



Carbon Scoring in Agriculture: Building Value Through Verified Sustainability

TABLE OF CONTENTS

Executive Summary	3
Why Carbon Intensity Scoring Matters	4
The New Carbon Economy in Agriculture	5
The Farmer's Dilemma: Policy and Payment Gaps	6
Unlocking the Value of Climate-Smart Agriculture Practices	8
Early Mover Advantage: Why Digitization Cannot Wait	9
The Farmers Edge Advantage: Turning Sustainability Into a Verified Asset	10
Conclusion: Sustainability as Strategy, Not Compliance	11



“Carbon scoring is unlocking new revenue streams for farms that can measure, validate, and connect their practices to the supply chain.”

Executive Summary

Sustainability is no longer just a marketing concept—it is becoming a measurable, tradeable asset.

Carbon Intensity (CI) scoring is gaining momentum as a way to influence how value is captured from the field to the fuel market.

Programs like the 45Z Clean Fuel Production Credit, and Canada’s Clean Fuel Regulations (CFR) are linking lower CI scores to tangible financial benefits—offering up to \$1.00 per gallon in added value for low-carbon feedstocks in the USA.

For farms, this creates a clear opportunity:

- No-till, cover cropping, and enhanced nitrogen management practices can reduce farm-level CI scores by 25–40%, positioning growers for access to crop premiums.
- Verified low-carbon crops will increasingly become a requirement to access the most competitive buyers, markets, and financing options.

Farms that can prove their sustainable practices will strengthen their position in a changing market and open new layers of opportunity.

Why Carbon Intensity Scoring Matters

Verified sustainability practices are becoming the key to market access, premium pricing, and long-term resilience.

Carbon Intensity (CI) scoring is steadily influencing how agricultural feedstocks are evaluated, priced, and preferred in the marketplace.

Program	Key Impact	Opportunity
U.S. 45Z Clean Fuel Credit	Directs \$1.00/gal credits to low-CI biofuels	Farms can boost feedstock value through Climate Smart Ag practices
Canada's CFR	Mandates CI reductions across gasoline and diesel	Expected bonus pricing for documented sustainable production

Why It Matters for Growers:

- Proving practices like no-till, cover cropping, and enhanced efficiency nitrogen (EEF) use is becoming essential to participate in emerging premium markets.
- Buyers, insurers, and lenders are increasingly differentiating based on verified sustainability data—not just production volume.

The New Carbon Economy in Agriculture

Sustainability is becoming a pricing and access driver across food, feed, and fuel markets.

Carbon Intensity (CI) scoring is transitioning from a regulatory opportunity to a growing influence on agricultural market dynamics. New clean fuel programs directly connect lower carbon scores to improved financial opportunities — encouraging a shift in how commodities are produced, marketed, and sold.

Across North America, initiatives like the U.S. 45Z Clean Fuel Credit, California’s Low Carbon Fuel Standard (LCFS), and Canada’s Clean Fuel Regulations (CFR) are creating new incentives for farms that can verify climate-smart practices.

Verified sustainability is becoming an increasingly important factor in agricultural trade—not replacing production value but complementing it.

Program	Opportunity	Activation Timeline
45Z (U.S.)	Rewards field-verified low-carbon feedstocks through fuel producer credits	2025–2027+
LCFS (CA, OR, WA, BC)	Credits for each ton of lifecycle CO ₂ e avoided	Active
CFR (Canada)	Incentives for emissions reductions across the fuel supply chain	Late 2026 onward

Farms that capture and validate their sustainability data will be positioned as preferred suppliers—securing better contract terms, greater market access, and stronger alignment with evolving buyer expectations.



The Farmer's Dilemma: Policy and Payment Gaps

Today, practices like no-till, cover cropping, and enhanced efficiency nitrogen use deliver real, measurable carbon reductions.

However, under the current structure of emerging carbon markets, the full value of these improvements doesn't always flow directly to the farms implementing them.

Programs like 45Z and LCFS primarily allocate credits to fuel producers, creating a situation where:

- Fuel plants capture the initial tax credit benefits and will share a significant portion with growers to encourage low CI Scoring grain production.
- Farms incur the cost of practice changes but risk missing out on direct financial returns if sustainability data isn't properly verified and connected into the supply chain.

"Farms that digitize their sustainability data today will shape how value is captured tomorrow."

The Farmer's Dilemma: Policy and Payment Gaps

(Cont'd)

Encouragingly, this dynamic is beginning to shift. As verifiable low-carbon grain and digitized farm data become strategic differentiators, early-adopting farms are better positioned to influence how future credit and incentive structures are shaped.

Challenge

Data Collection: Actual agronomic practices, fertility practice details, and evidence items (receipts) must be collected to CI Score.

No Mandated Value Transfer: Fuel producers are not required to pass credits to growers.

Complex Eligibility: Programs require both CI thresholds and labor compliance.

Emerging Opportunity

Flexible Data Models: Field-specific tracking is creating new paths for field-by-field eligibility.

Contract Innovations: Forward thinking biofuel producers are planning for sustainability-linked bonus value.

Digitized Baselines: Verified data simplifies compliance and strengthens biofuel producer and farm participation.

