EARTHOPTICS

A Rancher’s AgTech and Monetary opportunities in rangeland and grassland

James Clement
SVP and GM, Range and Grassland

James Clement III, SVP, EarthOptics, Kingsville, TX

Cornell University Founded A.D. 1865

Texas State Soil & Water Conservation Board

Est. 1853 King Ranch Quarter Horses

King Ranch Institute for Ranch Management
Texas A&M University-Kingsville

Texas Land & Mineral Owners Association TLMA
20th Anniversary 1999-2019

Texas and Southwestern Cattle Raisers Association

AQHA

FM

Department of the Navy United States Marine Corps

RanchBot Monitoring Solutions

The Land Board

Beggs Cattle Company
Established 1876

Historic opportunity for boosting rangeland value with soil

Largest handover of land in history

93M	370M
U.S. range acres	**U.S. agricultural acres**
changed hands from 2015 to 2019	to change hands by 2034

New landowners care about

- making their mark on a legacy
- new revenue streams
- environmental benefit
- biome and habitat improvement
- making a direct impact

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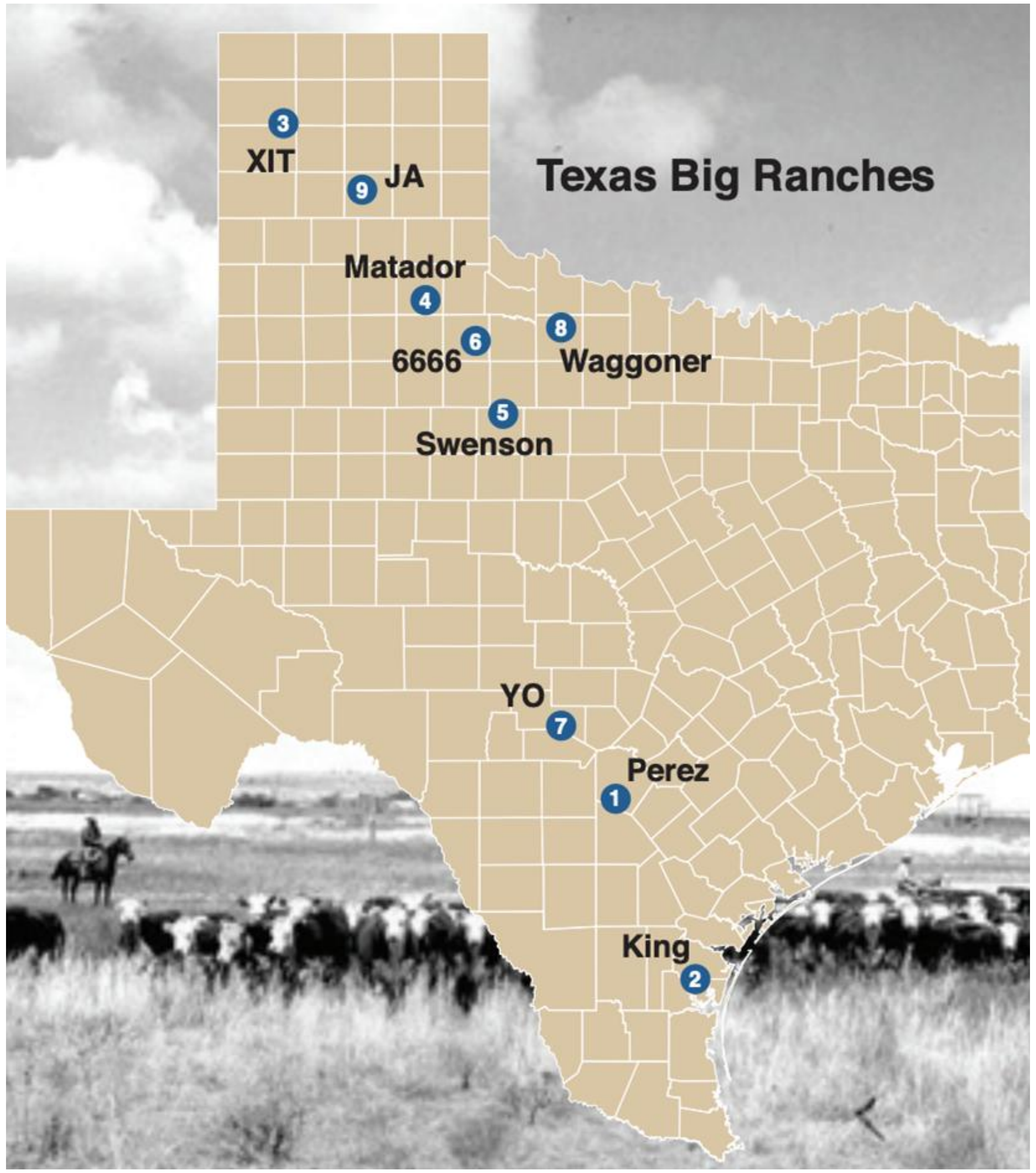
Soil health data safeguards ranchlands, protects industry and culture

250,000

texas acres lost to development in 2023



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Soil health data safeguards ranchlands, protects industry & culture

Data on soil health defends and protects ranchlands

- Defends the livestock industry
- Slows development
- Defends against eminent domain
- Protects sensitive ecosystems

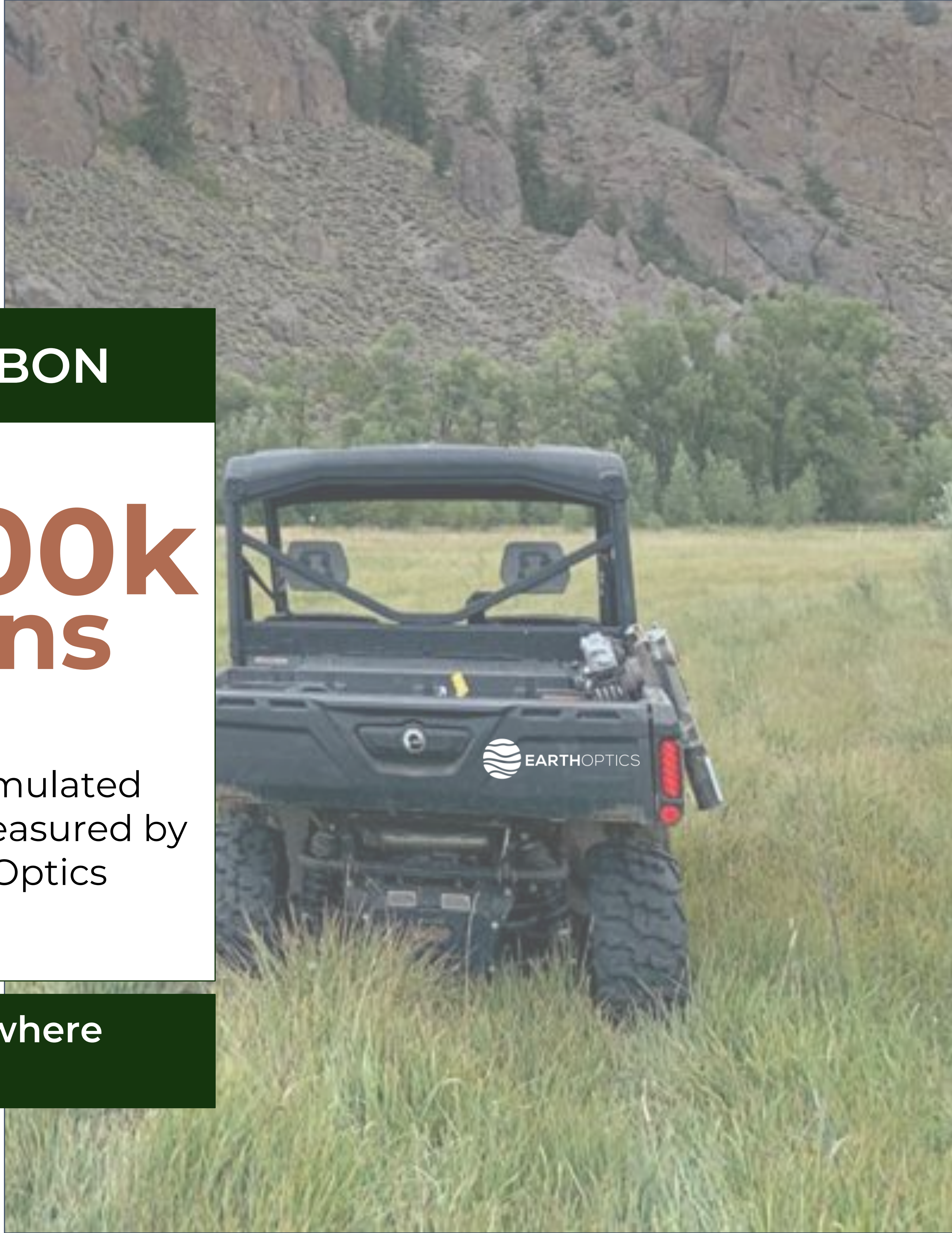
Carbon is the beginning

- More efficient operations
- Monetization of individual carbon credits
- Monetization of “biodiversity credits”
- Drought discussion

