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Navigating Voluntary Carbon Markets: Understanding Barriers and Concerns Among Ohio Farmers

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Introduction/Background

Conservation practices such as reduced and no till, cover crops and improved nitrogen practices are being promoted to farmers across the United States as strategies to mitigate climate change by sequestering carbon in the soil and reducing greenhouse gas, (GHG) emissions associated with crop and livestock production. Common and accepted conservation tillage practices such as no-till, strip-till and reduced tillage as well as improved rotational cropping systems such as cover crops, and nitrogen fertilizer management can potentially reduce emission of and remove atmospheric carbon dioxide from the atmosphere.

The potential for increased adoption of these practices aligns itself with the emergence of carbon markets that incentivizes these practices with monetary payments for the sequestration of carbon in the soil, (Scope 1 emissions) and the direct reduction of emissions of the greenhouse gases nitrous oxide, (NO3) and methane, (NH4)

The emergence of voluntary carbon markets, and more recently USDA Climate Smart Commodity programs, is a result of corporate pledges to reduce the amount of GHG within their supply chains (Scope 3 emissions). As a result of this new market for agricultural carbon credits, numerous companies have been formed to serve as the brokerage between carbon credit buyers and the farmers and landowners. There must be a willingness to commit to a change in land use practices that either sequester carbon in the soil, accumulation carbon in forests or reduces the amount of greenhouse gases emitted directly or indirectly in crop and livestock production.

Ohio, situated in the eastern U.S. Corn belt, has been identified by carbon companies and producers of consumer package goods as a potentially fertile state to enroll farmers into carbon programs. Through various media and direct contacts farmers began to be solicited to enroll acres into carbon contacts in the Fall of 2019. 2022 Census of Agriculture statistics (Table 1) provides a basic overview into the potential market for carbon credits for Ohio, particularly with cover crops, tillage reduction, and forestry.

Table 1

2022 Census of Agriculture		
Land in Farms 13,652,346	Harvested Acres 10,521,756	Irrigated Acres 69,818
	Acres Harvested	% of total acres harvested
Corn	3,314,064	31.50%
Soybeans	4,830,774	45.91%
Wheat	480,146	4.56%
Forage-land used for all hay and haylage, grass silage and greenchop	Acres 986,874	Percent of total land in farms 9.38%
Other pasture and grazing land that could have been used for crops without additional improvement	123,455	1.0%
Woodland pastured	200,882	1.5%
Total Woodlands	1,553,468	11.4%
Cropping Practice	Acres Reported	Percentage of acres planted
No-tillage	4,268,627	42%
Reduced Tillage	3,104,619	30%
Planted to Cover Crops	717,759	7%

Outreach Programs

A multi-departmental working group was convened by Ohio State University Extension with the task of developing informational factsheets, webinars, and websites to provide information for farmers and landowners. Carbon Central was a featured theme at the 2021 Farm Science Review where talks were given by experts in soil science, agricultural and environmental economics, ag law, along with commodity organizations' public policy representatives and others focused on answering the basic questions being poised by farmers.

Invited presentations in 2021-24 across the state of Ohio reached over 1200 farmers, landowners and ag services personnel. At the end of some of these meetings a voluntary survey was administered via QR code to a web-based Qualtrics survey or a traditional printed surveys were distributed to participants and collected by the program sponsor.

Survey Methodology

Survey questions developed that mirrored a survey conducted by Farm Journal Ag Web . The intent was to be able to compare Ohio farmers responses to their peers across the country.

Survey was submitted to Institutional Review Board for approval and administered at meetings. Nearly one hundred and fifty (150) useable surveys have been collected and analyzed.

Findings Important to Extension

Question 1.

Are you currently participating in a non-governmental carbon market the pays you to participate? *Yes-7%* *No- 93%*

Question 2. *Why Not? (check all that apply)*

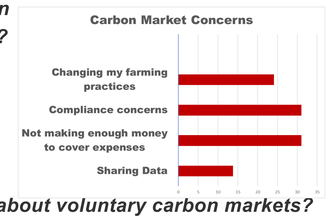
Concerned about sharing my data- 44%
I don't have enough information to make a decision- 56%
I don't want the hassle- 39%
Not enough money so its not worth my time-100%

Question 3. *Do you plan on participation in a carbon market in the next three years?* *Yes- 12%* *No- 88%*

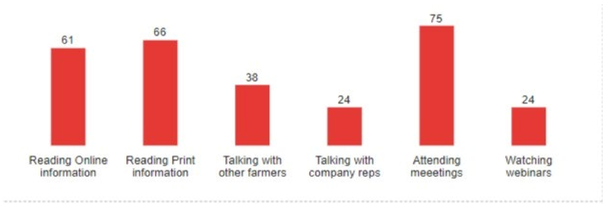
Question 4. *How much Return on Investment (ROI) would it take for you to participate in a carbon market program?*

Greater than 8% (59% of respondents)
5-8 % (24% of respondents)
3-5% (18% of respondents)

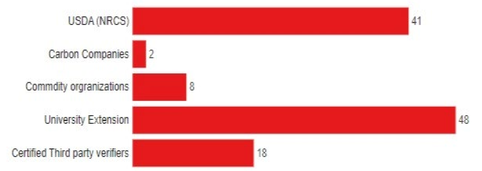
Question 5. *What is your greatest concern in participating in a carbon market?*



Question 6. *How are you educating yourself about voluntary carbon markets?*



Question 7. *Who would you prefer to work with to confirm compliance with carbon markets programs*



Conclusions

The voluntary carbon market will continue to grow and evolve. Extension is a trusted source of information and can play a critical role with research and application of practices that these programs require to sequester carbon in ways that maximize return to the farmers while minimizing the risk associated with adoption of new conservation practices, extended crop rotations, nitrogen management and methane capture and reduction.

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