Weed control in glyphosate resistant corn. Wait, Jim. D and Johnson, William G. The objective of this study was to evaluate weed control with various glyphosate formulations, with one and 2 applications as well as combined with acetochlor and atrazine. This study was conducted at the Bradford Research and Extension Center near Columbia, MO. The soil was a Mexico silt loam with a pH of 5.8 and 3.1% organic matter. Asgrow RX730RR was planted 1.5-inch deep on May 30 in 30-inch rows. Treatments were arranged in a randomized complete block design with four replications of 5 by 35 feet plots. Herbicide applications were made with a $C0_2$ backpack sprayer equipped with XR8002 flat fan nozzles.
Application data is listed below:

Date Application	May 30 pre	June 17 epost	June 21 mpost1	June 25 mpost2	July 1 lpost +15-20d regrowth
Temperature (F)					
air	83	85	92	89	90
soil	79	87	89	90	95
Soil moisture	moist	dry	dry	dry	dry
Wind (mph)	2	3.5	4	3	2
Cloud cover	15	64	10	5	20
Relative humidity (%)	63	49	50	86	89
Precipitation after application					
week 1 (inch)	0.36	0.00	0.00	0.28	0.28
week 2 (inch)	1.94	0.00	0.28	0.04	1.86
Corn					
stage	-	-	v5	v5-v6	-
height (inch)	-	-	12	14	-
Giant foxtail					
leaf no.	-	3	2	3	5
height (inch)	-	3	2	2	6
infestation (sq. ft.)	-	10	1	1	1
Common waterhemp					
node no.	-	2	-	-	-
height (inch)	-	1	-	-	-
infestation (sq. ft.)	-	2	-	-	-
Pitted morningglory					
node no.	-	7	2	3	-
height (inch)	-	2	2	3	-
infestation (sq. ft.)	-	1	1	1	-
Common cocklebur					
node no.	-	2	4	5	4
height (inch)	-	2.5	6	4	3
infestation (sq. ft.)	-	1	2	1	1

Crop injury was $\leq$ 1% at first rating, then increased at second rating to 4 to 11%. Giant foxtail control was $\geq$ 96% with all treatments except the single application glyphosate treatments and glyphosate + atrazine treatment. Common waterhemp control was $\geq$ 99% with all treatments except the one pass glyphosate treatments and the glyphosate + atrazine treatment. Pitted morningglory control with acetochlor / glyphosate-IPA(GP) + clopyralid & flumetsulam and acetochlor / glyphosate-IPA was $\leq$ 74% at both ratings while acetochlor & atrazine + glyphosate-IPA-(RU) provided only 68% control at the second rating, all other treatments provided $\geq$ 82% at both ratings. Common cocklebur control was $\geq$ 92% with all treatments except the single glyphosate treatments and s-metolachlor & atrazine / glyphosate-DA(TD) treatment with 71 to 85% control. Overall, the single application glyphosate treatments did provide lower weed control than the 2 application glyphosate treatments. (Department of Agronomy, University of Missouri-Columbia)

Table. Weed control in glyphosate resistant corn. (Wait and Johnson)

Application	Rate	App Time	Injury 7-15	Injury 7-29	SETFA 7-15	SETFA 7-29	AMATA 7-15	AMATA 7-29	IPOLA 7-15	IPOLA 7-29	XANST 7-15	XANST 7-29
	(lb/A)[a]		----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
							%					
Acetochlor & atrazine[b] / glyphosate-IPA(GP)[c] + clopyralid & flumetsulam[d] + AMS[e] + NIS[f]	1.32 & 0.65 / 0.75 + 0.112 & 0.016 + 2.0 + 0.25%	pre / lpost	0	6	95	99	100	100	96	93	100	100
Acetochlor / glyphosate-IPA(GP) + clopyralid & flumetsulam + AMS + NIS	0.6 / 0.75 + 0.112 & 0.016 + 2.0 + 0.25%	pre / mpost2	1	4	99	98	100	100	61	62	100	100
Acetochlor & atrazine / glyphosate-IPA(GP) + AMS	1.32 & 0.65 / 0.75 + 2.0	pre / lpost	0	8	95	98	100	100	95	84	100	100
Acetochlor / glyphosate-IPA(GP) + AMS	0.6 / 0.75 + 2.0	pre / mpost2	1	11	99	97	100	100	74	65	100	100
Glyphosate-IPA(GP) + AMS / glyphosate-IPA(GP) + AMS	0.75 + 2.0 / 0.56 + 2.0	epost / +15-20d	0	4	95	99	99	100	96	94	100	100
Glyphosate-DA(TD)[g] + AMS	0.75 + 2.5	epost	0	6	82	83	84	77	97	91	90	71
Glyphosate-DA(TD) + AMS / glyphosate-DA(TD) + AMS	0.75 + 2.5 / 0.56 + 2.5	epost / regrwth	0	6	90	98	100	100	97	85	99	100
Glyphosate-IPA(RU)[h] + AMS	0.76 + 2.5	epost	0	6	76	88	81	79	94	96	89	85
Glyphosate-IPA(RU) + AMS / glyphosate-IPA(RU) + AMS	0.76 + 2.5 / 0.586 + 2.5	epost / regrwth	0	10	93	99	100	100	97	85	100	100
S-metolachlor / glyphosate-DA(TD) + AMS	0.955 / 0.75 + 2.5	pre / mpost1	0	5	98	98	100	100	94	82	98	96
S-metolachlor & atrazine[i] / glyphosate-DA(TD) + AMS	1.36 & 1.76 / 0.75 + 2.5	pre / lpost	0	4	100	100	100	100	95	99	100	100
Glyphosate & atrazine[j] + AMS	1.0 & 1.0 + 2.5	epost	0	11	78	82	89	80	94	89	91	92
Acetochlor & atrazine + glyphosate-IPA-(RU) + AMS	1.0 & 0.48 + 0.586 + 2.5	epost	0	6	87	96	98	100	92	68	97	94
S-metolachlor & atrazine / glyphosate-DA(TD) + AMS	1.3 & 1.68 / 0.75 + 2.5	pre / epost	0	4	92	98	93	99	96	97	94	83
Untreated			0	0	0	0	0	0	0	0	0	0
LSD (0.05)			1	9	11	4	7	6	15	22	5	9

[a]Glyphosate rates are expressed in lb acid equivalent/acre
[b]Acetolachlor & atrazine = Fultime from Dow AgroSciences
[c]Isopropylamine salt = Glyphomax Plus from Dow AgroSciences
[d]Clopyralid & flumetsulam = Hornet from Dow AgroSciences
[e]AMS = ammonium sulfate from MFA Crop Advantage
[f]NIS = Astute, non-ionic surfactant from MFA crop Advantage
[g]Diammonium salt = Touchdown IQ from Syngenta Ag. Products
[h]Isopropylamine salt = Roundup UltraMax from Monsanto
[i]S-metolachlor & atrazine = Bicep II Magnum from Syngenta Ag. Products
[j]Glyphosate & atrazine = Readymaster ATZ from Monsanto