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Alternative Opportunities for Small Farms: Pickling Cucumber Production Review[1]

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Approximately 5000 acres of pickling-type cucumbers are produced annually in Florida with the crop about equally divided between fall and spring seasons. The majority of the crop is produced on the sandy soils near Palmetto, Stuart, and on the rockland of Dade County. Most of the Florida crop is shipped out of state to pickling processors, some as far away as Illinois. Depending on the market price, some of the crop may be sold on the fresh market.

The production of pickling cucumbers is limited mostly by foliar and fruit diseases and insects with careful and timely spray programs required. Other limiting factors include the large amount of hand labor required for harvesting (although this might be obviated by machine harvest), postharvest handling problems, and marketing. Increases in the production of pickling cucumbers will depend on locating additional northern processors or on developing processing facilities or fresh market outlets in Florida.

Marketing Situation

The average yield of pickling cucumbers in Florida is approximately 90 cwt. per acre. The average price received is approximately $16 per cwt. Early crops in the spring or winter can be very profitable ($20 or more per 1 1/9-bu. crate) for fresh market. More often the fresh market crop brings $8 to $10 per crate with cucumbers for processing usually bringing much less.

Although no specific cost of production data for pickling cucumbers produced in Florida are available, cost data for Louisiana producers can be used as a rough indication of production costs. At an assumed yield of 90 cwt. per acre for the 1984 season, production costs were $980 per acre. Break-even price to cover all costs at 90 cwt. per acre would be about $11/cwt.; to cover variable cost the price would have to be greater than, or equal to about $9.00/cwt.

Labor and Capital

Because of the relatively rapid growth, pickling cucumbers should be harvested 3 to 4 times a week if done by hand. If a once-over machine is used, harvesting is done when fruit 1¾ to 2 inches in diameter are first observed. Hand harvesting should be done when the vines are dry to prevent the spread of foliar diseases. The fruit should be harvested into clean, plastic containers, washed in chlorinated water, and graded by a carefully designed grading machine which does not bruise fruit. The price received for pickling cucumbers is related to the fruit size with the smaller sizes commanding a higher price.

Suitability

Pickling cucumbers can be grown on any soil type although heavy clay soils should be avoided because of difficulty in cleansing the fruit. Sandy soils can be used if careful attention is given to irrigation and

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fertility-especially nitrogen. Irrigation equipment must be available on sandy soils with approximately ½ to l inch per week needed early to ensure uniform germination and stand establishment. During fruiting, 1 to 1½ inches per week is required. Cucumbers are a warm-season crop and are seriously injured by cool temperatures (below 40°F). Pickling cucumbers could be produced on nearly a year-round basis in Florida with spring and fall crops possible in most areas and winter crops from Dade County.

Planting Situation

When pickling cucumbers are grown for processing, the variety often is specified by the processor. Older pickling cucumber varieties were "monoecious," both male and female (fruiting) flowers are produced on the same plant. Modern varieties are gynoecious and bear predominately female flowers thus increasing the yield potential. These varieties are hybrids and also are more disease resistant and more uniform in maturation making some of them suitable for machine harvest. The pollen source of a gynoecious variety is usually a similar monoecious variety, seed of which is mixed with the gynoecious variety by the seed company. Presently recommended pickling cucumber varieties for Florida include ‘Calypso’, ‘Carolina’, and ‘Napoleon’.

Pickling cucumbers should be grown in moderately high populations to achieve the highest yields providing fertility and irrigation practices are optimum. The seeds should be drilled approximately ½ to ¾ inch deep using fungicide-treated certified seed. The crop can be grown in single-row fashion with 24 to 36 inches between rows and 3 to 4 inches between plants in a row. Where standing water from heavy rains might be a problem the crop should be grown on beds 4 to 6 inches high and 24 to 30 inches across with 4'-6' between bed centers. Two rows of cucumbers can be planted on each bed with 10 to 12 inches between the rows. Yield and quality of many vegetables are enhanced by the use of black plastic mulch. The mulch increases soil temperature, retains moisture and nutrients, and helps reduce weed competition.

Cultural Program

Recommended nematicides or rotation should be used since cucumbers are very sensitive to nematodes. Although many insects attack cucumbers, the most troublesome one is the pickle worm, the larvae of which burrows into the fruit. Complete control by insecticides is required by most pickle contracts. Other insects requiring control include cutworms, mole crickets, cucumber beetles, leaf miners, and aphids. The most serious diseases in Florida include belly rot, angular leaf spot, downy and powdery mildews, anthracnose, gummy stem blight, and viruses. Most of these can be controlled by careful variety selection and a sound preventative pesticide program.

The soil pH should be adjusted to 6.0 to 6.5. Unless optimum magnesium is present in the soil, dolomitic limestone is the preferred liming material since it provides magnesium, a nutrient required by cucumbers for good, green color. Pickling cucumbers may require up to 120, 120, and 120 lbs per acre of nitrogen (N), phosphate (P_2O_5) and potash (K_20) respectively with the exact amount determined by soil testing. An additional 30 lbs per acre of N and K_20 might be required as a sidedress following heavy rains. The basic application of N and K_20, on unmulched sandy soils, should be split with one-half incorporated in the bed area at planting and the remainder banded to the side of the plant at the 4-leaf stage. All phosphate and required micronutrients should be incorporated prior to planting.

Weed competition, especially grassy weeds, can severely reduce production and although several chemicals offer fair control, manual weed control might be needed. Cucumbers are particularly sensitive to herbicides so past herbicide practices will have to be taken into account. In addition to other cultural requirements, about one honey bee hive per acre is needed to ensure ample pollination for good fruit set and size.