



AGRONOMIC SPOTLIGHT



SLICING CUCUMBER PLANTING MANAGEMENT

- » Slicing cucumbers are planted by direct seeding and by transplanting seedlings.
- » Cucumbers should be planted after soil temperatures reach 60 °F and the danger of frost has past.
- » Between-row and with-in-row plant spacings for cucumber plantings vary by region and production system.

SITE SELECTION AND SOIL CONDITIONS

Slicing cucumbers should be planted in soils with good water infiltration rates and water holding capacities. In particular, good soil drainage is needed to reduce the risk of Phytophthora blight. Avoid sites with compacted soils. Cucumbers will grow best in light textured soils that warm quickly in the spring. The soil pH should be between 5.8 and 6.6. Cucumbers grow well on high organic matter soils, which have good nutrient holding capacities, but these types of soils can stick to the fruit and be difficult to remove after harvest.^{1,2,3}

Avoid sites where air movement is poor, such as sites surrounded by hedgerows or woods, as this can result in prolonged periods of leaf wetness that leads to the development of foliar and fruit diseases. Orient planting rows to be parallel to the direction of the prevailing winds to promote air movement in the canopy.² Also, do not plant cucumbers on sites that were treated with a triazine-based herbicide in the previous year.⁴

Preseason soil analysis for nematodes and soil fertility levels can help avoid locations with high root knot nematode populations and help determine the amounts of fertilizers that should be applied for optimal cucumber growth.³

The time of planting of a cucumber crop often needs to be scheduled such that the harvest coincides with market demand. The availability of labor and equipment at the time of harvest, as well as likely environmental conditions, such as the number of growing degree days, will also need to be taken into account.³ If direct seeding following a cover crop, wait two to three weeks after incorporation to allow time for the cover crop debris to decompose and for any allelopathic properties of the cover crop to diminish.²

Whether planting on bare ground or on mulch-covered raised beds, the preparation of a good seedbed will allow good emergence and promote quick stand establishment.³ When direct seeding, planting should take place only after soil temperatures are consistently above 60 °F at a three to four-inch depth (Figure 1), as cucumber seeds will not germinate at temperatures below 60 °F.^{1,3} At 60 °F seed will

germinate in nine to sixteen days, while seed will germinate in five to six days at 70 °F. Also, plant after the danger of frost has passed. Chilling injury on leaves and cotyledons can be seen following temperatures below 40 °F. Conversely, cucumber plants will grow very slowly at temperatures above 90 °F.⁵

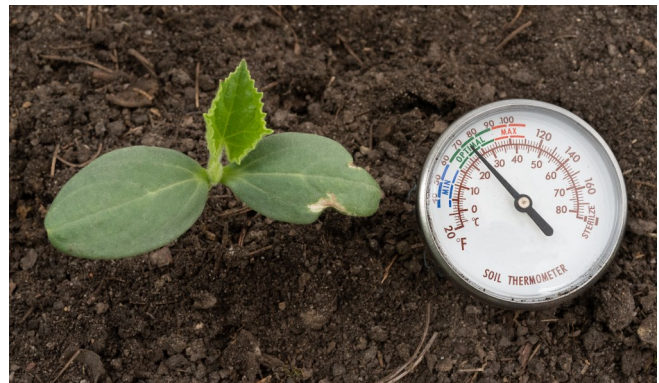


Figure 1. Cucumber seed or seedlings should be planted only after soil temperatures are consistently at or above 60 °F (16 °C).

In plasticulture systems where soil fumigation is used, the plastic mulch, drip irrigation system, and soil fumigants are put down about 30 days before field planting to allow time for the fumigants to dissipate.⁶ Both direct seeding and transplanting can be done directly through the plastic mulch using specialized equipment, with one or two seed or seedling(s) per hole.⁴

DIRECT SEEDING

Most cucumber varieties have seed counts of 16,000 per pound or 1,000 seed per ounce, and about two pounds of seed are needed per acre for common spacings and plant populations in hand-harvested operations.³

Recommendations for depth of seed placement vary somewhat among regional production guides, with depths of ½ to ¾ inch being most common.³ One Wisconsin publication recommends planting depths of ¾ to 1 ½ inch.⁵ Shallower seeding depths are usually recommended when planting in heavier soils, or when soil conditions are cool and

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moist at planting. Planting too deep can result in delayed emergence and uneven stands. Moisture levels should be adequate at planting to promote consistent germination, and dry soils should be irrigated prior to planting. Irrigation after planting can lead to soil crust formation that can inhibit emergence.

With the cost of hybrid seed and labor, many growers are using precision planters to reduce the number of seed planted, to get more uniform plant stands, and to eliminate the need for thinning.³ Belt, plate, and vacuum seeders can be used for precision planting. Belt seeders require the use of pelleted (spherical) seed, which is somewhat bulky and can be more expensive. Belt seeders are also somewhat slower than plate and vacuum seeders. Plate seeders are faster than belt seeders and do not require the use of pelleted seed, but they are not as precise as vacuum seeders. Vacuum seeders are very precise, and they are easy to adjust for different seeding rates.³

TRANSPLANTING

Cucumber seedlings are sensitive to root disturbance, and rough handling during transplanting can lead to severe stunting of plants and delay harvest. Therefore, care must be taken to handle cucumber seedlings gently during transplanting operations.³ To ensure that seedlings are strong enough to be transplanted, grow seedlings in cell trays with cell sizes of at least 1.5-inch diameter. The Knott's Handbook for Vegetable Growers indicates that cucumber seedlings should be two to three weeks old at the time of transplanting.⁷ However, other publications recommend transplanting at four to six weeks.⁸

PLANT SPACING

Spacing recommendations for cucumbers vary somewhat among states and growing regions. For bare ground production, University of Florida-IFAS guidelines recommend planting on 48 to 60 inch rows, with a plant-to-plant, in-row spacing of 6 to 12 inches.⁹ The Cornell Extension guidelines recommend row spacings of 60 to 72 inches with in-row spacings of 10 to 15 inches,¹⁰ and the Midwest Production Guide recommends row spacings from 48 to 72 inches with in-row spacings of 15 to 18 inches.¹¹ However, planting with 6-inch in-row spacing is not uncommon in the Midwest. In California, cucumbers are planted in 36 to 72-inch rows with in-row spacings of 8 to 12 inches. However, in the Coastal areas of Southern California, cucumbers are often direct seeded three to five inches to the side of a drip line with a 20 inch in-row spacing on 60-inch beds.¹²

In plasticulture systems, cucumbers are often planted with one or two rows per bed. In two row systems, a 10 to 18-inch plant spacing is recommended for 48 to 72-inch beds, with one (or sometimes two) plants per hole (Figure 2).⁹



Figure 2. A cucumber plant emerging from a hole in the black-plastic mulch on a raised-bed.

WIND PROTECTION

It is common practice in some areas to plant strips of winter rye between rows of cucumbers to provide protection from cold winds and sand blasting and to reduce heat loss early in the season. A strip of rye is planted every third to every sixth row.^{2,3} The rye is planted in the fall, so some additional planning is required. One problem with this practice is that rye plants can harbor aphids, which may transmit viruses to the cucumber crop.

Sources:

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For additional agronomic information, please contact your local seed representative. Developed in partnership with Technology Development & Agronomy by Monsanto.

Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields. The recommendations in this article are based upon information obtained from the cited sources and should be used as a quick reference for information about cucumber production. The content of this article should not be substituted for the professional opinion of a producer, grower, agronomist, pathologist and similar professional dealing with this specific crop.

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