Land & Water
Conserving Natural Resources in Illinois
University of Illinois Extension - College of Agricultural, Consumer and Environmental Sciences

Carbon Credits in Illinois

Carbon currency

Carbon is the fourth most common element in the universe, right behind hydrogen, helium, and oxygen. It is a primary element of all organic life forms and is present in the atmosphere as carbon dioxide. It is also dissolved in oceans and found in fossil fuels and rocks.

Now, carbon is also fast becoming a form of currency.

In a joint project between the State of Illinois and the Delta Institute, carbon is being traded on the market in an effort to counter its impact on global weather change. Through the project, farmers are beginning to play a significant role in this worldwide issue.

What follows are some of the main questions swirling around carbon credits and this new opportunity for producers.

How do greenhouse gases affect climate?

Without "greenhouse gases," such as carbon dioxide and methane, there would not be life on earth. These gases form a blanket around the Earth, containing heat much like a greenhouse and creating an environment suitable for life. Without the greenhouse process, the Earth's average temperature would be about 5 degrees Fahrenheit instead of its current 59 degrees F.

However, the blanket of greenhouse gases has become thicker due to higher levels of emissions since the Industrial Revolution. In fact, many scientists believe that this "blanket" has been becoming so thick that it could push global temperatures slowly higher, leading to an array of possible environmental problems:

- Melting polar ice caps, which increase sea levels.
- Expanding oceans, which also increase sea levels
- Changing weather and ocean patterns world-wide.

How do scientists know that carbon levels are increasing in the atmosphere?

Scientists can estimate carbon dioxide levels in the atmosphere in the distant past by looking at ice cores, which are rich in information about the atmosphere at the time when the ice froze. They have found that carbon levels remained fairly steady from the year 800 to about 1800, when carbon dioxide levels began to rise dramatically.

What is carbon sequestration?

Carbon sequestration is when carbon is held in the soil and within plants. By storing carbon in the soil and plants, less carbon dioxide is released into the atmosphere.

Soils contain varying amounts of carbon, ranging from only 1 percent in certain sandy soils to 20 percent in wetland soils. The higher the organic carbon content, the blacker the soil.

How do plants store carbon?

Plants pull carbon dioxide from the air and change it to oxygen and carbon through photosynthesis. The carbon is incorporated into plant tissues, while oxygen is released into the air.

Although carbon is stored in soil and plants, some of the carbon dioxide is released back into the air when plants die or decompose.

What does tillage have to do with carbon sequestration?

Greater amounts of carbon are stored in the soil and in plants when the land is less disturbed. Tillage speeds up the decay of organic matter in the soil, releasing more carbon dioxide into the atmosphere.

As an example of the effect of tillage on organic matter, consider the famed Morrow Plots at the University of Illinois—the oldest experimental agricultural plots in the country. Over 100 years ago, undisturbed soil in the Morrow Plots contained roughly 4.9-percent organic matter. But after planting corn/oats through 1959 and corn/soybeans after 1959, organic matter levels dropped to 2 percent (without fertilizer) and 2.2 percent (with fertilizer). For continuous corn, organic levels dropped to 1.7 percent with medium rates of fertilizer applied.

Any time organic matter is destroyed, more carbon is released into the atmosphere.

What other farming practices sequester carbon?

Planting grasses or trees also sequesters carbon, storing more of it in the plants and soil than is given out into the atmosphere.

How can producers reduce methane?

Methane, another greenhouse gas, is released by manure. But if producers use a manure digester to generate energy, they can reduce methane emissions.

What is carbon trading?

This is an arrangement in which companies pay farmers to use conservation tillage, plant grasses and trees, or use a methane digester to offset their emissions of greenhouse gases. This has the dual benefit of encouraging conservation practices and helping companies find ways to compensate for excessive carbon dioxide emissions.

How are farmers in Illinois being paid to sequester carbon and capture methane?

The State of Illinois and the Delta Institute recently began the Illinois Conservation and Climate Initiative (ICCI), which makes it possible for farmers and landowners to earn greenhouse gas emission credits when they use conservation tillage, plant grasses and trees, or capture methane with manure digesters.

An “aggregator” pools the greenhouse gas credits from many different producers and landowners; then it sells the credits to members of the Chicago Climate Exchange.

Chicago Climate Exchange members are large companies, municipalities, and institutions that made voluntary commitments to reduce their greenhouse gas contributions. They can meet this commitment by either reducing their emissions or by purchasing greenhouse gas credits, such as those through the Chicago Climate Exchange.

For example, if a utility burns coal, they could reduce greenhouse gas emissions with clean-burning technology. But they could also offset a portion of their emissions by purchasing credits from landowners or producers who are willing to either plant grasses or trees, switch to no-till, or use a methane digester.

How much are the carbon payments?

