

ForGround
by Bayer

Putting A Price On Carbon

Agriculture & The Carbon Market



FORGROUND
EBOOK SERIES

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What are Carbon Markets?

By Bayer Crop Science

Carbon markets are trading systems where governments and companies buy and sell carbon credits. Carbon markets, part of the larger ecosystem services marketplace, can play a part in helping governments and organizations achieve their target carbon footprint reduction goals. One carbon credit equals one metric ton of carbon dioxide or equivalent greenhouse gas reduced, sequestered or avoided altogether.

How Carbon Markets Work

Carbon markets deal in ecosystem services. Ecosystem services are provided to us by the natural environment. They can include maintaining clean air and water and preserving or restoring biodiversity. Some examples are using groundwater for irrigation and insects pollinating fruits and vegetable crops.

A marketplace of ecosystem services is a way to trade the conservation or restoration of these services. For example, a company may reduce its emissions of carbon into the air by half, but the other half isn't economically feasible or possible to reduce. The company may then choose to compensate someone else who can sequester the carbon to offset their remaining carbon emissions.

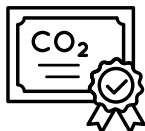


There are two types of carbon markets:



Compliance Carbon Markets

Generally driven by government policy and requires mandatory trades from national, regional or international players to regulate carbon emission allowances.



Voluntary Carbon Markets

Credits traded on a voluntary basis through various market-based systems. Voluntary carbon trading has benefits, including direct financing for projects that drive biodiversity protection, pollution prevention and public health, and investment into finding new ways to lower the cost of adopting emerging climate tech.

Read more on Carbon Markets
Compliance Carbon Markets and Voluntary Carbon Markets

How Carbon Markets Developed

Carbon markets aren't new. The Kyoto Protocol in 1997 committed nations to reducing their greenhouse gas emissions by creating voluntary carbon market registries. From 2003 to 2010, the Chicago Climate Exchange traded six greenhouse gasses, three of which relate to agriculture: carbon dioxide, methane and nitrous oxide. This market eventually closed due to a large amount of volatility in carbon credit prices.

In 2016, the Paris Agreement was signed by 194 nations. It created a goal to limit global temperature rise and established a framework for carbon trading systems. Most recently, the 2021 United Nations Climate Change Conference established a rulebook for carbon markets and declared a halt to deforestation by 2030.

There are several standards and markets which include international frameworks such as the Greenhouse Gas Protocol and the Science Based Targets initiative. Voluntary carbon market carbon standards include Gold Standard, Climate Actions Reserve, SustainCert and Verra. And finally, there are product labeling protocols such as the Carbon Neutral Product, Climate Neutral Certified and Responsible Source Certified.

Why Carbon Markets Are Needed

Carbon markets are emerging as a tool to help mitigate climate change and conserve natural ecosystems. The push to fight global warming has been gaining momentum among companies, consumers, and governments, each with its own unique set of values and considerations.

Corporate interest through voluntary approaches is driven by increased demand from investors and consumers to report the impact they have on the environment. Many corporations responded by making sustainability commitments which are tracked through initiatives like the Science Based Targets.

Globally, 1,957 companies have created science-based targets. Within the US alone, 566 companies have made commitments and 42 are from the Food and Beverage industry, including General Mills, Hormel, Kellogg's, Johnsonville, Mars, McCormick and Co., PepsiCo, Coca-Cola, Tyson Foods, ADM, Cargill and Dairy Farmers of America.¹

Consumer expectations have put companies under pressure to make an impact on climate change. As Millennials and Generation Z become the largest groups of consumers in the world, they're focused on purchasing products from companies with social and environmental initiatives.



A recent survey found that 75% of US consumers are concerned about the environmental impacts of the products they buy, and that 66% are willing to pay more for sustainable products.²

The current US government is pro-climate change mitigation, and politicians have spent billions of dollars to achieve it. It's been surveyed that two-thirds of Americans think the government should do more about climate change,³ and many climate-smart policies get support from both parties. The money allocated for climate-smart programs impacts the country in ways which may provide opportunities for additional income for farmers.



One example of this spending is the Inflation Reduction Act which included \$20 billion for USDA programs ACEP, CSP, EQUIP and RCPP, plus it created potential for the US biofuel sector. Thanks to investments and tax breaks on renewable diesel and sustainable aviation fuel, new refineries and expansions are planned in the US and Canada.

