

REGENERATIVE AGRICULTURE - THINGS TO KNOW

“Regenerative Agriculture” is a new buzz phrase, but those treating it as just another passing trend are seriously miscalculating. It’s not a marketing term. It’s a movement, and experts stress that it’s one we all need to get behind or our future generations, even the next one, are doomed.

The facts are simple. Our oil is being depleted at a frightening pace. Estimates by agricultural scientists are that we have fewer than 40-60 harvests left. That’s less than 50 years! Food is significantly less nutritious than it was 50 years ago. BUT, there is something that can be done about it and regenerative agriculture is a major part of the answer. The solution to climate change is right under our feet: it’s the soil.

Here are a few points about it that are important to understand.

Industrial agriculture = Degenerative agriculture. Depending on the farming method used, soils are treated as either a living self-generating source of vitality, or just a lifeless medium for mono crops grown on a cocktail of chemicals, artificial fertilizers, and herbicides. Highly mechanized, industrial-scale, chemical-intensive farming has hastened the release of massive quantities of CO₂ previously stored in the soil. At least 50% of the carbon previously in the Earth’s soils is already in our atmosphere. Adding to this, industrialized agriculture emits more CO₂ than all forms of transport combined.

Practices like *tilling* (plowing or disrupting the topsoil to prevent weeds or loosen the ground to prepare it for seeding or planting, even at the level of small-scale, local farms), *chemical agriculture* (spraying with chemicals in order to manage pests or weeds) and *monocropping* (growing a single crop year after year on the same land) are degenerative. Massive monocultures with no tree lines for windbreaks allow the wind to erode land over time. Tilling disrupts and breaks apart the critical fungal and bacterial mass. Spraying chemicals like glyphosate or other broad-spectrum antibiotics (yes, Roundup is patented as an antibiotic, not an herbicide!) on soil also weakens the robustness of the soil microbiome, an integral part of the health of the soil. Just 1 application wipes out all the earthworms as well as the subterranean rhizome system, which is thought to represent the plant nutrient transport and communication system. And finally, monoculture systems tax the soil whereas rotational systems give it time to rest.

Regenerative Agriculture is the solution. The water cycle is broken, leading to extreme flooding and drought. The answer is the soil, and soil is created rapidly via regenerative agriculture. Even in deserts in Western Africa there are regenerative farmers creating an inch or more of new topsoil every other year, and all of this newly created soil increases the land’s water-storage capacity. Even torrential rains can effectively get absorbed into healthier soil and be stored underground. That helps prevent erosion and gives farmers a chance to withstand serious flooding. Conversely, crops can draw upon this soil water battery during periods of severe drought.

The carbon cycle is also broken leading to global warming on a scale that threatens our species. Here, too, the answer is soil. Newly created topsoil is approximately 60% elemental carbon and through carbon sequestration and soil regeneration we have a mechanism for reversing climate change.

It’s essential that we heal our soil. Our very existence is inextricably bound with the fate of soil. We are losing it at the alarming rate of 16 million soccer fields per year or 30 soccer fields every minute of every day. To save the Earth, we need to first save the earth.

We stand at a critical juncture in human history. A crossroads where collectively we must make decisions that head us down a path towards planetary jeopardy or revitalization. Earth’s resilience depends on the immediate action taken to reverse the long-ranging effects of climate change. Farming can and must play a role in the fight against climate change. With as much as 15% of greenhouse gas emissions currently coming from agricultural activity, we need to find ways to reduce and offset by capturing carbon in the soil. Regenerative

farming practices implemented on a broad scale sequester carbon that enters our atmosphere and sink it back into the soil, building the foundation for a healthier food system.

The world is at its tipping point. This is a pivotal time in our climate's history. The future of our world and of our descendants is dependent on us. There is an alternative solution to climate change that goes beyond just sustainability and maintaining current conditions but leads to restoring the natural system. Regenerative practices bring life back to deprived habitats, reversing climate change and rebuilding the damage done from years of intensive farming.

Regenerative agriculture is a way to jump-start a positive chain reaction. Our land has the ability to renew itself, we just have to nurture it and be kind to it. We can benefit by understanding that we don't always need to kill the things around what we're nurturing in order to grow them. If we're able to enact regenerative farming principles, biodiversity will increase, our soil will be enriched, we can improve watershed and also capture carbon in the soil with unprecedented impact. Regenerative agriculture holds the power to do all of this.

Agriculture faces some of the world's biggest development, economic, and environmental challenges. Millions of farmers who grow cash crops are living at subsistence levels, relying on yearly bank loans to cover costs, hoping in the meantime to make a profit. There is tremendous pressure from the banking institutions to continue "modern" farming practices using chemicals and GMO seeds since they too, do not understand the impact this may have and have the false notion that industrial agriculture is more efficient and reliable than organic and regenerative practices. Meanwhile, natural resources, such as soil and forests, are being degraded or lost at an alarming rate. To add insult to injury, more than 30% of all food produced is lost or wasted. With the population set to increase by 2 billion by 2050, we cannot carry on the way we are.

