

GROWING FRESH BABY GINGER IN MOVEABLE HIGH TUNNELS

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Ginger (*Zingiber officinale*) is a perennial plant that is native to tropical regions of Asia and is grown commercially as an annual crop. Ginger is commonly used in many African, Asian, and Caribbean recipes or in herbal teas, and is sold fresh or dried and ground. What many people refer to as the “ginger root” is actually the “ginger rhizome,” which refers to the underground stem of the plant. The continental United States imports most of its ginger from other countries, or from Hawaii, but ginger can also be grown locally right here in New Jersey. Recently, farmers throughout the Northeast have been having success growing baby ginger in high tunnels. Fresh baby ginger is a unique product that is different than the mature ginger that is sold in grocery stores and has potential as an excellent niche crop for farmers markets, restaurants, CSAs, and other direct marketing customers.

This project documented production practices for growing baby ginger (var. Peruvian Yellow) in Central New Jersey, at the Cream Ridge Specialty Crop Experiment Station using moveable high tunnels. After the ginger was harvested, samples of the crop were donated to local restaurants and breweries with a survey to complete, indicating their satisfaction with the crop and how likely they might be to purchase it from growers in the future.

Growing Methods

Pre-sprouting the Seed Pieces

Ginger requires a long growing season to produce a harvestable crop. In New Jersey, this involves pre-sprouting the ginger seed pieces in late February or early March in a heated greenhouse before they can be transplanted into the field. The seed pieces are sections of the rhizome, generally weighing 1 to 2 ounces each. Seed should only be obtained from a reputable supplier to minimize the potential for any disease issues on contaminated seed.

To pre-sprout the ginger, each seed piece was spread out in a single layer in flats and covered with 1-2” of potting mix. The temperature in the greenhouse was maintained at approximately 75°F. The flats were then placed on heat mats set to 72°F to maintain an even and consistent temperature in the root zone. The medium in the sprouting trays was supplied with adequate moisture but was never over-watered. Shoots emerged out of the medium and roots developed over an 8-week period.

Planting the Seed Pieces in the High Tunnel

When soil temperatures in the high tunnel are consistently 55°F or higher, the sprouted seed pieces can be planted into the soil. This is likely to be in late April or early May, depending on the season. Ginger is a heavy feeder and grows best with compost additions and supplemental nitrogen (100 lbs. N/acre before planting plus two additional applications of 25 lbs. N/acre during the growing season). A neutral to slightly acidic pH (approximately 6.5) is recommended, and adequate calcium is important for the crop. Drip irrigation is also recommended to conserve water and reduce the leaf wetness period.

In this study, sprouted ginger seed pieces were planted 6 inches apart and 8 inches deep into trenches spaced 2 feet apart. They were then lightly covered with a few inches of soil so that the tip of the shoot was still showing. Each row was 20 feet long and was replicated four times across two moveable high tunnels. A second treatment group that received three applications of humic acid was also replicated four times to evaluate whether this product could encourage higher yields. Approximately 26 lbs. of seed planted 160 row feet in this trial. However, the initial size of the seed pieces will also influence how many row feet can be planted per pound of seed. The plants were hilled two times throughout the growing season as the shoots grew taller and the underground rhizomes began to develop.

Disease Management

Ginger is susceptible to bacterial wilt, bacterial soft rot, *Pythium*, and fusarium. Purchasing disease-free seed stock is the first line of defense against these problems. Soil-borne nematodes can also be a potential pest of ginger. It is important to avoid planting in areas where other crops that are susceptible to these pathogens have been recently grown to further minimize disease pressure. Growing the crop in a high tunnel not only provides necessary temperature modification, but also protects the crop from excessive rainfall events, which can lead to overly saturated soils and the development of disease problems. Moveable high tunnels allow the crop to be rotated from one section of the field to another each year, further helping to reduce the buildup of soil-borne pathogens.

Harvesting Ginger

Ginger is generally harvested from late September or early October through the beginning of November. The leaves will begin to turn brown as temperatures drop and frost begins to occur. Ginger plants can remain in the ground as long as there is at least one inch of green tissue still living above the rhizome, but many growers will harvest sooner. The plants are pulled from the ground using a digging fork and care should be taken not to damage the delicate skin of the rhizome. Baby ginger is perishable and will store for about two weeks in cold storage.

