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Consider carbon sequestration on your farm

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Abstract
Carbon sequestration is a topic worth exploring for its potential impact in Iowa and its benefits to Iowa producers, which include improving agricultural production, restoring environmental quality, and fostering long-term sustainability. It may even aid in reducing atmospheric levels of carbon dioxide (CO_2). The levels of CO_2 have increased significantly over the past century, and although doubt remains regarding the cause--human activity or a natural cyclical change in the environment--there is general agreement that concentrations of CO_2 and other greenhouse gases (gases that trap radiant energy from the sun, thereby heating the earth) have risen as a result of human activity.

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The levels of CO_2 have increased significantly over the past century, and although doubt remains regarding the cause--human activity or a natural cyclical change in the environment--there is general agreement that concentrations of CO_2 and other greenhouse gases (gases that trap radiant energy from the sun, thereby heating the earth) have risen as a result of human activity. Thus, in December 1997, 160 nations signed an agreement known as the Kyoto Accord to limit atmospheric emissions to include CO_2. Today, the Kyoto Accord has fundamentally changed the game. An entirely new market--carbon sequestration--is being created, and Iowa producers have been identified as potential players.

Carbon is an essential element for almost all plant and animal life. Plants obtain carbon from CO_2, whereas animals, including humans, obtain carbon from plants and return CO_2 to the atmosphere. Carbon flowed through this cycle more or less in balance until the late 1880s. The burning of fossil fuels and deforestation, tilling of the soil, and draining wetlands have decreased the fixed, organic carbon and dramatically increased the atmospheric CO_2. With the recent, sudden spike in CO_2 in the atmosphere, it is likely to be one of the culprits behind potential global warming.

Sequestering carbon in the soil provides for an opportunity to reduce the amount of CO_2 in the atmosphere. Reducing atmospheric CO_2 (or sequestering carbon) can be accomplished by

1. increasing organic carbon production (trapping carbon within plants),
2. decreasing organic carbon mineralization (managing crops and soil to reduce conditions that break down plant residues); and
3. reducing soil erosion, thereby keeping carbon trapped in the soil.

In addition, carbon sequestration could help to ensure that productive land in Iowa is used to produce row crops, whereas marginal land is enrolled in conservation programs or converted to permanent cover.

The Kyoto Accord provides for the establishment of a carbon sequestration market, which means that consumers of fossil fuels, such as utilities, industries, and commuters, could pay

farmers and others who can sequester carbon for the right to put CO_2 in the atmosphere. Producers would agree to use some common practices such as mulch-till, no-till, and buffers, and some less common practices, including withdrawal of cropland from production, reforestation, management of timberland, and abatement of methane from livestock waste. The producer would be monitored to ensure that the carbon is indeed being sequestered. Using these management practices could eventually become commonplace for Iowa producers, adding to their bottom line. And many practices such as no-till and mulch till have the added benefit of reducing fuel input costs and reducing soil erosion.

A consortium of Canadian power companies is already paying some Iowa producers for carbon credits called carbon-dioxide emission reduction credits (CERCs). The concept could catch on. Because these greenhouse gases have no national boundaries, Iowa producers are paid by the Canadian consortium to subtract from the world's total volume of greenhouse gases, allowing the Canadian energy companies to mitigate (or offset) their emissions. But most experts recommend to use caution before entering any agreements at this stage.

The carbon sequestration market provides Iowa producers with an opportunity to not only improve their bottom line but also improve environmental quality and long-term sustainability. Producers should be cautioned that the market for CERCs has not been set, and could vary considerably as companies and producers negotiate the terms of contracts. Very few companies have entered the market at this time. Moreover, there are questions to be answered, such as 1) What is carbon sequestration worth in terms of real dollars to society and to the producer economically in the short and long term? and 2) What is carbon sequestration worth to the producer agronomically in the short and long term?

Consider attending the meeting in Des Moines to learn more about carbon sequestration (see box below).

Carbon: Exploring the Benefits to Farmers and Society

Polk County Convention Complex, Des Moines

August 29-31

The conference will present policy discussions and developing technologies in carbon sequestration on Iowa farms, and the latest information on the effect of carbon sequestration on Iowa producers, society, and the environment. There will be an opportunity to exchange ideas with policy makers, researchers, and industry representatives, as well as a chance to learn about other producers' perspectives on carbon sequestration. The conference will highlight the potential for carbon sequestration through sustainable practices such as grassland conversion, biomass energy crops, reduced tillage, and no-till. The registration fee is $200 before August 8 and $225 after August 8. Register online [1] or call Alice Vinsand at 515-225-1051 or 1-800-264-1084, or e-mail Vinsand at avinsand@aol.com.

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[1] http://www.cvrcd.org/Carbon/register.htm

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