Farmers may have the opportunity to supply those refineries with grain that has a lower carbon intensity score (i.e., grain grown using regenerative farming practices like cover crops, strip-till or no-till) so that the refinery gets a larger tax credit. That money can then be provided to farmers through premiums on grain.



Of US consumers are concerned about the environmental impacts of the products they buy, and that 66% are willing to pay more for sustainable products.

ForGround by Bayer can help farmers get a jump on adopting cover crops, strip-till and no-till practices and earn income through the **Bayer Carbon Program**. With exclusive agronomic resources and discount programs, ForGround helps implement these new techniques and rewards farmers with reliable income streams for adopting them.⁴ Farmers may also share in the upside if carbon credit prices increase.

The benefits for farmers – improved soil health and resiliency, new income streams and overall stronger farms – will benefit everyone else around the world, too.

² Majority of US consumers say they will pay more for sustainable products. Sustainable Brands. <https://sustainablebrands.com/read/marketing-and-comms/majority-of-us-consumers-say-they-will-pay-more-for-sustainable-products>.

³ Tyson A., Kennedy B. Two-thirds of Americans think government should do more on climate. Pew Research Center. <https://www.pewresearch.org/science/2020/06/23/two-thirds-of-americans-think-government-should-do-more-on-climate/>.

⁴ Payments subject to: (a) verification by Bayer that the selected practices have been performed and, for historical payments, that carbon assets have been generated; and (b) all other applicable terms of the Bayer Carbon-Smart Master Services Agreement.

What are Carbon Markets Assets?

By Bayer Crop Science

Carbon market assets are traded by countries and corporations on carbon market exchanges. They can include carbon credits and other environmental benefits that offset the impact of carbon and greenhouse gas emissions as organizations worldwide work toward net zero.

Assets can be traded for a specific geographic area (i.e., water quality improvement in a local watershed) or across the world for an overall focus on air quality that benefits the global population. Farmers who reduce greenhouse gas emissions by adopting regenerative practices can get rewarded for their part in the process through initiatives like the **Bayer Carbon Program**.

How Are Carbon Market Assets Traded?

Let's use carbon credits as an example of how assets are traded within carbon markets.

An entity, such as a farm, either sequesters carbon out of the air or prevents emissions from going into the air in the first place. After the practice is verified through various testing means, the carbon reduction or removal can then be purchased as a carbon credit by a company – or even individuals – that can't reduce their emissions beyond a certain point.

Carbon Markets for Farmers

Carbon markets present unique income opportunities for farmers who adopt practices that sequester carbon.

On-the-farm activities that count are those that result in a change to a cropping system in a given field, such as switching from conventional tillage to **no-till or adding cover crops**. Carbon standards certify change; **a practice must introduce change in relation to the baseline condition.**

Practice change examples include:

- ✓ Carbon emission reduction from reduced machinery use
- ✓ Carbon sequestration in soil carbon pools
- ✓ Nitrous oxide reduction from improved fertilizer use

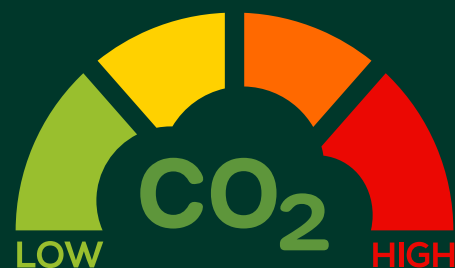


Several types of carbon market opportunities for farmers exist. The programs include: **Carbon credits or offsets**. This type of program pays the farmer to implement a regenerative agriculture practice that sequesters carbon.

An example is the **Bayer Carbon Program**, which is provided through ForGround by Bayer. The farmer is paid for adopting a new practice while Bayer takes care of the generation, validation and trading of carbon offsets on a marketplace. If the price of carbon credits on the marketplace goes up, the farmer's payment can go up, too.¹

Typical On-Farm Process for Creating Carbon Credits:

1. Grower adopts a practice that either sequesters carbon or reduces emissions, then shares field-level data about what was accomplished.
2. An aggregator, usually a company or nongovernmental organization, verifies the practice, models the outcome (sequestration or reduction in emissions), stores the data and pays the farmer.
3. The aggregator creates the carbon credit and uses a registry to generate and sell it according to the specific marketplace protocols.
4. An aggregator, usually a company or nongovernmental organization, verifies the practice, models the outcome (sequestration or reduction in emissions), stores the data and pays the farmer.



