

# Sweet Corn Tolerance and Herbicide Weed Control

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## Abstract

No observable injury was evident by any herbicide treatment on any of the twelve sweet corn varieties during the season. Overall, pendimethalin (Prowl®) treatments applied preemergence (PREE) provided very good control (>87%) of all weeds rated. Metolachlor (Dual®), EPTC plus safener (Eradicane®), dimethanamid (Frontier®), and cyanazine (Bladex®) treatments gave good control (>80%) of pigweeds (*Amaranthus* sp.) and purslane (*Portulaca oleracea*) with annual yellow sweetclover (*Melilotus officinalis*) not adequately controlled. All treatments except Bladex alone gave good control of volunteer sudangrass.

## Introduction

Sweet corn varieties have been improved for flavor and the field growing characteristics of the various endosperm types may vary dramatically. The seed and emerging seedling vigor is less for the supersweet or shrunken 2 (sh<sub>2</sub>) and sugary enhancer (se) types compared to the sugary (su) types. Herbicides and weed competition could affect crop stand establishment and development of the sensitive endosperm type sweet corn varieties. This field study was conducted to evaluate and determine sweet corn herbicide tolerance and weed control efficacy.

## Materials and Methods

A small plot field study was conducted at the University of Arizona Maricopa Agricultural Center on 29 Mar 1995. The herbicide treatments were arranged in a randomized complete block design with three replicates and twelve sweet corn varieties were planted on 40-inch beds in duplicate across the herbicide treatments. Sweet corn varieties included Sweetie 82, Jubilee, Snowbird, GH2921, GSS 6273, GSS 4606, WSS 4186, WSS 5463, Golden Gourmet, Sugar Ace, Landmark, and Zenith. Herbicide treatment plots measured 10 feet by 79.2 feet. The field was listed and prepared with a lilliston cultivator then preplant incorporated (PPI) treatments applied with a hand-held boom having six flat fan 8002 nozzles spaced 20-inches apart and delivered in 18.2 gallons per acre of water pressurized with a CO<sub>2</sub> backpack sprayer at 40 psi. Weather conditions during the morning hours were clear with wind at less than 3 mph and air temperature at 72°F. Immediately after applications, a "sidewinder" power incorporator-bed shaper was used to incorporate the PPI treatments to a depth of 3- to 4-inches. After bed shaping, each of the twelve sweet corn varieties was planted on separate beds in a single row. Preemergence (PREE) treatments were applied immediately after planting on the soil surface using the same sprayer. During the afternoon PREE herbicide applications, the weather was clear, 76°F, and slight winds at 5 mph. After PREE applications, water was applied to the crop by furrow irrigation and beds were completely wetted across the surface. Weed control and sweet corn injury was rated on 17 May at 7 weeks after treatment (WAT). Pigweeds (*Amaranthus* sp.), purslane (*Portulaca oleracea*), annual yellow sweetclover (*Melilotus officinalis*), and volunteer sudangrass (*Sorghum* sp.) were the dominant weed species in the test site.

## Results and Discussion

No observable injury was evident by any herbicide treatment on any of the twelve sweet corn varieties during the season. Overall, Prowl treatments applied PREE provided very good control (>87%) of all weeds rated. Dual, Eradicane,

Frontier, and Bladex treatments gave good control (>80%) of pigweeds and purslane with yellow sweetclover not adequately controlled. All treatments except Bladex alone gave good control of volunteer sudangrass. In this test, PREE applications of Frontier and Bladex appeared to be slightly improved compared to the PPI treatments.

### **Acknowledgements**

I would like to thank the personnel at the U of A MAC for the cultural practices and maintenance of the sweet corn crop to conduct the test.

Table. Sweet corn tolerance and herbicide weed control at U of A MAC. (Umeda)

Treatment	Rate (lb A/A)	Timing	Sweet corn <sup>1</sup> injury (%)	Weed Control at 7 WAT (%)				
				AMAAL	AMABL	PORAL	MEUOF	SUDAN
Untreated check			0	0	0	0	0	0
Dual	1.5	PPI	0	85	87	82	82	87
Eradicane	4.0	PPI	0	82	85	83	78	85
Bladex	1.0	PPI	0	80	88	85	70	58
Frontier	1.0	PPI	0	85	88	78	77	90
Frontier + Bladex	1.0 + 1.0	PPI	0	88	90	83	78	90
Frontier	1.0	PREE	0	85	90	83	78	88
Frontier + Bladex	1.0 + 1.0	PREE	0	92	92	92	92	82
Prowl	1.0	PREE	0	90	93	88	90	87
Prowl + Bladex	1.0 + 1.0	PREE	0	95	96	96	95	88
Bladex	1.0	PREE	0	85	90	93	93	78
LSD (p=0.05)				9.9	7.9	6.2	11.4	9.5

<sup>1</sup> Sweet corn cv. Sweetie 82, Jubilee, Snowbird, GH 2921, GSS 6273, GSS 4606, WSS 4186, WSS 5463,

Golden Gourmet, Sugar Ace, Landmark, Zenith

PPI and PREE treatments applied, corn planted, and watered on 29 Mar 1995.

AMAAL = tumble pigweed (*Amaranthus albus*), AMABL = prostrate pigweed (*A. blitoides*),  
 PORAL = purslane (*Portulaca oleracea*), MEUOF = yellow sweetclover (*Melilotus officinalis*),

SUDAN = volunteer sudangrass