



**ADDITIONAL REVENUE:** Although corn prices are depressed due to a monster crop on the way, carbon intensification scoring under Section 45Z may unlock new revenue opportunities for farmers. PHOTOS BY GIL GULLICKSON

# Nab more cash through Section 45Z

BY GIL GULLICKSON

LATE IN 2022, Mitchell Hora found an obscure spark tucked inside the massive Inflation Reduction Act of 2022 that could ignite new revenues for farmers.

“It was a light-bulb moment for me,” says Hora, a Washington, Iowa, farmer and founder and CEO of the software company Continuum Ag. While perusing the IRA, he found Section 45Z, which grants federal tax credits to biofuel manufacturers who make low-carbon fuels.

The tax credit’s worth is based on a carbon intensification (CI) score that tracks the biofuel supply chain’s carbon footprint. This includes greenhouse gas emissions such as carbon dioxide, nitrous oxide and methane that can fuel climate change.

The fewer emissions used to produce a gallon of biofuel, such as ethanol or biodiesel, the more tax credits — and money — biofuel companies glean. Farmers play a part in reducing these emissions since the answer is literally under their feet. Soil health practices they implement — such as cover crops, reduced tillage and efficient

fertilizer use — also can reduce or sequester greenhouse gas emissions.

Currently, nothing in Section 45Z states that biofuel producers must share the money from tax credits with anyone. Still, Hora thinks they will share it with farmers, grain merchandisers, third-party verifiers and others. He estimates tax credits potentially could be worth more than \$100 per acre in shareable value.

“[Section 45Z] could be absolutely game-changing for my family’s farm and other family farms across the country,” he says. “I think it’s going to have a ripple effect that changes global agriculture.”

## WORLDWIDE IMPACT

Voluntary programs that pay farmers to adopt practices to sequester or reduce greenhouse gases gained momentum in the late 2010s. One type — offset programs — pays farmers for soil health strategies to offset greenhouse gases emitted by companies making their products.

It’s not that simple, though. Some offset programs contain additionality clauses, which nix payment for prior practices

farmers use to slash greenhouse gas emissions.

“If a producer switched from conventional tillage to no-till 20 years ago and picked up cover crops a decade ago, they’re actually precluded from participating in a lot of these carbon markets,” says Sean

**“[Section 45Z] could be absolutely game-changing for my family’s farm and other family farms across the country.” — MITCHELL HORA**

McMahon, U.S. sustainability manager for FarmersEdge, a Canadian firm that provides agribusinesses and crop insurers technology services.

Others contain permanence clauses that pay farmers for greenhouse gas-reducing practices for a certain duration. A farmer who converted to greenhouse gas-sequestering no-till would void a contract if they switched to tillage, according to a University of Wisconsin Extension analysis.

“Some of these programs in a voluntary carbon [offset] market have a lot of red tape and hurdles,” Hora says.

That’s not so with potential Section 45Z payments. Unlike current carbon programs, there’s no contract to sign, nor are farmers who have installed prior greenhouse gas-sapping practices excluded.

Instead, potential payments are tied to the carbon footprint of each bushel a farmer grows, Hora says. The lower a farmer’s CI score, the higher the payments.

This appeals to Josh Nelson, who farms near Belmond.

“This is an opportunity to pay farmers for practices they have been doing for a while,” he says. “Under [Section] 45Z, you could potentially get a payment for soil health practices that improve your CI score.”

All this ties into hungry global demand for low-carbon fuels, says Monte Shaw, Iowa Renewable Fuels Association executive director.

“Almost every major market that we see requires low-carbon ethanol,” he says. “The aviation industry wants it. Marine vessel

fleets want it. The railroad industry wants locomotives that can generate electricity from low-carbon ethanol instead of diesel fuel.”

### BIOFUEL WIN

Section 45Z was a winner in the One Big Beautiful Bill Act that President Donald Trump signed on July 4. Provisions include:

- an extension of biofuel tax credits through 2029 (Initially, they were set to expire in 2027.)
- a mandate that tax credits apply only to North American feedstocks such as corn and soybeans (It excludes foreign feedstocks, such as those used to make Chinese cooking oil.)
- tax credit transferability (This allows biofuel producers to sell credits they can't directly use.)

Congress also eliminated a part of the full life-cycle analysis within Section 45Z called indirect land use change (ILUC). This modeling method calculates how potential changes in economic demand for a crop affect global land use, says Karen Boyd, World Energy director of product sustainability.

She says it's important to remember that ILUC is just an economic model based on possible changes in future demand and cannot be directly measured or affected by an individual.

“If you grow soybeans, [45Z-induced production] may create additional demand for soybean oil due to it being utilized to produce fuel,” Boyd says.

ILUC modeling shows how this potential fuel use may impact land use for other soybean uses.

It may mean land demand to grow soybeans for food and other purposes could

come from areas such as a Brazilian rain-forest converted into new farmland, she says.

