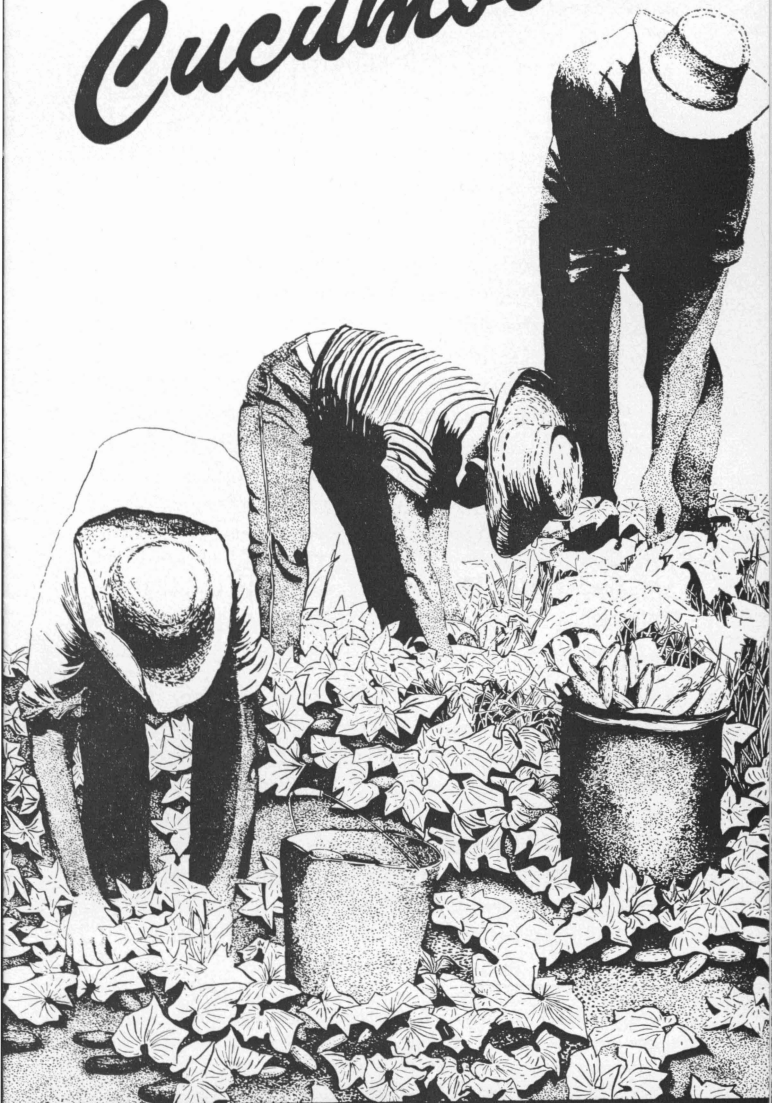


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Growing Pickling Cucumbers



THE AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS

TEXAS AGRICULTURAL EXTENSION SERVICE

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Growing Pickling Cucumbers

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CUCUMBERS for pickles generally are grown under contract. Thus profit is related directly to yield per acre. Production costs (harvesting costs excepted) are about the same for all pickle growers within a given area. Yet, often a yield difference of several hundred bushels of cucumbers per acre exists between the highest and lowest producers. Cucumber plants respond to timely attention during production, and this makes the difference between high and low production or profit and loss.

Soil selection. Sandy loams, silt loams and clay loams are suitable for growing pickles. The soil should be well drained and there should not be low areas where water can stand for lengthy periods. Be sure that the land to be used for cucumber production is free of nematodes. This can be determined by checking roots of plants of the previous crop for root "knots". The cucumber is extremely susceptible to injury by the root knot nematode.

Varieties. The variety depends on the demands of the contractor. Most pickling firms now process the MR 17 variety.

Fertilizer. Do not guess the fertilizer needs of your pickle crop. Have a soil test made and apply the *kind* and *amount* of fertilizer, based on the soil test analysis. Indicate the amount of manure you plan to add when the soil sample is sent in. If you cannot get a soil test made, ask your county agricultural agent to make a recommendation based on the history of the field.

