



What to know about carbon markets

Why are people talking about carbon markets?

Carbon markets are emerging as a way to incentivize producers towards adopting more conservation agriculture practices. They support efforts by companies and countries to reach greenhouse gas reduction targets.

What are carbon markets?

Carbon markets sell carbon offsets, also known as carbon assets, and a carbon offset represents one metric ton of greenhouse gas (e.g., CO₂ equivalents) that is reduced or removed from the atmosphere. Public- and private-sector projects that reduce or remove atmospheric carbon dioxide or other greenhouse gas emissions can earn carbon offsets. These offsets can then be sold to other companies, and even other countries. Companies, or countries, buy carbon offsets when they cannot reduce their own carbon footprint instead and purchase these carbon "credits." There are a number of distinct carbon markets out there and they can be voluntary or compliance-based and follow different standards and protocols to estimate outcomes.

How is carbon valued?

Capturing, sequestering, and reducing atmospheric carbon dioxide can help minimize climate change and reduce its damaging impacts. Activities and technologies that capture carbon are becoming increasingly significant to the global economy as a way to mitigate risk when extreme weather causes more uncertainty during the growing season. However, the efficiency, efficacy, and permanence of these actions or technologies vary significantly. As a result, the value of sequestered carbon in an open marketplace is highly variable and subject to supply-demand dynamics. It's important to remember carbon sequestration is simply one ecosystem service of many, and voluntary carbon markets are only one potential value capture for reducing, removing, and retaining carbon.

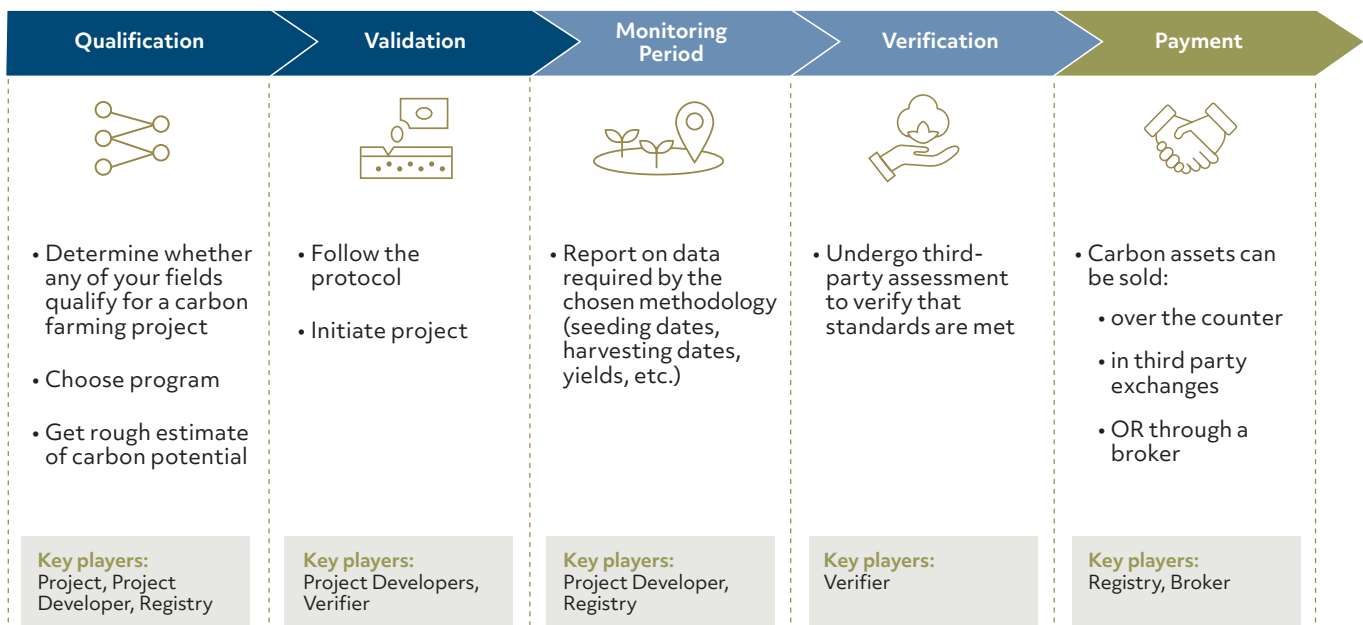
The *carbon offset* is one mechanism being explored by voluntary markets to reward land management changes. There are programs that count a carbon offset strictly as the *removal* of carbon dioxide from the atmosphere; others consider a carbon offset as either the *reduction or removal* of carbon dioxide. Some programs pay for carbon captured per acre.



A *carbon inset* is similar to an offset, except instead of the carbon asset being sold to any interested buyer, the carbon asset is transferred within the supply chain. For example, carbon insets would be considered part of a company's "scope 3 emissions" and are used to drive goals in avoiding, reducing, or removing carbon directly from their supply chain. Scope 3 emissions are emissions related to a company's supply chain. For example, the emissions associated with growing cotton would be considered part of the "Scope 3 emissions" of a textile brand or retailer who uses cotton in their products. These types of carbon assets are not sold on the open market. Carbon insets are most often used by consumer-packaged goods (CPGs) companies that have made climate commitments and are seeking to make those changes within their supply chain.