The price per metric ton of carbon varies depending on the market. In early 2007, a metric ton of carbon dioxide had been selling for about $3.75. Check current market prices at:

www.chicagoclimateexchange.com

Are there trading fees?

The Chicago Climate Exchange charges a $0.20 per ton trading and registration fee, which is deducted from the sale of the greenhouse gas credits.

In addition, an “aggregator” sells the credits on behalf of the producer or landowner. Delta Institute, which serves as the aggregator, deducts 8 percent from the sale.

If applicable, verification fees are also deducted from the sale. Currently, a grant

Eligibility Rules

Conservation Tillage

The Chicago Climate Exchange allows carbon credits for conservation practices, including no-till and strip-till.

To be eligible, producers or landowners must make a contractual commitment through 2010. The carbon benefit is credited at 0.6 metric tons of carbon dioxide per acre per year.

Tree Plantings

Tree plantings are eligible if they were initiated on or after January 1, 1990. In addition, the land must meet either one of these requirements:

- The land was not forested on December 31, 1989
- The land was considered degraded forest on December 31, 1989

Eligible tree projects include afforestation, reforestation through plantings, and forest enrichment. Tree plantings are credited, on average, at 3 to 4 metric tons of carbon dioxide per acre per year.

Grass Plantings

Producers and landowners must make a contractual commitment to grass plantings through 2010. Any grass plantings after January 1, 1999 can be credited at 0.75 metric tons of carbon dioxide per acre per year.

Methane Digesters

Methane digesters are eligible if they were in operation any time after 1999, and if they have biogas flow monitoring and/or electrical metering equipment. Methane is credited at 18.25 metric tons of carbon dioxide per ton of methane per year.

provided by the USDA is covering the cost of verification for grass plantings, conservation tillage, and small forestry projects.

How do you enroll?

To enroll in the Illinois Conservation and Climate Initiative program, follow these steps:

1. Complete an application form and contract. Submit documents to the Soil and Water Conservation District (SWCD) or directly to the Delta Institute.

Other documents may be required, such as a summary of acreage (for conservation tillage or grass plantings) or an enrollment worksheet (for methane digester projects).

2. The Delta Institute will review the application, contract, and other materials. In two weeks or less, the Institute will contact the project owner and the local SWCD, if applicable.

3. Once the application is complete, the Delta Institute will countersign the contract and send a copy of the completed application requirements to you and/or the local SWCD.

4. An independent verifier may visit your farm. The Delta Institute will arrange for the verification.

For cropping systems, verification will occur in the fall or spring. For methane digesters, a verification process and schedule will be set up once the project is enrolled in the program.

5. When the verification is completed, reports are sent to the Chicago Climate Exchange. If there is a problem with the verification, the Delta Institute will immediately contact the project owner and the SWCD.

6. The Chicago Climate Exchange will review the verification reports over a two- to three-week period and will notify the Delta Institute when the carbon can be traded on the exchange.

7. Payment will occur no later than 30 days after selling the carbon credits on the Chicago Climate Exchange.

How often will you be paid?

Payments are typically made once per year after the verification process has been completed.

How and when will your conservation tillage system be verified?

A verifier, approved by the Chicago Climate Exchange, will verify cropping systems once a year in the fall or spring.

However, verifiers will not look at all farmland enrolled in the program. Instead, the verifier will look at only a percentage of the acreage enrolled in the program to make sure conservation tillage methods are being used.

Payments for carbon credits will be made after the verification process and no later than 30 days after the pricing and sale of the credits through the Chicago Climate Exchange.

How and when will your methane digester project be verified?

All methane digester projects must be verified at least once a year—but it may occur more often (quarterly, for example).

During the first year, the methane digester will need to be verified with a site visit. But in subsequent years, site visits will not be necessary for the methane project to be verified.

Payments for the carbon credits from methane digesters will go out after verification is completed and no later than 30 days after the carbon credits are sold through the Chicago Climate Exchange.

Once you're enrolled in the program, will you need to submit any other forms?

You are required to submit yearly project reports to the Delta Institute. The report is a one-page form.

Can you cancel your contract?

A methane digester contract can be canceled by mutual agreement between the project owner and the Delta Institute. No-till and forestry contracts must extend through 2010.

What happens if you don't continue conservation tillage or grass plantings for the required five years?

Those who do not comply with the contract would be required to return some of the carbon credits for the project years or pay an amount equal to the cost of the credits. Also, the project owner may not be allowed to further participate in the Chicago Climate Exchange.

How does the program define no-till and strip-till?

The Delta Institute uses the definitions in the Natural Resources Conservation Service handbook.

What is the Delta Institute?

The Delta Institute is a nonprofit organization formed in 1998 to work on environmental quality and community economic development projects in Illinois and the Great Lakes region. For more details on the Delta Institute, visit:

www.delta-institute.org

Where can you get more info?

Visit the Illinois Conservation and Climate Initiative website at:

www.illinoisclimate.org

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Sources
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