UF IFAS Extension UNIVERSITY of FLORIDA

HS-855

Cucumber Production in Miami-Dade County, Florida[1]

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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 Table 7.3 in Chapter 7 of the *Vegetable Production Handbook of Florida 2020–2021* for variety selection (Freeman et al. 2021, https://edis.ifas.ufl.edu/publication/CV123). 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 susceptible 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 and 6-12 inches between plants. To allow sufficient time for the fumigant to dissipate completely, cucumber seedlings should not be transplanted into the fumigated bed until at least three weeks after application of the fumigant. The fumigants are all phytotoxic to plants (Noling 2019, https://edis.ifas.ufl.edu/publication/NG025). 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. Either one or two drip irrigation tubings, 12 to 14 inches apart, should be installed in the surface layer, and the bed is immediately covered with plastic mulch.

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.

1. This document is HS-855, one of a series of the Horticultural Sciences Department, UF/IFAS Extension. Original publication date June 2001. Revised April 2006, November 2017, and August 2021. Visit the EDIS website at https://edis.ifas.ufl.edu for the currently supported version of this publication. This document is written specifically for growers in Miami-Dade County as a supplement to *Vegetable Production Handbook for Florida* (SP170) (https://edis.ifas.ufl.edu/topic_vph). We thank many colleagues, growers, and representatives from seed and chemical companies and grower services for reviewing the document.

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Fertilizer

Calibrated soil tests for the calcareous soils of Miami-Dade County are not available at present. Before the tests are available, you may refer to Chapter 2 in the *Vegetable Production Handbook for Florida 2020–2021* (Liu et al. 2017, https://edis.ifas.ufl.edu/cv296). More practically, 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* (Mylavarapu et al. 2017, https://edis.ifas.ufl.edu/ss182), which is available from your local UF/IFAS Extension office. Information on plant tissue analysis for cucumber is provided in the *Vegetable Production Handbook of Florida 2020–2021* (Freeman et al. 2021, https://edis.ifas.ufl.edu/pdffiles/cv/cv12300.pdf). 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. Pre-planting 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, 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 a week with daily rates ranging from 0.5 lb N to 2 lb N per acre. Magnesium nitrate or sulfate and EDDHA-chelated iron (Liu et al. 2018, https://edis.ifas.ufl.edu/hs1208) should be applied if the soil-test report shows low nutrient levels. Please also refer to Chapter 2 of the *Vegetable Production Handbook for Florida 2020–2021* (Liu et al. 2021, https://edis.ifas.ufl.edu/cv296).

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 a 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 UF/IFAS Extension Miami-Dade County office 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 Chapter 7 of the *Vegetable Production Handbook of Florida 2020–2021* (Freeman et al. 2021, https://edis.ifas.ufl.edu/pdffiles/cv/cv12300.pdf) for extensive information on pest control. The major pests of cucumber are the melon thrips, melonworm, pickleworm, and spidermites.

Disease Management

Refer to Chapter 7 of the *Vegetable Production Handbook of Florida 2020–2021* (Freeman et al. 2021, https://edis.ifas.ufl.edu/pdffiles/cv/cv12300.pdf).

Weed Management

Refer to Chapter 7 of the *Vegetable Production Handbook of Florida 2021–2021* (Freeman et al. 2021, https://edis.ifas.ufl.edu/pdffiles/cv/cv12300.pdf).

Harvest

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

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.

References

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