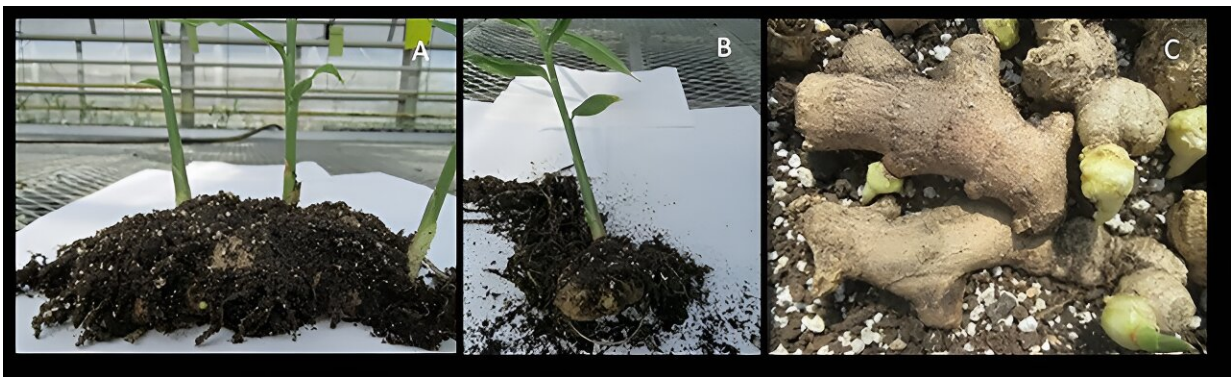


# Organic ginger's response to propagation, fertilizer in high-tunnel

March 12 2024, by Jane Cerza

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Credit: American Society for Horticultural Science

Ginger is one of the world's leading spice crops, and is used for both its medicinal and flavor qualities. It grows well in tropical regions and its rhizomes mature in eight to nine months from planting. Rising consumer demands for organically grown crops in the U.S. provide the opportunity to add locally grown organic ginger to certified crop lists.

Typically ginger is grown from rhizome pieces, but can also be produced from [seedlings](#). No information is available on how the seedling method compares with the rhizome seed piece method in organic culture.

Information on the growing of organic ginger on small farms in the mid-Atlantic region is lacking.

Some of the challenges include; limited knowledge on rhizome storage, types of propagation materials for planting in the field or high tunnel, acceptable organic fertilizers that will not increase the excess phosphorus currently polluting the Chesapeake Bay watershed, and the economics of using organic practices.

A study [published](#) in the journal *HortScience* assessed [plant development](#), soil nutrients, and economic feasibility of organic ginger derived from different storage conditions and planting materials when grown in different nutrient sources in a high tunnel.

Ginger can be grown from rhizome pieces (called seeds), from seedlings from mature rhizomes, or from micropropagated seedlings from buds, with the latter type of propagule known to produce disease-free material.

The study consisted of three experiments done over 3 years on a certified organic site at the University of Maryland Eastern Shore (UMES) Agriculture Experiment Station in Princess Anne, MD, U.S. (lat. 38°12'N, long. 75°42'W). Year 1 (2018) entailed investigating the effects of planting materials and organic fertilizer types on ginger development, economics, and [soil nutrients](#). Because of the high weight loss of the rhizomes before the 2018 planting, the study was modified in 2019 (year 2) with the addition of rhizome storage as another factor. The 2019 experiment was repeated in 2020 (year 3).

The type of plant material used for growing ginger in the high tunnel had significant effects on all parameters measured, with the MS seedlings producing the greatest rhizome yield, tallest plants, and the greatest number of tillers. Rhizome-derived seed plants were generally shortest, but they had comparable yield to the SS seedling-derived plants. The MS seedling plants had greatest BCRs and PIs and will be more profitable to use as planting materials in high tunnels compared with SS seedlings and rhizome seeds.

The findings showed that ginger grown from multiple shoot transplant (MS) seedlings produced the highest rhizome yield, Benefit cost ratio (BCR), and Profitability index (PI), the tallest plants, and had some of the highest tiller numbers. These results showed that it would be more profitable to use MS seedlings as planting materials in high tunnel compared to the single shoot transplant seedlings and the rhizome seeds.

Furthermore, the lower phosphorus levels in the Nature Safe fertilized soils compared to the Phytamin soils, and higher PI suggest that using Nature Safe will be a better choice than Phytamin for growing organic ginger.

According to the author, "This research was prompted by the need for information on the optimum type of propagating material for producing high tunnel organic [ginger](#) in a short growing season as well as determining the types of fertilizer acceptable for growing them while following organic and nutrient guideline standards."

Dr. Marsh is a retired professor of Agriculture, previously associated with the Department of Agriculture, Food and Resource Science, University of Maryland Eastern Shore.

**More information:** Lurline E. Marsh et al, High-tunnel Organic Ginger: Response to Propagation Material, Fertilizer, and Prepropagation Rhizome Storage, *HortScience* (2023). [DOI: 10.21273/HORTSCI17005-22](https://doi.org/10.21273/HORTSCI17005-22)

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