Most trusted name in soil carbon measurement

FARM LAND	RANGELAND	CARBON
60%	**90%**	**3000k tons**
of all US soil carbon quantification for farmland is conducted by EarthOptics	of all US soil carbon measured for rangeland is conducted by EarthOptics	of accumulated carbon measured by EarthOptics

We are revolutionizing soil sampling, creating a future where traditional sampling methods are obsolete



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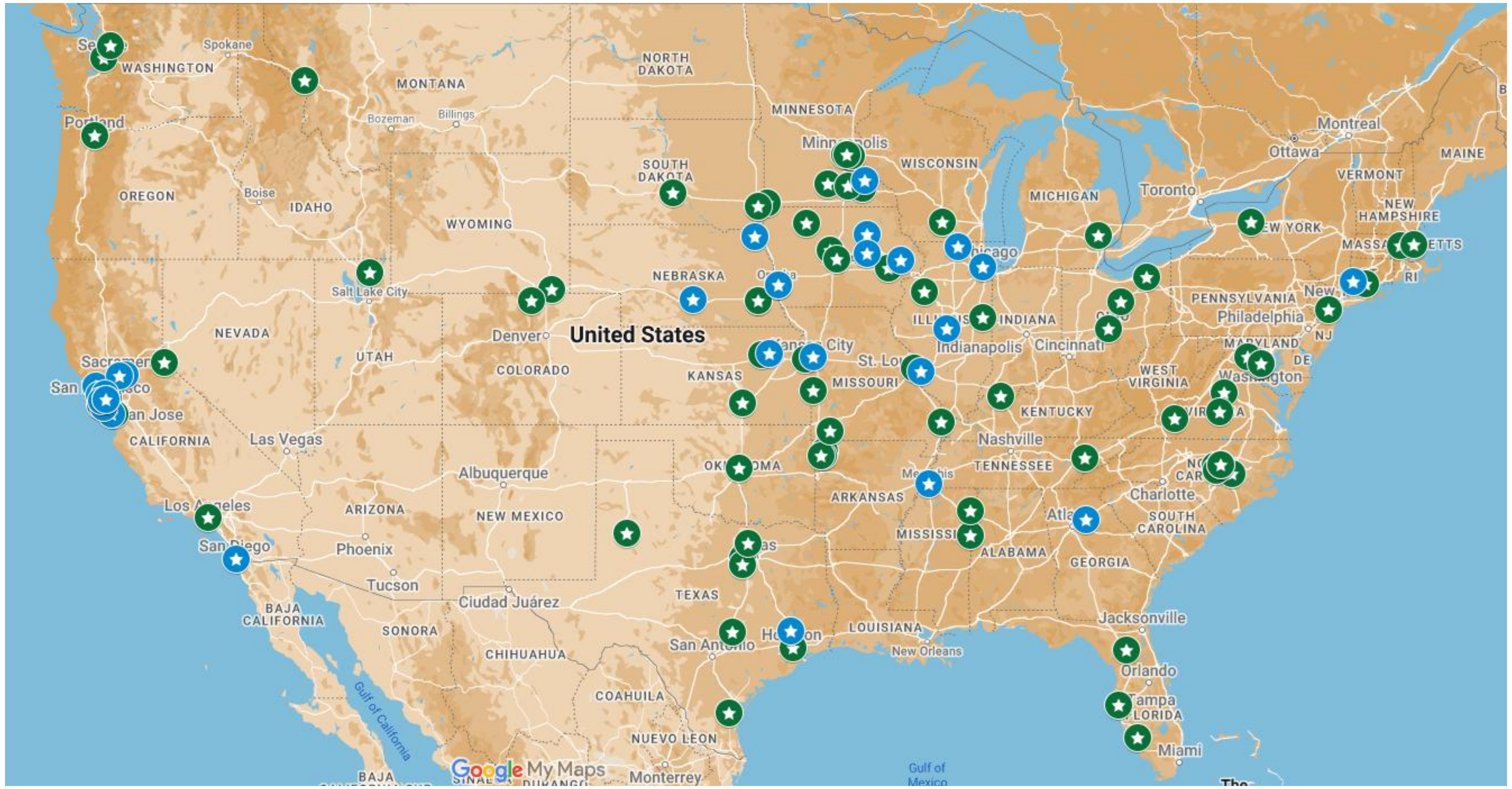
Global Team Footprint



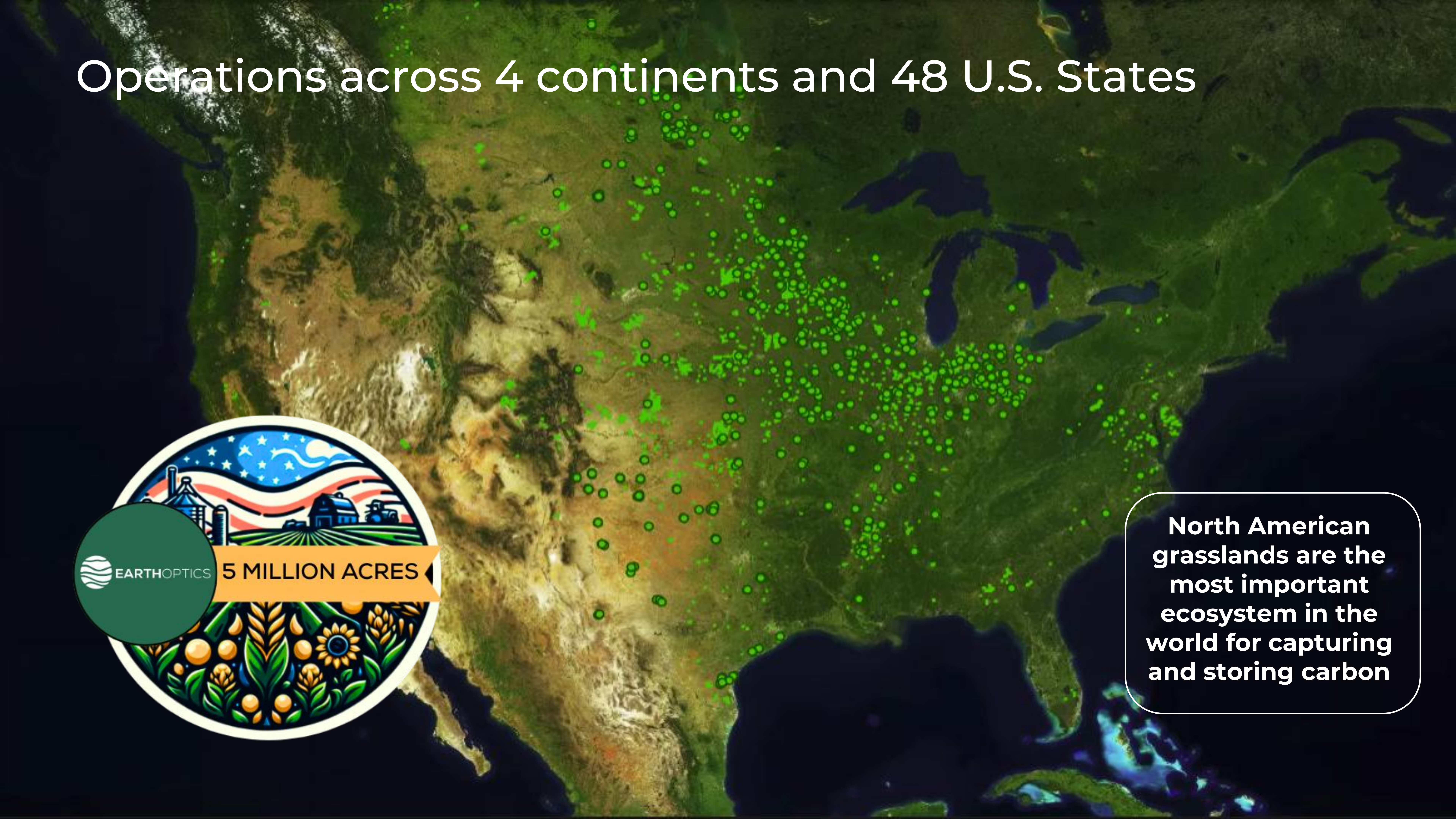
Brazil Team

100 Employees in 32 States + Brazil, 5 Offices, and 3 Labs:

- Memphis, Emeryville, Brazil

EARTHOPTICS

Operations across 4 continents and 48 U.S. States



North American grasslands are the most important ecosystem in the world for capturing and storing carbon

