Dicamba&diflufenzopyr: postemergence tolerance to Legacy and Super Sweet Jubilee sweet corn.
Trower, Timothy L. and Chris M. Boerboom. The purpose of this study was to investigate crop tolerance and weed control of postemergence applications of dicamba&diflufenzopyr applied alone and tank mixed with atrazine. Dicamba&diflufenzopyr was applied at 0.0875 lb/a alone and tank mixed with atrazine at 0.75 lb/a following a preemergence application of dimethenamid-P at 0.84 lb/a. Two adjuvant systems, NIS at 0.25% and NIS+AMS at 0.25%+1 lb/a, were evaluated. Dimethenamid-P applied preemergence followed by atrazine applied postemergence was the standard. Weed species evaluated were giant foxtail (SETFA), common ragweed (AMBEL), and velvetleaf (ABUTH). Legacy and Super Sweet Jubilee sweet corn were planted May 27 at a depth of 1.5 inches and a population of 23,805 seeds per acre. The study was conducted at the University of Wisconsin Arlington Research station on a Plano silt loam with a pH of 6.3 and 3.2% organic matter. Plots were 10 by 25 foot and consisted of two rows each of Legacy and Super Sweet Jubilee Plus. Trial design was a randomized complete block replicated four times. Herbicide applications were made with a CO_2 backpack sprayer calibrated at 20 gpa and equipped with XR8003 nozzles. Application data were as follows:

Date	5/27/03	6/29/03
Treatment	PRE	POST
Spray		
gpa	20	20
psi	23	23
mph	3	3
Temperature (F)		
air	78	74
soil	78	71
Soil moisture (surface)	dry	moist
Wind/direction (mph)	4-5, W	7, WNW
Relative humidity (%)	25	53
Cloud cover (%)	0	20
Sweet corn:		
Legacy		
leaf no.	--	V5
height (inch)	--	11-13
Super Sweet Jubilee Plus		
leaf no.	--	V4-V5
height (inch)	--	7-9

Dimethenamid-P applied alone or followed by atrazine+COC postemergence caused no injury to either sweet corn hybrid. Dicamba&diflufenzopyr applied at 0.175 lb/a caused severe epinasty 5 days after application, averaging 70% with Super Sweet Jubilee Plus and 30% with Legacy. Moderate epinasty was observed with dicamba&diflufenzopyr at 0.084 lb/a tank mixed with atrazine+NIS+AMS on Super Sweet Jubilee Plus. No epinasty was noted with the remaining dicamba&diflufenzopyr treatments on either hybrid. No crop stunting was noted 5 days after application with any treatment or hybrid. Dicamba& diflufenzopyr+NIS, with and without atrazine, caused slight crop stunting on Super Sweet Jubilee Plus 22 days after application. Adding AMS to both treatments increasing crop stunting, ranging from 13% without atrazine to 19% with atrazine. Dicamba&diflufenzopyr tank mixed with atrazine+NIS and dicamba& diflufenzopyr at 0.175 lb/a stunted Legacy sweet corn 22 days after application. No stunting was noted 47 days after application among treatments or between hybrids. All dicamba& diflufenzopyr treatments caused severe leaf wrapping on Super Sweet Jubilee Plus 22 days after application. Dicamba&diflufenzopyr at 0.175 lb/a caused the most severe leaf wrapping followed by dicamba&diflufenzopyr at 0.0875 lb/a tank mixed with atrazine+NIS+AMS. Adding AMS with dicamba&diflufenzopyr increased leaf wrapping while no increase in leaf wrapping was noted when AMS was added to dicamba&diflufenzopyr tank mixed with atrazine. Very little leaf wrapping was observed with Legacy with the exception of dicamba&diflufenzopyr applied at 0.175 lb/a.

There were no differences in postemergence weed control among the dicamba&diflufenzopyr tank mixtures as all provided excellent control of common ragweed and velvetleaf. Dimethenamid-P applied preemergence controlled giant foxtail but failed to control common ragweed or velvetleaf. No differences in sweet corn yields were noted. (Department of Agronomy, University of Wisconsin-Madison).

