC is allowed but suggested when dry conditions may limit weed control. This site was very wet at, and following application. UAN or AMS were not added to the labeled due to injury concerns. Regardless, the only injury to differ statistically was the July 24th necrosis ratings, but mostly reflects increased nitrogen deficiency symptoms where more weeds were present rather than HPPD herbicide injury (e.g. note untreated check and Solstice (fluthiacet methyl + mesotrione) applied without a grass herbicide).

Overall, by the July 2nd rating, there was a fair bit of HPPD herbicide chlorosis injury, yellow flash on the leaves where exposed at, and emerging shortly after postemergence treatments (Table 1). At this early July 2 rating there was approx. 5% chlorosis / necrosis background level of symptoms apparent throughout the trial. Due to variability in expression, there were no significant differences among treatments in herbicide injury: growth reduction, leaf chlorosis, or necrosis. By July 10th, where foxtail pressure was heavy, some nitrogen deficiency was becoming apparent and at times, mimicked HPPD flash somewhat. By July 24th, HPPD flash was still evident, now having grown out to the mid- to outer-leaf area, on the V3-V5 leaves on what was the leaf collar area at application. About 1/3 of plants with symptoms showed white bleaching to some window pane symptoms where HPPD injury was more severe, yet chlorosis could not be attributed to herbicide treatment ($P=0.05$). The necrosis rating trends on July 10 reflect mostly advanced N deficiency on lower V1 to V4 leaves. By July 24, necrosis was the only injury to differ statistically ($P=0.05$ GSS1477, $P=0.01$ Jubilee), but reflects increased nitrogen deficiency symptoms from N competition from weeds rather than HPPD herbicide injury (e.g. note untreated checks and with GSS 1477, grass competition when Solstice was applied without a grass herbicide).

Of the weed species rated, the most reliable ratings (most uniform and heaviest weed pressure) were those for common ragweed and secondarily for wild buckwheat, giant foxtail and to a lesser degree for redroot pigweed (Table 2). The 3rd rep of the high rate Accent + Callisto + Safener + COC + AMS treatment was mis-sprayed, so data was omitted and missing values calculated for all ratings (plot 702). Common ragweed pressure was intense, and in some plots completely dominated. With this intense pressure, the addition of 0.5 lb ai atrazine to Q improved consistency of common ragweed control, particularly at the lower rate of Revulin Q (Table 2), as did including a Breakfree (acetochlor) PRE underlay treatment. Breakfree PRE did control grasses and with the intense rainfall, reduced some broadleaf weeds such that the POST Revulin Q trts. applied sequentially to Breakfree PRE likely had improved spray coverage of common ragweed. Laudis, Impact, Capreno, or Sharpen POST to a Breakfree underlay and Acuron and A205 PRE provided excellent common ragweed control. Solstice provided good to excellent ragweed control, and excellent control when

POST to Anthem ATZ (pyroxasulfone + fluthiacet-methyl + atrazine) PRE, owing to the boost from atrazine PRE.

Wild buckwheat was difficult to find in the understory at POST applications, but became obvious after the weed canopies opened up. Revulin Q provided good to excellent control, with or without the PRE Breakfree underlay. Impact did not show the lower activity at the rate used compared to Laudis that we have seen in past trials at Waseca, or as occurred in the atrazine replacement trial adjacent to this trial. Capreno or Sharpen POST to a Breakfree underlay, Acuron and A205 PRE, and Solstice treatments provided excellent control of wild buckwheat. Redroot pigweed control was excellent with all treatments, including Anthem (pyroxasulfone + fluthiacet-methyl)PRE alone, in part due to hyper-activation of PRE trts. with the wet June. The slight drop in control of buckwheat and pigweed with the high rate of Revulin Q + NIS + AMS POST without a PRE likely reflects pigweed and buckwheat that was understoried in an intense ragweed, giant foxtail canopy at POST application, notably in rep 2, and would not be seen with weed pressures typical in production fields.

Giant foxtail was the dominant grass at POST applications. Yellow foxtail became more apparent by the July 24 ratings and in some cases established in open niches created from the herbicide treatment, or was in the understory of the dense weed canopy expressing following POST treatments. Revulin Q postemergence gave acceptable control of giant foxtail at both the low and high rates, except for the lower use rate without AMS (COC only). Lower giant foxtail control with the high rate Revulin Q with NIS + AMS is inconsistent with the low rate with the same adjuvant system and should be interpreted with caution. Yellow foxtail emerges later in the season than giant foxtail and its control was somewhat less consistent when atrazine was not tank mixed with POST Revulin Q treatments. Adding Breakfree as an underlay to Revulin Q provided consistent, excellent control of later emerging yellow foxtail. All the other treatments provided excellent giant and yellow foxtail control (Laudis, Impact, Capreno, or Sharpen POST to a Breakfree PRE underlay, Acuron and A205 PRE, Anthem PRE, and Anthem or Anthem ATZ PRE+ Solstice POST). Anthem PRE alone provided excellent grass control and Solstice POST alone provided excellent broadleaf weed control.