Where does EarthOptics fit in? We are the glue

Strategic Partners

Texas Agricultural Land Trust · Impact AG partners · Trust in Beef · Enriched Ag · Birddog · BoaSafra

Credit Buyers

Shopify · Shell · Nestlé · Microsoft · gevo · ExxonMobil · Cargill · H-E-B

Industry Partners

Bayer · AgSpire · LDC Louis Dreyfus Company · ADM · Impact AG partners

Verra · Climate Action Reserve · BCarbon

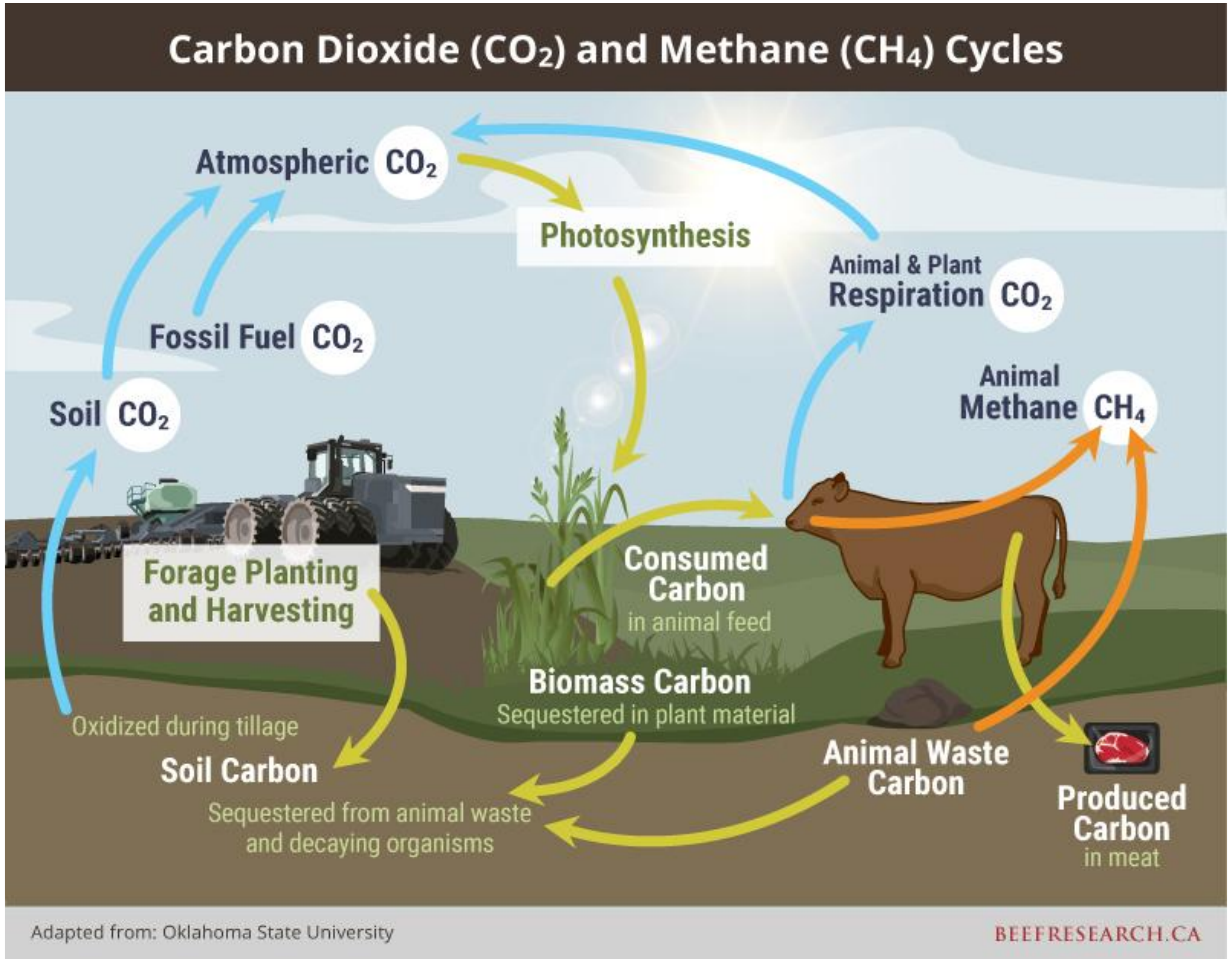
The Buyer — **Advisor** (EarthOptics & Brokers) — **The Landowner (You)** — **The Measurer** (EarthOptics) — **The Verifier**

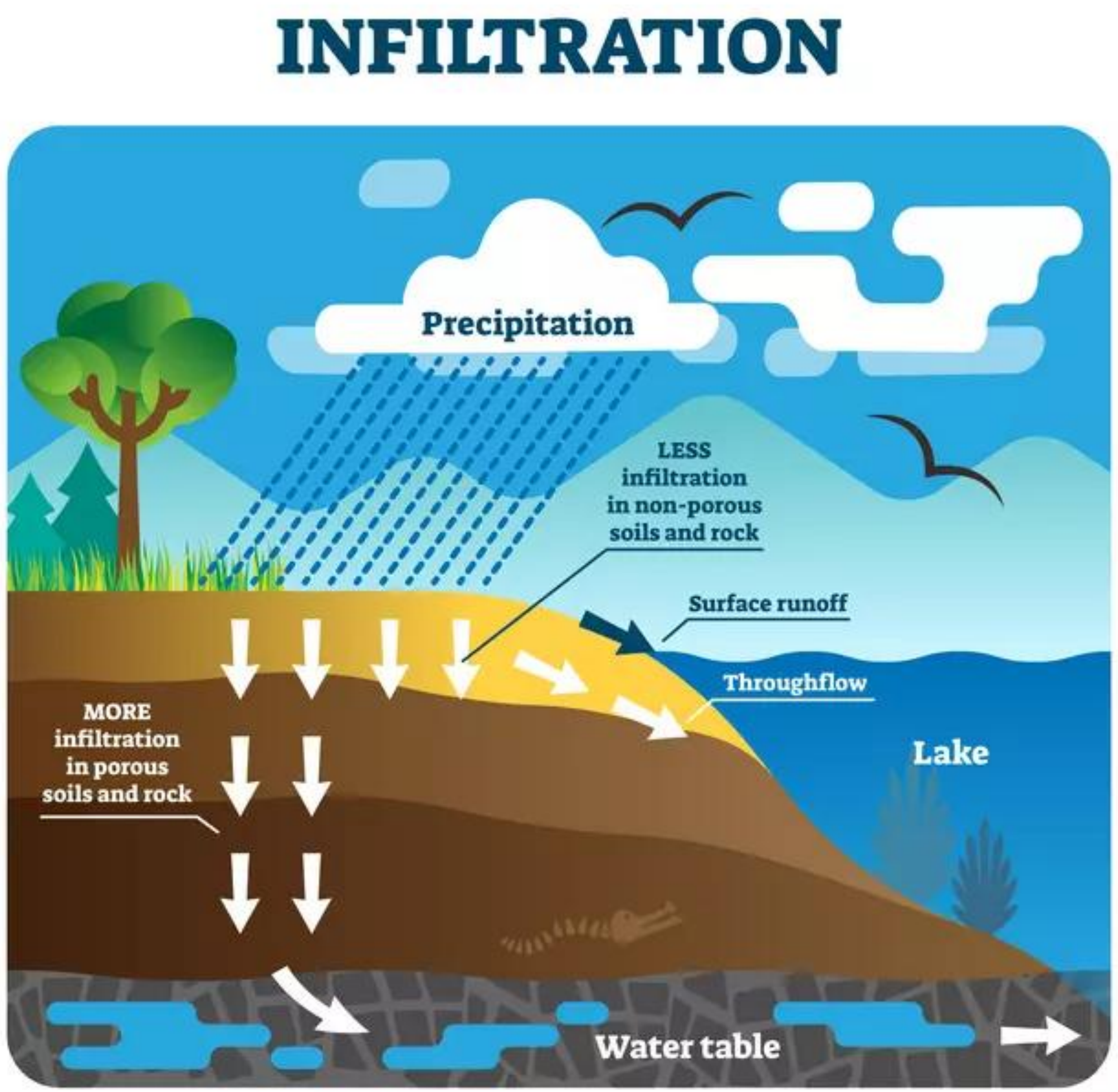
<u>PROJECT DEVELOPERS</u>

Range Carbon · indigo · agoro Carbon Alliance · Agriculture Capital · Grassroots Carbon · Kateri · AgriCapture · ESMC Ecosystem Services Market Consortium

