

Evaluation of Liberty[®], Option[®], and AE 0172747 herbicide programs in field corn at Rochester, MN in 2006.

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The objective of this trial was to evaluate Liberty[®], Option[®], and AE 0172747 herbicide programs for weed control in field corn in southeastern Minnesota. The research site was a Lawler loam series with a pH of 7.1 and soil test P and K levels of 51 ppm and 185 ppm, respectively. Spring fertilizer was spread ahead of planting on April 20, at a rate of 109-19-85-24 (N-P-K-S). The area was side dressed with an additional 30 lb/A of N on June 7. The field was chisel plowed, spring disked, and field cultivated once prior to planting. The corn hybrid NK N38B4, was planted on April 24, 2006 at a depth of 1.5 inches in 30 inch rows at 32,000 seeds per acre. A randomized complete block design was used with four replications. Preemergence (PRE) and postemergence (POST I and POST II) treatments were applied with a tractor-mounted sprayer delivering 20 gpa at 32 psi using Turbo Tee 11002 nozzles. Evaluations of the plots were taken on May 23, May 30, June 9, and June 28. Application dates, environmental conditions, and weed stages are listed below. The center two rows of each plot were harvested on November 2, 2006.

Date	April 25	May 24	May 31
Treatment	PRE	POST I	POST II
Temperature (F)			
air	50	74	77
soil	57.9	69.6	71.6
Relative Humidity (%)	32	63	40
Wind (mph)	14	26	14
Soil moisture	adequate	dry	dry
Corn			
stage	--	V2	4 collar
height (inch)	--	3.2	6.0
Giant Ragweed			
weed density (ft ²)	--	30	30
height (inch)	--	3.5	9.0
Common Lambsquarters			
weed density (ft ²)	--	12	12
height (inch)	--	1.4	3.1
Common Waterhemp			
weed density (ft ²)	--	128	128
height (inch)	--	0.4	0.5
Giant Foxtail			
weed density (ft ²)	--	0.6	0.6
height (inch)	--	0.7	1.3
Rainfall after each application (inch)			
week 1	1.10	0.35	0.41
week 2	0.08	0.41	2.13
week 3	1.31	2.13	0.26

CONCLUSIONS

PRE application of Define[®] followed by POST I application of AE 0172747 provided season long control of all weed species and resulted in the top yield of this trial. PRE/POST II programs resulted in effective control of giant ragweed and giant foxtail control, but trended towards lower common lambsquarters control by the June 28 rating. However, the preemergence application of Define[®] provides no control of giant ragweed, resulting in significant early season competition with the corn crop and depressed yields.

POST I herbicide programs were similar in common lambsquarters, common waterhemp, and woolly cupgrass control. Giant ragweed control was also similar for three of the programs, with the exception of Liberty + AE 0172747 at the 2 oz rate, which gave reduced control.

The sequential treatments of PRE Define[®] followed by POST I application of AE 0172747 and PRE Define[®] followed by POST II application of Liberty[®] + Callisto[®] provided the greatest control of common waterhemp, 86 and 82%, respectively. (University of Minnesota Extension Service, Regional Center, Rochester, MN).

Table. Performance of weed management systems for weed control in field corn on May 23, May 30, June 9, and June 28 at Rochester, MN in 2006.

Treatment	Rate	Giant ragweed control				Common lambsquarters control				Common waterhemp control				Giant foxtail control				Corn yield
		5/23	5/30	6/9	6/28	5/23	5/30	6/9	6/28	5/23	5/30	6/9	6/28	5/23	5/30	6/9	6/28	
	(rate/A)	(%)				(%)				(%)				(%)				(bu/A)
PRE / POST I																		
Define / AE 0172747 + Destiny MSO + UAN 28%	12 oz / 2 oz + 1.5 pt + 1.5 qt	0	78	96	93	38	80	99	97	93	92	99	86	99	99	99	99	154
PRE / POST II																		
Define / Liberty + AAtrex + AMS	12 oz / 32 oz + 8.9 oz + 3 lb	0	0	94	95	40	33	95	93	93	76	97	75	99	99	99	99	107
Define / Liberty + Callisto + AMS	12 oz / 32 oz + 1.5 oz + 3 lb	0	0	96	96	35	38	98	92	91	76	98	82	99	99	99	99	124
POST I																		
Liberty + Define + AAtrex + AMS	32 oz + 10 oz + 8.9 oz + 3 lb	0	92	96	93	0	97	99	98	0	76	89	70	0	99	99	99	138
Define + Option + Distinct + Destiny MSO + UAN 28%	10 oz + 1.5 oz + 4 oz + 1.5 pt + 1.5 qt	0	90	93	96	0	86	98	97	0	73	86	68	0	98	97	97	140
Liberty + AE 0172747 + Destiny MSO + AMS	26 oz + 2 oz + 1.5 pt + 3 lb	0	92	95	87	0	93	98	96	0	79	82	74	0	99	98	99	138
Option + AE 0172747 + Destiny MSO + UAN 28%	1.5 oz + 3 oz + 1.5 pt + 1.5 qt	0	63	97	95	0	55	99	96	0	53	96	75	0	97	98	95	146
Untreated Check		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8
LSD (P=0.10)		0	7	2	3	3	9	2	3	2	9	3	7	0	2	1	3	18