Our health depends on change. With regenerative, organic agriculture, we can drastically reduce the incidence of 4 of the top 7 causes of death in the U.S. Pesticides, herbicides, insecticides and fungicides are building up in our environment and our bodies. Companies like Monsanto and Bayer insisted for years that glyphosate, the active ingredient in RoundUp, was safe for humans and would break down quickly in the sunlight and soil. Except now we're finding glyphosate in our rainwater and most municipal water supplies. Glyphosate's effects are numerous. It has a major impact on the billions of bacteria in our gut, which keep us healthy if they're protected from harmful chemical poisons.

Food can be more nutritious. The nutrient value of food is collapsing, with food today delivering perhaps only 50-60% of the nutrient levels of just a few generations past. The solution for this nutrient crisis is regenerated soil, rich with nutrients and microorganisms, all working together to help plants create nutritional powerhouses.

Food can be more delicious. The immediate benefit of regenerative agriculture to consumers is in the quality and taste of the food. If you have ever tasted a ripe, homegrown tomato right off the vine or one grown in a regenerative organic system, you'll never want to buy the tasteless ones from the supermarket again. Color and taste are really good indicators of good quality foods rich in health giving nutrients.

Regenerative Agriculture: in a nutshell. Regenerative agriculture includes:

- Not plowing and disturbing the soil to any significant degree.
- Not using any chemicals.
- Using crop rotation.
- Planting cover crops and trees.
- Adding organic matter to the soil by enriching it and/or allowing animals to graze (and poop) on the land.

Under these conditions, vital subterranean microbes and earthworms proliferate into astounding abundance. Plants become more deeply rooted, and the uptake of nutrients improves, giving us more nutrient-dense foods. With regenerative agriculture, the very structure of the soil heals, allowing the retention of ever more carbon in

the soils 'pores' and slowing water runoff. Over the seasons the soil fertility compounds, and new topsoil is created each season. Basically, it's the very opposite result we get from chemical farming.

Low or no till, cover cropping, animal grazing, agro forestry practices, rotational crop systems... the consistent result of such practices is greater soil health.

Soil is central, but there's more. Regenerative Organic Agriculture has 3 main pillars:

1. Soil Health.
2. Animal Welfare.
3. Social Fairness.

This model provides solutions for how we can mitigate climate change via carbon sequestration (absorption) in the soil. It also looks at how animal welfare and socially just labor and production models are important to building a future in which agriculture is contributing to the vitality and health of both people and planet.

The problem goes beyond pollutants, plastics and chemicals. In many cases where raw materials are sourced, global living conditions are poor and laborers are easily taken advantage of.

Regeneration moves beyond sustainability. Sustainability is just one step along the way to regeneration. Regenerative Ag is restoration where the environment and people work together to restore the planet.

Millennial and soon to be Gen-Z parents are looking for more from their food options that are currently available. Organic and GMO-Free foods are a great option but with the growing awareness of climate change and food nutrition, parents want to know what the farming practices are behind their food purchases and they are increasingly wanting to know what food companies are doing to help combat these issues. All research is leading towards regenerative farming, which is above and beyond sustainable farming.

Consumers vote with their wallets. Consumers will pay more for higher-quality ingredients. Certifications like *USDA Organic*, *Non-GMO Project Verified*, etc. only tell part of the story. While they do add value to the product and enable manufacturers to charge a premium for the product, there is another piece of the puzzle that also adds value in the consumer's eyes. Nearly all consumers say it's important that a company acts morally and ethically. Nearly two-thirds of consumers say they'd stop buying from a brand if it has irresponsible practices. On the other hand, 82% of consumers also believe, rightly or wrongly, that companies with socially responsible initiatives have higher quality products and are willing to pay more for these products that align with their values of quality.

In the past, we asked farmers to grow the cheapest food possible. We didn't ask farmers to grow food that tastes good, that is good for our health or that is good for the environment around us. Farmers are business people. They are going to produce what the consumer is demanding. When all of us are demanding the cheapest food, it's a race to the bottom. That is changing, as is evidenced by the organic movement, which is completely being driven by consumer demand.

An emerging audience is willing to pay for products that align with their values. One might be individual health but that also includes environment, how animals are treated and how farmers are treated. That's why you see emerging labeling with things like *Fair Trade*, *Animal Welfare Approved*, *USDA Organic* or *non-GMO Project Verified*. People are starting to connect the dots and are appreciating that there could be a holistic system that encompasses all of these things.

Regenerative Agriculture IS profitable. Many farmers who transition to organic and more so regenerative agricultural practices have improved harvests and returns even within a year of moving away from

conventional growing techniques. Fewer drugs to buy, cheaper seeds, higher yields, more profitable products... the economic advantages are revealed quickly.