Carbon Cycle and Water Cycle

Carbon, compaction, nutrients, and biological process





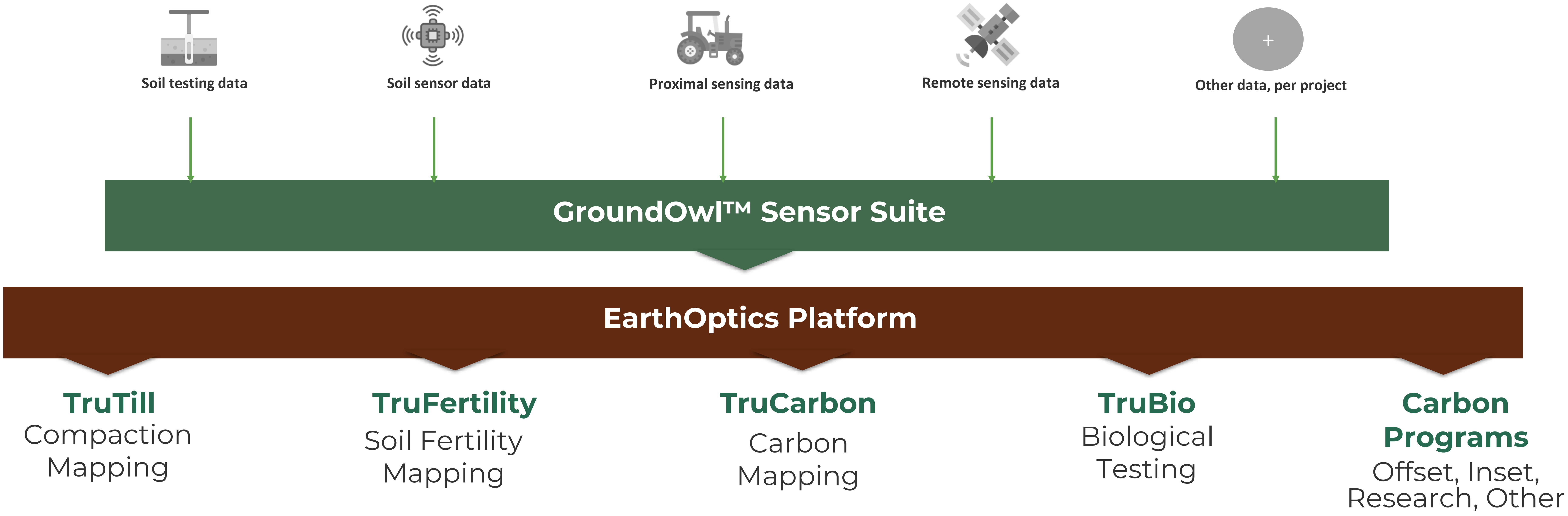
A flexible end-to-end partnership for your carbon projects

- Producer Sourcing
- Producer Engagement & Historical Practice Collection
- Measurement Design
- Measurement Execution
- Mapping
- Modeling, Forecasting, & Reporting
- Support for 3rd Party Audits

Pre-Project Support	Measurement & Mapping Services	Post-Measurement Support

EarthOptics measures everything beneath your feet

With advanced sensors, imaging and machine learning methods, our digital soil models allow us to accurately predict highly valuable soil attributes with a fraction of the physical samples.



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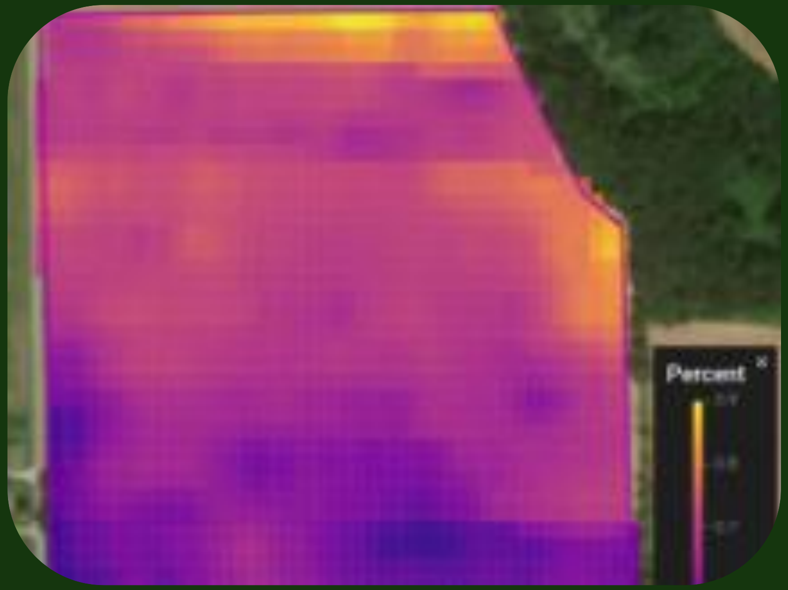
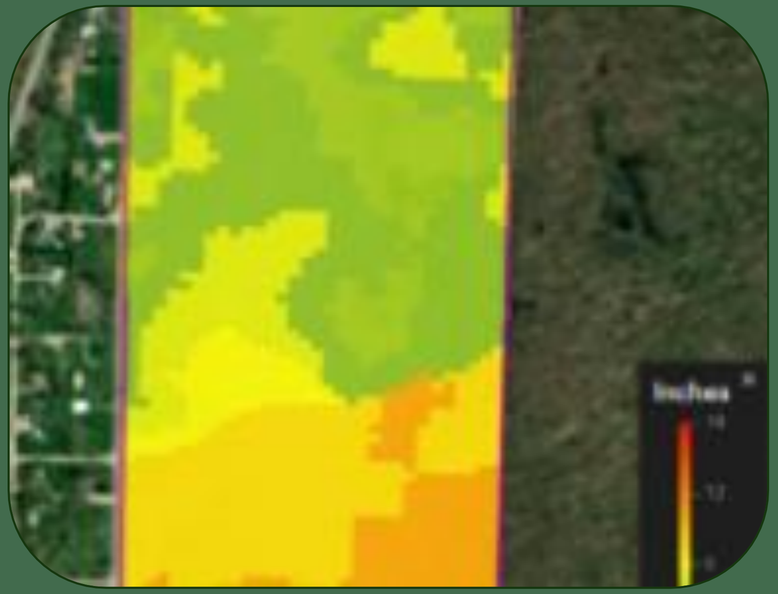
Delivering actionable soil maps at the highest resolution

TruCarbon
Carbon Measurement



Soil samples merge with sensor data to deliver highly accurate, high-resolution field carbon maps

TruTill
Compaction

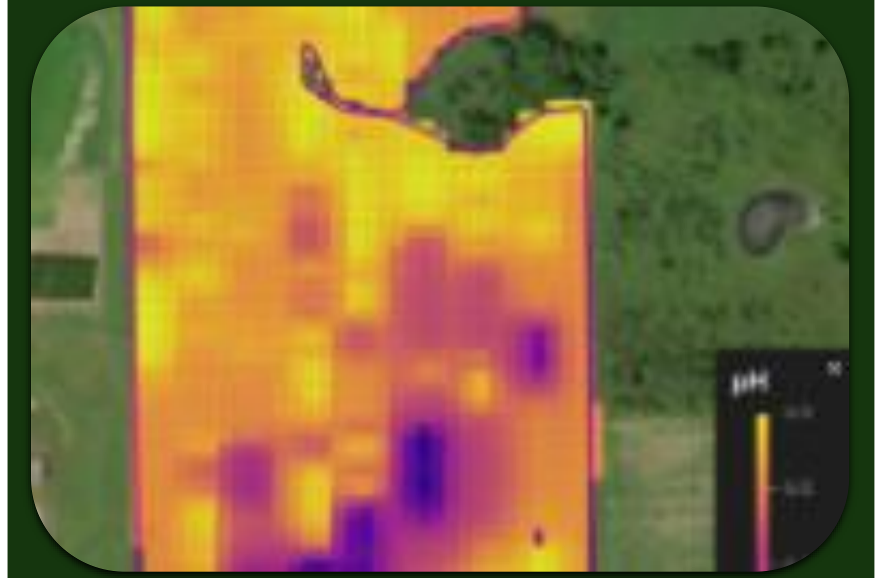


Compaction map: 10x10m
0-18" depth: Layer for each in.

