



Unlocking the Ginger Value Chain for India

Insights From Secondary Research



SELCO Foundation

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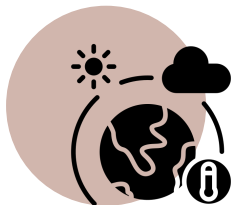


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This deck synthesizes secondary research to identify systemic gaps and possibilities for decentralized interventions in ginger value chains.

A SYSTEMS LENS ON THE GINGER VALUE CHAIN

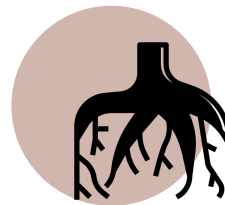
At SELCO Foundation, we look at value chains not just as production-to-market pipelines, but as systems that need to work for both people and the planet. That means:



**Enabling
climate-resilient
livelihoods**



**Unlocking economic
potential, equitably**



**Strengthening
institutions, not
just infrastructure**

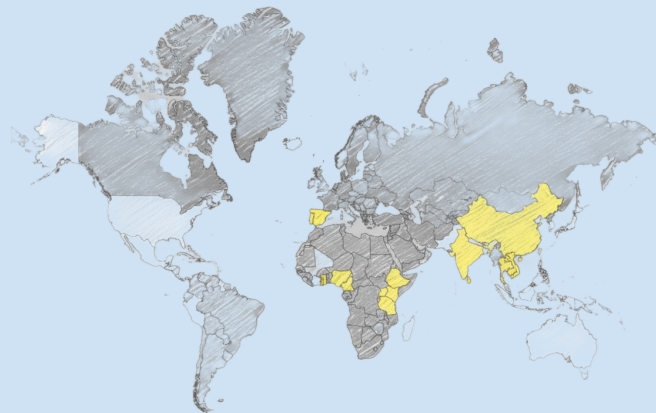
This deck synthesizes insights from secondary research to explore how such an **ecosystem approach can be applied to ginger** — a high-potential but under-leveraged crop especially in Northeast India.

GINGER AS A FOCUS COMMODITY



Ginger is an **ANCIENT MEDICINAL PLANT** of Southeast Asia

It is known for its pungency, aroma, and healing properties (antiemetic, anticancer, anti-inflammatory).



India producing around one third of global ginger production with highest CAGR (15.64).

Source - [ECONOMIC AFFAIRS](#)

Dried ginger (whole or powdered) is used in Western products like ginger brandy, wine, and beer. Ginger oil flavors confectionery and soft drinks.

THE UNTAPPED POTENTIAL OF GINGER IN THE NORTH EAST REGION OF INDIA



**NORTH EASTERN STATES
contribute to over**

16%

**to national production
with leading ginger
producing clusters in**

**Meghalaya, Assam, Arunachal,
Mizoram, and Sikkim.**

Source – Switch ON, 2022–23



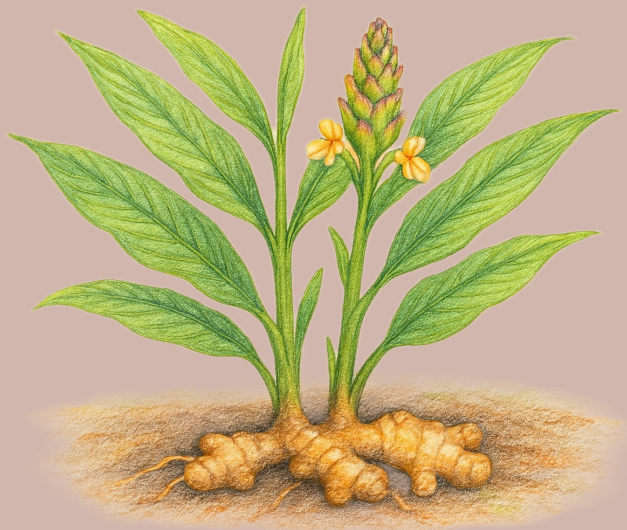
Despite increased cultivation area (nearly half the country's total), North Eastern states don't contribute proportionally to the total production.