The remaining weed ratings (Table 3) were sporadic and are not that meaningful to discern differences between treatments, and were only rated when the species was present in the plot or immediately surrounding the treated area of the plot. Of the species in table 3, common purslane did occur frequently in some ranges in some areas of the trial, but not throughout the trial. Sweet corn yields were not taken.

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Table 1. Crop Injury

Treatment ¹	Rate ¹ (product/A)	GSS 1477									Jubilee							
		Growth Reduction			Chlorosis			Necrosis			Growth Reduction			Chlorosis			Necrosis	
		7/2	7/10	7/24	7/2	7/10	7/24	7/10	7/24	7/2	7/10	7/24	7/2	7/10	7/24	7/10	7/24	
(%)																		
Preemergence June 3																		
Breakfree ² + Capreno ³	1.5 pt + 3 oz	0	3	0	9	5	3	3	8	2	6	0	13	8	7	0	8	
Breakfree + Sharpen ⁴	1.5 pt + 2 oz	0	0	0	12	3	1	0	14	0	0	0	6	6	2	0	9	
Anthem ⁵	10 oz	0	3	0	7	4	2	0	14	0	3	0	4	2	1	0	13	
Acuron ⁶	3 qt	2	0	0	2	3	4	0	10	3	0	0	2	1	1	2	8	
SYN-A205 ⁷	2.25 qt	2	9	0	9	12	3	0	16	3	7	0	4	4	1	0	11	
(Preemergence June 3) / (Postemergence June 27)																		
(Breakfree) / (Revulin Q ⁸ + COC ⁹ + AMS ¹⁰)	(1.5 pt) / (0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs)	9	5	0	13	16	5	0	7	4	4	0	6	6	3	0	4	
(Breakfree) / (Revulin Q + COC + AMS + atrazine ¹¹)	(1.5 pt) / (0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs + 1 pt)	6	11	0	10	15	9	0	4	5	7	0	16	25	13	0	4	
(Breakfree) / (Laudis ¹² + MSO ¹³ + UAN ¹⁴)	(1.5 pt) / (3 oz + 1.2 pt + 1 qt)	4	3	0	9	2	0	1	13	3	0	0	14	0	0	1	6	
(Breakfree) / (Impact ¹⁵ + MSO + UAN)	(1.5 pt) / (1 oz + 1.2 pt + 1 qt)	8	0	0	10	4	2	0	6	8	3	0	21	8	6	0	5	
(Anthem) / (Solstice ¹⁶ + COC + AMS)	(10 oz) / (3 oz + 1.2 pt + 1.28 lb)	2	4	0	7	3	1	0	15	2	6	0	9	5	0	0	11	
(Anthem ATZ ¹⁷) / (Solstice + COC + AMS)	(1 qt) / (3 oz + 1.2 pt + 1.28 lb)	0	3	0	17	6	4	3	7	0	2	0	13	2	2	2	5	
Postemergence June 27																		
Revulin Q + COC	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt	8	17	0	8	15	3	0	17	5	9	0	13	7	6	0	10	
Revulin Q + COC + AMS	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs	0	2	0	6	7	4	0	8	0	4	0	16	10	7	0	12	
Revulin Q + NIS ¹⁸ + AMS	0.65 oz + 2.5 oz + 0.25 oz + 4.8 oz + 2 lbs	0	1	0	10	7	4	0	6	5	4	0	7	10	5	0	5	
Revulin Q + COC + AMS + atrazine	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs + 1 pt	8	7	0	3	5	4	0	6	8	10	0	3	3	6	0	6	
Revulin Q + COC	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt	7	13	0	9	4	3	0	8	5	7	0	10	5	4	0	9	
Revulin Q + COC + AMS	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt + 2 lbs	0	4	0	5	6	2	0	8	0	15	0	8	10	6	0	11	
Revulin Q + NIS + AMS	0.77 oz + 2.94 oz + 0.296 oz + 4.8 oz + 2 lbs	9	8	0	12	3	3	0	12	4	7	0	5	3	0	0	10	
Revulin Q + COC + AMS + atrazine	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt + 2 lbs + 1 pt	0	4	0	10	4	5	5	12	0	4	0	4	2	3	0	9	
Solstice + COC + AMS	3 oz + 1.2 pt + 1.28 lbs	0	3	0	16	8	2	5	16	0	6	0	20	13	8	5	19	
Untreated Check	--	2	12	0	1	3	0	5	28	0	8	0	1	2	1	1	28	
LSD (0.05)		ns	ns	ns	ns	ns	ns	ns	11	ns	ns	ns	ns	ns	ns	ns	8	