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The cucumber plants will make best use of the fertilizer when it is applied 2 inches directly below the seed.

Cucumber plants have a high requirement for nitrogen as soon as plants begin to produce flowers. Applications of 15 to 20 pounds of nitrogen per acre every 7 to 10 days have proven profitable to certain growers when used with irrigation. Since rainfall cannot be predicted accurately, it is difficult to plan nitrogen "side-dressing" when irrigation is not available. Nitrogen needs are directly related to soil moisture but applying 15 to 20 pounds of nitrogen at first bloom and again 2 to 3 weeks later would generally be profitable for growers without irrigation.

Research results are not available on the best form of nitrogen to apply. Generally, growers with irrigation apply the liquid, or highly soluble, forms of nitrogen in the irrigation water. Nitrogen in the form of ammonium nitrate or ammonium sulfate would perhaps be easier to apply when cucumbers are grown without irrigation.

Cucumbers respond to manure applications. They will return more from each ton of manure added than any other crop. Apply the manure in a furrow. Then bed the row over the manure. The manure, if applied just prior to planting, should be well rotted. If it is heavy with straw, add ammonium nitrate (33%, N) to aid in the breakdown of the straw. For each 200 pounds of straw in the manure, mix in 5 pounds of ammonium nitrate.

Soil preparation. A well-pulverized, deep seedbed is essential to obtain a good stand of plants. Discing the soil several times before planting time will reduce weed and insect populations. As a result, you will find it easier to prepare a loose seedbed at planting time.

Planting. Plant cucumber seed when the soil temperature is 60 degrees F. or higher on five consecutive mornings at 7 a.m. The faster the plants come up, the greater the chance for a good stand, with less insect and disease injury.

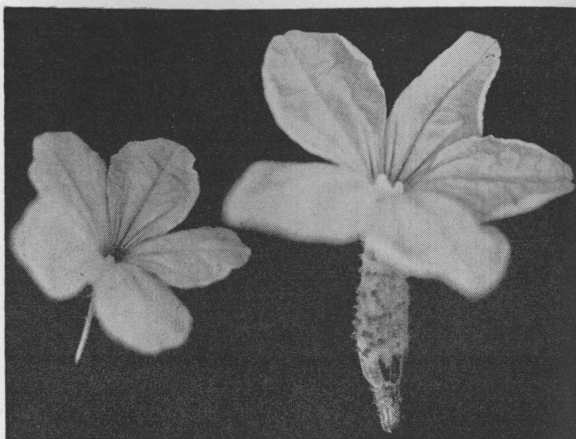


Fig. 1. Female flowers, left; male flowers, right, from cucumber plant.

Plant the seed $\frac{1}{2}$ to $\frac{3}{4}$ inch deep. Keep the top 2 inches of soil moist until a good stand is obtained. Maximum stand and yield are obtained with irrigation.

Cucumbers for pickling are planted on rows 40 to 100 inches apart. Maximum yields have been obtained on 40-inch rows but you will have a greater problem of keeping the vines trained in the row for harvesting. The usual spacing between cucumber rows is 60 to 70 inches.

The seed generally are drilled in the row and thinned later to one plant every 6 to 12 inches. Some growers plant on hills 18 to 24 inches apart with 2 plants per hill. *Drilling of seed and thinning to the desired spacing usually is preferred.*

Windbreaks. Wooded areas surrounding fields give good protection to cucumber plants from strong winds. Special windbreaks should be established in areas without natural protection. Planting rows of barley, speltz, or a similar crop that does well in your area every 15 to 25 feet in a cucumber field gives fairly good protection to the small, delicate cucumber plants. Plan to plant your windbreak crops sufficiently in advance of cucumber planting to insure adequate height of the windbreak when the cucumber plants emerge.

Plant cucumber and windbreak rows so that the prevailing winds blow across the rows rather than with them. For example, if the cold prevailing winds are from the north, the rows should run east and west.

Irrigation. You can insure maximum yields and profits only when you provide supplemental irrigation. Pickle growers who realized greatest profits in 1959 were the growers who irrigated. Irrigation insures the greatest profit from investments made in other production practices. The cucumber plant requires a *constant* supply of moisture.

