ELM LAKE LABS

Ag Tech Competitive Landscape

Market analysis, key players, and opportunity gaps for Elm Lake Labs in the precision agriculture industry

Prepared for Elm Lake Labs
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1. Market Overview & Size

Global Ag Tech Market

- **Total market (2025):** $26.27 billion (Precedence Research)
- **Projected (2034):** $74.03 billion — **CAGR 12.2%**
- **VC funding (2025):** $4.8B across 735 deals (down from $5.1B/913 deals in 2024)
- Investors shifting toward **AI, precision ag, and robotics** — away from biologicals

Precision Agriculture

- **Market size (2025):** ~$9.5–11.2 billion (multiple estimates)
- **Projected (2035):** $25.5–27.3 billion — **CAGR 9.3–10%**
- **North America (2025):** $4.1 billion, projected to $6.5B by 2032
- **Fastest growth application:** Precision spraying (CAGR 15.4%)

Farm Management Software/SaaS

- **Market size (2025):** $2.8–4.2 billion (estimates vary by scope)
- **Projected (2030):** $5.1–10.6 billion — **CAGR 11–17.3%**
- Precision farming segment = 43% of FMS market
- Cloud computing adoption is the primary growth driver

Precision Farming Software & Services

- **Market size (2025):** $1.9 billion
- **Projected (2029):** $3.05 billion — **CAGR 12.5%**

Agricultural Drones

- **Market size (2025):** ~$4 billion
- **Projected (2032):** $8.65 billion

- North America holds ~45% market share

Farming-as-a-Service

- **U.S. market (2025):** $1.53 billion
- **Projected (2034):** $6.15 billion — **CAGR 14.9%**

Agricultural Equipment Dealer/Distribution Channel

- U.S. farm equipment dealer network is estimated at 5,000+ dealer locations
- Equipment-as-a-service and dealer-led precision ag adoption growing rapidly
- Dealer networks remain the primary channel for precision ag hardware (autosteer, guidance, sensors)

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2. Leaders by Category

A. Precision Agriculture — Autosteer, Guidance, GNSS

COMPANY	HQ	KEY PRODUCTS	MARKET POSITION
John Deere	Moline, IL	AutoTrac, StarFire receivers, Operations Center	Market leader. 500K+ farms on Operations Center. Acquired Sentera (aerial scouting) and GUSS Automation (autonomous spraying) in 2025. SpaceX Starlink connectivity partnership.
PTx Trimble (AGCO/Trimble JV)	Westminster, CO	Autopilot, GFX displays, Precision Planting	Formed April 2024. AGCO owns 85%. Combines Trimble's precision ag business + AGCO's JCA Technologies. Serves mixed-fleet market (factory-fit and retrofit).
CNH Industrial (Case IH/New Holland)	Racine, WI	AFS guidance, AccuGuide, PLM Intelligence	Acquired Raven Industries (2021) for autonomous tech. Integrated Raven's autosteer and autonomy capabilities.
AGCO Corporation	Duluth, GA	Fuse Smart Farming, Fendt, Massey Ferguson, Precision Planting	Via PTx Trimble JV, now has enhanced precision ag capabilities. AI and connectivity expansion.
Ag Leader Technology	Ames, IA	SteerCommand Z2, InCommand displays, SMS Software	Indie precision ag leader. Data-focused. Strong in yield monitoring, seed placement. Launched InCommand Go 16 (large display). RightPath implement steering coming.
FJD Dynamics	Shenzhen, China	AT2, AT2 MAX, AS2 Steer Ready, AH2	**Key disruptor.** Affordable autosteer (sub-$10K systems). Sub-inch RTK accuracy. 12.1" display. ISOBUS compatible. "Premium features as standard."
CHCNAV	Shanghai, China	NX610, NX612	Chinese challenger. Multi-GNSS (GPS, Galileo, GLONASS, BDS, QZSS). ±2.5cm accuracy. Newer NX612 has 30.5cm screen. Growing dealer network in EU/NA.
SMAJAYU	China	JY305 GPS guidance + autosteer	Budget entry: available on Amazon. Multi-constellation GNSS. OTA updates. ~$3–5K systems.
Sveaverken	China (originally Swedish brand)	F100 Auto-Steer System	2.5cm RTK accuracy. Easy vehicle-to-vehicle transfer. Auto-switches to PPP (10cm) when RTK unavailable.
Hexagon / NovAtel	Calgary, Canada	Ag guidance solutions, high-precision GNSS	INS/GNSS positioning specialist. Higher-performance retrofit kits. Investing in autonomy partnerships in Brazil & Europe.
Topcon Positioning	Livermore, CA	Horizon, AES-35 autosteer	Major global player in positioning. Strong in Japan and Asia-Pacific. Integration with autonomous systems.
	Wheaton, IL		

