

Eggplant Production in Miami-Dade County, Florida¹

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Situation

Eggplant, a traditional vegetable crop in Miami-Dade County, is grown annually on 100 to 300 acres and sold nationwide for the fresh market during the winter. Yields normally are more than 900 33-pound bushels/acre. The production cost may exceed \$7.5 per bushel or \$10,503/acre for an acceptable yield of 1,400 bushels/acre.

Varieties

Refer to Chapter 8 in the *Vegetable Production Handbook of Florida 2020–20218* (Roberts et al. 2021 <https://edis.ifas.ufl.edu/publication/CV124>) for variety selection. The major varieties currently grown in Miami-Dade County are ‘Classic’ and ‘Megal’. The cultivar type, Thai, including several varieties such as “White”, “Green”, “Purple” etc., is grown for the local ethnic market.

Soils, Land Preparation, and Transplanting

Since the fruit of eggplant is easily scratched and scarred by the action of strong winds, growers prefer fields partially surrounded by trees. Sugarcane can be planted to make an effective windbreak.

Eggplant in Miami-Dade County is grown on gravelly soils and occasionally on marl soils. Recently, Chinese eggplant is expanding in the county due to the increase in Asian immigrants. Usually, eggplant grows better on raised beds with plastic mulch than on flat fields. Some specialty varieties are grown on beds without plastic.

Typically, eggplant beds are 36–40 inches wide, 6–8 inches high, spaced 6 ft between the centers of adjacent beds, and 18 to 40 inches between plants. Pre-plant 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 one day before the application of a fumigant. During the fumigation operation either one or two drip irrigation tubings, 12 to 14 inches apart, are installed in the surface layer, and the bed is immediately covered with plastic mulch. The fumigants are all phytotoxic to plants. To allow sufficient time for the fumigant to dissipate completely, eggplant seedlings should not be transplanted into the fumigated bed until three or more weeks after fumigation.

The main transplanting season extends from September or October through January. Please also see this EDIS publication (Roberts et al. 2021, <https://edis.ifas.ufl.edu/publication/CV124>). Seedlings should be spaced 18–30 inches apart and set 2–3 inches deep, either in a single

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row or in a “double row” (two rows per bed with 10 to 15 inches between these rows). Eggplant does not need to be pruned, but the plants need to be held upright with twine attached to stakes. Each stake is a rod of rebar driven into the limestone bedrock with a 3-pound hammer or with an air-hammer.

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, which is available online (Mylavarapu et al. 2017, <https://edis.ifas.ufl.edu/ss182>) and from your local UF/IFAS Extension office. Information on plant tissue analysis for eggplant is provided in Chapter 2 of the *Vegetable Production Handbook of Florida 2020–2021* (Liu et al. 2021, <https://edis.ifas.ufl.edu/cv296>). The total amount of fertilizer required in Miami-Dade County depends on the variety, soil fertility, and other environmental factors. Less inorganic fertilizer can 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. All the P fertilizer and less than one-half of N and K fertilizer should be applied to the beds prior to planting. Fertigation should be initiated with a 4-0-8 or similar formula 4-5 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 to 2.5 lb N/acre (refer to Chapter 2 in the *Vegetable Production Handbook for Florida 2020–2021* (Liu et al. 2021, <https://edis.ifas.ufl.edu/cv296>)). Magnesium nitrate or sulfate and EDDHA-chelated iron should be applied if deficiency symptoms appear (please see this EDIS publication at <https://edis.ifas.ufl.edu/hs1208>).

Irrigation and Freeze Protection

Drip irrigation systems are used for eggplant production in Miami-Dade County. Generally, one drip irrigation tubing per bed provides adequate water for plants, although a second is beneficial especially while the plants' root systems are small. 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. 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. There is more

information on irrigation in Chapter 3 of the *Vegetable Production Handbook for Florida 2020–2021* (Zotarelli et al. 2021, <http://edis.ifas.ufl.edu/cv297>). UF/IFAS Extension Miami-Dade County provides relevant information and calibrates tensiometers.

Eggplant sustains chilling injury when temperatures drop to 30°F. Therefore, growers in Miami-Dade County arrange for freeze protection of eggplant from the beginning of December 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 8 of the *Vegetable Production Handbook of Florida 2017–2018* (Roberts et al. 2021, <https://edis.ifas.ufl.edu/publication/CV124>) for extensive information on insect control. Spider mites, two-spotted and red, plus broad mites and leafminers are serious pests on young plants. The most dangerous pest of eggplant is the melon thrips. However, the melon thrips can be effectively controlled with timely applications of Spinosad formulations, such as SpinTor SC. The remaining pests tend not to cause major losses.

Disease Management

Refer to Chapter 8 of the *Vegetable Production Handbook of Florida 2020–2021* (Roberts et al. 2021, <https://edis.ifas.ufl.edu/publication/CV124>). Major diseases include alternaria, phomopsis, phytophthora root rot, white mold, and southern blight.

Weed Management

Refer to Chapter 8 of the *Vegetable Production Handbook of Florida 2020–2021* (Roberts et al. 2021, <https://edis.ifas.ufl.edu/pdffiles/cv/cv12400.pdf>).

Harvest

Most of the eggplants produced in Miami-Dade County are shipped to other states. Most eggplant is harvested from October through April, although some is harvested year-round. The fruit is hand-picked.

Multiple Cropping/Rotation

Eggplant should be rotated with cucumber, okra, watermelon, squash, cantaloupe, specialty vegetables, and herbs. Often these relay crops are seeded or transplanted into existing beds. Crop rotation is dependent on good field sanitation to suppress pathogens and insects. There is risk

in rotating eggplant with cucurbits 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.

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