Built in tillage prescription

Unavailable from anyone else in the industry

TruNutrient
Nutrients & Fertility



Macro: P, K, Ca, Mg (add-on N)
Micro: B, Cu, Fe, Mn, S, Zn
Properties: pH, BpH, OM, CEC

Built-in nutrient prescription

10x10 M grid = 100x the resolution of a 2.5-ac grid

TruBio
Biological

- **Below-ground pests & diseases**
- **Foliar diseases**
- **Key biofertility measures**

Crop plan based on opportunities and threats

Calculating your profits through EarthOptics measurement

Ranch Yield × **Carbon Price** = **Revenue** − **Direct Costs** = **Total Profit**

Ranch Yield

How much carbon added to your soil annually

Carbon Price

Weighted average price of carbon credits sold

Revenue

Annually to be split between the rancher and developer (if utilized)

Direct Costs

Costs of soil measurement, verification, and credit certification - **No costs out of pocket**

Total Profit

Annually for your ranch and data that can be leveraged to improve productivity

EARTHOPTICS

We will work with you along every step of the process, and deliver larger, verifiable environmental outcomes

Sign up ranchers

Pre-sell credits or Scope 3 reductions

Measure Reductions and Removals

Credits issued through registries

Scope 3 reports generated internally

Payment to ranchers

Deliver environmental assets to customers

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In partnership with: Breedr herdwatch AgriWebb

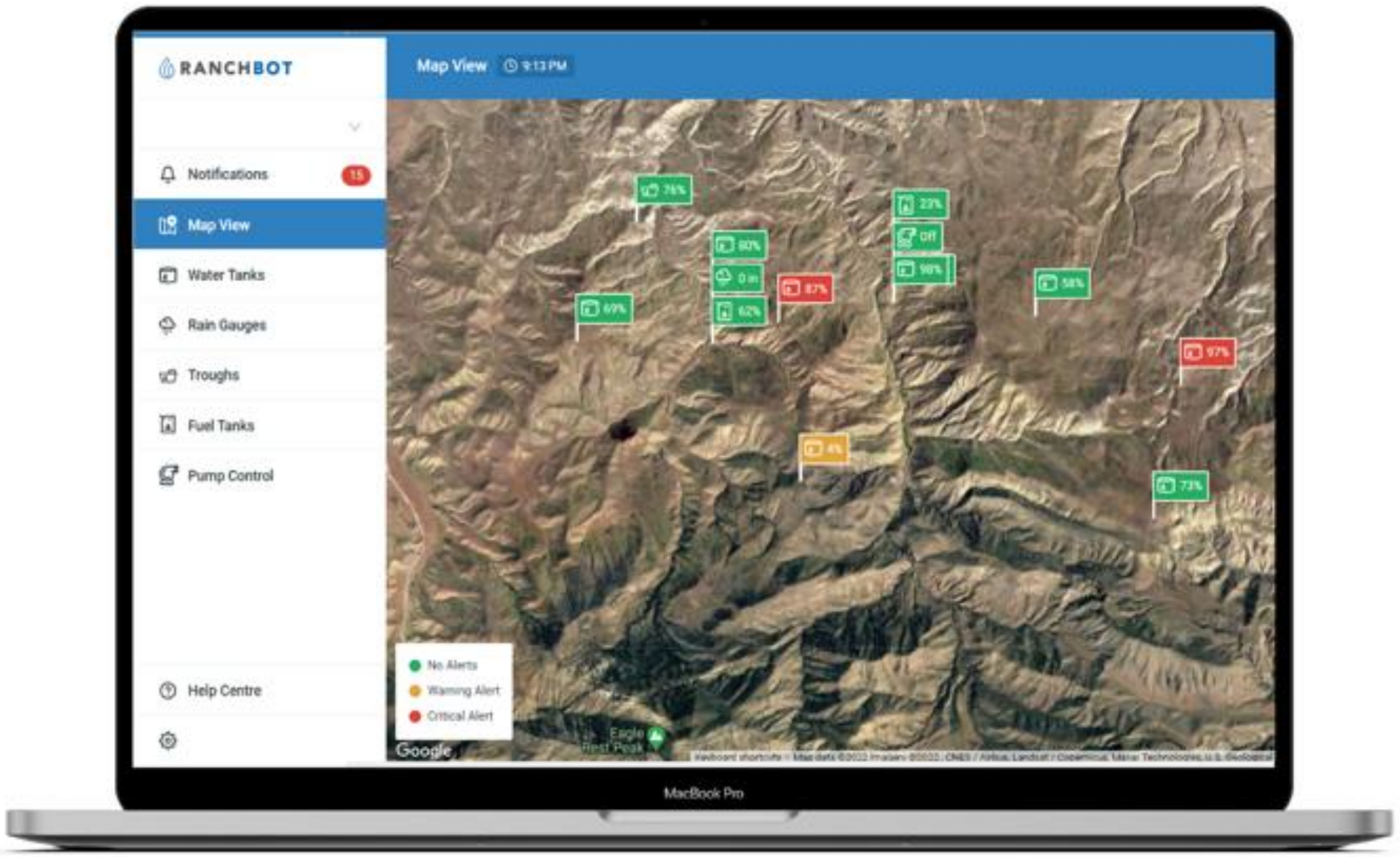
RANCHBOT
MONITORING SOLUTIONS

REMOTE WATER MONITORING AND MANAGEMENT

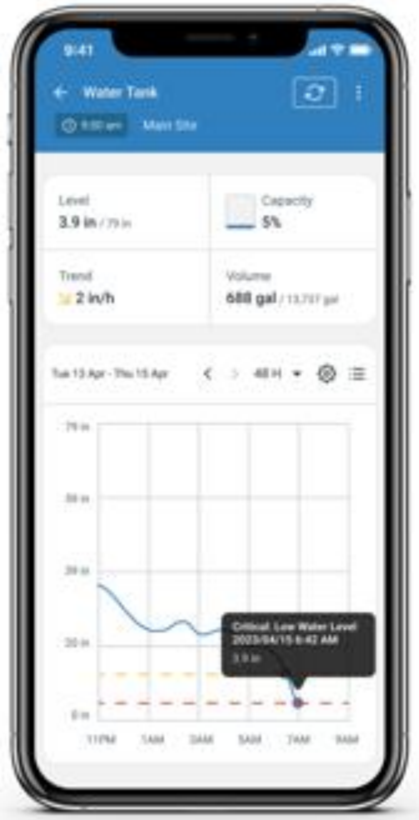
- ROI can be **less than 6 months.**
- **Saves most Ranchers thousands $$$** per year.
- Saves water and livestock with **near real-time alerts.**
- Automate and **control Pumps, Tanks and Pipes.**
- Hyper local **Weather, Rainfall and Temperature.**
- **Peace of mind** of knowing you have a problem when it happens.
- Use MyRanchbot on **mobile, desktop and tablet.**
- **Works anywhere** 24/7/365 for as little as **$1 per day.**

MyRanchbot Alerts

Know In Near Real-Time



Tank Critical Alert
Pipe burst, tank split?

