

Evaluation of Fertilizer Levels for Muskmelons

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Interpretative Summary

Introduction

Materials and Methods

Field plots were established in a split-plot design with three replications. Main plots were the two fertility levels, 1X, and 2X. Muskmelon cultivar and spacing subplots were randomized within the main plots. Cultivars evaluated were 'Athena,' and 'Primo.' Plant spacings were 18, 36, and 48 inches. Rows were 50 ft long on 8 ft centers and were covered with black plastic mulch equipped with trickle irrigation. Two plots were planted per row in 20 ft plots with 10 ft alleys between plots. Seed of the cultivars were planted in the greenhouse on April 5, 2000 and transplanted to the field on May 11, 2000. Plots which received 400 lbs/A of 10-10-10 fertilizer prior to bedding and plastic mulch installation. The 2X treatment was provided by two trickle irrigation lines per row and received a total of 170 lbs N/A while the 1X treatment received a total of 85 lbs N/A. Muskmelons were harvested six times beginning July 10 and ending August 1. Random melons from the first three harvests were selected from each treatment and measured for sugar content. All data were analyzed by ANOVA methods and means of significant treatment differences were separated using Fisher's Protected LSD at the 0.05 level of probability.

Results and Discussion

Fertility levels did not influence muskmelon yields at the individual harvest dates. However, total yields (number and weight) were enhanced by the 2X fertility treatment (Table 1). No impact on melon weight or sugar content was observed by harvest date or mean with respect to fertility level. No significant differences were found in total yield, mean melon weight, or mean sugar content with respect to cultivar (Table 2). Cultivar differences were apparent for yield number, yield weight, and melon weight at individual harvest dates. 'Athena' was the earlier variety and produced a greater quantity and larger melons for the first two harvests. 'Primo' was a later variety and outperformed 'Athena' in the middle harvest dates. Closer plant spacing resulted in significant increases in yield number and yield weight, but reduced individual melon weight and sugar content (Table 3).

Table 1. Influence of fertility regimen on muskmelons at The University of Tennessee Knoxville Experiment Station, 2000.

Nitrogen fertility level	yield No./acre	yield weight/acre (tons)	melon weight (lbs)	sugar content (% Brix)
1x rate	5278a	11.3 b	4.36 a	10.1 a
2x rate	6837 a	15.2 a	4.53 a	10.8 a

Data represent means taken across the varieties Athena and Primo. Means followed by the same letter are not statistically different according to Fisher's Protected LSD at P=0.05.

Fertility levels: 1X=85 lbs N/A, 2X= 170 lbs N/A

Table 2. Characteristics of varieties in muskmelon fertility trial at The University of Tennessee Knoxville Experiment Station, 2000.

Cultivar	yield No./acre	yield weight/acre (tons)	melon weight (lbs)	sugar content (% Brix)
Athena	5884 a	13.22 a	4.54 a	11.1 a
Primo	6232 a	13.33 a	4.35 a	9.8 b

Data represent means taken across fertility and spacing treatments. Means followed by the same letter are not statistically different according to Fisher's Protected LSD at P=0.05.

Table 3. Influence of plant spacing in muskmelon fertility trial at The University of Tennessee Knoxville Experiment Station, 2000.

Plant Spacing	yield No./acre	yield weight/acre (tons)	melon weight (lbs)	sugar content (% Brix)
18 inches	7464 a	14.47 a	3.87 b	9.88 a
36 inches	5059 b	11.64 a	4.60 a	11.12 a
48 inches	56493 b	13.71 a	4.86 a	10.46 a

Data represent means taken across fertility and varieties. Means followed by the same letter are not statistically different according to Fisher's Protected LSD at P=0.05.

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This research represents one season's data and does not constitute recommendations. After sufficient data is collected over the appropriate number of seasons, final recommendations will be made through research and extension publications.