"Carbon Farming" in NYS – Updates and 'How-to'

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We know we need to sequester carbon (C) and reduce emissions of greenhouse gases (GHG) in order to adapt to, and mitigate or reduce, climate change. We need to reduce our impact on climate change (mitigation) and protect ourselves from the impacts of a changing climate (adaptation) across the board, including commerce, public systems, communities and households. Mitigation is needed to reduce the ultimate severity of climate disruptions while adaptation strategies will help us to accommodate changes already underway. Both approaches help to protect our future, with functioning commerce, public systems, communities, and households. Accomplishing these changes is an extremely tall order, but the good news is that agriculture is part of the solution, and the rest of the world is now willing to invest in farms toward that end.

Climate change mitigation and adaptation initiatives have begun to impact NYS farms in 2 ways – through policy and through market opportunities. Here in NYS, to accelerate climate change mitigation and adaptation, our state government has begun to institute new policies over the past few years. The Climate Leadership and Community Protection Act (CLCPA) was signed into law in 2019, establishing a framework, benchmarking and targets for future progress. This is also the policy that set up renewable energy goals for the state. The CLCPA serves as springboard from which additional programs and investments will be implemented over the next few years. Round 6 of the Climate Resilient Farming (CRF) Program was announced by the Department of Ag and Markets to be implemented in 2022. The CRF program began in 2015 and provides grant funds on a competitive basis to Soil and Water Conservation Districts for projects that mitigate the impact of agriculture on climate change. Practices that reduce GHG emissions and sequester carbon are targeted, as well as supporting on-farm strategies to better adapt to heavy storm events, rainfall, and drought. Projects such as manure storage cover-and-flare systems for reducing methane emissions, stabilizing water flows with riparian buffers, converting annual crop land to perennial forages, converting to no-till planting methods, planting cover crops, improving water storage and more efficient irrigation systems were funded in earlier rounds. The Soil Health and Climate Resiliency Act (SHCRA) was signed into law in January 2022. The SHCRA defines soil health and soil health-building practices for future policies, and it funds 3 NYS Ag and Markets programs: the Soil Health Initiative which targets on-farm soil management practices, the Round 6 of the CRF and a Soil Health Research Initiative which establishes benchmarks and methods to support best soil management practices on farms. The carbon farming tax credit bills (S4707 and A5386A) remain in committee.

Marketing and trading carbon credits presents another opportunity for farms to participate in climate change mitigation, while also adapting their own farm to withstand climate change disruptions. There are both voluntary and regulatory markets. The focus here is on voluntary markets as NY does not yet have an imposed 'cap and trade' type system. As concern about climate change and GHG emissions has grown, some countries, governments, communities and corporations around the world have agreed to achieve various GHG emissions and C sequestration targets over near- and longer-term timeframes. Examples of these worldwide agreements are the Kyoto Protocol of 1997 and the Paris Agreement of 2015. More companies and organizations join these agreements each year with their own net-zero and climate-neutral commitments. Recently, over 400 U.S. corporations, including some agriculture and food industry leaders such as Coca Cola, McDonald's and Kellogg, submitted a letter to President Biden calling for his administration to adopt an ambitious target of cutting GHG emissions by at least 50% below 2005 levels - by 2030. These corporations believe this goal is completely achievable. These bold goals and commitments drive organizations to shift toward operations which emit less GHG, overall. Some companies and organizations have little flexibility to reduce their own emissions below certain levels, however, so instead, they contract with other entities, who are able to achieve reductions, to offset their own GHG production, achieving reduced or even net-zero emissions overall. A company emitting GHG can purchase 'carbon credits' from another entity or from market or exchange system. A 'carbon credit' is the handy term for a standardized unit of GHG, which is typically one metric ton of carbon dioxide (CO_2) or the equivalent

amount of another important GHG (such as methane, nitrous oxide, etc., CO_2-eq). Today, most carbon markets are voluntary, linking buyers and sellers of carbon credits. The sellers, often farmers, are paid for generating carbon credits by adopting various management practices that meet specific GHG reduction criteria. The most common farming practices include no-till/reduced-till planting methods, use of cover crops, some crop rotation strategies, and establishment of buffer strips to sequester carbon. Farmers are usually paid based on the amount of carbon sequestered, by the acre or by the ton of CO_2-eq. Once the carbon credit has been generated, a certificate may be offered on the market where buyers can purchase those credits to meet their emissions goals (e.g., carbon neutral by 2030, etc.). Presently, most transactions occur through a third-party 'aggregator' or a company which links sellers (farmers) to buyers (corporations) and may also provide verification and certification services. Carbon markets are still young and as they develop, prices fluctuate. It is possible that, currently, payments for carbon credits may not cover the cost of implementing GHG-reducing practices. Prices ranges in value, but $15-$20 per ton of carbon sequestered is common today. However, the amount of carbon sequestered with various practices will vary from farm-to-farm and from region-to-region. Therefore, it is important for a farm to understand the costs and risks of implementing new practices and, as always, their specific obligations within any contract.

Carbon markets are very young and as they evolve and develop, many nuances and questions will be worked out. Will farms that have already converted to no-till planting be able to sell those already-realized credits? Or will only newly converted acreage be eligible to generate salable credits? Will the pricing structure support the costs of transitioning farming methods? Will carbon markets lead to meaningful GHG reduction? Will small farms be able to participate, or will larger farms dominate these exchanges? Many organizations are paying attention and are advocating on behalf of farmers.

Additional Resources:

1. NYS Climate Leadership and Community Protection Act, S6599 of 2019. https://www.nysenate.gov/legislation/bills/2019/s6599
2. NYS Climate Resilient Farming Program https://agriculture.ny.gov/soil-and-water/climate-resilient-farming
3. The Soil Health and Climate Resiliency Act. NYS Senate Bill S4722A. https://www.nysenate.gov/legislation/bills/2021/s4722 and NYS Assembly Bill A5386A https://www.nysenate.gov/legislation/bills/2021/a5386/amendment/a
4. Carbon Farming Tax Credit bills, in committee. NYS Senate Bill S4707. https://www.nysenate.gov/legislation/bills/2021/s4707 and NYS Assembly Bill S2042. https://www.nysenate.gov/legislation/bills/2021/a2042
5. NRCS Practice Standards for Greenhouse Gas Emissions Reduction and Carbon Sequestration, https://planner-prod-dot-comet-201514.appspot.com/static/media/NRCS_RankingTools.87706528.pdf

For more information about field crop and soil management, contact your local Cornell Cooperative Extension office or your CCE Regional Field Crops and Soils Specialists, Mike Hunter and Kitty O'Neil.

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"The North Country Regional Ag Team aims to improve the productivity and viability of agricultural industries, people and communities in Jefferson, Lewis, St. Lawrence, Franklin, Clinton and Essex Counties by promoting productive, safe, economically and environmentally sustainable management practices and by providing assistance to industry, government, and other agencies in evaluating the impact of public policies affecting the industry."