- Farmers primarily sell fresh ginger to major assembling markets for distribution to distant markets like Delhi and West Bengal.
- There's significant potential for value addition through organic products, packaging, and skill enhancement for global competition.
- Government financial support and improved storage facilities are crucial.
- Low yields result from indigenous farming methods, non-descript varieties, and lack of irrigation, especially in organic cultivation.

UNDERSTANDING THE CROP AND ITS CHARACTERISTICS

Ginger needs moist, warm climates

(300–900m altitude) with 1500–3000mm rain and well-drained loamy soil (pH 6–6.5).



Key Challenges Include



Major Production Constraints

Ginger production and exports in the Northeast remain stagnant due to poor varietal selection, management, and systemic gaps.



Seed/Seedling Issues

Farmers face limited access to quality, disease-free, and affordable planting materials despite overall seed availability.



Input Issues

While most farmers access fertilizers and chemicals, many lack technical know-how and face periodic labour shortages.



Agronomic Issues

Weed and pest infestations are common; farmers lack training and local-language guides

UNDERSTANDING THE CROP'S CLIMATE STRESSES



Yield Instability

Climate variability has caused high yield instability in ginger farming, with significant fluctuations due to temperature spikes and irregular rainfall patterns causing stress during critical growth phases.



Disease Pressure

Increased temperature and humidity have escalated fungal and microbial diseases (e.g., rhizome rot, leaf spot), affecting crop quality more severely in ginger.



Pest Outbreaks

Warmer conditions favor proliferation of pests like aphids and nematodes, leading to greater crop loss risks.



Quality Degradation

High temperature and moisture stress reduce essential oil content, lowering market value specifically for ginger oleoresin and processed forms

PACKAGE OF PRACTICES | CULTIVATION LIFECYCLE

1

Land Preparation

Plough 4–5 times to fine tilth; create beds with proper spacing, planting Feb–May based on irrigation/rainfall.



2

Propagation & Planting

underground ginger plant stems treated with fungi-protective chemicals'



3

Manuring & Mulching

Apply soil enhancing plant nutrients; and mulch with green or dry leaves



6

Crop Rotation

Rotate with tapioca, beans, vegetables, or intercrop with coffee, orange, banana for soil fertility.



5

Harvesting

Harvest after 210–240 days when leaves yellow; stop irrigation one month prior



4

Weeding & Irrigation

Weed twice and irrigate regularly ensuring 1320–1520mm water annually.



PACKAGE OF PRACTICES | POST HARVEST LIFECYCLE

1

Cleaning

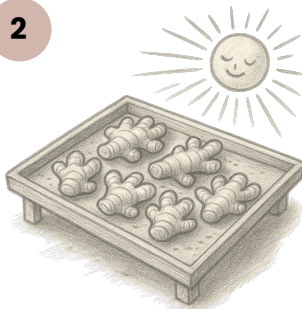
Remove debris, wash, briefly sun-dry, and pressure wash for export quality.



2

Drying

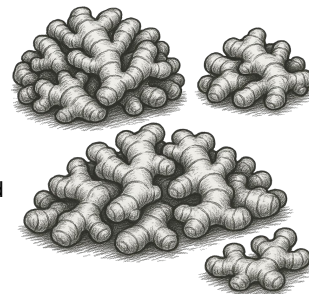
Sun or mechanically dry to 8–10% moisture; sun-drying preserves oils, mechanical drying ensures uniformity.



3

Sorting

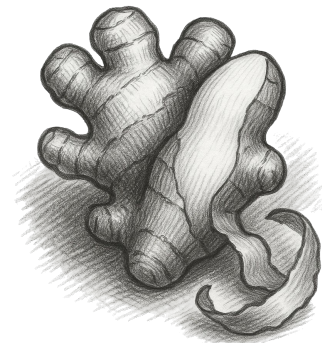
Grade by size, color, and quality; discard damaged or discolored rhizomes.



