Performance of Steadfast plus Callisto tank mixed with different additives for weed control in field corn at Potsdam, MN in 2004.

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The objective of this trial was to evaluate the performance of Steadfast plus Callisto tank mixed with different additives for weed control in field corn in southeastern Minnesota. The research site was a Port Byron silt loam containing 3.2% organic matter, soil pH of 6.7, and soil test P and K levels of 66 ppm and 376 ppm, respectively. The previous crop was soybean. The area was fertilized in the spring with 160 lbs/A of nitrogen and 120 lb/A of potash. The field was disked and field cultivated once prior to planting. The corn hybrid, Pioneer 37R70 RR, was planted on May 11, 2004 at a depth of 1.5 inches in 30-inch rows at 32,000 seeds/A. A randomized complete block design with four replications was used. Preemergence (PRE) and postemergence (POST) 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 27, June 25, July 9, and October 29, 2004. Application dates, environmental conditions, and crop and weed stages are listed below. Giant ragweed distribution was variable at Potsdam, and dramatically affected yields.

Date	May 12	June 15
Treatment	PRE	POST
Temperature (F)		
air	73	74
Relative humidity (%)	73	49
Wind (mph)	24	10
Soil moisture	adequate	adequate
Corn		
stage	seeded	V3
height (inches)	--	12.6
Wild proso millet		
weed density	--	moderate
height (inch)	--	1.9
Common lambsquarters		
weed density	--	moderate
height (inch)	--	0.9
Velvetleaf		
weed density	--	light
height (inch)	--	1.2
Giant ragweed		
weed density	--	moderate
height (inch)	--	8.7
Rainfall after application (inch)		
week 1	1.47	1.92
week 2	2.98	0.57
week 3	1.31	1.68

All treatments provided excellent control of common lambsquarters and velvetleaf with no statistical differences between treatments. Giant ragweed control with Steadfast + Callisto + atrazine + AMS was similar when the additives Prime Oil, Superb HC, and Destiny, were used. Increasing the rate of Callisto from 1.5 oz/A to 3 oz/A did not improve giant ragweed control. Option + Callisto + Destiny + AMS and Steadfast + Lumax + NIS + AMS gave significantly lower control of giant ragweed than the other treatments (July 9 rating). Wild proso millet control was slightly better when Steadfast + Callisto + atrazine + AMS was applied with Destiny or Prime Oil compared to Superb HC, 92%, 92% and 88%, respectively, (University of Minnesota Extension Service, Regional Center, Rochester, MN).

Table. Performance of Steadfast and Callisto tank mixed with different additives for weed control in corn on May 27, June 25, July 9, and October 29 at Potsdam, MN in 2004 (Breitenbach, Behnken, Griffin, and Schaufler).

Treatment	Rate	Wild proso millet control			Common lambsquarters control		Velvetleaf control		Giant ragweed control			Corn yield
		5/27	6/25	7/9	6/25	7/9	6/25	7/9	6/25	7/9	10/29	
	(rate/A)	(%)			(%)		(%)		(%)			(bu/A)
Preemergence / Postemergence												
Cinch / Steadfast + Callisto + atrazine + Prime Oil[1] + AMS[2]	1 pt / 0.75 oz + 2 oz + 10 oz + 1 % v/v + 2 lbs	89	97	86	100	99	100	99	88	87	94	216
Postemergence												
Steadfast + Callisto + atrazine + Prime Oil[1] + AMS[2]	0.75 oz + 3 oz + 12 oz + 1 % v/v + 2 lbs	0	81	92	100	99	100	99	85	80	87	173
Steadfast + Callisto + atrazine + Superb HC[3] + AMS[2]	0.75 oz + 1.5 oz + 12 oz + 0.5 % v/v + 2 lbs	0	85	88	100	99	100	99	84	88	93	222
Steadfast + Callisto + atrazine + Destiny[4] + AMS[2]	0.75 oz + 1.5 oz + 12 oz + 1 % v/v + 2 lbs	0	89	92	100	99	100	99	87	90	94	199
Steadfast + Callisto + atrazine + Prime Oil[1] + AMS[2]	0.75 oz + 1.5 oz + 12 oz + 1 % v/v + 2 lbs	0	84	91	100	99	100	99	87	85	93	204
Steadfast + Lumax + NIS[5] + AMS[2]	0.75 oz + 2 pts + 0.25 % v/v + 2 lbs	0	86	95	100	99	100	99	78	58	79	181
Option + Callisto + Destiny[4] + AMS[2]	1.5 oz + 1.5 oz + 1 % v/v + 2 lbs	0	83	85	99	98	100	99	70	63	85	209
Untreated		0	0	0	0	0	0	0	0	0	0	108
LSD = (0.05)		1	4	3	1	1	0	0	7	13	7	34

Prime Oil[1], Agriliance; AMS[2] = spray grade ammonium sulfate, Helena; Superb HC[3], Agriliance; Destiny[4], Agriliance; and NIS[5] = AGRI-DEX nonionic surfactant, Helena