Agricultural value chain footprinting, decarbonizations and sustainability claims. In this type of program, entities like **ForGround by Bayer** work with farmers and a collaborating company to first use data to figure out what the on-farm emissions are for the crop grown (a.k.a. footprinting). Once that data is determined, the company knows how much emissions it needs to reduce to meet its greenhouse gas commitments. The company then works to provide value to the farm to implement practices that offset the on-farm emissions.

Once the entire supply chain is offset, the company can then claim that a product is carbon neutral, or if not completely neutral, then at least a more sustainable product with lower carbon intensity.

The on-farm process for these projects can be much more flexible, but it still requires collecting information from farmers, sequestration of carbon or emissions reductions on farms and reporting the impacts to a company.

These programs are also notable because farmers may be compensated in different ways. For example, farmers may get a payment for submitting data for footprinting and/or a payment for a premium on grain which may be carbon neutral.

¹ Bayer will increase the payment rate for applicable practices on eligible fields if there has been a substantial increase in the market price of carbon assets (as periodically evaluated and determined by Bayer).

Reduce the carbon intensity of biofuel feedstocks.

This program is similar to the value chain footprinting except the goal is to reduce the carbon intensity score or the emissions it takes to grow a feedstock for biofuel production.

In this case, the **farmer would work with a program to prove that their practices have lower emissions and work to get value to the farm from selling those low-carbon intensity feedstocks to a biofuel plant.**

The one-farm process for these projects is similar to that of the agriculture value chain described above.



Carbon markets are becoming more and more crucial to today's climate-conscious world, and with that added visibility comes added interest placed on farmers' operations. But that's not necessarily a bad thing. Companies looking to meet net-zero targets are increasingly willing to pay for this added value to their products.

The potential to generate additional income via carbon market programs presents another value stream for farmers and will only get bigger as carbon markets scale globally. **Farmers up for the challenge can not only boost their profitability but also introduce changes that lead to healthier soil.**



We Support You Every Step of the Way

The agronomist team at ForGround by Bayer is here to help support you as you begin your journey into no-till and strip-till or look to modify your current practices to become more efficient with your inputs.

Five Things to Look for in a Carbon Program

By ForGround by Bayer

Carbon programs are gaining momentum among farmers across the US for some very good reasons. By enrolling, farmers can **potentially earn extra income while strengthening their soil at the same time.**

Carbon programs pay farmers who adopt practices that capture greenhouse gases, which are then used to generate carbon credits. Carbon credits are transferred or sold on carbon market exchanges to organizations or governments that need to offset their emissions to meet their sustainability goals. The farmer who did the hard work gets rewarded and can help protect the environment at the same time.

Participating in a carbon program can be an incredible opportunity for farmers who make the effort to adopt regenerative ag practices, such as strip till, no-till and cover crops. But how do you choose the right opportunity that will not only help you make a profit but also support you as you switch to practices right for your acres?

The right program delivers real-life expertise, industry-leading tools and transparency – you don't want any surprises you didn't sign up for. Programs like the Bayer Carbon Program offer certain incentive opportunities per acre, processes that are simple to understand and expert support every step of the way.



Five Questions to Ask Before Enrolling in a Carbon Program

1. Do You Know How Much the Carbon Program Pays?

Carbon programs for farmers handle the payment process differently. Some programs pay per ton of carbon sequestered, which could leave many farmers unsure of what they'll make at year's end.

Consider a program that instead bases a farmer's revenue potential on the number of acres enrolled instead. For example, the Bayer Carbon Program pays annually per acre regardless of how much carbon you capture, reducing the risk to the farmer. The amount you're set to receive is communicated upfront at the time of enrollment, so you'll always know how many dollars per acre you'll earn.

2. Is the Carbon Program Simple to Follow?

Farmers need to focus on their fields, not complicated contracts and hidden escalation clauses that some carbon programs spring on their enrollees. The Bayer Carbon Program is designed for simplicity and flexibility. You get paid for the eligible practices (i.e., no-till, strip-till or cover crops) you choose to adopt – no complicated terms, conditions or paperwork.

The Bayer Carbon Program is part of the ForGround by Bayer platform, which provides agronomic support to help execute your plan with as little disruption to your daily operations as possible. Bayer also takes care of soil sampling and carbon reading at no cost to you. Free access to the industry-leading digital ag platform Climate FieldView™ PLUS makes data reporting and collection seamless.¹

¹ ForGround members who agree to associate their FieldView Plus account with ForGround will receive a FieldView Plus subscription at no charge for one year. Current participants in the Bayer Carbon Program can participate in this offer by becoming ForGround members and complying with offer requirements. The FieldView Plus opportunity set forth in this paragraph is subject to Bayer continuing to offer promotion. Promotion may be discontinued by Bayer at any time in Bayer's sole discretion. Promotion participants must not be in breach of any agreements between Bayer and its affiliates, including Climate LLC, in order to qualify.