In this project, ginger was harvested and weighed over a 4-week period (October 13 to November 3) to determine if any significant increases in size occurred during this time. Each week, 5 feet of the 20-foot rows were harvested and weighed. The tops and roots were trimmed, and the rhizomes were washed free of soil. After the weights were obtained, samples of the crop were donated to 18 local restaurants and breweries with a link to a survey about the crop.

Results

Harvested ginger yields by weight ranged from 2.1 to 2.7 lbs. per foot during the four-week harvest period (Figure 1). While trends of slight increases were observed over the course of the four weeks, these results were not statistically significant, suggesting that ginger can be harvested at any time during this four-week period without noticeable reductions in yield. Treatments with humic acid also demonstrated potential for slight yield increases, however these results were not statistically significant.

The total harvested yield for Peruvian Yellow baby ginger was 384.5 lbs. from 26 lbs. of seed planted in 160 row feet. This equates to 14.8 lbs. harvested for every 1 lb. planted and approximately 2.4 lbs. of ginger harvested per foot. Baby ginger retails for approximately \$16 per pound at farmers markets and can wholesale for \$10 per pound. At retail prices, baby ginger can gross over \$38 per linear foot of bed space planted, making it a potentially very valuable crop for NJ growers who are involved in direct market sales.

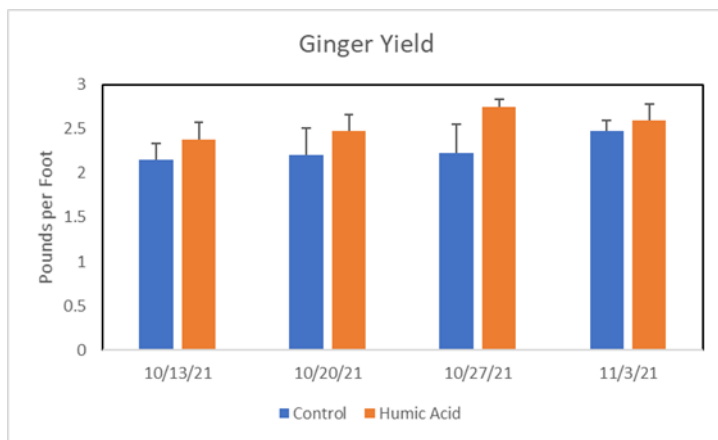


Figure 1: Ginger yields from control beds, and beds treated with humic acid over a 4-week period.

Restaurants and breweries indicated a high degree of satisfaction with the crop, with 100% of respondents (n=11) indicating that they were Very Satisfied with the crop overall. Additionally, 91% of respondents (n=11) indicated that they were Somewhat Likely or Very Likely to purchase baby ginger from local farmers in the future (Figure 2).

Additional feedback from the respondents included: “The ginger had excellent flavor,” “The baby ginger was beautiful and tropical looking,” and “Very easy to peel and much more flavorful than any other ginger I’ve tried.”

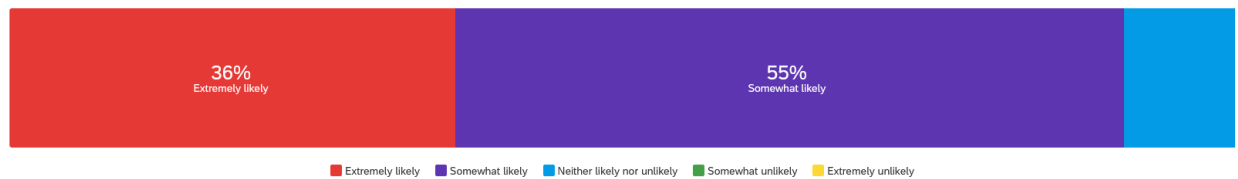


Figure 2: Responses from restaurants and breweries indicating how likely they would be to purchase baby ginger in the future (n=11).

The high level of satisfaction from local restaurants and breweries, combined with their willingness to purchase baby ginger from growers further indicate the potential for growing and marketing baby ginger as a niche crop in NJ.

Additional Resources

Ginger and Turmeric. University of Kentucky Cooperative Extension:

https://www.uky.edu/ccd/sites/www.uky.edu.ccd/files/ginger_turmeric.pdf

Effects of early season heating, low tunnels, and harvest time on ginger yields in NH, 2017: https://extension.unh.edu/resources/files/Resource007161_Rep10344.pdf