

## **Cucumber Production in Miami-Dade County, Florida<sup>1</sup>**

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### **Situation**

Cucumber (for pickling or slicing), a traditional vegetable crop in Miami-Dade County, is grown on annual acreages of 200 to 900 acres. Yields range from less than 300 bushels/acre to more than 600 bushels/acre. Production costs may exceed \$8 per bushel or \$4,850/acre for an acceptable yield of 600 55-pound bushels. Cucumber produced in Miami-Dade County is sold mainly on the fresh market during winter nationwide.

### **Varieties**

Refer to the Vegetable Production Guide for Florida (SP170) for variety selection. The major varieties currently grown in the Miami-Dade County for pickling are Eureka, Napoleon, and Transamerica, and for slicing are Speedway, Greensleeves, Dasher II, Thunder, Lightning, and General Lee.

### **Soils, Land Preparation, and Seeding**

Cucumbers in Miami-Dade County are mainly grown on gravelly soils. To be suitable, gravelly soils must be a minimum of 6 inches deep above the bedrock. Periodic rock-plowing increases soil depth and brings the finer soil particles to the surface. Cucumbers are sensitive to flooding. There is a high risk of losing cucumber crops by flooding of low elevation marl soils. Planting on raised beds reduces losses during periods of flooding.

Typically cucumber beds are 36-40 inches wide, 6-8 inches high and spaced 6 ft between the centers of adjacent beds. Preplant fertilizer should be applied in two parallel bands, each about 9 inches from the center of the bed, and incorporated into the soil by rototilling to a depth of 4 to 6 inches. After rototilling, the bed must be re-formed. The bed should be irrigated and kept moist for at least one week to promote the germination of weed seeds. Then, if the bed has become dry, it should be irrigated again one day before the application of a fumigant. Either one or two drip irrigation tubings, 12 to 14

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inches apart, are installed in the surface layer, and the bed is immediately covered with plastic mulch.

To allow sufficient time for the fumigant to dissipate completely, cucumber seedlings should not be transplanted into the fumigated bed until at least a week after application of the fumigant. Transplanting season extends from October to late February. Seedlings should be spaced 6-12 inches apart, and set 2-3 inches deep. If seedlings are planted in a "double row" (parallel rows 10-15 inches apart on the same bed), the within row spacing should be the same as in a single row planting.

## Fertilizer

Calibrated soil tests for the calcareous soils of Miami-Dade County are not available at present. Therefore, tissue analysis is recommended for determining the composition and rates of fertilizers to be applied. Instructions for tissue sample collection, preparation and submission are provided in Plant Tissue Information Sheet (SL-131), which is available from the County office of the Cooperative Extension Service. Information on plant tissue analysis for cucumber is provided in the Vegetable Production Guide for Florida (SP170). The total amount of fertilizer required in Miami-Dade County depends on the variety, soil fertility, and other environmental factors. Less inorganic fertilizer should be applied if a cover crop or soil organic amendment (compost, biosolids, manure) has been applied. Preplanting fertilizer formulas of 6-6-6, 6-3-6, 10-10-10, or similar formulas are satisfactory. Less than one-half of the fertilizer (N, P, or K or all) should be applied to the beds prior to planting. Fertigation should be initiated with a 4-0-8 or similar formula 3-4 weeks after transplanting to provide the remaining fertilizer. The beds should be fertigated once or twice per week with daily rates ranging from 0.5 lb N to 2 lb N per acre. Magnesium nitrate or sulfate and EDDHA-chelated iron should be applied if deficiency symptoms appear.

## Irrigation and Freeze Protection

Drip irrigation systems are used for cucumber production in Miami-Dade County. One drip irrigation tubing per bed has proven to provide adequate amounts of water for the plants. The water

requirements for young plants are very low. Irrigation frequencies of once or twice per week suffice for most plastic mulched young plants until 5 weeks after transplanting. Over irrigation should be avoided, since it stresses the plants and leaches the fertilizer from the root zone. A tensiometer installed at a 6-inch depth can be used for irrigation scheduling. Optimal plant growth and yields are achieved when the soil moisture is maintained at tensiometer readings between 10 to 15 cbars. The Miami-Dade County Cooperative Extension Service provides relevant information and calibrates tensiometers.

Cucumber is very sensitive to freezing temperatures of less than 31 °F . Therefore, growers in Miami-Dade County arrange for freeze protection of cucumber from late November through February. A high volume solid-set irrigation system with a water delivery rate of 0.25 inch per hour should be used.

## Insect Management

Refer to the Vegetable Production Guide for Florida (SP170) for extensive information on insect control. The major pests of cucumber are the melon thrips, melonworm, pickleworm, and spidermites.

## Disease Management

Refer to the Vegetable Production Guide for Florida (SP170).

## Weed Management

Refer to the Vegetable Production Guide for Florida (SP170).

## Harvest

The harvest season extends from October through mid-December and from February through June. Cucumbers are picked by hand. Cucumbers (slicers and pickles) produced in Miami Dade County are used mainly for the domestic market.

## Multiple Cropping/Rotation

Cucumber can be rotated with tomato, eggplant, pepper, herbs, or squash. However there is risk in rotating cucurbits with solanaceous crops because of Phytophthora blight. This disease is caused by *Phytophthora capsici*, which develops explosively in moist conditions and produces large numbers of infective sporangia. The disease is very damaging and difficult to control.