Table 1. S. S. Jubilee tolerance to dicamba&diflufenzopyr applied postemergence. (Trower and Boerboom)

			ZEAMS				
	Application		Epinasty	Stunting	Leaf wrap	Stunting	Yield
Treatment	Rate	Timing	July 4	July 21	July 21	August 15	Sept. 2
	(lb/a)		----------(%)----------				(t/a)
Dimethenamid-P fb	0.84	Pre	0	6	40	0	4.85
dicamba&diflufenzopyr+NIS	0.0625&0.025+0.25%	Post					
Dimethenamid-P fb	0.84	Pre	5	5	75	0	4.68
dicamba&diflufenzopyr+	0.0625&0.025+	Post					
atrazine+NIS	0.75+0.25%						
Dimethenamid-P fb	0.84	Pre	0	13	58	0	4.4
dicamba&diflufenzopyr+	0.0625&0.025+	Post					
NIS+AMS	0.25%+1						
Dimethenamid-P fb	0.84	Pre	10	19	58	0	4.31
dicamba&diflufenzopyr+	0.0625&0.025+	Post					
atrazine+NIS+AMS	0.75+0.25%+1						
Dimethenamid-P fb	0.84	Pre	70	18	100	0	4.2
dicamba&diflufenzopyr+	0.127&0.051+	Post					
NIS+AMS	0.25%+1						
Dimethenamid-P	0.84	Pre	0	0	0	0	4.58
Dimethenamid-P fb	0.84	Post	0	0	0	0	4.63
atrazine+COC	0.75+0.25%						
LSD (P=.10)			8	12	11	NS	NS

fb denotes sequential application.

Table 2. Legacy tolerance to dicamba&diflufenzopyr applied postemergence. (Trower and Boerboom)

			ZEAMS				
	Application		Epinasty	Stunting	Leaf wrap	Stunting	Yield
Treatment	Rate	Timing	July 4	July 21	July 21	August 15	Sept. 2
	(lb/a)		----------(%)----------				(t/a)
Dimethenamid-P fb	0.84	Pre	0	3	8	0	6.89
dicamba&diflufenzopyr+NIS	0.0625&0.025+0.25%	Post					
Dimethenamid-P fb	0.84	Pre	0	16	0	0	6.92
dicamba&diflufenzopyr+	0.0625&0.025+	Post					
atrazine+NIS	0.75+0.25%						
Dimethenamid-P fb	0.84	Pre	5	11	15	0	6.87
dicamba&diflufenzopyr+	0.0625&0.025+	Post					
NIS+AMS	0.25%+1						
Dimethenamid-P fb	0.84	Pre	3	3	0	0	6.5
dicamba&diflufenzopyr+	0.0625&0.025+	Post					
atrazine+NIS+AMS	0.75+0.25%+1						
Dimethenamid-P fb	0.84	Pre	30	15	73	0	6.13
dicamba&diflufenzopyr+	0.127&0.051+	Post					
NIS+AMS	0.25%+1						
Dimethenamid-P	0.84	Pre	0	0	0	0	7.47
Dimethenamid-P fb	0.84	Post	0	0	0	0	7.08
atrazine+COC	0.75+0.25%						
LSD (P=.10)			7	12	21	NS	NS

fb denotes sequential application.

Table 3. Efficacy of postemergence applications of dicamba&diflufenzopyr. (Trower and Boerboom)

			Weed Control[a]		
	Application		SETFA	AMBEL	ABUTH
Treatment	Rate	Timing	July 4	July 21	July 21
	(lb/a)		----------(%)----------		
Dimethenamid-P fb	0.84	Pre	97	98	82
dicamba&diflufenzopyr+NIS	0.0625&0.025+0.25%	Post			
Dimethenamid-P fb	0.84	Pre	97	100	95
dicamba&diflufenzopyr+	0.0625&0.025+	Post			
atrazine+NIS	0.75+0.25%				
Dimethenamid-P fb	0.84	Pre	96	98	98
dicamba&diflufenzopyr+	0.0625&0.025+	Post			
NIS+AMS	0.25%+1				
Dimethenamid-P fb	0.84	Pre	98	100	98
dicamba&diflufenzopyr+	0.0625&0.025+	Post			
atrazine+NIS+AMS	0.75+0.25%+1				
Dimethenamid-P fb	0.84	Pre	99	100	99
dicamba&diflufenzopyr+	0.127&0.051+	Post			
NIS+AMS	0.25%+1				
Dimethenamid-P	0.84	Pre	97	40	0
Dimethenamid-P fb	0.84	Post	97	95	50
atrazine+COC	0.75+0.25%				
LSD (P=.10)			NS	5	23

[a]Weed control is a visual rating of biomass reduction ranging from 0-100, where 100 is complete control.