4

Peeling

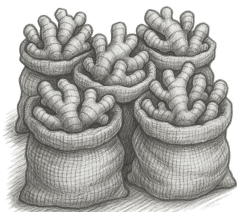
Peel carefully with bamboo splinters to speed drying and retain oil; peeled is “white,” unpeeled is “black” ginger.



6

Packaging

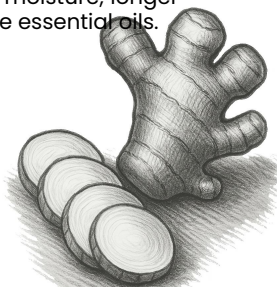
Pack dried ginger in ventilated gunny bags or cartons; use strong, stackable packaging for transport/export.



5

Slicing

Slice large rhizomes before drying to reduce moisture; longer slices retain more essential oils.



7

Processing

Market ginger fresh or as value-added forms (dried, powder, candy).



PACKAGE OF PRACTICES | POST HARVEST LIFECYCLE - TECHNOLOGIES REQUIRED

1

Cleaning

Remove debris, wash, briefly sun-dry, and pressure wash for export quality.



Destoner

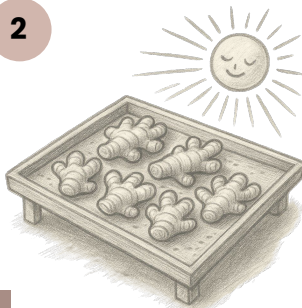
Rod & Flood Washers

Vibratory Feed Conveyor

2

Drying

Sun or mechanically dry to 8–10% moisture; sun-drying preserves oils, mechanical drying ensures uniformity.

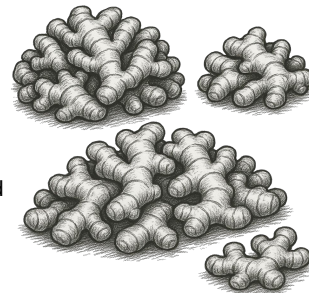


Solar Dryers

3

Sorting

Grade by size, color, and quality; discard damaged or discolored rhizomes.

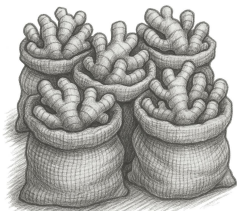


Magnetic Separator

6

Packaging

Pack dried ginger in ventilated gunny bags or cartons; use strong, stackable packaging for transport/export.



Packaging Machine

5

Slicing

Slice large rhizomes before drying to reduce moisture; longer slices retain more essential oils.



Slicer

7

Processing

Market ginger fresh or as value-added forms (dried powder, car

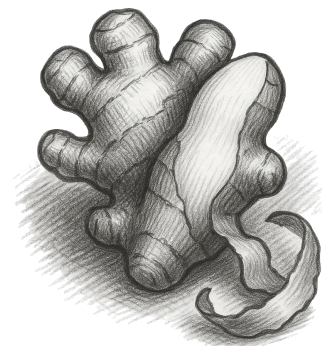
Grinder



4

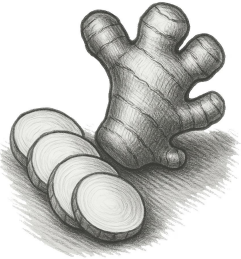
Peeling

Peel carefully with bamboo splinters to speed drying and retain oil; peeled is “white,” unpeeled is “black” ginger.



Peeler

PROCESSING & PRODUCT STREAMS



Fresh Ginger – Mainly consumed in Asia, with growing demand in Europe and America due to immigration.

Dried Ginger – Made from mature rhizomes (8–9 months), key export for powder, oil, and oleoresin; yields 16–25% of fresh ginger.