Key Takeaway:

Farms that build robust sustainability practices today will not only secure early access to premium opportunities—they will also be positioned to help define how value is distributed in future market structures.

Unlocking the Value of Climate-Smart Agriculture Practices

An important path to premium markets is through verified, field-level sustainability practices.

Climate-Smart Agriculture (CSA) practices are becoming increasingly recognized not just for their environmental benefits, but for their contribution to improving farm marketability and resilience.

Practices like no-till, cover cropping, precision nitrogen management, and enhanced-efficiency fertilizers can collectively lower a farm's Carbon Intensity (CI) score by 25–40%, according to early modeling.

Within programs like 45Z, LCFS, and CFR, farms that verify these practices are better positioned to access financial benefits linked to low-carbon production.

CSA Practice	Typical CI Reduction Potential	Strategic Value
No-Till/Reduced Tillage	10–20% lower field emissions	Improves soil health, reduces input costs
Cover Cropping	5–15% GHG savings through soil carbon retention	Enhances yield stability, soil resilience
Enhanced-Efficiency Fertilizers	5–10% reduction in nitrous oxide emissions	Optimizes input use, increases operational efficiency
Variable Rate Technology (VRT)	Site-specific input management	Boosts profitability while providing verified sustainability data

Key Takeaway:

Bundling multiple CSA practices creates the most significant improvements in CI scoring and strengthens eligibility for sustainability-linked market incentives. While the environmental benefits are important, the emerging opportunity lies in aligning proven sustainable practices with better market access, stronger lender confidence, and new revenue potential.

Early Mover Advantage: Why Digitization Cannot Wait

The first farms to collect and verify their carbon data will set the benchmarks others must meet

In sustainability-linked markets, early action creates lasting advantages. The contracts, premiums, and supply agreements being signed today will influence agricultural economics for years to come.

Farms that proactively digitize their practices—capturing, verifying, and organizing sustainability data at the field level—position themselves as preferred partners for fuel producers, grain buyers, and lenders.

Without verifiable data, farms may be assigned default CI scores, potentially missing premium opportunities and facing limited market access.

Early Adopter Advantages

Why It Matters Now

First Access to Premium Contracts

Processors and buyers are securing low-CI supply contracts through 2027.

Influence on Program Design

Verified farms help shape how future incentive programs evolve.

Better Financing Terms

Financial partners increasingly favor operations with traceable sustainability practices.

Baseline Protection

Early data baselines protect farms against tighter future regulations or shifting default assumptions.

Key Takeaway:

Digitization is more than a compliance strategy—it's a way to create durable, competitive positioning. Farms that build strong sustainability records today will help define market standards in the years ahead.

The Farmers Edge Advantage: Turning Sustainability Into a Verified Asset

Sustainability data isn't just about reporting — it's about unlocking new revenue, new resilience, and new partnerships

Farmers Edge enables farms and agribusinesses to connect sustainable practices with verifiable data infrastructure.

Through a combination of agronomic expertise, real-time digital capture, and scalable analytics, Farmers Edge empowers operations to turn sustainability into a measurable business advantage.

Early Adopter Advantages	Why It Matters Now
FarmCommand® Digital Platform	Captures machine data, satellite imagery, and input applications in real time, creating verifiable records at the field level.
Soil Laboratory	Provides rapid (3-day) nutrient analysis to support precise nitrogen management decisions
GREET/CFR-Aligned Reporting	Ensures seamless compatibility with 45Z, LCFS, CFR, and emerging and changing regulatory and export standards such as ISCC
Carbon and Sustainability Dashboards	Translates operational data into actionable insights for tracking practices and validating carbon reductions.
Attestation Tool	Grower &/or advisor review of data required for CI Scoring. Digital document sign-off for grower and Biofuel Feedstock Reports for certified sales to biofuel producer.

Farmers Edge delivers the infrastructure needed to digitize, validate, and monetize sustainability efforts—without adding operational complexity.

By providing flexible, field-tested solutions, Farmers Edge helps farms succeed as carbon markets and sustainability-linked incentives continue to expand.



Conclusion: Sustainability as Strategy, Not Compliance

Agriculture is evolving as verified sustainability practices increasingly shape access to markets, premiums, and strategic partnerships.

Carbon Intensity (CI) scoring will become a meaningful contributor to how agricultural value is evaluated and rewarded.

Farms and enterprises that build field-level data baselines and validate their practices today are best positioned to capture future opportunities—not simply react to future requirements.

Sustainability is shifting from a compliance exercise to a strategic asset.

By digitizing, verifying, and connecting practices to emerging market structures, farms can unlock new revenue streams, improve financing terms, and strengthen long-term resilience.

Farmers Edge is committed to helping growers and agribusinesses lead in this evolving landscape.

With integrated technologies, fast data verification, and agronomic support, Farmers Edge enables farms to thrive as sustainability becomes a core element of agricultural success.

Farmers Edge helping biofuel producers work with their growers to make CI Scoring a success for both while shaping tomorrow's ag economy.

“Carbon scoring is not an obligation — it’s a new platform for growth, resilience, and long-term profitability.”



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