PHASE 4: AGRONOMY, YIELD & PRODUCTION CYCLES

Medicinal • Nutraceutical • Skin • Hair • Therapeutic Crops

Purpose of This Phase

- Translate crop choice into **practical farming requirements**
- Set **realistic expectations** on timelines and yields
- Identify crops suitable for **smallholders vs. larger plots**
- Support **contract design and aggregation planning**

A. FAST-ROTATION, LOW-CAPITAL CROPS

(Ideal for new members and quick income cycles)

Crop	Climate	Time to First Harvest	Typical Yield	Notes
Moringa (leaf)	Tropical/Sub-tropical	2–3 months	20–30 t/ha fresh leaves/year	Multiple harvests
Aloe vera	Tropical/Arid	8–12 months	30–40 t/ha leaves	Low water, hardy
Lemongrass	Tropical	4–6 months	15–25 t/ha	High oil demand
Spinach/Kale	Temperate/Tropical highlands	30–60 days	20–25 t/ha	Food + supplement
Basil/Tulsi	Tropical/Sub-tropical	2–3 months	10–15 t/ha	Essential oils

Best for:
Small land sizes, women/youth groups, fast cash flow, fresh or dried leaf supply.

B. MEDIUM-TERM MEDICINAL ROOT & RHIZOME CROPS

Crop	Climate	Time to Harvest	Typical Yield	Notes
Ginger	Tropical	8–10 months	15–25 t/ha	High demand
Turmeric	Tropical	8–10 months	20–30 t/ha	Processing critical
Ashwagandha	Semi-arid	6–7 months	500–700 kg/ha dry root	Adaptogen
Cassava	Tropical	10–14 months	20–40 t/ha	Starch & extracts
Arrowroot	Wet tropics	10–12 months	20–30 t/ha	Food & pharma

Best for:
Members with moderate patience, soil preparation capacity, and drying facilities.

C. FRUIT & SEED CROPS (OIL & POWDER SOURCES)

Crop	Climate	Time to Bearing	Yield Potential	Notes
Avocado	Tropical highlands	3–4 years	10–20 t/ha	Oil extraction
Coconut	Tropical	4–6 years	50–80 nuts/tree/year	Multi-use
Sesame	Sub-tropical	3–4 months	500–1,200 kg/ha	Drought tolerant
Pumpkin (seeds)	Sub-tropical	3–4 months	800–1,500 kg/ha	Hair & nutrition
Castor	Tropical	5–6 months	1–2 t/ha seeds	Hair oils

Best for:
Medium to long-term planners; oil extraction hubs increase value.

D. FLOWERS & AROMATIC CROPS

Crop	Climate	Time to Harvest	Yield	Notes
Lavender	Temperate	1–2 years	80–120 kg oil/ha	Export quality
Chamomile	Temperate	3–4 months	1–2 t/ha flowers	Drying sensitive
Hibiscus	Tropical	4–6 months	1.5–2.5 t/ha calyces	Skin & hair
Rose	Temperate	1–2 years	3–5 t/ha petals	High labor

Best for:
Organized groups; value depends on harvest timing and drying.

E. MEDICINAL FUNGI & ALGAE

Crop	System	Production Cycle	Yield	Notes
Oyster mushrooms	Indoor/controlled	30–45 days	20–30 kg/100 kg substrate	Beginner friendly
Reishi	Controlled	3–4 months	2–4 kg/100 logs	High value
Spirulina	Ponds/tanks	Continuous (2–3 weeks cycles)	8–12 t/ha/year	Requires water quality control

Best for:
Urban/peri-urban members, cooperatives, controlled environments.

F. BASIC AGRONOMIC REQUIREMENTS (GENERAL GUIDELINES)

Soil

- Most medicinal crops prefer **well-drained loam**
- pH range: **5.5–7.5** (crop dependent)
- Organic matter improves potency

Water

- Leafy crops: regular watering
- Roots/oil crops: moderate, avoid waterlogging
- Aloe, sesame, castor tolerate drought

Fertilization

- Organic manure preferred for medicinal quality
- Excess nitrogen reduces active compounds in some herbs

Pest & Disease

- Neem-based biopesticides recommended
- Avoid chemical residues (export & supplement standards)

HOW MEMBERS SHOULD USE PHASE 4

1. Match crop to **land size and patience level**
2. Choose between:
    - Fast rotation (cash flow)
    - Medium rotation (value crops)
    - Long-term (tree & oil crops)
3. Confirm readiness for **drying, storage, or fresh delivery**

STRATEGIC VALUE TO WEMPOWER GLOBAL

- Enables **realistic contracting timelines**
- Prevents premature member drop-out
- Improves raw material consistency
- Aligns harvest schedules with manufacturing demand