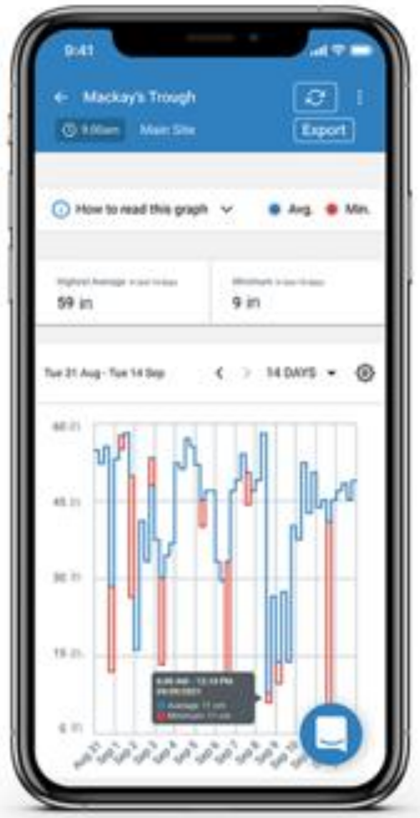


Tank High Level Alert
Over pumping?

Pump Off
Turn pump on

Rainfall Detected
How much rain today?

Trough Low Alert
Avg. is below 10 in



Fuel Tank Low
Order fuel

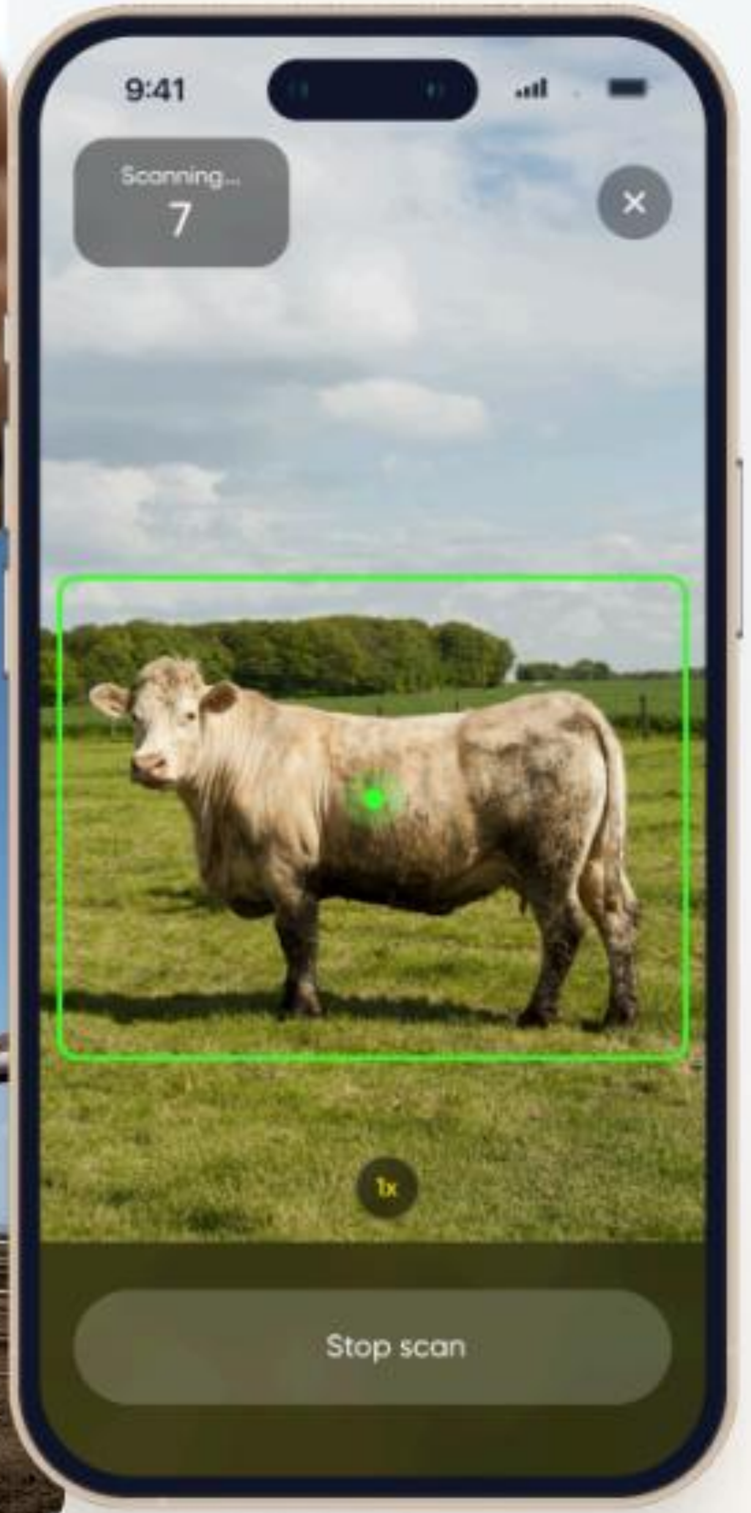
Frontiers Market replaces legacy tools with AI-powered vision on any device

Instantly weigh, identify, and value cattle from a single photo on any device—digitizing markets and replacing legacy tools.

- 5-second scan on phone, drone, or camera
- No tags, no chute, no added hardware
- Instant AI: weight, identity, health flags

Case study of 78 Charolais cattle tracked from ranch to feedlot

- **±8 lbs** predicted finishing weight
- **97% model accuracy**
- **$13,000 profit optimization**



Serving a broad range of carbon insetting programs

COPALLI RUM

Carbon stock analysis and life cycle analysis

Cargill

Insetting program to improve soil health and sequester carbon on ranchlands across the US

Walmart

Low-carbon beef marketing project

ESMC Ecosystem Services Market Consortium

Quantify Scope 3 emissions by measuring SOC changes resulting from regenerative grazing practices

LDC. Louis Dreyfus Company

Soil carbon quantification for the world's #1 cotton buyer program

100% GRASS-FED DAIRY MAPLE HILL CREAMERY

USDA Climate Smart Commodities project expanding climate-smart markets for dairy producers

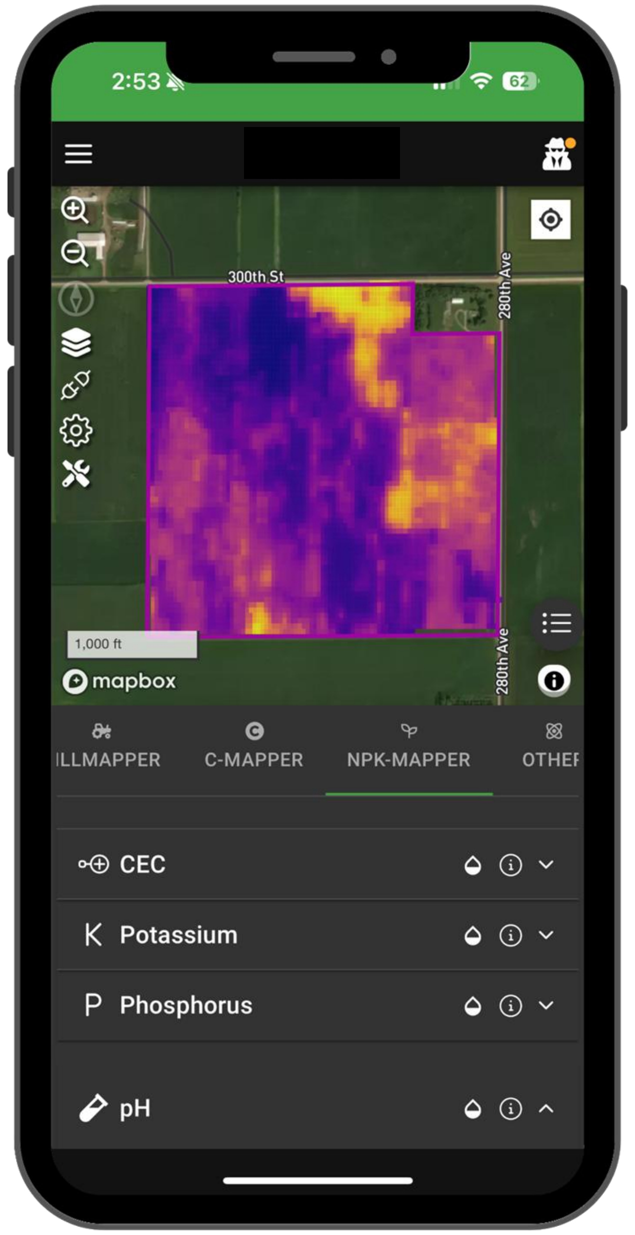
gevo

Carbon intensity (CI) scoring of climate smart practices. Market incentives for low-CI corn producing sustainable aviation fuel and low-CI ethanol