COMPANY	HQ	KEY PRODUCTS	MARKET POSITION
Teejet Technologies		Unipilot Pro, A10 ISOBUS terminal	Affordable ISOBUS-based steering. New A10 terminal + steering add-on at ~€10K. Legacy player transitioning to new platform.
Cerea GPS	Spain	GPS guidance and autosteer kits	Niche European player. ISOBUS VT, TC-BAS, TC-SC integration.

B. Farm Management Software / SaaS

COMPANY	HQ	PRODUCT	NOTES
Climate LLC (Bayer)	San Francisco, CA	Climate FieldView	Dominant digital ag platform. ML-driven yield prediction + pest/disease modeling (March 2025 update). Global reach. Bayer's $63B acquisition of Monsanto (2018) included Climate Corp.
Traction Ag (owns Granular + Conservis)		Traction, Conservis, Granular Business	**Acquired both Granular (from Corteva) and Conservis.** Advanced farm management for large multi-entity farms. Integrates with JD Operations Center & Climate FieldView. Financial + operational management.
Bushel	Fargo, ND	Bushel Farm, Bushel Network	3,500+ grain/ag retail facilities connected. Financial management integrated. Integrates with JD Operations Center & Climate FieldView.
Farmers Business Network (FBN)	San Carlos, CA	FBN Platform	117K+ member farms, 187M acres. AI-powered platform for commerce, financing, farm intelligence. Spun off Global Crop Solutions (Oct 2025). Raised $50M (Jul 2025). Backed by GV, Temasek, T Rowe Price.
John Deere	Moline, IL	Operations Center	500K+ connected farms. De facto standard for JD equipment owners. Integrates field data, machine data, agronomic insights.
Corteva Agriscience	Indianapolis, IN	Digital agronomy tools (post-Granular sale)	Divested Granular brand to Traction Ag. Still active in seed tech and digital agronomy. Corteva Catalyst VC investing in biologicals (LatAm focus).
TELUS Agriculture	Vancouver, Canada	TELUS Ag & Consumer Goods platform	Data management and traceability. Profiles in multiple market reports as key player.
Agworld	Australia/US	Agworld platform	Farm planning, record keeping, recommendations. Focused on agronomist-grower workflow.
Trace Agtech	Calgary, Canada	Trace platform	Cropwise Operations competitor. Focus on traceability and compliance.
Traction Ag		Traction platform	Cloud-based accounting + field records. Climate FieldView & JD Operations Center data imports.

C. Drone / Aerial / GIS

COMPANY	HQ	NOTES
DJI Agriculture	Shenzhen, China	Global drone leader. AG spray drone dominant. **Faces US government scrutiny** over national security — uncertain US future.
Sentera	Minneapolis, MN	**Acquired by John Deere (2025).** Multispectral imaging + aerial scouting analytics. Now integrated into JD ecosystem.
DroneDeploy	San Francisco, CA	Cloud-based drone mapping & analytics platform. Multi-industry (ag + construction + energy).
XAG	Guangzhou, China	Major ag drone company. Autonomous drones for spraying, seeding, surveying. Government-backed in China.
AgEagle Aerial Systems	Wichita, KS	Drone sensors and analytics for crop monitoring.
Pix4D	Lausanne, Switzerland	Photogrammetry software. Drone data → 2D/3D maps for precision ag analysis.
Parrot Drones	Paris, France	Enterprise drones with multispectral imaging (SEQUOIA+).
PrecisionHawk	Raleigh, NC	Drone data analytics for agriculture. Key US player.
Hylio	Houston, TX	US-based spray drone manufacturer. Growing as DJI faces restrictions.
Autel Robotics	Shenzhen, China	Enterprise drones with ag applications.