The conversation doesn't stop at agriculture. The simplest way to explain regenerative business is that it has a net positive effect, which is extremely important if we want future generations to have a healthy planet. The current landscape of business largely focuses on extraction, separation and conquest. It isn't working. Commerce creates culture. Businesses have contributed to a culture of environmental and social crisis. Regenerative business leaves more than it takes, therefore it's more effective than 'circular,' 'green' or even 'sustainable' business paradigms. If any of those movements had worked, we wouldn't be where we are today. Do we want to circulate or sustain climate change? No. We have to constantly regenerate in order to sustain a healthy planet.

Clearly, consumers do want to see that change. 80% of surveyed consumer respondents, across every shopping category and demographic group, demand regenerative solutions today. While customers don't expect brands to be perfect, 95% expressed the desire to buy regenerative products and services from producers that are fully transparent about their impact. The bottom line: a regenerative economy based on businesses utilizing the principles of regeneration offers the greatest economic opportunity of this century. For those companies and organizations that embrace regenerative systems and values into the fabric of their operations, it's 'A Race to Prosperity'.

In the big picture, it can save money. Cheap food has a high cost, and the impact in rural communities with struggling farmers is significant. On a larger scale the environmental costs are more complicated because there's no specific monetary value to track, unless there's a natural disaster like the dead zone in the Gulf of Mexico or a monstrous flood but at the end of the day, we are all impacted on a regular basis since a portion of the taxes withdrawn from our paychecks are used to help pay for the cleanup of these kinds of contaminated areas throughout the country. The cost to our health is the most important part because there is an enormous impact in our lives and in the well being of our families.

Change can be swift. 30 years after the "organic" movement started, you can find organic products in almost every store. In most stores, at least 6% of products are organic. That was the work of one generation. The challenge to the next generation is to walk through the door we opened and reintroduce the world to healthy, flavorful eating. If you look at it as a two-generation project, we're already halfway there.

By replacing chemical agriculture with regenerative organic agriculture and artificially low-priced, low-value food with fair-priced, high nutrition, high-value food, we can resolve the paradox of the 'high cost of cheap food,' which includes the economic failure of farms, the decline of rural communities and small businesses, the pollution of our planet and chronic disease tied to poor diets.

One step starts it. Everyone just needs to take one step to start. There are many initiatives in place already such as the Healthy Farm Standard, the Soil Carbon Initiative or the Carbon Farming Network. You can partner with advocacy efforts that reduce chemical/industrial farming. Or you can create a campaign of your own. You can financially support one of the many regenerative organizations that are doing everything from training farmers, to pushing for climate-friendly agricultural policies. There are endless opportunities.

Small changes = big results. The start to making more sustainable and regenerative choices is taking a step back and looking at where all your ingredients come from. Making a regenerative choice can be an easy choice. It can be as simple as trading out a crop grown across the world with chemicals to something U.S. grown, or better still, grown around the corner from where you live.

Farmers are the stewards. Organic and regenerative farmers are amazing stewards who care so much about their land and the people that they are feeding. Even in industrial chemical agriculture, a lot of those farmers are honestly victims of the system presently in place. How can we keep moving farmers in the right direction

from conventional agriculture toward conservation towards organic and then towards the ultimate goal of regenerative organic ag that's even more holistic? Farmers are stewards of the land and want to do what is best to keep their farms viable for the next generation. They just need the support.

Retailers make the difference. Retailers led the charge for the Non-GMO Project and for NOP (National Organic Program) organics. Retailers can help accelerate adoption through point-of-sale information and by supporting brands that are part of the regenerative revolution.

About 99% of the world's food supply comes from land-based production, with around 50-70% of that land being devoted to agriculture. Regenerative agriculture shapes the entire farm-to-table process, and directly impacts consumer food quality, environmental integrity, our health and economic stability. These are points that are vital for retailers to share.

Retailers can position themselves as part of the solution by creating prominent space for regeneratively farmed produce and products. Retailers need to draw more attention to products that are regeneratively farmed much of the same way they promote them as organic, GMO-Free or even sustainably farmed. With growing concerns over climate change, degenerative farming practices, food nutrition, and the use of toxic chemicals on our crops...all of these aspects together wreak havoc on our health and the health of the planet which leads to the loss of biodiversity. There is a farming method that can address all of today's pressing issues; we simply need to begin driving the attention towards it.

Education is essential. As is the case with anything important to individual, societal and global health, education is crucial. People can't be criticized for not being informed, or in most cases, misled. Providing them with correct knowledge is crucial. What they do with that knowledge is up to them but the first step is education. Learn about the food, where the food comes from, how the food was grown and by whom.

People are starting to see that the ripple effects of saving 30 cents on a tomato are not worth it. We are paying for it in other ways. We need to rethink the notion that industrial agriculture is the norm. It's actually an experiment we've been doing for 70 years. People are starting to realize that experiment is failing.

Despite the pretty dismal food landscape today, we do have control. More than 6% of the food at your local market is now organic. At the current growth rate of 10% a year we have the potential to reach 100% in about 30 years. No more pesticides or herbicides or other questionable chemicals, just cleaner, healthier food, soil, water and air.