

## Regenerative Agriculture: A Promising Solution to Climate Concerns, Explained By: Alexandra Grant-Hudd

As we know, our planet is already feeling the devastating effects of climate change. Science continues to show that the atmosphere is warming, sea levels are rising, species are becoming extinct at rates never seen before, and people across the globe are being forced to flee their homes to escape threats from climate disruption. Climate disasters are now commonplace. 2019 marks the [fifth consecutive year](#) in which 10 or more separate billion-dollar disaster events have impacted the United States alone. This is all a consequence of the burning of fossil fuels that release gases such as carbon dioxide into the atmosphere.

Agricultural food production is one of the largest culprits. 37% of greenhouse gas emissions come from industrial agricultural practices. Yet with more mouths to feed now than ever before, this industry appears untouchable. But there is a solution: regenerative agriculture.

### **BUT WAIT, WHY IS INDUSTRIAL AGRICULTURE SO HARMFUL?**

*Industrial agriculture is NOT good for the earth*

The agricultural industry today is characterized largely by [monocropping](#)— an agricultural practice in which the same crops are planted on the same land year after year. This type of



farming is used to mass produce crops in the hopes of generating the most profit. However, monocropping also creates problems with soil health. When land is continually farmed with no breaks, nutrients in the soil are unable to replenish themselves.

The industry also relies heavily on chemical [pesticides and fertilizers](#) that are hazardous to farmers and the earth. Chemicals found in these products have been shown to degrade soil nutrients and contaminate nearby water sources

that supply livestock and humans with drinking water. Industrial farms use heavy machinery to plow land in hopes that exposing soil to more oxygen will counteract the negative effects of monocropping. However, this [technique](#) is disastrous for soil health as well. Heavily mixing soils disturbs organisms that help build healthy and fertile soils. In addition, it makes soil erosion a much larger issue, and land can literally blow away due to high winds and storms. Industrial agriculture practices are so harmful that, according to [researchers](#), 30% of the world's

agricultural land has been completely abandoned in the last 40 years because soils are depleted entirely of nutrients.

*Industrial agriculture is NOT sustainable for the future*

Industrial agriculture is also extremely vulnerable to the negative effects of climate change. It has little potential to adapt to impending climate threats because of how industrialized and fragile it is. And corporations and farmers are already falling victim to these effects. If temperatures continue to rise, farmers will see an increase in pest problems, a decrease in the [nutrient content](#) of the produce they grow, and their farms could experience up to 25% loss in food production. And because yields and quality will decrease, farmers will experience a loss in profit, as they have less lower quality food crops to sell. To make up for these losses, industrial farming operations will require more land, water, chemicals, and money to keep production rates where they are now.

If you're thinking what I'm thinking, it doesn't make sense to keep demanding more and more food from lands that we are simultaneously destroying. Surely there must be a solution to our current agricultural woes that can keep up with worldwide demand for food while making sure our planet is healthy.

## **SO, WHAT IS REGENERATIVE AGRICULTURE? ?**

Regenerative agriculture is a type of organic farming that focuses on improving soil health first and foremost. It finds alternative farming solutions to harmful industrial practices. Solutions that benefit natural environments, improve food quality, and promote overall natural diversity.

The most promising aspect of regenerative farming is that it encourages [carbon sequestration](#). This means that carbon is taken, or “sequestered” out of the atmosphere and stored in solid or liquid form in the earth. In the case of regenerative agriculture, carbon from the atmosphere is stored in soil. And the healthier the soil, the more carbon it can sequester from the atmosphere. So, it makes sense that soils on industrial farms don't have the capability of sequestering carbon because they are so degraded. But the good news is, regenerative agriculture *can* remove carbon dioxide from the air. The same carbon dioxide that is accelerating climate change and global warming. According to [researchers](#), if the whole world immediately transitioned all to regenerative agriculture, we could sequester 100% of current human generated greenhouse gas emissions. While a 100% transition may not be realistic, it is obvious that the [benefits of regenerative agriculture](#) can be utilized as an important tool in combating global climate disruption. For a detailed comparison and contrast between industrial and regenerative farming, take a look at the chart below.

# Farming Techniques: Regenerative VS Industrial

	REGENERATIVE	INDUSTRIAL
<b>PLOWING?</b> Disturbing soil with heavy machinery to "aerate" soil. In reality, this depletes nutrients, encourages weed growth, and disturbs beneficial microorganisms from fertilizing soil	No	YES
<b>ROTATING CROPS &amp; COVER CROPS?</b> Crop rotation involves rotating the land you plant crops on in order to give soils rest periods to replenish their nutrients. Cover crops such as grasses and legumes are planted on lands during off seasons to also replenish nutrients	YES	No
<b>CHEMICAL PESTICIDES &amp; FERTILIZERS?</b> Pesticides and fertilizers are used to control pests and increase survival of crops. These chemicals are toxic, acidify soils, and contaminate water sources used by animals and humans	No	YES
<b>SUSTAINABLE LIVESTOCK MANAGEMENT?</b> Unregulated livestock grazing results in trampled grasslands, eroded soils, and methane emissions from cow burps. Sustainably livestock grazing results in far less degraded land and less greenhouse gas emission. An example of this would be rotating lands used for grazing livestock, allowing previously grazed lands to restore themselves	YES	No
<b>COMPOSTING?</b> Composting involves using organic plant matter as fertilizer for crops. Compost increases soil organisms, increases nutrient growth, and holds water in soils	YES	No

The two main takeaways from the chart above are:

1. Industrial agriculture uses practices that are focused solely on using chemicals and machinery to mass produce singular crops
2. Regenerative agriculture uses practices that are focused on restoring soil fertility, increasing the variety of crops on a single farm, and abandoning harmful chemicals that toxify soil and water

## WHAT WOULD A TRANSITION TO REGENERATIVE FARMING LOOK LIKE?

Regenerative agriculture is an extremely promising path forward. It not only makes sense for the wellbeing of the planet, but for the wellbeing of the diverse populations of people who inhabit it.