What is the pathway to getting paid?

The graphic below outlines how you can work with a program or project developer to get paid for generating carbon assets. After identifying a carbon market, a grower would need to make sure that their "project" (a particular field or crop) is qualified to be a carbon asset; validate the project; then follow a protocol for monitoring and verifying the asset; and then sell to a buyer. While all carbon offsets undergo a pathway like this, there is a lot of variety in how a project will follow the pathway. Projects typically will be required to follow the chosen protocol for one to 20 years, depending on which carbon program is used.



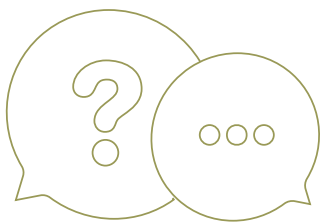
Here are some things to keep in mind when it comes to creating carbon assets:

- **Ask a lot of questions.** Understand the contract terms, requirements, liabilities, ability to stack benefits, and data ownership structure. It is important to understand who performs data collection, who pays for verification, etc. Reach out to your peers and find out if they're participating in a carbon market, and if so, how their experience has been.
- **Start thinking of carbon as a salable farm product.** Unlike physical commodities, carbon is a crop that can accrue through reducing our emissions and storing it in the soils. Begin thinking about ways that you can maximize the yield and how to collect the data needed to account for it.
- **Recognize that some management changes may require investment.** Determine what management practices and farm innovations will support conservation outcomes; this knowledge will help support your transition. Carbon markets are in early-stage market development. Look for additional benefits and attributes that can be attached to crops in the product markets. Seek out private and public sources of funding and technical support for soil health improvements (e.g., through private entities like FarmRaise or USDA-NRCS cost-share programs).
- **Go after the low hanging fruit and be willing to experiment.** Start with small interventions and be willing to conduct experiments that improve soil health. This can include reduced tillage, cover cropping, intercropping, judiciously incorporating livestock and forestry into the main crop, soil amendments, variable rate fertilizer applications, buffer strips, and improved irrigation. Connect with local farm groups and identify service providers that understand carbon and ag systems.
- **Make the data valuable for you.** Even if you don't participate in a carbon market, good records support management decisions. The input, yield, and soil data required for carbon market participation is also useful for your business: farm management decisions, insurance, market access, and financing and lending. Use digital platforms that allow you to coordinate and track what you are doing on your farm.
- **Find power in numbers.** Oftentimes, your project alone may be too small to enter into a carbon market. Finding projects similar to yours that are also seeking to make this transition will empower you with a network that can reduce overall costs, learn from each other, and lobby to ensure that the program rules being designed will work for cotton. Suppliers are a key stakeholder for aggregating carbon markets as well as sharing sustainability information with like-minded buyers.
- **Realize that rules on carbon markets and carbon accounting are still being written.** Not all of the various carbon market programs in development will succeed. At this moment there is an opportunity to become involved in and support markets promoting environmental improvements. If carbon markets are going to succeed in agriculture—and get farmers paid for good practices—there needs to be people all along the supply chain at the table. Farmers know how to innovate, and their perspective and experience is necessary to build and steward resilient systems.





Here are some questions to ask:



Payments

- How much will I be paid?
- Can I be paid for carbon sequestering practices that I previously adopted?
- What is the portion I receive and the portion the aggregator or other intermediaries receive?
- How much will it cost to verify and sell my carbon credits? Who will pay for these costs?
- What management practices does the company pay for?
- What currency is the payment in (e.g., cash, cryptocurrency)?

Operations

- Do I need to show a carbon farm plan?
- Is there other software I need to use? If so, who pays for the software?

Data and Records

- What types of data are required?
- Who owns my data, and what can the aggregator or data manager do with my data? Will they share my data with anyone? Will it be anonymized?
- How often will reporting be required?
- Is there a penalty fee if the land changes ownership or is rented?
- Will my input costs change if I join this program?



Crop rotation and practices

- Does the program include all of my rotational crops?
- Are my current practices eligible under the program? What practices do not meet additionality requirements?
- Can I stack practices to meet program requirements? Will this change my payments or contract terms?
- How much carbon can I sequester? How much can I reduce emissions?
- Can I stack payments with other cost-share programs (NRCS, state programs, etc)?
- What happens if I am forced to revert on my practices because of weather, labor, financial hardship, etc?
- What information is needed in year one, year two, and so on to verify my carbon/emission reductions?
- Will this program restrict my technology choices next year or over the contract term (tillage, planting, fertilizer, crop protection, harvest, data management/ownership)?

Insurance and financing

- What could this mean for crop insurance?
- Will leakage be counted against my actual production history?
- What could this mean for financing/personal guarantees on operating notes/other lending mechanisms?
- What does this income mean for farm taxes?
- Will this affect any of the NRCS conservation programs that I am currently enrolled in?

Contract terms

- How long is the contract?
- Can I sign on as a landowner? As an operator?
- Can I sell credits directly myself, or do I need a broker or aggregator?
- Can the carbon credits be banked? If so, for how long?
- Is the contract field specific, or are farm-level emissions considered in the program?
- Who owns my data, and what are they able to do with it?
- What happens if your carbon company goes out of business?