



## WHAT CAN WE LEARN FROM ALBERTA'S CARBON MARKET?

Featuring Sarah Sellars

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### DJ May:

Welcome to the Decode 6 Podcast, where we take your questions about carbon and ecosystem services and match them to the experts with the answers. I'm your host, DJ May, and today we're taking a look at a carbon market case study.

Way back in 2007, Alberta, one of Canada's 13 provinces, instituted legislation to regulate greenhouse gas emissions from large emitters, so those whose greenhouse gas emissions exceeded 100,000 metric tons per year. Part of that legislation included an option for those emitters to pay for emissions reductions in other segments of the economy, including agriculture. The conditions were ripe for a carbon market.

What can we learn from Alberta's experience with carbon markets?

Here with me to answer that question is our expert Sarah Sellars. Sarah is a fourth year PhD student at the University of Illinois at Urbana-Champaign studying agricultural and applied economics. Her research interests spanned production, agriculture, farm management, and agricultural finance. She currently researches the adoption of conservation practices by farmers, nitrogen use on farms, and agricultural carbon markets. Sarah, thank you so much for being here.

### Sarah Sellars:

Thank you so much for having me today.

### DJ May:

Great. We will jump right in. I'm looking for a little bit of background. How did carbon markets get started in Alberta and how are they structured?

### Sarah Sellars:

The first thing to keep in mind is that there's a different policy environment in Canada, and this is what created this opportunity for agricultural carbon markets there. They do have a cap-and-trade policy and a carbon pricing scheme, which made this all possible. It's important to keep in mind that the US doesn't have these things. It is a little different there. But the reason I wanted to bring attention to this is because this is an example of a functioning agricultural carbon market, and I do think there's a lot we can learn from them and what they've done, even though maybe it's not perfect, but it is something we can learn from and look at.

But basically, there was some legislation introduced to regulate greenhouse gas emitters. These large emitters, who emit over 100,000 metric tons per year, they had four different options. They could either increase their efficiencies and start emitting under the target. They could pay a carbon price set by the province. They could purchase offsets from other facilities who are maybe more efficient and produced under their targets, or they could pay for emissions reductions in other segments of the province's economy.

This is what created that market for agricultural carbon markets is that fourth option, which allowed payment in the agricultural sector for their emissions reductions that were being generated.

**DJ May:**

Great. What does the structure look like? How did they set things up? Where did they go with that fourth option?

**Sarah Sellars:**

What the structure is like is once this all evolved, there's two sides, there's the company side and the government side. Initially, there were 10 companies who were doing this. One challenge with agriculture is that emissions reductions are pretty small, so it's really hard for a farmer to go to a company and sell those directly to them. These companies came into aggregate those so they could combine all of these farmers' offsets and then go to these large emitters and make the deal happen. Initially, there were 10 of these companies who were doing that. Now, there's three left and Alberta who are doing this.

We spoke with a company up there, they said one of the reasons for the loss of companies is some of the companies just didn't have the modeling capabilities that these companies did. And also, this suggests some competitive pressure too. Those companies are Trimble, Farmers Edge, and Radical. They're still currently involved in that. They serve as aggregators, so they purchase the credits from the farmers and then they go to these large emitters. They say, "Hey, we'll sell you these credits below the government price for offsets," and then they negotiate that. So then the company's saving a little bit by not having to pay that fee to the government.

The aggregator's benefiting, and then the aggregator takes that money and shares it with the farmer. That's how that's split. Then there's also the government side of this. The government came up with these specific protocols which allow for these agricultural carbon offsets to be generated. There's very specific protocols and policies that have to be followed. If a farmer does all it, they get everything properly certified through the government, then that goes into a system managed by the government. So then each offset is getting a specific number and it goes into this market registry. Everything's really carefully verified and tracked by the government there in Alberta.

**DJ May:**

Okay, great. Just to summarize, you had the government set a price that these companies could pay a certain carbon price.

**Sarah Sellars:**

Exactly.

**DJ May:**

The fourth option is like, okay, we can buy credits for slightly less than this government price by getting them from farmers. That's the competitive advantage of the fourth option.

**Sarah Sellars:**

Yes. That could be any industry, from some other segment of the Alberta's economy. One of those segments is agriculture. That is a piece of that. The company's not going to pay the same amount they would pay to the government. If that was the case, then they would be indifferent. But if they can get that for even slightly lower than what they would pay to the government, then it's a win-win for them.

**DJ May:**

Perfect. That's the government and company side, but how do farmers and landowners fit into the picture? What do they have to do to participate?

**Sarah Sellars:**

To participate, they need to follow the specific protocols laid out by Alberta's government. There are four different protocols that they can follow. Those are the conservation cropping protocol. They can reduce greenhouse gas emissions from fed cattle. They can distribute generated renewable energy, or there's a protocol for anaerobic decomposition of agriculture materials. The most popular one was the conservation cropping protocol. This would be switching to no-till or things like that, practices like that. For example, if you didn't own the land, then you had to get your landowner's signature to be able to participate in things like that.

