

# Differences in Weight of 'Calsweet' Watermelons at Three Irrigation Levels

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## ABSTRACT

*'Calsweet' watermelons were irrigated at three levels using a drip irrigation system. Number and weight of melons were recorded for three harvest dates. The low water treatment had significantly lower average melon weight than the medium and high treatments. There were no significant differences between the number of melons produced for each treatment.*

## INTRODUCTION

Due to increasing water costs, efficient irrigation of high water-use crops, such as watermelons, is a growing concern for many Arizona farmers. Drip irrigation applies water more effectively than conventional irrigation systems; drip may reduce overall crop water use. The amount of water applied to individual plants is easily regulated, and unnecessary irrigation of areas between plants may be limited with drip system.

This study was conducted to determine the irrigation level needed for increasing yield of 'Calsweet' watermelons and to examine the use of drip irrigation in watermelon production.

## PROCEDURES

This study was conducted at the Campus Agricultural Center, Tucson, AZ. The experimental design was a randomized complete block with three irrigation treatments and three replications per treatment. Each plot was 1800 sq.ft. with 7 rows, 60 in. on center. There were 10 plants, spaced 5 ft. apart, per row.

The field was direct-seeded May 1987. Areas of poor germination were filled in with Calsweet transplants. Nitrogen was applied through the drip system with an average application rate of 120 lbs. per acre. Weeding was done manually to prevent damage to drip tubing. The wet treatment received 31.5 in. of water in 9 applications; the medium treatment received 22.7 in. of water in 5 applications; and the dry treatment received 21.7 in. in 4 applications.

Ripe melons were harvested on 13 and 27 Aug. and 18 Sept. 1987. Weight and total number of melons harvested for the four center rows of each plot per date were recorded.

## RESULTS

Considering all harvest dates, the low water treatment produced significantly smaller melons than the medium and high treatments (Table 1). Total melon yield was not statistically different among treatments. However, the low and medium treatments yielded 23 percent and 17 percent fewer melons, respectively, than the high water treatment. Lack of significance between melon yield may have been due to the large variance in mean melon size and number within all treatments.

**Table 1.** Mean number, weight, and total weight of melons produced on three harvest dates using three levels of irrigation.

Harvest date	Irrigation Level	Mean no. of melons	Weight per melon	Total weight
8-13-87	Low	74	17.4	1290
	Medium	76	19.6	1489
	High	76	19.8	1504
8-27-87	Low	40	15.4	623
	Medium	57	15.4	872
	High	66	17.8	1172
9-18-87	Low	118	11.2	1314
	Medium	111	11.5	1275
	High	129	11.7	1507
All dates	Low	77.3 A*	14.7 B	1076 A
	Medium	79.6 A	15.4 AB	1198 A
	High	90.3 A	16.4 A	1404 A

\* Yields followed by the same letter are not statistically different from one another at the 5% level.