by John Goeser

Carbon could become the crypto for farmers

OUT of curiosity and a desire to understand new technology and financial trends, I've spent some time gathering information to learn more about cryptocurrency markets. The technological advances and digital valuations of cryptocurrency over the past decade have been amazing.

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This currency is both intriguing and scary at the same time. One of the intriguing aspects to some cryptocurrencies is that they exist in a limited quantity, just like gold. We readily understand that there is a finite amount of gold on the earth, and cryptocurrency has been designed in the same fashion. This limited quantity aspect can be attractive during inflationary periods.

However, owning an asset that exists only in digital computer code is also a scary proposition for many. With cryptocurrency, there is no physical asset like precious metal, a coin, or a U.S. dollar that one can hold in his or her hands.

Further, trading this asset is also confusing. There is not a traditional bank with cryptocurrencies. Instead, cryptocurrency wallets and exchanges are the channels to move these assets. The digital currency exchange happens within a blockchain, where every transaction is independently verified by numerous independent verification servers.

We'll come back to blockchain in a bit, as this technology is increasingly being used within agriculture. As we transition to discussing impending changes coming to the agriculture industry, I'm beginning to recognize that carbon in agriculture may be just like cryptocurrency. This matters as we dig deeper into environmental stewardship and greenhouse gas mitigation.

A double source

Carbon is at the root of two greenhouse gasses, carbon dioxide and methane. These two gasses are the lightning rods of climate change discussions, initiatives, and regulations. Global warming, environmental stewardship, and sustainability are all buzzwords that you've heard recently. The March 21, 2022, *Hoard's Dairyman Intel* article, "Sustainability could be dairy's opportunity," clearly showcases dairy farm sustainability opportunities. Within the very broad sustainability topic, reducing carbon released into the atmosphere is a focal point and something we can zero in on within the dairy industry.

With impending needs to lessen greenhouse gas emissions and reduce our industry's carbon footprint by 30% or more, I see many opportunities ahead of us nested in better understanding and managing carbon movement on our land and on our dairy farms. New opportunities will be presented for those who manage to sequester carbon on farms, from the soil to the feedbunk, and within cows.

You've likely heard of crop farmers being compensated for carbon credits, but this concept is evolving and will expand into dairy nutrition programs and also manure management. Here's where the topic of carbon fits within this column — dairy nutrition factors are tightly related to carbon emissions in dairy cows.

The methane connection

Carbon is an atom that exists within organic molecules, including methane (CH4). Methane is produced through fermentations, including that within dairy cows or manure digesters.

We recognize the energy captured in methane through manure digesters by powering engines to generate electricity or harvesting biogas. However, managing methane emitted from a dairy cow's digestive tract is an area we can better understand and subsequently manage.

Herein lies the first aspect of carbon management on farms that I'll analogize back to cryptocurrency. We need to understand the process of carbon movement prior to being able to manage it. If we don't understand the process, we can't manage it . . . just like cryptocurrency.

Gold and carbon

After we understand the process, I foresee carbon being like cryptocurrency in another way. We can't physically hold gaseous carbon like a gold coin, yet this carbon has economic value like cryptocurrency. I think carbon will increasingly become an asset for dairy farms who implement technologies and practices that harvest carbon from the atmosphere. I can then foresee dairies being able to market carbon credits through blockchains.

This is yet another similarity to cryptocurrency! The value of carbon credits should be determined on an open market, where supply and demand dictate value, and these may likely be traded on a blockchain based market.

A third way that carbon is like cryptocurrency is recognizing there is a fixed amount of carbon on the market. The demand for carbon credits comes through businesses looking to purchase an offset to the carbon and greenhouse gases their business emits.

For example, if a business heavily relies upon fossil fuel and is limited in the business' ability to curb emissions yet has strong financial incentive to be net-zero in carbon emissions, the carbon released through business operations can be offset by purchasing carbon credits from a dairy farm. To the purchasing business, this becomes a business expense, and in turn, it represents a revenue stream for dairy farms capable of harvesting carbon from the atmosphere.

There is no better time than the present to dive into this topic. Carbon can be sequestered in the soil, in the silo, through cows, and in manure storage. New carbon emission measures and advanced agronomic and dairy nutrition technologies will be available for us to work with.

The immense energy, interest, and conversation amongst thought leaders in this rapidly evolving space has been amazing. Ultimately, a free-market economy where cryptocurrency can evolve and flourish will serve to host new carbon-based markets as well.

There will be new technologies available to dairy farmers. My vision is that dairy farmers will hopefully find themselves in position to capitalize on their environmental stewardship and sustainability practices, with carbon trading as a new cryptocurrency.

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