American Farmland Trust

MRV for climate-smart beef program PCSC program

The Pro: Actionable insights and recommendations

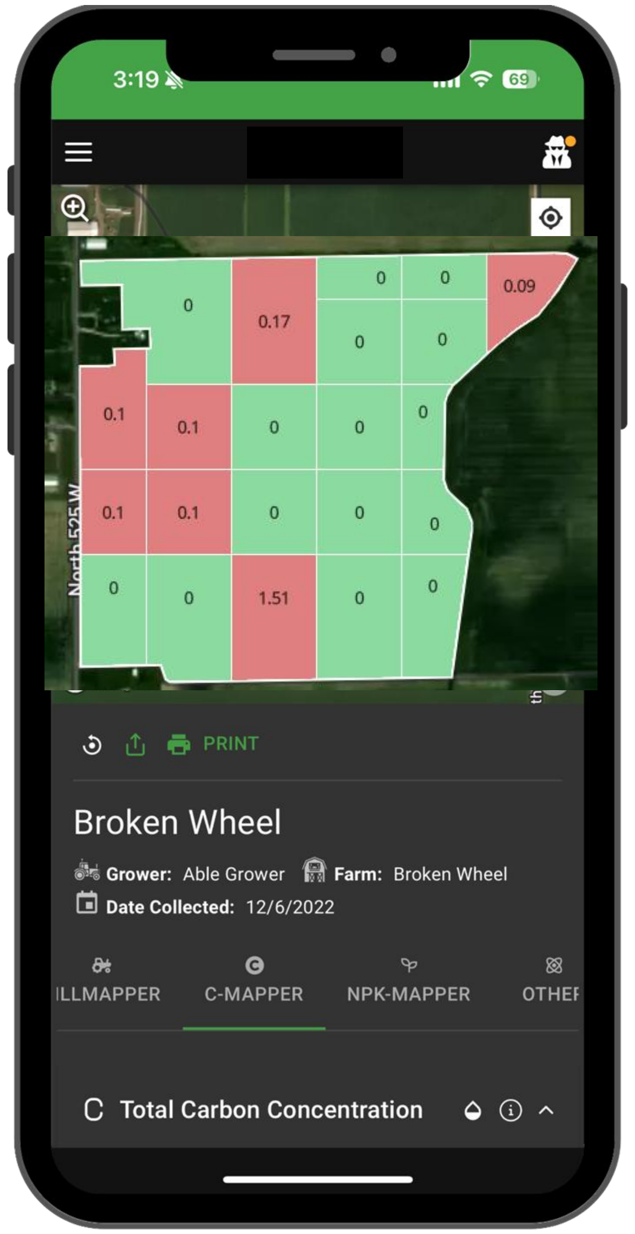


TruNutrient

Soil Fertility

TruTill

Soil Compaction



TruBio

Soil biology

- Real time, interactive maps engage your ranchers, farmers and carbon buyers
- Adding additional EarthOptics data products further increases the value of your clients' ranches and farms
- Maps and other EO products drive ranchers and farmers loyalty to your programs.

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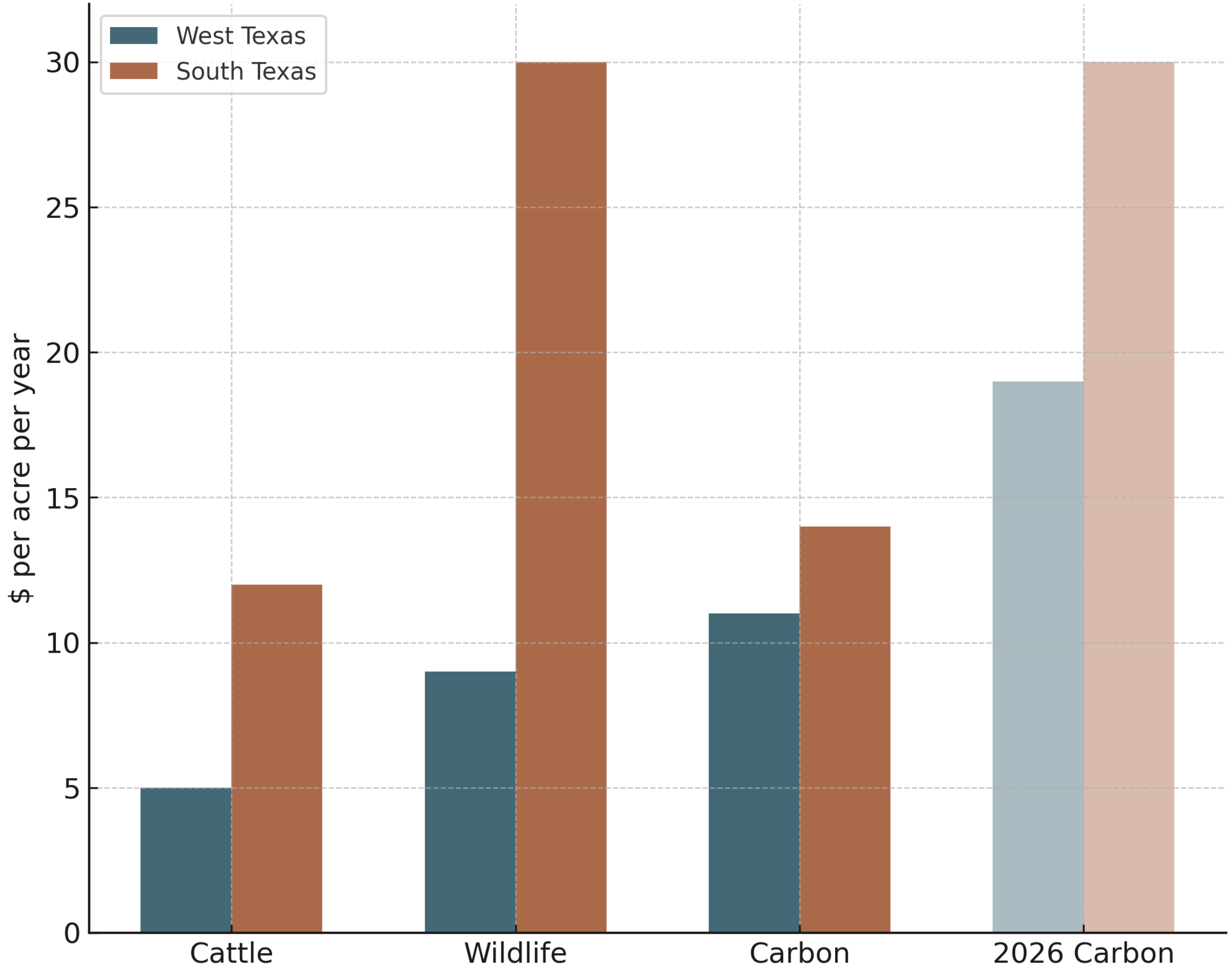
HOW CARBON MARKETS ARE PAYING RANCHERS ACROSS TEXAS