Ginger Flakes – Mechanically dried slices with enhanced flavor and texture, offering about ₹8,327 profit per quintal.

Candies and Preserves – Made from Nadia variety rhizomes (180–210 days) through blanching, sugar dipping, and drying at 60°C.

Ginger Paste – Convenient, long-shelf-life product used by homes and hotels; ginger-garlic mix (50:35:15) earns ₹4,770 profit per quintal.



Ginger Syrup – Sweet, antiemetic extract from tender rhizomes used in drinks, desserts, and flavoring.

Ginger Oil – Steam-distilled essential oil (0.85–2% yield) used in food, pharma, and cosmetics for its warm, spicy aroma.

Ginger Oleoresin – Solvent-extracted dark liquid with both aroma and pungency, used in foods and medicines; yield 3.9–9.3%.

Ginger Biscuits, Cookies, and Cakes – Baked goods flavored with ginger powder, sometimes mixed with cinnamon or nutmeg.

Ginger Drinks – Includes ginger ale, beer, wine, tea and ready-to-drink blends like ginger-honey or ginger-lemon, known for health benefits.



Challenges in the Ginger Value Chain



Land and Cultivation System

Shifting Cultivation

Shorter jhum cycles (3–5 years) have reduced soil fertility and caused deforestation and land degradation.

Land Tenure System

Lease-based farming limits ownership and long-term land management, reducing productivity and investment. Fragmented terrain and small farms hinder large-scale or commercial ginger cultivation.



Farm Inputs

Non-availability of Quality Inputs

High-yielding, disease-resistant rhizomes and systematic organic practices are unavailable due to weak seed systems.

High Rainfall

Excess rain promotes weeds, pests, nutrient leaching, and soil erosion, lowering yields.



Processing and Marketing

Post-harvest & Processing Gaps

Few functional processing units, poor storage, and lack of value addition (oils, oleoresin) limit farmer profits. Inadequate warehouses, transport, and market links raise costs and reduce ginger's competitiveness.

Market Data

Weak policies force farmers to sell to middlemen at low prices; intermediaries take large margins, reducing farmer income. Farmers lack access to market data; better digital networks could connect them to national price information.

Learnings from Secondary Research

1

Low Productivity

Yields remain low due to traditional practices and limited access to quality seed rhizomes. Using certified, disease-free planting material and improved agronomy can boost yields and reduce disease incidence.

2

Nutrient Replenishment

Continuous ginger cultivation and heavy rainfall deplete soil nutrients. Crop rotation with legumes and organic manure use are essential for restoring soil fertility and sustaining productivity.

3

Moisture Content

High humidity and poor drying methods cause fungal infection and poor shelf life. Training on proper curing and solar drying helps maintain $\leq 12\%$ moisture and preserve the pungency and oil content of NER ginger.

4

Storage Facilities

Lack of curing units and ventilated godowns leads to major post-harvest losses. Promoting low-cost mechanical dryers and scientific storage can protect seed quality and reduce rot during monsoon months.