¹ Treatments and rates in parenthesis represent a separate application timing.

² Breakfree 6.4EC = acetochlor.

³ Capreno 3.45F = 0.57 lbs ai/gal thiencazobone-methyl & 2.88 lbs ai/gal tembotrione.

⁴ Sharpen 2.85SC = saflufenacil.

⁵ Anthem 2.15SE = 2.087 lbs ai/gal pyroxasulfone & 0.063 lbs ai/gal fluthiacet-methyl.

⁶ Acuron 3.44 SC = 2.14 lbs ai/gal metolachlor + 0.24 lbs ai/gal mesotrione + 0.06 lbs ai/gal bicyclopyrone + 1.0 lbs ai/gal atrazine + safener.

⁷ SYN-A205 = 2.14 lbs ai/gal metolachlor + 0.24 lbs ai/gal mesotrione + 0.06 lbs ai/gal bicyclopyrone + safener.

⁸ Revulin Q 51.2WG = 14.4 % nicosulfuron + 36.8 % mesotrione + safener.

⁹ COC = crop oil concentrate.

¹⁰ AMS = Amsul ammonium sulfate.

¹¹ atrazine 4F.

¹² Laudis 3.5F = tembotrione.

¹³ MSO = methylated seed oil.

¹⁴ UAN = 28% urea - ammonium nitrate solution.

¹⁵ Impact 2.8F = topramezone.

¹⁶ Solstice 4 SC = 0.216s lb ai/gal fluthiacet-methyl & 3.784 lbs ai/gal mesotrione.

¹⁷ Anthem ATZ 4.505SE = 0.485 lbs ai/gal pyroxasulfone & 0.014 lbs ai/gal fluthiacet-methyl & 4.005 lbs ia/gal atrazine.

¹⁸ NIS = Preference nonionic surfactant.