D. AI / Data Analytics in Agriculture

COMPANY	HQ	NOTES
Indigo Ag	Boston, MA	Sustainability + carbon marketplace. Microbial crop protection. Digital agronomy tools.
CropX	Tel Aviv, Israel / US	Soil intelligence platform. IoT sensors + analytics. Water/nutrient optimization.
Arable	Princeton, NJ	Field-level weather + plant data sensors. "Arable Mark" IoT device. Crop intelligence platform.
Taranis	Tel Aviv, Israel	AI-powered crop intelligence. Ultra-high-res aerial imagery. Leaf-level disease detection.
IntelinAir / AGMRI	Champaign, IL	AI aerial imagery analytics. AGMRI platform for crop health monitoring.
Solinftec	São Paulo, Brazil	AI-driven predictive analytics. Farm-to-market digital ops. Strong in Latin America.
Pivot Bio	Berkeley, CA	Microbial nitrogen fixation. AI-designed biologicals.
Loam Bio	Sydney, Australia	Fungal spores for soil health + carbon capture.
Farmonaut	India	Affordable satellite-based crop monitoring. AI crop advisory.
Pixxel	Bengaluru, India	Hyperspectral imaging satellites for environmental/ag monitoring.

E. Scouting / IPM — Competitors to Pinpoint

COMPANY	PRODUCT	NOTES
FarmQA	FarmQA Scouting	Mobile scouting app for agronomists. Task management + treatment recommendations. Positioned as ScoutPro alternative. Variable rate prescriptions.
Farm Dog	Farm Dog Scout	IPM-focused mobile scouting. GPS logging, photos. Integrates with John Deere. Used by Costco, Walmart, McDonald's suppliers.
Farmable	Farmable platform	Smartphone-based IPM scouting. AI-powered pest/disease tracking across seasons. Predictive analytics.
ecoation	ecoation IPM	AI-driven yield + IPM forecasting for greenhouse growers. Most comprehensive greenhouse IPM platform.
ScoutPro	ScoutPro app	Legacy scouting tool for consultants. iPad-only. Identification + reporting.
Natutec Scout (Koppert)	Natutec Scout	Pest management from identification to treatment recommendations. Koppert (biological control leader) product.
AgraScout (Neucadia)	AgraScout app	GPS-based scouting. Drop pins for issues, photos, reports. Simple & affordable.
DTN Scout	DTN Scout	Photo library with thousands of pest images. 300+ crop pest IDs. Integrates with GIS/SST systems.
AgriSite IPM	AgriSite IPM	Scout → agronomist → producer workflow. Geo-referenced field observations.
OneSoil Scouting	OneSoil app	Satellite-based field health maps + offline mobile scouting. Free tier available.
Trimble Ag Mobile	Trimble Ag Mobile	Scouting, crop health imagery, fleet management. Part of broader Trimble ecosystem.
Climate FieldView	FieldView scouting	Built-in scouting tools within FieldView digital platform.
Plantix	Plantix app	AI photo-based disease/pest ID. Very popular with smallholders globally.

3. Winning Strategies — How Leaders Are Positioning

3.1 Vertical Integration (Hardware + Software)

- **John Deere:** The gold standard. Owns machines, guidance, autonomy, Operations Center software, and now aerial scouting (Sentera). End-to-end farmer experience.
- **PTx Trimble / AGCO:** Created JV specifically to combine hardware (AGCO equipment) with Trimble's precision ag technology. Factory-fit + retrofit for mixed fleets.
- **CNH Industrial:** Acquired Raven Industries ($2.1B, 2021) to bolt on autonomy and autosteer to Case IH/New Holland platforms.

3.2 Data Moats

- **John Deere Operations Center:** 500K+ farms. Machine telemetry + agronomic data creates massive switching costs.
- **Climate FieldView (Bayer):** Dominant digital platform. Field-level data accumulation over years makes it sticky.
- **FBN:** 117K member farms, 187M acres of agronomic data. Network effects create value.
- **Bushel:** 3,500+ grain facilities = transaction data moat.

3.3 Distribution / Dealer Networks

- **John Deere:** 4,000+ dealer locations globally. Dealers are the primary sales channel for precision ag tech.
- **AGCO:** ~3,150 dealer/distributor locations worldwide.
- **CNH Industrial:** ~3,600 dealer locations globally.
- **Key insight:** Dealer networks are the **#1 distribution advantage** in ag tech. Startups without dealer relationships struggle to reach farmers.

3.4 AI / Autonomy Bets

- **John Deere:** Autonomous tractors (CES 2025), autonomous orchard tractors, AI-based sensors. Second-gen autonomy stack with vision + AI + remote diagnostics. The Reservoir partnership for ag robotics.

- **CNH/Raven:** Autonomous technology integrated post-acquisition.
- **Carbon Robotics:** AI-powered laser weeding. $70M Series D (Oct 2024).
- **Ecorobotix:** AI-powered crop protection. $150M raise (Oct 2025).
- **Bonsai Robotics:** Acquired Farm-ng (Jul 2025) for modular robotic platforms.
- **Emerging trend:** "Physical AI" — companies building ML into chips/systems for ag robots, enabled by Nvidia/Oracle/AMD platform technologies.

