Project FarmSense: Phased Fleet Financials & Strategy

This document outlines the financial requirements and hardware scaling for the FarmSense drone fleet, supporting Enterprise grade features. The fleet provides the multispectral data necessary for the FarmSense systems Enterprise Tier and Monthly alignment of other features.

1. Phase 0: Startup (Lean Mobilization)

Objective: Prove the data pipeline from field to Zo Server on 2 pilot fields.

- **Fleet:** 1 Multi-rotor ([DJI Mavic 3M](#)).

- **Personnel:** Founder-led operation (No dedicated pilot salary).

- **Data Scope:** 2 Pilot fields (approx. 250–500 acres total).

Category	Estimated Cost
CAPEX (Hardware/Gear)	$5,700
Monthly OPEX (Cloud/Data)	$500

2. Phase 1: Growth (Regional Scaling)

Objective: Expand to 100 high-value pivots (20,000+ acres).

- **Fleet:** 2 Fixed-wing, 3 Multi-rotor.

- **Personnel:** 1 Lead Pilot + 1 Junior Pilot.

- **Infrastructure:** Dedicated field vehicle and high-performance workstation for local data ingestion.

Category	Estimated Cost
CAPEX (Fleet Expansion)	$38,000
Monthly OPEX (Staff/Vehicle)	$18,500

3. Phase 2: Goal (Full Automation)

Objective: Subdistrict-wide coverage (150,000 acres) via "Control Room" operations.

- **Fleet:** 4 Fixed-wing, 7 Multi-rotor.

- **Personnel:** 1 Fleet Coordinator + 2 Ground Techs.

- **Regulatory:** Part 108 BVLOS waivers.

Final Phase Financial Breakdown

Capital Expenditure (Full Fleet)

- **Fixed-Wing Fleet (4x eBee Ag):** ~$70,000

- **Multi-Rotor Fleet (7x Mavic 3M):** ~$40,000

- **Support & Charging Hubs:** ~$26,500

- **Total Phase 2 CAPEX:** $136,500

Annual Operating Overhead (OPEX)

- **Technical Labor:** $280,000 (3 FTE staff)

- **Maintenance & Insurance:** $67,000

- **Zo Server Cloud Compute:** $32,500

- **Total Annual OPEX:** $379,500

- **Monthly OPEX:** $31,625

4. Revenue & Breakeven Analysis (Phase 2)

To cover the **$31,625 monthly overhead,** the fleet must maintain a specific mix of service tiers across the 150,000-acre subdistrict.

Tier	Rate	Target Acreage	Monthly Revenue
Basic (20m Res)	$15 / acre	1,500 acres	$22,500
Enterprise (1m Res)	$30 / acre	400 acres	$12,000
Total Revenue		1,900 acres	$34,500
Net Monthly Profit			$2,875

*Note: Breakeven is achieved by servicing just **1.3%** of the total subdistrict acreage per month.*

5. Hardware Selection Summary

Unit	Role	Benefit
AgEagle eBee Ag	Broad-acre Mapping	90min endurance; 1,200+ acres per flight.

| DJI Mavic 3M | High-Res "Pops" | 2cm GSD; multispectral sensors for NDVI. |