Cultivation of baby Ginger in the Mid-Atlantic Region

Shem Elias* [1] and Gordon C Johnson[2]

[1]Department of Plant and Soil Sciences, University of Delaware, Townsend Hall, Newark, DE 19716

[2]Department of Plant and Soil Sciences, University of Delaware, Carvel Research and Education Center, 16483 County Seat Highway, Georgetown, DE 19947

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Ginger

- A Rhizomatous plant, Used as Spice
- Synonyms to the plant and its rhizomes.

Cultivation period

- 3-6 months for baby ginger (immature ginger)
- 8-12 months for matured ginger

USES OF GINGER

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- Historical usage Dates
  - 5000 years ago, in Asian and Ayurvedic medicine
  - 3000 years ago, as an export crop

- Used to Treat several ailments
  - Fatigue, Gastrointestinal disorders (Nausea, constipation, dyspepsia, etc.)
- Anti; inflammation, diabetic, cholestroemic, osteoarthritis, microbial, etc.

- Dried ginger is 10 – 15 x stronger.

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BIOLOGY & ECOLOGY OF GINGER


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- Perennial, Native to Asian's warm tropical rainforests

Characteristics


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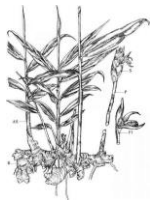
- Height (1.5 – 4 ft) depending on the growing environment
- Multiple pseudo-stems (15 – 30 tillers)
- Alternate leaves forming from the base
- Flowering is inconsistent
- Two renowned varieties (Indian ginger and Chinese ginger)
- There exist several other ornamental ginger varieties
- Close relatives are Turmeric and Cardamom (super foods)
- They share similar cultivation practices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CULTIVATION OF GINGER

- 1. Raising seedlings
- 2. Field preparation
- 3. Transplanting/Direct planting
- 4. Irrigation

- 5. Fertilization
- 6. Cultural practices
- 7. Pest management
- 8. Tentative rotation plan
- 9. Alternative cultivation strategies

CULTIVATION OF GINGER

1. Raising seedlings

- Purchase mother rhizomes
- Wash, split, weigh, disinfect, and cure the mother rhizomes


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- Pot them, grow for 1 – 2 months (greenhouse, heated tunnels or normal tunnels are ideal)
- Irrigate 3 times a week


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CULTIVATION OF GINGER

2.Field preparation

- Start early April (Tunnels), Start early May (Open field), done throughout (greenhouses)
- Clear the field, and incorporate well-decomposed manure or compost (8-12 t/a)
- Make 0.5 - 1 ft high raised beds (lowlands with waterlogging)

- Bed's dimensions range (3ft W X Desired length), OR make ridges with furrows
- Set irrigation systems

CULTIVATION OF GINGER

3. Transplanting/Direct planting

Begin transplanting

- Mid – Late April for tunnels
- Mid – Late May for open fields

Transplant quality

- 2-3 tillers
- ≥ 1 ft height **For**

Direct seeding

- Mid – Late April for tunnels
- Mid – Late May for open fields

CULTIVATION OF GINGER

4. Irrigation

- Ginger responds to irrigation
- Supplement irrigation required during drought stress
- 2-4 irrigations per week are ideal depending on soil type
- Suited by any irrigation system

Drip, Surface, sub-surface, or overhead irrigation

A

B

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CULTIVATION OF GINGER

5. Fertilization

- **Ginger is a heavy feeder, and requires complete nutrition**
- **Requires an N-P-K ratio applied to the soil:**
  - 2-1-1 during transplanting or 2 months after planting
  - 1-2-2 after 3 months of field cultivation through near harvest
  - Total N should be 100-180 lbs/a
- **Requires equal proportions of Micronutrients**
- **Add lime if pH is less than 5.8**

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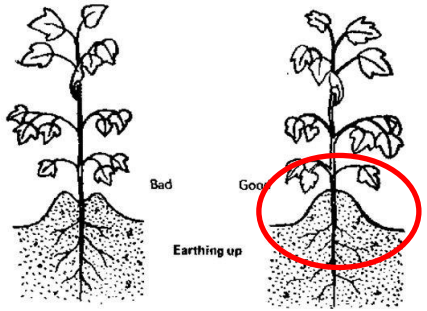
CULTIVATION OF GINGER

6. Cultural practices

- Active rhizome development begins 1/3 months after transplanting or planting resp.