3.5 Affordable Disruption (Chinese Manufacturers)

- **FJD Dynamics, CHCNAV, SMAJAYU, Sveaverken:** Driving autosteer costs down dramatically.
- Incumbents like Ag Leader and Teejet openly acknowledge they "cannot compete" on price with Chinese systems.
- Chinese manufacturers include premium features as standard; incumbent systems charge extra for features like advanced turn patterns.
- **This is the biggest market disruption in precision ag hardware.**

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4. Geographic Distribution — Where Are Ag Tech Companies?

Major Ag Tech Hubs

Silicon Valley / Bay Area (CA) - Climate Corp (Bayer), DroneDeploy, FBN (San Carlos), Pivot Bio (Berkeley), Plenty (defunct) - Home to tech-driven ag companies focusing on AI, robotics, data analytics - Challenge: disconnected from farming reality; high costs - **~26% of global ag startup activity** historically concentrated in top 5 hubs (SV, London, NYC, Boston, LA)

St. Louis, MO — "Silicon Valley of Ag Tech" - Danforth Plant Science Center, BioSTL, Yield Lab Institute - Deep collaboration between startups and ag researchers - Historical home of Monsanto (now Bayer Crop Science) - Lewis & Clark Ventures: $25M ag tech fund + $78M main fund

Midwest / Corn Belt - Ag Leader Technology (Ames, IA), IntelinAir (Champaign, IL) - Granular (Corteva) had Midwest regional HQ at U of I Research Park (Champaign) - AgriNovus Indiana promoting Midwest ag tech - **Proximity to customers is the key advantage**

Salinas, CA — "Salad Bowl of the World" - Emerging ag tech hub backed by The Reservoir (John Deere partner) - Focus on specialty crops, robotics, field testing - Reservoir Farms facility (accelerator + testing)

Colorado - **2nd largest ag tech ecosystem** in US (tied with NY, behind Silicon Valley) — 73+ startups - PTx Trimble (Westminster), Agribotix (Boulder) - Strong university research + outdoor/ag culture

Fargo, ND - Bushel HQ — heartland of grain tech - Close to farming operations

International Hubs - **Tel Aviv, Israel:** CropX, Taranis — strong in IoT/AI/sensors - **China:** FJD Dynamics, CHCNAV, DJI, XAG — dominant in affordable hardware + drones - **Brazil/LatAm:** Solinftec — largest biologicals market; major growth region - **Australia:** Loam Bio, SwarmFarm Robotics, AgriWebb - **Amsterdam/Netherlands:** CHCNAV EU distribution (GriTech)

Key Takeaway on Geography

Ag tech is NOT concentrated in Silicon Valley. The industry is spreading to the Midwest, and the most impactful hardware disruption is coming from **China** (Shenzhen, Shanghai). Silicon Valley companies tend to build software/AI platforms; hardware leadership is moving to China and the Midwest.

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5. Opportunity Gaps — Where Incumbents Are Failing

Gap 1: Affordable Autosteer — The FJD Disruption

- **John Deere AutoTrac:** $15,000–$25,000+ installed (often requires Deere-specific equipment)
- **Trimble Autopilot:** $10,000–$20,000+ (retrofit)
- **FJD Dynamics AT2:** ~$5,000–$8,000 (comparable RTK accuracy)
- **SMAJAYU:** ~$3,000–$5,000 (Amazon-available, budget tier)
- **Gap:** Incumbents charge 2–5x more for comparable accuracy. Chinese systems include features (advanced turns, ISOBUS) as standard that incumbents charge extra for.

- **ELL opportunity:** Become a **dealer/distributor** for affordable autosteer systems (FJD, CHCNAV) to underserved mid-size farms. Or build integration software that bridges affordable hardware with premium farm management.

Gap 2: Mobile-First Scouting

- Most scouting apps are either **iPad-only** (ScoutPro), **legacy web-first** (AgriSite), or **part of bloated enterprise platforms** (Climate FieldView, Trimble Ag Mobile).
- No dominant mobile-first scouting platform exists that combines:
- AI-powered pest/disease ID (like Plantix but for professional growers)
- Agronomist-grower workflow (like FarmQA but more modern)
- Offline-first with seamless sync
- Integration with cheap hardware sensors
- **Farm Dog** is closest but focused on supply chain (Costco, Walmart suppliers)
- **ELL/Pinpoint opportunity:** Build the **Slack of field scouting** — mobile-first, AI-enhanced, designed for agronomist-grower teams, with cranberry/specialty crop expertise.