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Table 2. Weed Control

Treatment ¹	Rate ¹ (product/A)	Weed Control																	
		Common Ragweed				Redroot Pigweed				Wild Buckwheat				Giant Foxtail				Yellow Foxtail	
		7/2	7/10	7/24	8/27	7/2	7/10	7/24	8/27	7/2	7/10	7/24	8/27	7/2	7/10	7/24	8/27	7/24	8/27
----- (%) -----																			
Preemergence June 3																			
Breakfree ² + Capreno ³	1.5 pt + 3 oz	100	100	100	100	100	99	100	100	100	81	95	96	97	93	98	94	90	94
Breakfree + Sharpen ⁴	1.5 pt + 2 oz	100	100	100	100	100	99	100	100	100	99	100	99	100	98	99	96	99	98
Anthem ⁵	10 oz	58	32	53	25	93	63	93	92	47	20	0	42	86	92	96	90	92	91
Acuron ⁶	3 qt	100	100	100	100	100	99	100	100	100	99	100	100	100	100	100	100	100	99
SYN-A205 ⁷	2.25 qt	100	98	100	100	100	99	100	100	100	96	97	99	100	99	99	99	99	100
(Preemergence June 3) / (Postemergence June 27)																			
(Breakfree) / (Revulin Q ⁹ + COC ⁹ + AMS ¹⁰)	(1.5 pt) / (0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs)	79	96	94	91	100	99	100	100	85	88	83	88	99	99	99	98	97	97
(Breakfree) / (Revulin Q + COC + AMS + atrazine11)	(1.5 pt) / (0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs + 1 pt)	96	100	97	100	100	99	100	100	100	99	95	100	100	100	100	99	99	99
(Breakfree) / (Laudis ¹² + MSO ¹³ + UAN ¹⁴)	(1.5 pt) / (3 oz + 1.2 pt + 1 qt)	68	100	100	100	98	99	100	100	86	87	66	89	96	95	98	94	96	96
(Breakfree) / (Impact ¹⁵ + MSO + UAN)	(1.5 pt) / (1 oz + 1.2 pt + 1 qt)	77	99	100	100	100	99	97	100	87	89	83	94	92	97	98	96	97	96
(Anthem) / (Solstice ¹⁶ + COC + AMS)	(10 oz) / (3 oz + 1.2 pt + 1.28 lb)	88	92	87	89	100	99	100	100	99	88	68	92	94	89	95	92	93	94
(Anthem ATZ ¹⁷) / (Solstice + COC + AMS)	(1 qt) / (3 oz + 1.2 pt + 1.28 lb)	100	100	100	100	100	99	100	100	100	99	100	100	100	99	100	99	95	98
Postemergence June 27																			
Revulin Q + COC	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt	10	47	35	47	10	99	88	100	5	66	68	93	15	41	46	40	37	48
Revulin Q + COC + AMS	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs	25	60	80	56	38	88	100	100	13	70	55	85	38	82	93	86	61	77
Revulin Q + NIS ¹⁸ + AMS	0.65 oz + 2.5 oz + 0.25 oz + 4.8 oz + 2 lbs	10	63	75	58	10	94	93	100	5	75	70	90	15	82	100	97	55	72
Revulin Q + COC + AMS + atrazine	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs + 1 pt	33	98	100	99	40	99	100	100	37	99	100	100	39	84	96	83	77	85
Revulin Q + COC	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt	50	70	77	64	63	86	93	90	36	84	87	100	63	92	96	90	80	90
Revulin Q + COC + AMS	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt + 2 lbs	8	66	52	66	8	99	100	100	3	39	35	84	13	65	92	90	23	62
Revulin Q + NIS + AMS	0.77 oz + 2.94 oz + 0.296 oz + 4.8 oz + 2 lbs	27	83	88	78	33	73	80	82	30	66	63	75	12	64	87	70	54	71
Revulin Q + COC + AMS + atrazine	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt + 2 lbs + 1 pt	27	87	80	88	37	99	100	100	20	72	48	80	37	88	97	98	88	90
Solstice + COC + AMS	3 oz + 1.2 pt + 1.28 lbs	20	68	81	90	18	98	100	100	12	65	53	90	22	15	45	25	37	40
Untreated Check	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		28	18	24	28	39	25	17	15	34	33	42	25	30	22	17	21	29	25

¹ Treatments and rates in parenthesis represent a separate application timing.

² Breakfree 6.4EC = acetochlor.

³ Capreno 3.45F = 0.57 lbs ai/gal thiencazobone-methyl & 2.88 lbs ai/gal tembotrione.

⁴ Sharpen 2.85SC = saflufenacil.

⁵ Anthem 2.15SE = 2.087 lbs ai/gal pyroxasulfone & 0.063 lbs ai/gal fluthiacet-methyl.

⁶ Acuron 3.44 SC = 2.14 lbs ai/gal metolachlor + 0.24 lbs ai/gal mesotrione + 0.06 lbs ai/gal bicyclopyrone + 1.0 lbs ai/gal atrazine + safener.

⁷ SYN-A205 = 2.14 lbs ai/gal metolachlor + 0.24 lbs ai/gal mesotrione + 0.06 lbs ai/gal bicyclopyrone + safener.

⁸ Revulin Q 51.2WG = 14.4 % nicosulfuron + 36.8 % mesotrione + safener.

⁹ COC = crop oil concentrate.

¹⁰ AMS = Amsul ammonium sulfate.

¹¹ atrazine 4F.

¹² Laudis 3.5F = tembotrione.

¹³ MSO = methylated seed oil.

¹⁴ UAN = 28% urea - ammonium nitrate solution.

¹⁵ Impact 2.8F = topramezone.

¹⁶ Solstice 4 SC = 0.216 lbs ai/gal fluthiacet-methyl & 3.784 lbs ai/gal mesotrione.

¹⁷ Anthem ATZ 4.505SE = 0.485 lbs ai/gal pyroxasulfone & 0.014 lbs ai/gal fluthiacet-methyl & 4.005 lbs ia/gal atrazine.

¹⁸ NIS = Preference nonionic surfactant.