5

Cultivation of Suitable Varieties

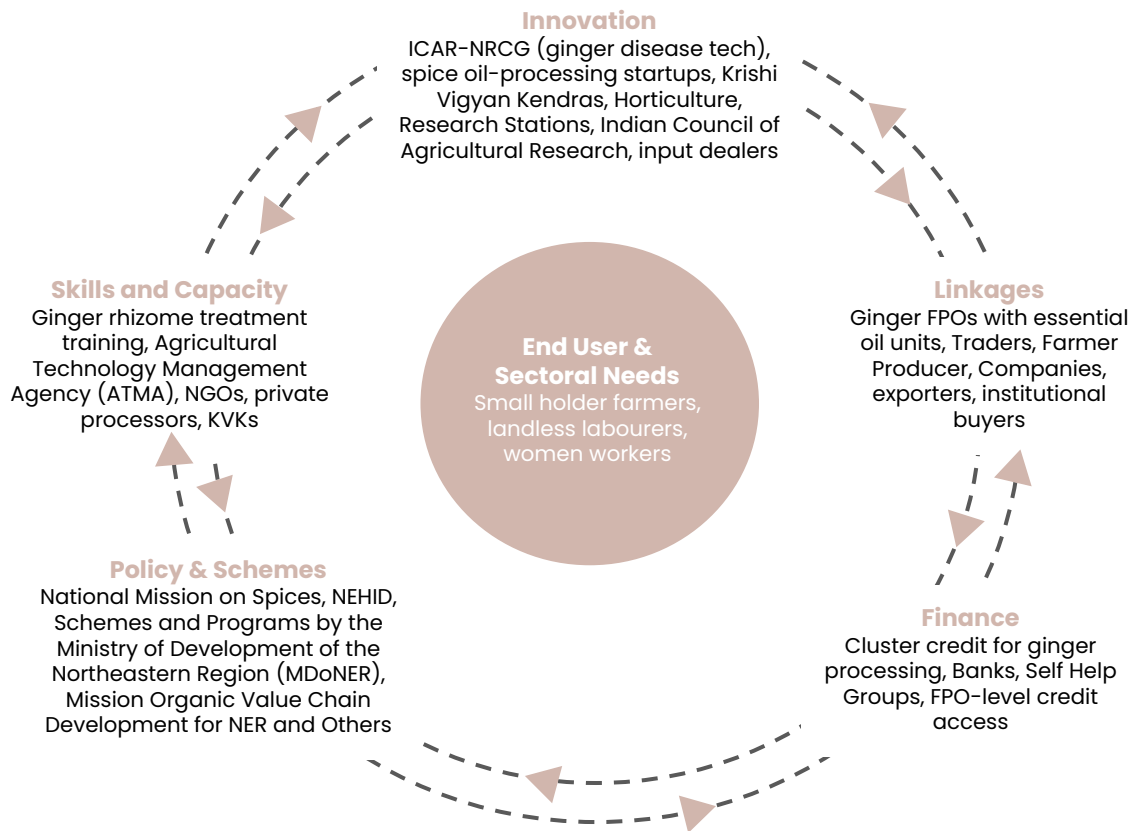
Local varieties like Nadia and Thinglaidum are aromatic but low-yielding. Developing and multiplying high-yield, disease-resistant strains suited to hill soils can improve both productivity and market competitiveness.

6

Price Stabilisation

Market fluctuations and weak trader linkages affect small farmers. Strengthening FPOs, promoting collective marketing, and linking to niche export and spice oil markets can help stabilize prices and incomes.

ECOSYSTEM MAPPING — WHO HOLDS THE CHAIN TOGETHER?



RELEVANT GOVT. DEPARTMENTS AND SCHEMES

Planning

Ministry of Development of the Northeastern Region (MDoNER), North Eastern Council (NEC)

Planning, Development, Advisory, Economic and Infrastructure Projects

Finance

North Eastern Development Finance Corporation Limited (NEDFi), Kisan SAMPADA Yojana

Financial aid to support industrial infrastructure and agri-allied projects, fostering entrepreneurship.

Value Chain Development

Mission Organic Value Chain Development for North Eastern Region, Paramparagat Krishi Vikas Yojana (PKVY), National Project on Organic Farming (NPOF), Mission for Integrated Development of Horticulture (MIDH), Mega Food Parks (MoFPI Scheme)

Certification, technology dissemination. Infrastructure. Credit-linked back-ended subsidies



The Northeast already grows ginger at scale.

The challenge — and opportunity — is to convert that production into prosperity.

This isn't about ginger alone — it's about building equitable, decentralised, climate-resilient rural economies.

LET'S CO-CREATE !

If you're working with rural communities, FPOs, or institutional partners in the North East — or building climate-resilient agri-value chains anywhere — we'd love to collaborate.

Reach out to us to explore ideas, align efforts, or pilot together.



SELCO Foundation