

Evaluation of Two Levels of Irrigation in Relation to Calsweet Watermelon Yield

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ABSTRACT

Calsweet watermelons were irrigated at two levels, utilizing a drip irrigation system for accurate rate measurements. Number and weight of harvested melons were recorded for four harvest dates. There were no significant differences in weight per melon, number of melons and total mean weight for the water treatments within the four harvest dates. For the entire season, number and total weight of melons were higher in the wet treatment; the weight per melon was higher in the dry treatment.

INTRODUCTION

With water in the Southwest becoming increasingly limited for agricultural crops, new water delivery systems for horticultural crops are becoming increasingly important.

PROCEDURES

This study was conducted at the Campus Agricultural Center, Tucson, Arizona. The experimental design was a randomized, complete block with 2 treatments and 4 replications per treatment. Each plot had 4 beds, 80" on center, with 5 transplants per bed, spaced 5 feet apart. The field was 140 ft. by 35 ft.; each plot was 30 ft. by 40 ft.

Transplants were field-planted 16 June 1986. Nitrogen was applied through the drip system with total applications of 120 lbs of N to the wet treatment and 110 lbs to the dry treatment. Weeding was done by hand to prevent damage to the drip tubing.

The wet treatment received 33.4 in. of water in 12 applications; 8.4 in. of water was applied for establishment and 2.25 to 2.5 in. was applied with each of the remaining 11 applications. The dry treatment received a total of 28.7 in. in 5 applications. The establishment application was 8.4 in.; the 4 following applications were 4 in. each.

The four harvest dates were 28 Aug., 2, 9 and 16 Sept. 1986. Weight and the total number of melons harvested for each plot per date were recorded.

RESULTS AND DISCUSSION

The mean number and weight of melons within each harvest date were not significantly different for the wet and dry treatments (Table 1). The total seasonal mean number and total weight of melons produced was significantly greater in the wet treatment. The dry treatment had significantly greater weight per melon than the wet treatment.

Drip irrigation could possibly provide farmers with an efficient method for water application without decreasing the melon yield or individual weight. More research needs to be done on improving the durability and practicality of drip systems in the field over several growing seasons. Cultivating a field with a drip system installed is one of the problems presently being investigated.

Table 1. Mean number, weight per melon, and total weight of melons produced on four harvest dates using two levels of irrigation.

Harvest Date	Irrigation	Mean # of melons	Weight per melon	Total weight
8-28-86	Dry	2.25	15.95	52.87
	Wet	2.75	11.83	65.12
9-2-86	Dry	10.25	19.55	191.44
	Wet	18.25	20.18	368.19
9-9-86	Dry	20.5	16.93	352.25
	Wet	22.0	17.18	378.94
9-16-86	Dry	10.75	13.78	137.06
	Wet	18.75	18.75	235.19
Seasonal Yield	Dry	10.93b*	16.55a	183.41b
	Wet	15.4a	15.42b	261.0a

**Means separated by Student-Newman-Keul, P = 5%.*