

# Evaluation of Herbicides for Cantaloupe Weed Control

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## Abstract

At 4 weeks after treatment (WAT), all preemergence (PREE) treatments were completely safe on cantaloupes. At 1 WAT of postemergence (POST) applications, marginally acceptable melon injury (11 to 19%) was observed. At 6 WAT, crop injury increased significantly for both halosulfuron and bentazon. Halosulfuron (POST) following bensulide (PREE) caused minimal crop injury. The pigweeds were marginally controlled when POST treatments followed PREE herbicides. Tumble pigweed (*Amaranthus albus*) was more difficult to control than prostrate pigweed (*A. blitoides*). Halosulfuron gave good control of nutsedge (*Cyperus rotundus*) at 6 WAT.

## Introduction

There are a limited number of herbicides labeled for use on melons. Prefar7 (bensulide) is commonly used as a preemergence (PREE) soil surface applied herbicide that has a limited spectrum of weed control. Curbit7 (ethafluralin) is not commonly used because of crop phytotoxicity that may occur during cool weather. Command7 (clomazone) has been previously investigated and has demonstrated varied degrees of weed control efficacy and marginal crop safety. Clomazone at rates greater than 0.5 lb AI/A has caused bleaching of leaves and measurable crop injury. No postemergence herbicides are currently available but Basagran7 (bentazon) and halosulfuron have been investigated in the past and have shown promise for effective weed control with marginal crop safety. This field test was conducted to evaluate PREE and POST herbicides for weed control efficacy and crop safety.

## Materials and Methods

A small plot field study was conducted at the University of Arizona Maricopa Agricultural Center, Maricopa, AZ. Cantaloupes were planted on 27 April 1998 in a single row on 40-inch beds, planted on every other bed, and furrow irrigated only on one side of the bed. The herbicide plots measured one bed by 30 ft in length and were replicated four times in a randomized complete block design. All herbicide applications were made using a CO<sub>2</sub> backpack sprayer equipped with a hand-held boom with two flat fan 8002 nozzle tips. The herbicide treatments were applied in 25 gpa of water pressurized to 40 psi. On 27 April, at the time of preemergence (PREE) applications, the air temperature was 86°F, the sky was clear, and there was a slight breeze. The soil was dry and temperature was 86°F. During postemergence (POST) applications on 20 May, the air temperature was 84°F, the sky was overcast with no wind, and the soil was dry. The cantaloupe was at the 2-leaf stage with weeds ranging from the 4 to 6 leaf growth stage. *Amaranthus* spp. (pigweeds) and *Cyperus rotundus* (purple nutsedge) were the dominant weeds present.

## **Results and Discussion**

At 4 weeks after treatment (WAT), all PREE treatments were completely safe on cantaloupes (Table). At 1 WAT of POST applications, marginally acceptable melon injury (11 to 19%) was observed for bentazon and halosulfuron. At 6 WAT, crop injury increased significantly for both halosulfuron and bentazon. Halosulfuron (POST) following bensulide (PREE) caused minimal crop injury.

The pigweeds were marginally controlled when POST treatments followed PREE herbicides. Tumble pigweed was more difficult to control than prostrate pigweed. Bentazon appeared to provide slightly better control of pigweeds than did halosulfuron. Halosulfuron gave good control of nutsedge at 6 WAT.

Table. Evaluation of herbicides for cantaloupe weed control. (Umeda)

Treatment	Rate (lb AI/A)	Timing	<u>Cantaloupe Injury</u>		<u>Weed Control</u>				
			26 May	06 Jul	AMASP 26 May	AMAAL 06 Jul	AMABL 06 Jul	CYPRO 26 May 06 Jul	
			----- % -----	----- % -----					
Untreated check			0	0	0	0	0	0	0
Bensulide	6.0	PREE	0	0	38	0	53	0	0
Clomazone	0.5	PREE	0	0	50	0	56	0	0
Ethafluralin	1.5	PREE	0	0	63	20	76	0	0
Ethafluralin + Bensulide	1.5 + 4.0	PREE	0	0	56	30	71	0	0
Bensulide + Clomazone	4.0 + 0.5	PREE	0	0	50	20	79	0	0
Clomazone + Ethafluralin	0.5 + 0.8	PREE	4	0	60	18	81	0	0
Bensulide + Bentazon	4.0 + 0.5	PREE POST	15	47	85	0	83	55	88
Bensulide + Halosulfuron	4.0 + 0.1	PREE POST	11	14	63	33	79	60	90
Clomazone + Bentazon	0.5 + 0.5	PREE POST	19	30	89	18	84	66	0
Clomazone + Halosulfuron	0.5 + 0.1	PREE POST	13	43	79	18	56	48	94
Ethafluralin + Halosulfuron	0.75 + 0.1	PREE POST	13	38	81	43	73	69	94
LSD = (p=0.05)			4.3	21.8	16.5	39.5	33.4	16.2	45.0

Treatments applied on 27 Apr 1998 (PREE) and 20 May (POST).

AMASP = *Amaranthus* spp. (pigweeds), AMAAL = *A. albus* (tumble pigweed), AMABL = *A. blitoides* (prostrate pigweed), CYPRO = *Cyperus rotundus* (purple nutsedge)