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Table 3. Weed Control (continued)

Treatment ¹	Rate ¹ (product/A)	Weed Control											
		Common Lambsquarters				Common Purslane				Velvetleaf			
		7/2	7/10	7/24	8/27	7/2	7/10	7/24	8/27	7/2	7/10	7/24	8/27
----- (%) -----													
Preemergence June 3													
Breakfree ² + Capreno ³	1.5 pt + 3 oz	100	--	89	--	100	--	65	--	100	--	90	--
Breakfree + Sharpen ⁴	1.5 pt + 2 oz	100	--	--	90	100	--	--	--	100	--	90	85
Anthem ⁵	10 oz	95	40	63	5	88	47	80	75	87	8	0	32
Acuron ⁶	3 qt	100	--	100	--	100	90	--	--	100	--	100	--
SYN-A205 ⁷	2.25 qt	100	--	--	--	100	--	--	--	100	--	--	--
(Preemergence June 3) / (Postemergence June 27)													
(Breakfree) / (Revulin Q ⁸ + COC ⁹ + AMS ¹⁰)	(1.5 pt) / (0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs)	100	--	100	--	100	89	100	--	45	92	100	--
(Breakfree) / (Revulin Q + COC + AMS + atrazine ¹¹)	(1.5 pt) / (0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs + 1 pt)	100	--	--	--	100	--	--	--	98	--	100	--
(Breakfree) / (Laudis ¹² + MSO ¹³ + UAN ¹⁴)	(1.5 pt) / (3 oz + 1.2 pt + 1 qt)	98	--	--	--	100	--	100	--	64	97	100	--
(Breakfree) / (Impact ¹⁵ + MSO + UAN)	(1.5 pt) / (1 oz + 1.2 pt + 1 qt)	100	--	--	--	100	--	100	--	80	97	100	--
(Anthem) / (Solstice ¹⁶ + COC + AMS)	(10 oz) / (3 oz + 1.2 pt + 1.28 lb)	100	--	--	--	100	--	--	--	100	--	--	--
(Anthem ATZ ¹⁷) / (Solstice + COC + AMS)	(1 qt) / (3 oz + 1.2 pt + 1.28 lb)	100	--	--	--	100	--	--	--	100	--	--	--
Postemergence June 27													
Revulin Q + COC	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt	15	--	--	100	15	48	43	60	5	80	80	85
Revulin Q + COC + AMS	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs	23	--	--	99	23	35	38	43	35	--	--	99
Revulin Q + NIS ¹⁸ + AMS	0.65 oz + 2.5 oz + 0.25 oz + 4.8 oz + 2 lbs	15	--	--	--	15	73	75	70	5	--	--	75
Revulin Q + COC + AMS + atrazine	0.65 oz + 2.5 oz + 0.25 oz + 1.2 pt + 2 lbs + 1 pt	43	--	--	--	58	88	--	--	37	--	100	--
Revulin Q + COC	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt	55	60	--	80	10	20	15	5	57	--	89	--
Revulin Q + COC + AMS	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt + 2 lbs	15	--	--	--	15	60	--	--	5	80	--	--
Revulin Q + NIS + AMS	0.77 oz + 2.94 oz + 0.296 oz + 4.8 oz + 2 lbs	37	--	--	--	15	68	25	--	18	75	100	--
Revulin Q + COC + AMS + atrazine	0.77 oz + 2.94 oz + 0.296 oz + 1.2 pt + 2 lbs + 1 pt	25	--	--	--	23	77	67	70	35	--	--	--
Solstice + COC + AMS	3 oz + 1.2 pt + 1.28 lbs	25	--	--	--	15	48	25	--	12	--	--	--
Untreated Check	--	0	0	0	0	0	0	0	0	0	0	0	0

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³ Capreno 3.45F = 0.57 lbs ai/gal thiencazabone-methyl & 2.88 lbs ai/gal tembotrione.

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⁷ SYN-A205 = 2.14 lbs ai/gal metolachlor + 0.24 lbs ai/gal mesotrione + 0.06 lbs ai/gal bicyclopyrone + safener.

⁸ Revulin Q 51.2WG = 14.4 % nicosulfuron + 36.8 % mesotrione + safener.

⁹ COC = crop oil concentrate.

¹⁰ AMS = Amsul ammonium sulfate.

¹¹ atrazine 4F.

¹² Laudis 3.5F = tembotrione.

¹³ MSO = methylated seed oil.

¹⁴ UAN = 28% urea - ammonium nitrate solution.

¹⁵ Impact 2.8F = topramezone.

¹⁶ Solstice 4 SC = 0.216s lb ai/gal fluthiacet-methyl & 3.784 lbs ai/gal mesotrione.

¹⁷ Anthem ATZ 4.505SE = 0.485 lbs ai/gal pyroxasulfone & 0.014 lbs ai/gal fluthiacet-methyl & 4.005 lbs ia/gal atrazine.

¹⁸ NIS = Preference nonionic surfactant.