By: James Clement

Published Date: October 2025



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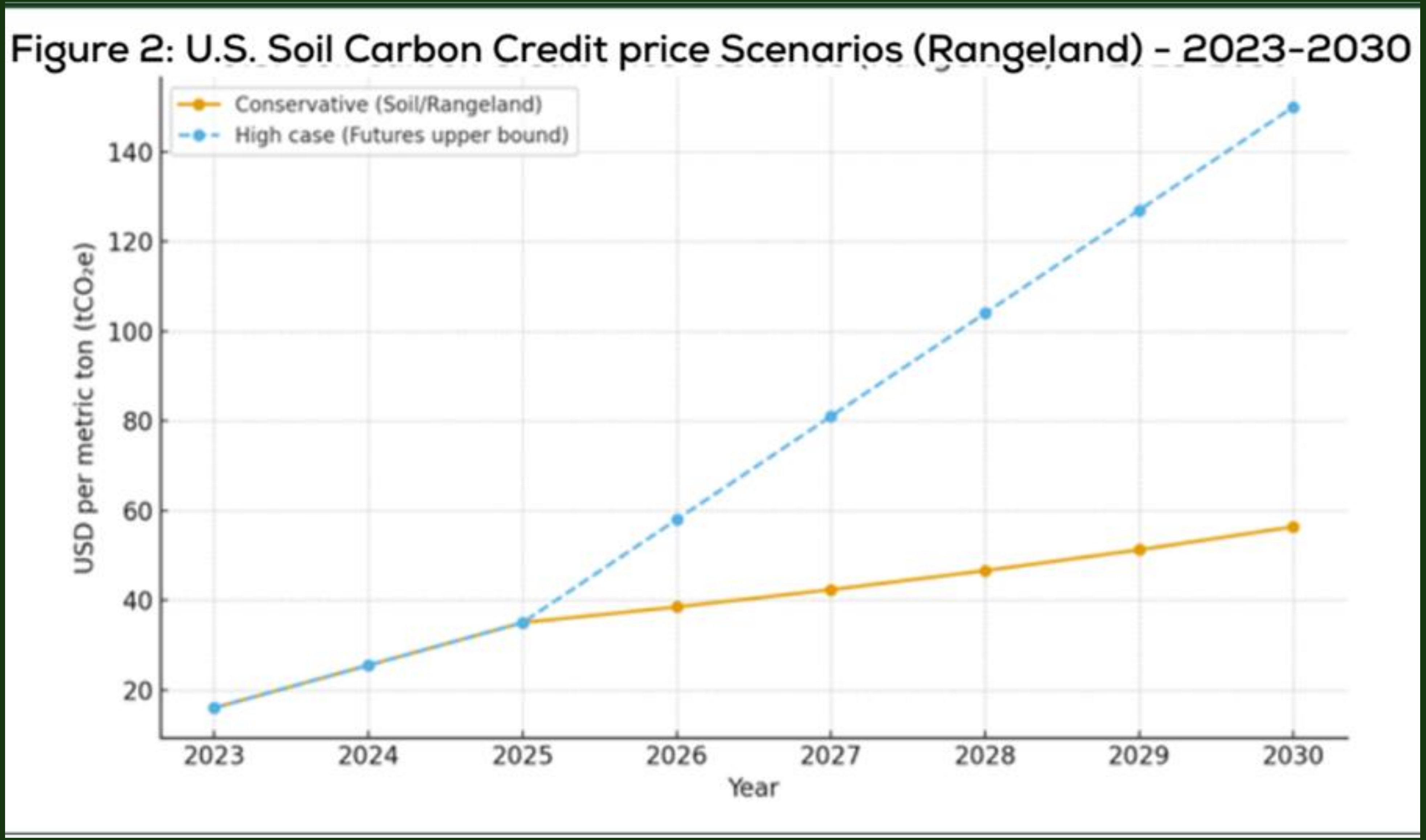
Case Study: How Carbon Markets Are Paying Ranchers Across Texas

At our South Texas ranch, for example, we currently receive about **$13 per acre**, and based on measured sequestration rates and rainfall, we expect that to exceed **$60 per acre** within this decade.

On our ranches, we sequester between **0.5 and 1.4 tons of carbon per acre per year**. All of this depends on soil type, rainfall and management. When you multiply that by forecasted credit prices, the revenue potential becomes clear (Figure 2): **stewardship isn't just good ethics - It's sound economics.**



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What is an IRS 180 Tax Deduction and how does it work?

BIRDDOG

BoaSafra Ag

Harvest Hidden Tax Deductions

Department of Agricultural Economics

Center for Agricultural Profitability, **University of Nebraska**

"Landowners may realize tax savings by deducting the value of pre-existing soil fertility. The value of the residual fertility load and the applicable landowner tax rate determine the savings. The landowner must determine deductions with support from their CPA or tax advisor."

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Questions

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Appendix

“Flying Blind” on majority of spend

Industry Standard Today
- NPK analysis on 2.5-10 acre grids
- Decisions often based on past experience

360 PRO: Data-Driven Decisions
- Maximize profit potential
- Minimize risk of loss
- Simple and easy to execute

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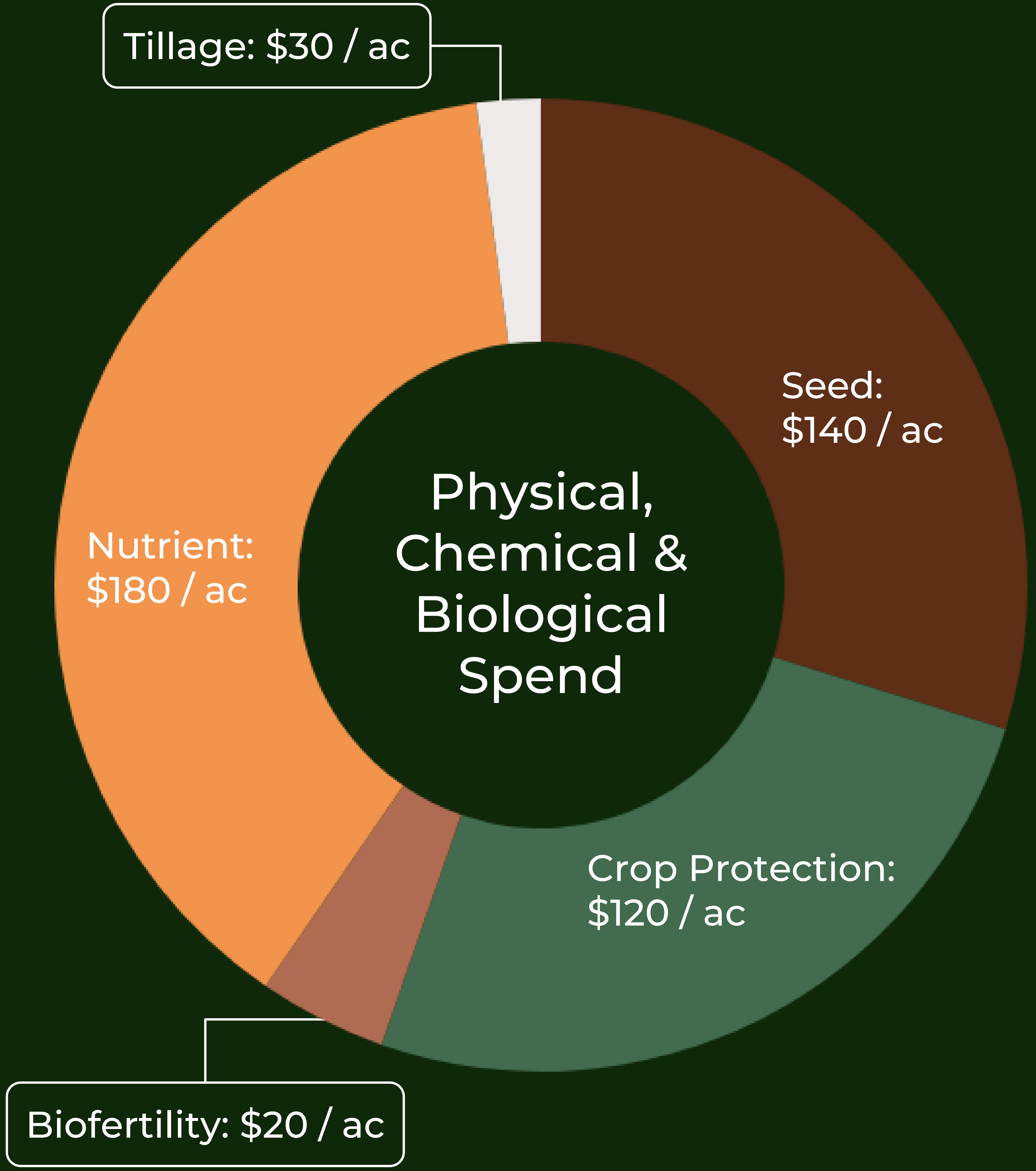

Lab Analytics Offerings

Carbon

- **Bulk Density**
- **Carbon** (TC/TIC/TOC)
- **Mid Infrared Spectroscopy analysis** (TC/TIC/TOC, Soil Texture, and more)
- **Total Inorganic Carbon Calcium Carbonate Equivalent** (CCE)
- **Active Carbon / Permanganate Oxidizable Carbon** (POX-C)
- **Particulate organic matter analysis** (POM/MAOM)

Nutrient

- **Nutrient Analysis BASIC** (P, K, Ca, Mg, Na, B, Cu, Fe, Mn, S, Zn, pH, BpH, CEC)
- **Nutrient Analysis COMPLETE** (P, K, Ca, Mg, Na, B, Cu, Fe, Mn, S, Zn, pH, BpH, CEC, OM, Nitrate)
- **Total Nitrogen**

Biological

- **Biological Pest and Disease Prediction** (various crop systems, soil health indicators)

Physical

- **Soil Texture Analysis** (% sand, silt, clay)
- **MC Segmentation** (core cutting)