- Earthing up (ridging) maintains high rhizome quality
- Done once every month till harvest
- Pull the soils over to cover the vertically growing rhizomes
- Avoid root damage during ridging



- Gently loosen the soils near the plants to allow easy water percolation
- Depends on the type of soil and irrigation system used

CULTIVATION OF GINGER

7. Pest Management

Pest categories

- Weeds, Insects, Disease pathogens
- Miscellaneous (Birds, Mollusks, etc.)

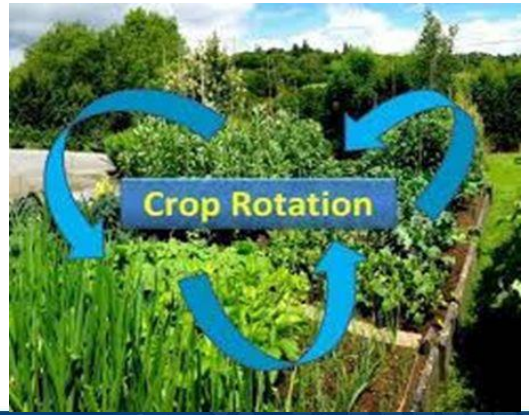
VS

- Pests significantly affect yield
- Pets and diseases are less problematic if rotation and proper management are employed
- Weeds are more severe in new lands than insects and diseases (no herbicide labels)

CULTIVATION OF GINGER

8. Tentative rotation plan

- Ginger should not be rotated with Solanaceae crops;
- They share similar feeding patterns, pests, and disease pathogens
- Can be rotated with Alliums, beans, corn, Cole vegetables, leafy greens, or cucurbits
- A 2-year rotation plan in unaffected areas,
  - 3-5 years in affected areas.
  - no ginger after ginger
- Ginger is a heavy feeder, and it highly depletes the soil



CULTIVATION OF GINGER

9. Alternative cultivation strategies

- Ginger can be produced in greenhouses under both hydroponics and soilless media system
- Its nearly impossible to produce matured ginger in the Mid-Atlantic region's tunnels and open field
- Per annum, 1 cycle of baby ginger can be produced in the field, 2 cycles of baby ginger in tunnels, multiple cycles in the greenhouse

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HARVEST AND POST- HARVEST OPERATIONS

1. Maturity indices and Harvesting
2. Washing and Packing
3. Storage and conditioning
4. Marketing
5. Value-Added

Harvesting and post-harvest operations

1. Maturity indices and Harvesting

Baby ginger maturity index

- Days from planting/transplanting. Typical 4 – 6 months
- Shorten to 3 months possible

Matured ginger (hard to do here)

- 300+ Days
- Foliage yellows, dries, and dies off

Harvesting

- Grab the shoots of the plant and pull
- Use the shovel to loosen the soil

Harvesting and post-harvest operations
2. Washing and Packing

- Wash the rhizomes with water to remove debris, then cut off the tops; *you can also save the tops for sale*.
- Weigh them and conserve the large cluster and avoid rhizome splitting where applicable
- Immature rhizomes (Baby ginger) are more succulent and vulnerable after harvest
- They should be packed in high humidity and kept at low temperatures in plastic bags with air removed
- Mature rhizomes don’t require airtight conditions

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Harvesting and post-harvest operations

3. storage and conditioning

- Well-matured rhizomes stores for 6 – 12 months at room temperature
- Baby ginger stores for less than a week in room conditions
- Temperature and humidity are key post-harvesting factors for baby ginger
- Should be kept at 45-50 F
- 80 – 95 % Humidity
- Ziplock and vacuum-sealed bags are ideal
- Immature ginger (baby ginger) can be conditioned to mature

Harvesting and post-harvest operations

4. Marketing

- Marketing can be achieved by creating awareness of the potential of ginger viz baby ginger
- Matured ginger is found in supermarkets
- Baby ginger is sold in farmers' markets and CSA's in the region
- Wholesale markets for baby ginger are not well defined but have potential with proper packaging and shelf storage
- A pound is sold for 6 – 12 dollars (farm gate price)
- $ 10,000 – 20,000 per tunnel, > $ 100,000/acre

Value-added products

- **Fresh leaves can also be sold for culinary use**
- **Dehydrated/dried**
  - Baby ginger has more active compounds but higher moisture levels
- **Products from Foliage:**
  - Dried and ground
  - Tea
- **Other Ginger products**
  - Leathers
  - Confections
  - Drinks – ginger beer, tonics

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Questions?

Shem Elias
Borel Global fellow
M.S. Graduate Student
Department of Plant & Soil Sciences
College of Agriculture and Natural Resources
University of Delaware
Newark, DE 19711 USA
selias@udel.edu
302 413 1591