3. What Support Does the Carbon Program Give?

Some carbon programs aren't equipped to handle the level of support farmers need to successfully adopt regenerative practices that can capture and sequester carbon. Agronomic advice and assistance are limited, seasonal and/or can't be tailored for each individual field.

Year-round agronomic support is a key benefit of the Bayer Carbon Program. The tools and resources available to enrolled farmers guide them through the transition process and help them to establish the new practice. A team of Sustainable Systems Agronomists based across the Midwest are available to give personalized advice. Farmers also get exclusive access to learning centers, research farm events and a free Climate FieldView™ PLUS account.

4. Does the Bayer Carbon Program Share the Upside?

This price of carbon credits is determined by the carbon market, comprised of individuals, companies and nations who trade carbon credits. Pricing has shown an uptrend since November 2021, with growth in all six Platts-Viridios CARBEX indices.

Carbon accountability is on the rise, driven largely by the United Nations' 2020 Paris Agreement that set goals for reducing greenhouse gas emissions, and by consumers wanting more sustainable products. Based on this trend, carbon assets continue to see demand climb year over year.

Bayer believes in sharing success. That's why Bayer is committed to ensuring farmers get recognized for carbon market upsides. If the price of carbon assets increases, so can the program incentives.²

In other words, farmers enrolled in the Bayer Carbon Program can earn more if carbon asset prices go up over time.

5. What Other Benefits Does the Carbon Program Offer?

It takes effort to adopt a new regenerative practice. It can be expensive, time consuming and complex to put into action. The benefits, however, are worth it. Aside from the potential to generate new income, regenerative practices can promote long-term soil health. Healthier soil could mean enhanced productivity and profitability for your farming operation.

Farmers working with certain carbon programs can get assistance and save costs implementing regenerative practices. Enrolling gives farmers access to exclusive discounts and rebates to help with transition expenses.

Working with a carbon program that's transparent, simple to understand, provides expert support and shares the upside is the best way for farmers to get paid for the carbon credits their practices can produce. The benefits of the Bayer Carbon Program were all developed to put farmers first.

² Bayer will increase the payment rate for applicable practices on eligible fields if there has been a substantial increase in the market price of carbon assets (as periodically evaluated and determined by Bayer).

Improve soil health, preserve your land.

ForGround is a new, **farmer-first platform** that supports growers in considering, adopting and expanding **regenerative agriculture practices**.

Joining ForGround unlocks access to expert agronomic support and exclusive discounts – plus opportunities to earn income for implementing **no-till**, **strip-till**, or **cover crops**.



Benefits of Signing Up for ForGround by Bayer



SCIENCE-BASED SUPPORT

Training resources and events developed using the latest research to help you successfully put regenerative practices to work in your fields.



LOWER TRANSITION COSTS

Member-exclusive equipment rebates, discounts on tools and services, and a free subscription to digital farming's leading platform Climate FieldView™ PLUS.¹



NEW REVENUE STREAMS

Potential to earn extra income through the Bayer Carbon Program, along with being notified as additional revenue opportunities are added.



Enroll today to discover the benefits of ForGround by Bayer.

<https://www.BayerForGround.com>

1. Click **Enroll** at the top of the page
2. Sign-up using your Climate FieldView™ account
3. Confirm your ForGround account information
4. Start exploring your ForGround benefits

¹ ForGround members who agree to associate their FieldView™ Plus account with ForGround will receive a FieldView Plus subscription at no charge for one year. Current participants in the Bayer Carbon Program can participate in this offer by becoming ForGround members and complying with offer requirements. The FieldView Plus opportunity set forth in this paragraph is subject to Bayer continuing to offer promotion. Promotion may be discontinued by Bayer at any time in Bayer's sole discretion. Promotion participants must not be in breach of any agreements between Bayer and its affiliates, including Climate LLC, in order to qualify. FieldView Drive or FieldView Drive Starter Kits are not included in this offer. No commissions will be paid to dealers for subscribers participating in this offer. This offer may not be combined with any other offer for FieldView Plus.

This Bayer Carbon Program described in this material is subject to the current version of the Bayer Carbon-Smart Practices Master Agreement. The information is to aid in the understanding of the Bayer Carbon Program and does not change or modify the Bayer Carbon-Smart Practices Master Agreement in any way.

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