

High Tunnel Beit Alpha Cucumber Variety Study

West Florida Research and Education Center – Jay, FL



Table 1. Experimental Information

Experimental Design	CRBD (5 reps)
Irrigation	Driptape
Plot size	10 ft. 9 in.
Plants Harvest per Plot	7
Planting Date	3/3/2015
Bed Spacing	5 ft
Plant population per Acre	5,808
Plant Spacing	18 in.
Bed Width	22 in
Row Direction	North - South
1st Harvest Date	4/7/2015
Planting to 15th Harvest	8 weeks

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Six varieties of Beit Alpha cucumbers were grown in a high tunnel system on plasticulture with fertigation. Each of the six varieties were replicated five times, with each replicated block consisting of seven plants. There were five blocks per row and there were six rows planted. Each row was approximately 52 feet long. Pre-plant fertilizer was applied in an amount estimated to be 20% of total crop nutrient need (50 lb/A of N-K-P). In addition water soluble fertilizer was applied as needed through the drip irrigation system. Petiole sap testing was performed at various times throughout the trial to determine whether nitrogen and potassium levels were in line with University of Florida IFAS recommendations for greenhouse cucumbers and fertilizer applications were adjusted as needed.

Transplants were placed in the high tunnel March 3, 2015. Once the plants were established they were trained to the installed trellis system using nylon hangers and plastic clips. Any suckers or blossoms were pruned off until the plants were approximately three feet tall. Pruning of suckers continued throughout the trial. The plants were grown up to a height of the trellis wire (approximately 7 feet) at which point the tops were clipped and two suckers were trellised back down the plant.

Harvesting began once the first fruits were approximately 5-6 inches long, five weeks after transplanting. Harvested fruit was weighed, and graded three days a week. The first harvest of most weeks resulted in some fruit being graded as unmarketable culls due to excessive growth from the longer interval between harvests that occurred over the weekend. It was not possible to exclude pollinators from the high tunnel system which resulted in some of the beit alpha cucumbers becoming deformed due to pollination. Cucumbers were graded with direct to consumer/local fresh market sales in mind. Cucumbers were graded as #1's, #2's, and culls.

The trial was treated for mites on a weekly schedule after a heavy infestation was discovered. Neem oil was used to suppress the mite population in an effort to decrease any impact on production. Many plants also became infected with watermelon mosaic virus which is vectored by aphids. The high tunnel used was situated in a north to south direction and the west side had an open curtain. The varieties that were planted on the south and west sides, which were more exposed to the elements, had higher wind damage than other varieties. When temperatures began to rise a 40% shade cloth was placed on the high tunnel.

The results showed differences in the total number, total weight, #2 grade weight, and cull grade weight but not in #1 grade weight (Table 2). Jawell was significantly higher in total number of fruit harvested than all other cultivars except Manar. Amiga yielded less in total

weight than all other cultivars but was not significantly less than Perseus. Diva yielded the highest weight of cull grades.

Socrates and Jawell were both top performers and have the potential to yield ~2,000 lbs in a system the size of the experiment (360 linear bed feet). Although the yield for the two is not significantly different other factors should be considered when choosing a cultivar such as seed cost. Current seed cost for Socrates is ~\$0.30/seed and Jawell is ~\$1.00/seed. Jawell and Manar are industry standard for greenhouse production systems and generally are more expensive seeds. For growers in the region marketing locally at farmers markets or other direct sales venues, caution should be taken to determine the demand for beit alpha or “mini cucumbers”. It is recommended to use these cultivars on a trial basis to determine market demand before being put into large scale production.

Special thanks to De Ruiters Seeds for the Jawell seeds and Johnny's Selected Seeds for the Socrates, Diva, and Amiga seeds.

Table 2. High Tunnel cultivar trial of beit alpha cucumbers. Jay, FL 2015.

	Total Number	Total Weight	^y1s	2s	Culls
Socrates	^z 224.0 b	59.004 a	27.998 a	18.400 a	13.038 b
Jawell	258.8 a	57.906 a	27.043 a	18.876 a	12.052 b
Diva	183.8 c	52.266 ab	18.689 a	14.715 b	18.808 a
Amiga	129.8 d	35.433 c	17.888 a	9.425 c	7.468 b
Persues	158.2 cd	42.718 bc	22.348 a	9.902 c	10.253 b
Manar	253.8 ab	55.552 a	25.938 a	16.883 ab	12.854 b

^zMeans followed by the same letter(s) in a column are not significantly different, according to Fisher's Protected LSD (P=0.05)

^yGrades were determined by the following with local direct sales in mind:

1s were XL to Medium and <10% of the fruit surface had blemishes.

2s were XL to Medium and <30% of the fruit surface had blemishes.

Culls were >30% of the fruit surface had blemishes.