### UNKNOWNNS

Still, many unknowns exist, as Section 45Z now goes to the Treasury Department's Internal Revenue Service to write regulations. The Treasury Department may consult with USDA and the Department of Energy, which were previously involved with Section 45Z provisions. Since it's a tax issue, however, the Treasury Department has final say.

“Without final Treasury regulations, it's difficult to predict exactly how farmers will benefit,” Shaw says.

Shaw believes the Treasury Department will create a pathway for farmers to receive individualized CI scores for low-carbon practices. Questions remain about what practices will be included and what model will be used to track these.

“USDA [under the Biden administration] didn't recognize manure, and that's one of the biggest [low-carbon] practices you can do,” Shaw says.

Monetization by farmers also remains uncertain. Much depends on how the Treasury Department tracks CI credits, Shaw says. The current draft uses mass balance, which links bushels and low-carbon credits for delivery to a biofuel producer.

“We have said from the beginning that mass balance is a mistake,” Shaw says. “It lumps corn [and other crops] together. Unless you're selling directly to the plant, it is very limiting.”

The book-and-claim tracking system, which separates bushels and low-carbon credit certification, is better, Shaw says. It would enable farmers to separately sell their

## CI scoring specifics

Carbon intensification scoring works on a sliding scale for fuel, grain and oilseeds.

Average CI scores include:

- gasoline at 100
- ethanol at 55
- corn at 29.1

Biofuels companies could earn a 2-cent-per-CI-point reduction per gallon under the Section 45Z tax credit, says Monte Shaw, executive director of the Iowa Renewable Fuels Association.

Nixing the indirect land use change alone will reduce the CI score for a typical Midwestern ethanol plant from 55 to 45, Shaw says. If combined with a 10-cent-per-gallon tax credit, an ethanol plant that annually produces 100 million gallons of ethanol could glean \$10 million. Plants

could use this money to pay farmers, upgrade capacity or make improvements. “With these changes, I think the vast majority of ethanol plants are going to be able to qualify for the tax credits,” Shaw says.

Meanwhile, corn producers can lower their 29.1 CI score through various greenhouse gas-slashing practices. Josh Nelson, who farms near Belmond, has lowered his CI score for corn to 5 by:

- planting cover crops on a share of his acres
- strip-tilling and no-tilling corn
- implementing a three-crop rotation including corn, soybeans and small grains [oats/rye]
- reducing nitrogen application to about 0.6 pound per bushel for corn
- applying hog manure
- improving fertilizer management using soil tests such as one for pre-sidedressed soil nitrate

environmental attributes from their own CI scores from their grain and oilseed bushels.

“If I'm 400 miles away from the nearest ethanol plant but can raise low-carbon corn, I could sell that credit to the ethanol plant,” Shaw says. “Book-and-claim would give every farmer a chance to participate and enlarge the ability to produce low-carbon ethanol.”

### OTHER CONCERNS

Extending the 45Z tax credit from 2027 to 2029 also was a win, Shaw says. Still, it dashed hopes for a 2031 extension.

“This credit [through 2029] is not long enough for a plant to finance, build and operationalize major projects,” Shaw says.

Unless the credit is extended past 2029, biofuel plant managers will closely scrutinize and may pass on major investments, he adds.

ILUC also hasn't gone away completely, Boyd says.

“It's still part of other CI calculations that fuel producers' value, such as California's [low-carbon fuel standard] or [Carbon Offsetting and Reduction Scheme for International Aviation],” Boyd says. “Depending on the policy that is used to value the fuel, [ILUC] still is applicable.”

### WHAT TO DO

Hora hopes book-and-claim tracking will prevail. For now, though, he advises farmers, biofuel producers, grain merchandisers, elevators and other supply chain members to ready themselves for linked data and crop under mass balance tracking.

This requires knowing the CI scores of the grain and verifying bushels at every point of aggregation, Hora says.

If you want to know your CI score, Continuum Ag offers CI scoring at [continuum.ag/carbon-intensity](https://continuum.ag/carbon-intensity). Iowa State University also offers a CI score calculator; visit [extension.iastate.edu](https://extension.iastate.edu).

Knowing their CI score can help farmers decide which future low-carbon opportunities to pursue, says Eric Gibson, farm input and crop production sustainability analyst for Rabobank.

“You can only improve what you can measure,” he says.

Be careful. “Practices like cover crops are not inexpensive to implement,” says Tim Laatsch, North America director of agronomy for Koch Agronomic Services. “They carry some benefits, but they take time to materialize. They come with a learning curve and some yield penalty if you aren't managing at a high level.”

Long term, however, Nelson sees the movement toward CI and low-carbon grains and oilseeds as a lasting trend.

“You see Nestle, Unilever and European companies interested in paying farmers for their data to meet their [environmental, social and governance] goals,” he says. “Companies in Asia are also looking at their own ESG models. The idea of climate change or carbon removal is kind of off limits right now politically [in the U.S.], but I don't think it's going away globally.”