They had to follow all these regulations. They weren't allowed to till. I believe it was up to 10% of their field if they had some drastic need where maybe they needed to till part of their field for some reason, but it couldn't be more than 10%. There was all these protocols outlined as part of that. If they followed that, they turned in their records, they got everything certified, then they could participate.

**DJ May:**

Excellent. That was in 2007 this legislation was passed and now it's gone from 10 programs down to three. Is it still active? Is it still something people in Alberta can do?

**Sarah Sellars:**

It is. One challenge is that the conservation cropping protocol was phased out in December 2021. That was the most popular one, and you can't participate it anymore. I don't know how that's affected things. But the idea is once a certain adoption threshold is reached, once 40% of people are using no-till, then you don't need to provide the incentive anymore to encourage people to adopt no-till. That's why that protocol goes away after a while. It's nice because then you know when things are going to end.

One thing with the US carbon market, I mean, nobody knows what the future holds, so it's really challenging. But if you know that conservation cropping protocol is going away, then that's the end of the program. I'm not sure exactly what the enrollment's been like after that has been phased out, but it would be interesting to know.

**DJ May:**

Yeah, yeah, definitely. That's a great segue, because I'm curious, what can we take away? I know we have a totally different regulatory system, but what can we take away from that carbon market setup in Alberta and maybe apply to what's going on in the US now?

**Sarah Sellars:**

I think the main thing we can learn is, one, there's certification and verification process because things have been... There's no standard system here in the US, so things have really been varying from company to company. Maybe you rent land and you want to sell agricultural carbon credits from that land. Some companies require attestation of right to sell carbon from the landlord. Others have a box on their form that says, check here if you've received your landlord's permission. I think this variability in contracts and in programs is a challenge that we're facing here in the US with agricultural carbon credits.

I think we can really learn a lot from how Alberta has dealt with some of those problems and how they've standardized things, how they certify things through their government to ensure tradeability and quality of the credits. I think that's a really interesting thing we can learn. Another thing I think we can learn is we can look at what's happened over time with their program, so how they phased out that conservation cropping protocol. That was from 2007 to 2021. That gives us a timeframe to go off of for things here in the US. If we have people saying, "How long is this going to last," well, we can see how long this lasted there and use that as a reference for us.

**DJ May:**

Yeah, great. No, it's good to think about that. I mean, this is just the beginning of a lot of these programs here. I'm sure they will change over time. But here's my one last bonus question for you, Sarah.

**Sarah Sellars:**

Sure.

**DJ May:**

If you were talking to a farmer, I guess, what kind of advice would you give them if they maybe had watched how this unfolded in Canada and were thinking about what's going on here in the US?

**Sarah Sellars:**

I mean, I think one thing that's really interesting here compared to what happened in Alberta is the split that the farmer is getting. From what I've heard, the farmers here are already getting a larger share of the value of that credit. If we look at the percentage of farm income in Alberta that's coming from the credits, there was a paper a while back ago that estimated that's somewhere around 1%. For them, it's not a huge amount of money, it's not a huge amount of their

farm income, but maybe it can help fund some of these conservation practices that we know are good for the environment, but that are expensive to adopt, such as cover crops.

Even switching to no-till can have some costs sometimes if there's a slight yield decrease or things like that. It's not going to be a huge portion of the income, but maybe it is a good incentive. We can look at what's happened there and manage expectations. Another thing I've been telling farmers a lot is this agriculture carbon markets is just one piece that's evolved out of all of this larger ecosystem services discussion. Maybe in the future, especially with all this funding from the USDA, maybe there's going to be even more opportunities, and agricultural carbon markets is just going to be a piece of that larger ecosystems services opportunity.

It's definitely one of the first things to emerge, but I don't think it's going to be the only thing to emerge. I would tell them to keep their eyes open, keep looking for more opportunities, and keep their eye on the news and following this. And if they're interested, maybe try out some of these new opportunities.

**DJ May:**

Excellent. Yeah, that's definitely a theme that I've heard from people talking about these programs. It's not going to be your main source of income. But if you are curious or want to adopt practices, it's a good way to offset a little bit of the costs. Any final thoughts, Sarah?

**Sarah Sellars:**

I mean, I think it's really exciting because we know there are agricultural practices that do have benefits for society and the environment. Anything that benefits water and air quality is good for others too, not just for the farmers. These opportunities really excite me because hopefully some of that work that all of these farmers have been doing for a long time, no-till and working to improve their efficiency, is getting more attention and getting recognized. I think it's a really exciting time, and I'm really excited to see what evolves out of all this here in the US market.

**DJ May:**

Fantastic. Well, thank you so much for being here and serving as our expert today.

**Sarah Sellars:**

Thank you so much for having me.

**DJ May:**

If you're looking to dig a little deeper into Alberta's carbon market or some of the related research that's been published about it, check out the show notes. If you have questions about carbon and ecosystem services, come visit us at [decode6.org](http://decode6.org) to learn more. We'll see you there.