

521 Building the Soil Comes at a Cost (Regen Ag News May 2023)

#RealisticRegenAg | It's always bugged me that regenerative is portrayed as a win-win-win system for the farmer, the soil, and the planet. Farmers that don't do it can be seen as farming in a backwards way. However, if it were so simple and did so much, I'm sure they'd be doing it already. The overall theme of the regenerative agriculture news this month is deflating the hype from some of the practices. It's not to say they aren't worth it, but it's not all blue skies and roses. Stay tuned, I'll cover this in the upcoming episode.

Welcome to Plants Dig Soil. My name is Scott Gillespie and I work with farmers and agribusiness on climate smart agriculture. This kind of agriculture has to be scientifically proven to be good for the planet now and in the future. Just as importantly, it also must make economic sense for the farmer, both now and in the future. Go to my website www.plantsdigsoil.com or check the links in the description for to learn about the services I offer.

Transcript is available:

<https://www.plantsdigsoil.com/podcast/521-building-soil-costs-cash>

Resources mentioned in the podcast:

<https://www.producer.com/news/rotational-grazing-merits-questioned/>

<https://www.producer.com/opinion/recalling-the-short-unhappy-history-of-carbon-sequestration/>

<https://www.agriculture.com/crops/carbon-markets/the-truth-about-soils-ability-to-sequester-carbon>

<https://www.futureecologies.net/listen/fe-4-8-ground-truthing>

<https://www.topcropmanager.com/spruce-ing-up-the-farm/>

<https://organicbiz.ca/cover-crop-management-trade-off-between-carbon-benefits-crop-yield/>

<https://www.topcropmanager.com/the-future-of-herbicide-resistant-weed-control/>

<https://www.producer.com/news/killing-pea-leaf-weevils-with-trap-crops/>

<https://www.potatoesincanada.com/ll-atlantic-environmental-and-yield-benefits-of-cover-crops/>

<https://www.producer.com/crops/there-is-no-magic-in-crop-biology/>

<https://www.producer.com/crops/seal-a-seed-within-a-droplet/>

Profitable From the Start: Cover Crops for the Prairies:

<https://plantsdigsoil.thinkific.com/courses/cover-crops-prairies>

Funding service offerings:

<https://www.plantsdigsoil.com/pricing/#paperwork>

SCAP - <https://www.alberta.ca/sustainable-cap.aspx>

OFCAP - <https://rdar.ca/ofcaf/>

My consulting packages:

<https://www.plantsdigsoil.com/pricing/#consulting>

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Let's start with multi-paddock grazing. The traditional way to graze a pasture was to let the animals out and let them have free access to the entire area at once. This takes very little labour, and they can walk to the water source and to the feed whenever they want. The downside to this is that some areas, usually near the water sources, get grazed harder and get more manure and urine.

It would seem this was similar to how the buffalo roamed the land in the past, but the key difference is that the buffalo would graze small areas intensively and move on. Sometimes these areas weren't touched again for years or maybe decades. So, to simulate this, ranchers started using temporary fencing to mark off small areas for them to graze in a short time period, then move them on to the next small area. The plants get a longer time to recover and the manure is more evenly distributed. The downside to this is the labour needed for the frequent moving, the fencing supplies, and the water systems that can service every paddock.

As a non-animal person, I've always wondered about how you make it work. Watch a YouTube video and it seems simple. But how do you get all that grass to be just the right stage all the time? It turns out, as usual, it's not quite so simple. A long-term study running since 2014 has released its results and shown a 14% decline in animal gains using a multi paddock system. They think it is because the nutritional quality isn't always there. You get it most of the time, but not always, and declines add up.

The criticism of this study will be that in the real-world ranchers make it work and that the academics don't know what they are doing. However, they were sure to have ranchers, government officials, and conservation groups all there to try to make it work. Check out the article in the links to read more. If you really want to go in-depth check out the journal article.

Now, you probably may counter that there is benefit to the land and carbon sequestration. That hasn't been published yet but they gave early indications: Don't hold your breath. Even if it does sequester more carbon, it shows that there is always a cost. Building the soil isn't a free thing farmers have been wasting over the years. There is always a trade off.

While on the topic of carbon sequestration I'll link to a couple articles that cover the history of the carbon sequestration and some new investigative journalism that has shown that many of the credits purported to have sequestered carbon couldn't be substantiated. This means that the companies that bought them got to say they are carbon neutral, and nothing really happened in the real world. The companies may be seen as the victims here too, unless they knew it all along and just wanted to go with the publicity. This relates to the fear I talked about in the Future Ecologies episode 4.8 Ground Truthing. We need to slow down and be sure these are real before just jumping into them.

Another practice coming to Canada is tree intercropping. There is promise for this to work in the areas of Canada that naturally have trees, but I don't think we should be trying to impose this on a geography that is naturally grasslands. Here in the Prairies, prairie strips would be the most appropriate intercrop. However, with both, there is a cost.

If you put 10-30% of the land in things that are not cash crops, then you must use more land. Sure, there will be yield gains, but they don't line up with the land lost. Like I said at the beginning, if farmers found that by taking out tree lines, they lost yield they would have put them back in. In fact, when taking these areas out, they gained. If society wants farmers to use these practices for climate smart agriculture, it needs to pay them.

This point is stressed in an article about cover crops. They have a nice info-graphic to cover the costs and benefits. Leaving a cover crop longer has more ecosystem services, but it risks lowering the crop yield. Terminating it early may maximize the benefits for the farmer, but not so much for carbon buildup.

I don't want to make the whole episode all about how nothing is working. Here's where I think the practices fit in. They must solve a problem.

Dr. Breanne Tidemann puts herbicide tolerant crops in context in an article in the Western Producer. They are not the future of weed control, but they are also not something to demonize. A good rotation and the use of cover crops can help them to work better. United States farmers that have had the most success with cover crops have been using them to suppress weeds. They don't usually replace herbicides, but the cost of the cover crop is less than the additional herbicides needed.

Another regenerative practice that I think is worth spending time on is trap cropping. Dr. Meghan Vankosky has planted peas along the edges of pulse crops to attract pea leaf weevil adults in the fall when they come out for a bite to eat before overwintering. If many growers in a region did this there is potential that we could lure them to the trap crops and kill them with insecticides or predators. The research is just underway, so there are no results yet, but the proof-of-concept trial shows there is potential.

Dr. Judith Nyiraneza has been working on potatoes and cover crops for years in Prince Edward Island and has been able to measure less soil erosion where they are used. They also are able to pick up nutrients and may be able to suppress pests. This works in the humid, long season area on the coast of the country, but in our area, the Prairies, establishment still remains the biggest hurdle. However, it's nice to see numbers to practices rather than just anecdotes.

I'll finish with a few articles about innovation. The first is about the explosion of biologicals onto the market. There is an excellent article by an agronomist talking about his experiences of trying to bring new products to the market in a former job. The lab tests showed results. The products did work. However, no matter what formulation or timing they tried, they could not get them to work in the field.

He then describes a protocol you can follow to test on the farm. Don't take the sales rep's word for it. Test it. Oftentimes they have bought into it too. They go off the scientists' results and believe that it works. The only way to know is to test.

And finally, a really fascinating idea from one of the driest areas in southern Alberta. A company there is trying to seed cover crops in dry soil by using fertilizer as a carrier. The idea seems to be that if you can just get the seed to germinate, it will find the moisture. It sounds like this idea has been tried for years and they feel they are close. I'll be keeping an eye on this.

Thanks for tuning in and I'll talk to you next week.