But changing our agricultural system comes with concerns. The following paragraphs address these concerns.

*There would be plenty of food to go around.*

Farms that use regenerative agriculture practices are able to grow just as, if not more, food than industrial farm operations. According to [research](#) done by the Rodale Institute over a 27 year period, yields from regenerative agriculture systems matched the yields from industrial systems. And when drought years affected the amount of water available to crops, regenerative systems yielded 30% more crops than industrial systems because soil was healthier and able to hold onto water longer. As the world continues to warm, having agriculture systems that are better able to adapt to times of drought will be crucial.

*There would be fewer pests and NO pesticides.*

Pests will also be less of a problem for regenerative farmers. Because regenerative systems are so diverse, pests are more likely to run into natural predators or be in competition with other pests in the area. Areas of low diversity, like those found in industrial systems, are far more prone to pests. [In fact](#), industrial systems of agriculture have been found to have 10 times the number of pests than regenerative systems, even with the use of chemical pesticides. Regenerative farmers reap the benefit of increased yield due to less pest infestations while refraining from damaging soils with chemical products. A win-win for the land and its farmers.

*Farmers would make more money.*

Regenerative farming techniques [cost a lot less](#) to implement than industrial ones because they require less fossil fuels, water, and chemicals. This saves farmers initial costs that they have to make up later through increased yield. Also, the quality of produce grown on regenerative farms lends itself for greater profitability because it can be marketed as organic. People are willing to pay more for crops that haven't been sprayed with harsh chemicals. In addition, these types of farms also have many different ways of generating income because of how diverse they are. So if one crop has a poor year of growth, other crops can easily fill in those gaps of income. Because of this, regenerative agriculture is easily adaptable to a whole host of threats, including, those of climate change.

*People would have better access to food.*

Currently, about 2 billion people deal with some form of [food insecurity](#). This means that a quarter of our planet doesn't have physical, social or economic access to nutritious and safe food. Regenerative agriculture not only grows more nutritious foods, but provides regions with a variety of food products to make up a well rounded diet. Implementing regenerative agriculture

will give countries local access to crops that they previously were importing from nations with large industrial farming operations, like the United States. Making communities more self sufficient with regenerative practices increases resilience and reduces levels of hunger.

## **SO WHAT'S THE HOLD UP? HOW DO WE MAKE REGENERATIVE AGRICULTURE THE NORM?**

### *National and international political support*

Regenerative agriculture needs to be an integral part of the climate change conversation. For the first time ever, in December 2015, at the [UN Climate Summit in Paris](#), agriculture was on the agenda as a major solution to global warming. Agreements were made that each country was to increase the carbon content of its soil by 4% each year. Regenerative farming practices are the best way to accomplish this goal. Global institutions like these keep governments accountable, and encourage them to set environmental goals to help reverse climate change. The 2015 climate negotiations were a promising start toward implementing regenerative agriculture on a global scale.

However, individual nations must introduce policies that reflect these goals. Today, governments all over the world are spending \$500 billion dollars a year subsidizing 50 million industrial farmers. “Subsidizing” makes the cost of industrial farming artificially cheaper than it actually is. Because governments make industrial farming seem more cost effective, there are less economic incentives to transition away from it. We need political leaders who are not afraid to challenge the status quo. We need political leaders who are willing to stand against large corporations and incentivize regenerative agriculture. This comes down to people exercising their right to vote, and electing officials who see the value in regenerative agriculture systems and recognize the urgency of climate change.

### *A grassroots approach*

Bottom up organization may be the best way to make regenerative agriculture a reality. Each and every one of us has the power to influence those around us. We make choices about the food we eat, the businesses we support, and the people we vote for. Building political power at the local level is an influential tool. Especially as local communities understand, more than most, the need for readily available, healthy and cost effective produce. Education and outreach play a crucial role in connecting people with shared concerns and like minded goals. And addressing farmers in these communities is one of the best ways to jumpstart transitions that are mutually beneficial for producers and consumers of farm products. These shifts have already begun, and larger institutions are beginning to listen. General mills, one of the largest packaged food companies in the United States, has incorporated a regenerative agriculture initiative. They have [pledged](#) to apply regenerative agriculture to 1 million acres by 2030 — about a quarter of the land from

which they source their ingredients in North America. And even [\*more\*](#) organizations, farmers, and officials are beginning to view regenerative agriculture as a hopeful solution for climate change.

The ball of regenerative agriculture is beginning to roll. But it needs a bigger push. We know what's at stake in the wake of climate disruption. We have the information about agriculture to make progressive changes. What we do with this information will determine the fate of our food system and our planet for years to come.

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