



Sweetlife Flora Biotech

Unit Economics Deep Dive

Economics of Integrated Tissue Culture & Greenhouse Finishing

Purpose of This Document

This document explains how Sweetlife Flora Biotech converts capital, labor, and biological inputs into margin-positive plant inventory, and how those economics improve with scale, experience, and throughput.

The objective is not to present aggressive projections, but to demonstrate that the underlying unit economics are sound, defensible, and scalable.

Economic Framework

Sweetlife Flora Biotech operates a two-stage production model:

- 1. Tissue Culture (Upstream Engine)**

Produces uniform, disease-free plantlets at predictable cost.

- 2. Greenhouse Finishing (Downstream Converter)**

Converts plantlets into finished, saleable plants with defined timelines and yields.

Unit economics are analyzed at the finished-plant level, since that is where revenue is realized.

Cost Structure Overview (Per Finished Plant)

Finished plant cost is composed of five controllable categories:

1. Tissue culture production cost
2. Acclimatization and finishing cost
3. Direct labor
4. Consumables and inputs
5. Overhead allocation

This structure allows for granular control and continuous optimization.

1. Tissue Culture Cost Logic (Per Plantlet)

Cost Drivers

- labor time per transfer and batch
- media and consumables
- sterilization and energy inputs
- yield and contamination loss rates

Economic Characteristics

- High upfront setup, low marginal cost per additional plantlet
- Loss rates decline materially as SOPs mature
- Multiplication efficiency improves with technician experience

Investor Note

Tissue culture cost per plantlet decreases with volume, making this stage increasingly margin-accretive over time.

2. Acclimatization & Greenhouse Finishing Cost Logic

Cost Drivers

- survival rate during acclimatization
- finishing time to saleable size
- greenhouse labor and handling
- environmental control inputs

Economic Characteristics

- Highest biological risk stage, but also most controllable
- Survival rates increase significantly with integrated lab + greenhouse workflows
- Finishing cost is predictable once protocols stabilize

Investor Note

Vertical integration materially reduces loss and rework compared to outsourced liners or imported plants.

3. Direct Labor Economics

Labor is specialized, not generalized.

Key Principles

- technicians perform repeatable, high-skill tasks
- greenhouse staff focus on batch handling and monitoring

- labor minutes per plant decline as volume increases

Labor cost per plant falls with scale, not rises.

4. Consumables & Variable Inputs

Includes:

- culture media and vessels
- substrates and pots
- fertilizers and IPM inputs
- packaging for downstream channels

These costs are:

- predictable
- supplier-diversifiable
- easily modeled

No single consumable creates margin fragility.

5. Overhead Allocation

Overhead includes:

- utilities
- facility operating costs
- shared admin and systems

Overhead is allocated per unit, not treated as a fixed burden.

As throughput increases:

- overhead cost per plant decreases
- gross margin expands without price increases

Channel-Level Revenue Economics

Sweetlife Flora Biotech sells finished plants through multiple monetization channels, each with different margin profiles.

1. Direct-to-Consumer (Retail & E-Commerce)
 - Highest gross margin per unit
 - Faster demand feedback
 - Lower volume, higher margin

2. Wholesale / B2B Supply

- Lower margin per unit
- Higher volume and predictability
- Supports capacity utilization and cash flow stability

Strategic Effect

Blended monetization channel mix:

- smooths revenue volatility
- improves inventory velocity
- stabilizes working capital

Margin Profile (Investor-Level)

At steady-state base case:

- Finished plants generate strong positive gross margin
- Margin expands as:
 - contamination decreases
 - labor efficiency improves
 - overhead is absorbed across higher volume

Importantly:

The business does not rely on premium pricing assumptions to be viable.

Sensitivity Considerations

Unit economics are most sensitive to:

- contamination and loss rates (early cycles)
- finishing timelines
- labor efficiency per batch

They are least sensitive to:

- small pricing fluctuations
- minor input cost variability

This creates a robust margin profile.

Path to Margin Expansion

Margins improve through:

- SOP refinement
- technician learning curves

- batch optimization
- production planning aligned to sell-through

These improvements are operational, not speculative.

Strategic Implication

Sweetlife Flora Biotech's unit economics:

- reward execution discipline
- compound with scale
- are difficult to replicate without vertical integration

This creates a production moat, not just a brand moat.

Investor Takeaway

The unit economics of Sweetlife Flora Biotech are driven by control, not hype.

By owning propagation, acclimatization, and finishing:

- costs are predictable
- losses are manageable
- margins improve with volume

This is manufacturing logic applied to biology—executed at the right scale, for the right market.