Want a more sustainable food system? Focus on better dirt

Regenerative agriculture is new way of growing food that's designed to enhance soil health. Proponents say the practice benefits farmers and food production, while helping to mitigate climate change

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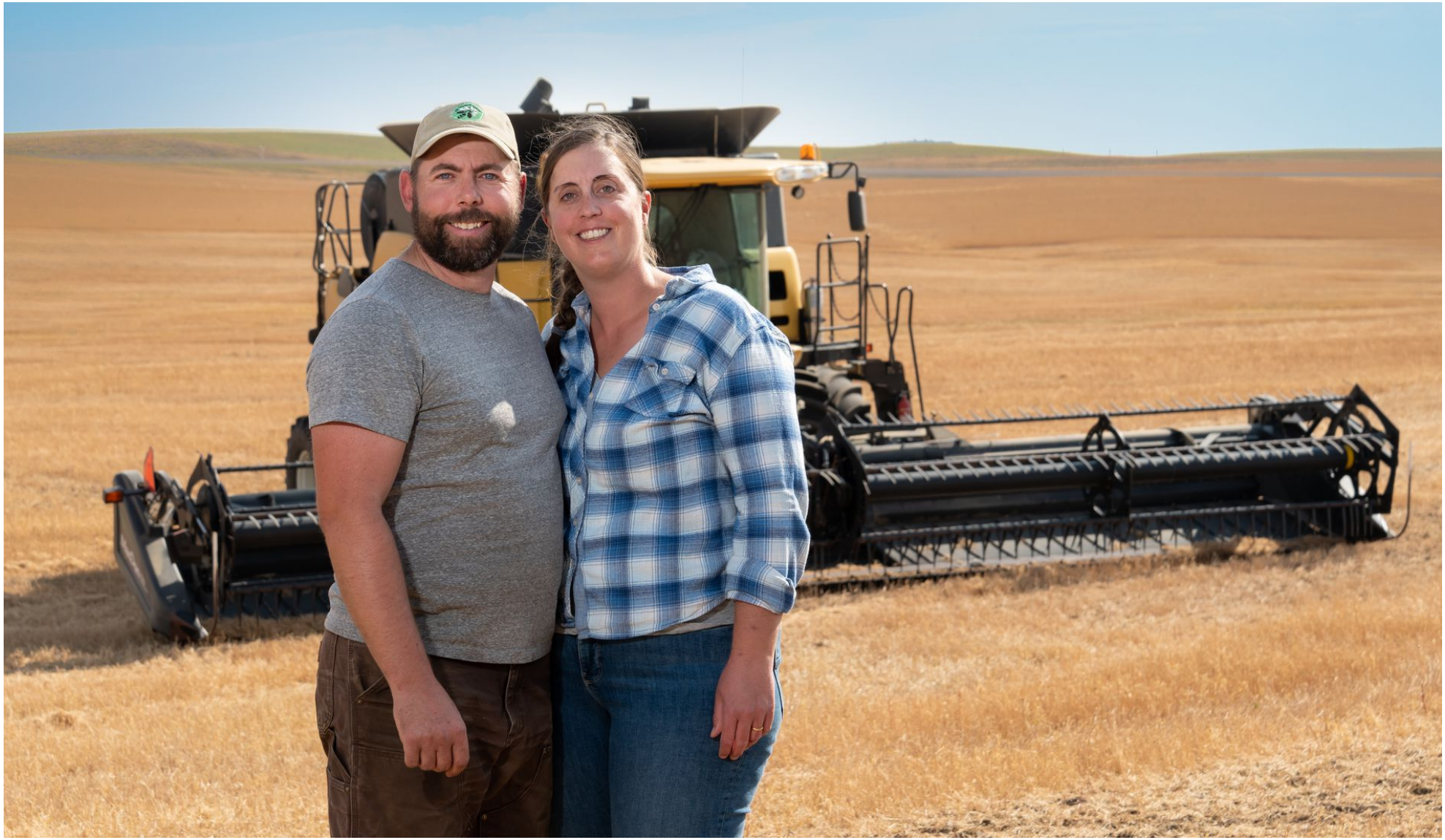
Four years ago, Cody Straza went "down the YouTube rabbit hole" of regenerative agriculture. "And I haven't come up since," he cracks.

For the past decade, Straza and his wife Allison Squires have been the owners of Upland Organics, a 2,000-acre farm near Wood Mountain, Sask. While their approach to farming was guided by organic principles from the start – Straza and Squires met at the University of Saskatchewan where he was studying agricultural and bioresource engineering and she was completing her PhD in toxicology – they transitioned to a regenerative agriculture farming model in 2016. (Squires went down the rabbit hole soon after her husband did.)



Cody Straza and Allison Squires, owners of Upland Organics in Wood Mountain, Sask., farm according to the principles of regenerative agriculture.

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Regenerative agriculture is a system of principles designed to boost the farm ecosystem through the enhancement of soil health. This system is rooted in five pillars – better water management, low or no tillage (mechanical agitation of the soil), crop diversity, year-round cover crops and livestock integration.