**+ Read more about Section 45Z and carbon intensification scoring on Pages 8-10.**



**CARBON SEQUESTRATION:** Deep, rich soils hold the answer for sequestering greenhouse gases.

# How to cash in on farm's soil-smart practices

BY GIL GULLICKSON

EVER WISH YOU could be paid for the way you farm?

These days, you certainly can.

Payment for carbon and sequestering or squelching greenhouse gases to produce low-carbon fuels spurred by Section 45Z and accompanying tax credits may soon be reality. They join “offset” and “inset” programs that firms currently offer to farmers.

Offset programs pay farmers using practices such as cover crops that “offset” greenhouse gases that companies produce in manufacturing products. Inset programs occur when a firm works with its own supply chain or that of other companies to reduce a carbon footprint.

The Bayer Carbon Program has both inset and offset customers, says Alyssa Cho, Bayer sustainable agriculture field team lead. It pays farmers for sustainable practices they are already using on their own farm, such as reduced tillage or cover crops.



**SOIL-SMART PAYMENTS:** These days, farmers can glean more payments for crops such as corn through payments for practices that sequester or slash greenhouse gases. PHOTOS BY GIL GULLICKSON



**VARIETY OF PAYMENTS:** Farmers can be paid for a variety of practices that reduce greenhouse gas emissions, such as reduced tillage or cover crops.



**NITROGEN MANAGEMENT:** Payments also can be garnered for practices that optimize nitrogen management.

“We pay \$6 per practice per year dating back to the fall of 2019,” Cho says. “We’ve also added a nitrogen-reduction offer that pays an additional \$4 per acre.”

The Bayer Carbon Program contract is for five years. If a grower decides to sign up again at the end of the contract, Bayer offers another \$6-per-acre bonus. Either Bayer or the farmer can exit the program before the contract expires.

## INSET PROGRAMS

The Soil and Water Outcomes Fund (SWOF) is an inset program that works with public and private organizations to achieve sustainability goals. It pays farmers who have implemented or expanded conservation to achieve environmental outcomes such as carbon sequestration, emission reductions and water-quality improvement.

It offers one-year contracts for practices such as:

- reduced till and no-till
- extended crop rotations
- cover crops

Its average annual payout in 2024 was \$33 per acre for participating farmers.

## CARBON INTENSIFICATION SCORING

What direction payments may take from Section 45Z federal tax credits hinges on regulations issued by the Treasury Department. It has not issued such regulations.

“The ethanol [biofuel] company is going to capture a lot of that value, perhaps the majority of it,” says Sean McMahon, head of U.S. sustainability for FarmersEdge. “But there’s still substantial value there for farmers. There’s a premium for low-carbon grain, and that value is going to exceed carbon offsets or carbon insets based on the voluntary carbon market today.”

The tax credit’s worth is based on a carbon intensification (CI) score that tracks the biofuel supply chain’s carbon footprint. The more greenhouse gas-cutting practices a farmer adopts, the more he or she could potentially glean in payments from the tax credit passed on by the biofuel producer.

“What I love about CI scoring is it represents a snapshot of a particular crop in a particular field for a specific year,” McMahon says. He says existing carbon programs have more rigor and parameters. Some programs also nix payments to farmers who have installed previous con-

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servation practices, he adds.

It remains to be determined what this payment plan has upon programs such as SWOF, says Adam Kiel, SWOF managing director. “Although some are saying that 45Z is locked in, we still don’t know if in-field climate-smart ag practices are eligible to count toward a fuel producer’s score,” he says. “That decision is still with the U.S. Treasury Department.”

#### NO DOUBLE DIPPING

Farmers cannot double dip payments between programs for which they are paid to slash greenhouse gas emissions in the same year, McMahon says.

However, he sees an opportunity for biodiversity payments — such as for improving water quality — to be stacked on top of payments for reducing greenhouse gas emissions.

Farm bill components — such as the Regional Conservation Partnership Program — allow for this, McMahon says. So do inset programs such as SWOF and others, which pay farmers for improving water quality.

“You could stack a water-quality credit that pays farmers for reducing nitrate leaching on top of a Section 45Z payment

for reducing nitrous oxide emissions,” he says.

Although this market is slower to develop than programs that slash greenhouse gases, interest exists, McMahon adds.

**INNOVATION REWARDED:** Farmers may be rewarded for practices that are a bit out of the ordinary, such as this soil-saving relay crop of winter wheat that acts as a cover crop for soybeans.



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## Hybrid program

Indigo Ag is already offering Section 45Z programs through several partnerships using interim guidance provided by USDA, says Chris Malone, vice president for Indigo Ag’s bio-fuels and market development.

“At Indigo Ag, we see 45Z as a complement to other sustainability programs, not a competitor,” he says.

Its FieldFlex program allows farmers to move eligible fields between 45Z and other programs as crop rotations and opportunities change, he says. This allows farmers flexibility to capture the best value from sustainability programs each year, Malone adds. It also allows agribusinesses and farmers the ability to monetize sustainability attributes, even if they can’t take advantage of 45Z every year, he says.

Malone adds that Indigo Ag currently offers a guaranteed payment if the Treasury Department does not implement 45Z.