Gap 3: AI-Powered Farm Management

- **Current state:** Most FMS platforms are essentially **digital record-keeping** with some analytics bolted on.
- **The AI gap:** No platform truly delivers:
- Predictive yield forecasting based on real-time field data + historical patterns
- Automated variable-rate prescriptions from scouting data
- AI-generated spray/input recommendations based on live pest pressure + weather
- Natural language query of farm data ("What was my yield on the north bog last year?")
- **Climate FieldView** added ML yield prediction (March 2025) but it's still Bayer's walled garden
- **FBN** is building toward AI farm intelligence but is commerce/marketplace focused
- **ELL opportunity:** AI-native farm management for specialty crops (cranberry, blueberry, orchards) that incumbents ignore. Underserved segment.

Gap 4: Fragmented Tech Stack

- Farmers use 3–7+ different apps/platforms that don't talk to each other
- No single platform integrates: autosteer data + scouting + FMS + drone imagery + accounting
- **"One source of truth" is the holy grail** — mentioned repeatedly in industry reports
- **ELL opportunity:** Integration layer / middleware that connects affordable hardware (FJD) with multiple software platforms. API-first approach.

Gap 5: Specialty Crop Neglect

- Most precision ag is built for **broad-acre row crops** (corn, soy, wheat)
- Specialty crops (cranberry, berry, orchard, vineyard, vegetables) are underserved:
- Different equipment needs
- Different pest/disease profiles
- Different economics (higher value per acre, more labor-intensive)
- Different growing environments (bogs, trellises, greenhouses)
- **John Deere is only starting** to address this (The Reservoir partnership for specialty crops, acquisition of GUSS for orchards)
- **ELL opportunity:** Deep specialty crop expertise is a defensible moat. Build for cranberry first, expand to similar high-value crops.

Gap 6: Dealer Network Disruption

- Traditional equipment dealers are **slow to adopt** new technology from non-OEM sources
- Many farmers discover FJD, CHCNAV on YouTube/Reddit, not from dealers
- There's no **independent precision ag dealer network** analogous to what FBN did for inputs
- **ELL opportunity:** Build or join a dealer/distribution channel for independent precision ag tech. Become the trusted advisor for mixed-fleet farmers seeking affordable, integrated solutions.

Gap 7: Financing Innovation

- Upfront costs remain the #1 barrier to precision ag adoption

- Equipment-as-a-service, outcome-based pricing, and carbon-linked incentives are **just emerging**
- Most small/mid-size farms can't justify $15K–$25K for autosteer
- **ELL opportunity:** Offer affordable systems ($5K–$8K) with financing, leasing, or subscription models. Make the ROI case simple.

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6. Key Takeaways

The Landscape in One Sentence

John Deere is building a vertically-integrated monopoly, Chinese manufacturers are democratizing hardware access, and there's a massive gap in affordable, AI-native, specialty-crop-focused farm management that nobody is filling.

For ELL Specifically:

1. **The autosteer market is ripe for disruption.** FJD and CHCNAV have proven that $5–8K systems can match $15–25K incumbents on accuracy. The distribution channel for these affordable systems is still nascent in North America. ELL could be a trusted dealer/integrator.

2. **Scouting + IPM is fragmented and ripe for consolidation.** No dominant mobile-first platform exists. Pinpoint could be positioned as the category winner if it moves fast with AI features.

3. **Specialty crops are underserved.** All the big players are building for corn/soy. Cranberry, berry, orchard, vineyard farmers are an afterthought. This is ELL's natural moat.

4. **AI is the connective tissue.** The winning platforms in 2026-2030 will use AI to turn fragmented farm data into actionable intelligence. The technology is ready (LLMs, vision models, predictive analytics); the ag-specific applications are nascent.

5. **Dealer networks matter more than tech.** Distribution is the #1 competitive advantage in ag. ELL's existing relationships with cranberry/specialty crop growers could be leveraged.

6. **The venture market is cooling but not dead.** $4.8B in ag tech VC in 2025. Investors want AI + proven traction. Pre-seed companies with tested prototypes are the new normal.

7. **China is the wildcard.** Chinese ag tech (hardware + drones + autonomous systems) is advancing rapidly with government backing. US incumbents are making “defensive M&A” in response. This creates both opportunities (disruption) and risks (geopolitics, DJI-style restrictions).

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