Bees for pollination. Pickling cucumber varieties are highly cross pollinated. Male and female flowers occur separately on the plants. Figure 1 shows female and male flowers from a cucumber plant. Pollen must be carried from the male to female flowers for proper development of fruit. The honeybee is the most efficient pollinator for cucumbers. You can obtain profitable yield increases with the use of one hive of bees for each 1 to 3 acres of cucumbers, depending on the population of wild bees. Poorly formed pickles such as "nubs" and "crooks" usually result from poor pollination due to an insufficient number of bees.

Insect control. Some of the more important pests which attack cucumbers are aphids, cucumber beetle, leaf miners, spider mites and leaf hoppers. Plants should be observed closely throughout the growing season to determine what pests may be involved so that the correct insecticide can be selected to give satisfactory control.

In most cases control of insects on cucumbers and other vegetable crops is a preventive program. Controls should be started before plants are damaged and before insects build up in large numbers. Most of the pests mentioned are capable of infecting plants early and controls may be needed soon after the plants emerge above ground.

The insecticides may be applied as a dust or spray. It is essential to make thorough

application of insecticides to control pests such as spider mites and aphids. In some instances it is necessary to make two or more insecticide applications at 5 to 7 day intervals until control is obtained. The number and kind of pests present during the growing season will govern the type of insecticide and the frequency of application.

The chart below lists the insecticides and dosages recommended for the control of the pests mentioned. Also listed are limitations for use of these materials on cucumbers.

Harvesting. Total yield of cucumbers is related to frequency and efficiency of harvesting. As the size of fruits already on a plant increases, the "set" of new fruit decreases. Every effort should be made to pick all fruits

as soon as they reach marketable size. Pickers frequently skip over the smaller fruits ($\frac{3}{4}$ to 2 inches in length). However higher prices are paid for the smaller sizes and there is less stress on the vigor of the plants when fruits are harvested when less than 2 inches in length as compared to 3 to 4 inches in length.

Do not allow **any** fruits to mature on the vines. This will seriously reduce yield. Pick daily if possible. Most growers harvest every other day.

When picking the cucumbers from the vine, remove the stem at the fruit attachment. Do this by pressing the thumb against the stem when pulling the fruit from the plant. Do not leave stems on the cucumbers. *Supervise the picking operation.*

Insect	Dust (Apply 20-30 lb. per acre)	Spray amount per acre	No. days from last application to harvest	Remarks
Aphids	4% Diazinon	1 qt. Diazinon (2 lb. per gal.)	7	Sprays are generally more effective than dusts. Thorough coverage is important.
		1 qt. Thiodan (2 lb. per gal.)	14	
	1% parathion	1 pt. parathion (2 lb. per gal.)	15	
Cucumber Beetles	1½% dieldrin	1 qt. dieldrin (1.5 lb. per gal.)	7	These insects may be present in fields soon after plants emerge. They feed on young foliage and may destroy the stand.
	7½% Sevin		1	
Leaf Miners		1 pt. parathion	15	Damage caused by small fly larva feeding inside the leaf. Heavy infestation may destroy the leaf. Sprays are more effective than dusts.
		1-2 pt. Diazinon	7	
Spider Mites	4% Trithion	1 pt. Trithion (4 lb. per gal.)	7	Sprays are generally more effective than dusts. Thorough coverage is important. In most cases it will require at least two applications at 5-7 day intervals to obtain control.
	1% parathion	1 pt. parathion	15	
		1 qt. Kelthane (1.5 lb. per gal.)	2	
Leafhoppers	1% parathion	1 pt. parathion	15	May migrate into fields at any time of the growing season. Two or more insecticide applications at 5-7 day intervals may be required to obtain satisfactory control.
	4% malathion	1 qt. malathion (5 lb. per gal.)	1	
	4% Diazinon	1-2 pt. Diazinon	7	

CAUTION: All insecticides are poisonous and should be handled according to instructions on labels. Special precautions should be practiced in handling parathion and Trithion.

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