At Uplands Organics, Straza and Squires have put these principles into practice to grow durum wheat, spelt and oats and more. For example, they till their soil less to avoid drying it out and breaking up valuable fungi. They maintain "soil armour" with a diverse range of cover-crop blends – plants used to cover the soil rather than to harvest. They work hard to always have "a living root in the soil" to feed microbes all year. And they graze cattle on their cover crops.

The couple says that their move to regenerative agriculture produced swift positive results. Not only have they measured an improvement in the quantity and diversity of life in their soil, they've mitigated financial losses despite four years of regional drought.

"I think the primary reason we took the plunge is because we're forward-looking people who want to leave everything better than we found it. When you farm this way, you're always looking to the next generation, and the generation after that," Squires says, adding that she and her husband hope their three sons eventually take over the family farm.

Roots of the movement

Soil has not fared well during the rise of modern industrialized agriculture. Market demand has placed farmers under enormous pressure to produce high quantities of cheap food. As a result, many have built successful infrastructures around monoculture, or the focus on growing one type of crop.

Farming this way increases yield but requires a great deal of tillage, a method of soil preparation that uses machinery to dig, rotate, and stir the earth. The more tillage that occurs, the weaker the soil becomes, and the greater the need for blasts of chemical pesticides.

The inevitable end game of this cycle is the degradation, then erosion of farmland. If farms continue to operate as they currently are, the United Nations warns the planet's remaining topsoil will be fully depleted in 60 years, or – more chillingly – "60 harvests".

The regenerative agriculture movement sprang out of a concern, in part, for preserving soil fertility, avoiding desertification and combatting the effects of soil degradation on the environment. It has begun to gain traction over the past decade thanks to

pioneering scientific work done by the Rodale Institute in Kutztown, PA, conservation agronomist Ray Archuleta and North Dakota rancher Gabe Brown, among others.

In addition to improving the health of the land, there is mounting evidence that living soil can sequester billions of tons of carbon and greenhouses gases in the ground that would otherwise be choking up the air. As well, the microbes found in healthy soil contribute to the quality of food that we then put in our bodies.

While all these reasons are compelling, some farmers are looking at regenerative agriculture simply because it's an economically viable model, says Lana Shaw, who heads the South East Research Farm in Redvers, Saskatchewan.

"Farmers want to increase their soil organic matter primarily for the purpose of improving the capability of their own soil, which is understandable," says Shaw. "Does that do good things for everyone else? Yes. But if it doesn't benefit their asset, they're highly unlikely to do it. [Regenerative agriculture] is one of the few areas where there isn't a trade-off."

The South East Research Farm is contributing to a growing body of grassroots resources helping farms like Upland Organics scale. Since regenerative agriculture is based on suggested principles rather than a codified standard, farmers have to actively seek out ideas and tailor them to their specific ecosystem.

Lana Shaw is research manager for the South East Research Farm in Redvers, Sask.

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"There's no plug-and-play model. We've had to use a lot of creativity," Squires says of incorporating the principles on her farm.

Growing awareness

Another prominent grassroots network to emerge over the past few years is Regeneration Canada, a Montreal-based not-for-profit that serves as an educational hub on soil health. The organization launched in 2017 as an offshoot of The Living Soils Symposium, an event started by Gabrielle Bastien and several likeminded colleagues.

Bastien, who grew up in Quebec, discovered regenerative agriculture while completing her Master's thesis on Sustainability and Environmental Management at Harvard University. She was compelled to bring awareness about the movement back to Canada when she realized that, despite its growing prominence in the US, it wasn't really on the radar here.

During her outreach, she discovered that many of the Quebec farmers she talked to were already doing a form of regenerative agriculture, but didn't have a wide understanding of all its potential benefits.

"They didn't know about the fact that their agricultural practices were helping to mitigate climate change through carbon sequestration," she says. "So, I thought, okay, if this crowd of people does not even know about the potential, we really need to spread the word."

While word is definitely spreading about regenerative agriculture (Whole Foods named it as a top food trend of 2020), it is not embraced by everyone in the farming community. Shaw points out that farmers who are barely scraping by may not have the money to invest in new practices. There are also multi-generation farmers who learned how to do things "at their father's knee" and are resistant to do away with what they feel is a family tradition.

"They figured out how to grow monoculture really well, and we're coming in saying, 'Hey, we figured out a totally different way of doing things.' Then they [tell us], 'We spent all this money figuring out how to do this other thing,'" Shaw says.

She notes that companies manufacturing expensive farming equipment and chemical pesticides are unlikely to throw their weight behind anything that impacts sales. These companies tend to have the funds to produce marketing materials that support the continued use of their products.

Shaw says these are some of the reasons why regenerative agriculture remains a grassroots effort right now. But that could change as events and media attention continue to grow. In September, Netflix released a documentary called *Kiss the Ground*, featuring a celebrity-studded cast advocating for widescale adoption of regenerative agricultural practices.

Allison Squires and Cody Straza check on their cattle. One of the strategies of regenerative agriculture is grazing livestock on cover crops.

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Ultimately, however, it's up to the farming community to tip the scales. Straza feels encouraged by what's happening around him.

"We see this as a great way to build community between different farming types because there are so many commonalities between us," he says.

"We can still learn from conventional farming practices, they can still learn from us, and you can build these bridges. And that's such a positive thing."

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