



GREEN FIELDS,  
HEALTHY YIELDS:  
REGENERATIVE  
AGRICULTURE AND  
NUTRITIOUS FOOD

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# Green Fields, Healthy Yields:

## Regenerative Agriculture and Nutritious Food

*Exploring the public health & environmental benefits of using regenerative agriculture in promoting sustainable food systems*

### EXECUTIVE SUMMARY

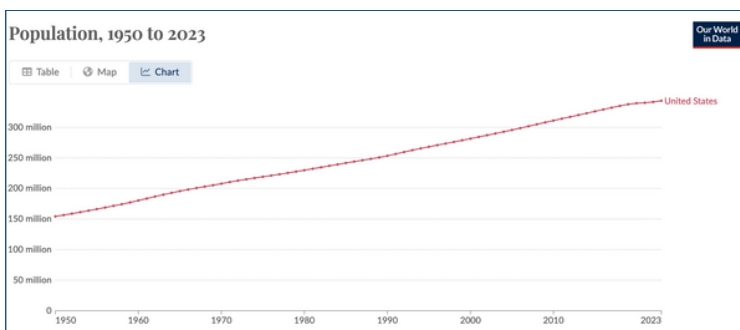
*As the global population balloons and our planet faces unpredictable climate patterns and extremes, our environment and natural resources are increasingly strained while we race to provide sufficient food and fuel for the populace. Additionally, changing climate conditions can be unpredictable and damaging to crops. Regenerative agriculture is vital in combating climate change and providing affordable, accessible nutritious food to feed our growing world.*

Our planet is currently facing two complex problems, the likes of which have never before been seen in recorded history. Climate conditions are becoming more volatile and unpredictable and simultaneously, the number of human beings just keeps climbing. In the 1950s, the global population was approximately 31% of what it is today, jumping from roughly 2.5bn to more than 8bn in just a few decades. This number is expected to increase even further, potentially peaking at more than 10bn in the 2080s (*Global Issues: Population*). This unprecedented, exponential increase in the population worldwide has placed a strain on our natural resources like never before as we work to provide

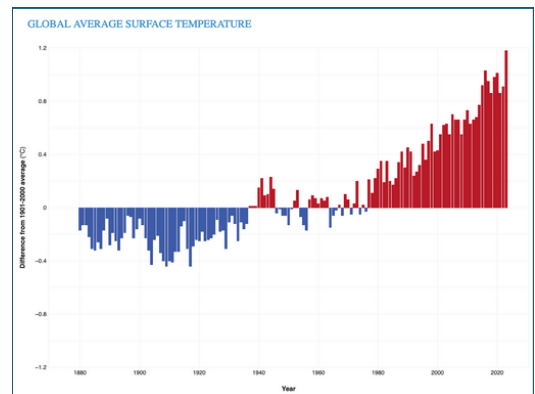
sufficient food, fuel and materials while combating the variable climate extremes.

The challenge faced by modern society is not just feeding our growing population while the climate continues to change, but cultivating *healthy, nutritious food* that is accessible (and affordable) for all.

Agricultural production is fundamental in providing food and fuel for this growing population, but how can we provide for the populace without degrading our already fragile natural resources (soil, water and air) in the process? The answer lies in regenerative agriculture.



This chart by Ritchie et al (2024) visualizes global population trends since 1950.



This chart by Dahlman et al (2024) visualizes global average surface temperature trends 1880-2020.

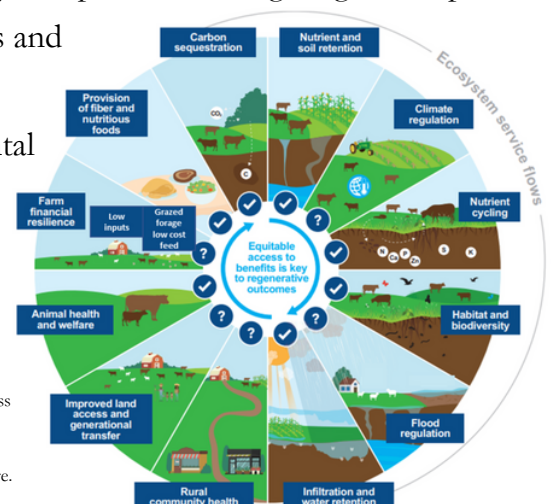
**Regenerative agriculture**, also referred to as **climate-smart agriculture** or **carbon farming**, focuses on climate-smart inputs, agro-ecological practices, efficient irrigation technology, and precision farming techniques. At its core, these techniques and practices aim to protect and preserve our planet and its natural resources by mitigating and adapting to the effects of climate change, enhancing soil health and biodiversity, and improving farmer income while producing additional high-quality food (*Transforming Food Systems with farmers: A pathway for the EU 2022*). The food sector is one of the biggest contributors to the climate and nature crises, and halting and reversing land degradation is critical to meeting future food needs (*Food Security and Nutrition and Sustainable Agriculture*).

Traditional methods for growing, distributing, consuming and disposing of food accounts for one third of annual greenhouse gas emissions. According to [Future Fit Food and Agriculture](#), a recent report from the World Business Council for Sustainable Development, the Food and Land Use Coalition (FOLU) and We Mean Business (WMB), regenerative agriculture practices could halve the global food system’s greenhouse gas (GHG) emissions by 2030 and reduce negative impacts of farming on plants, wildlife and freshwater (Early, 2024). On a societal level, we must normalize the adoption of regenerative agriculture, though it can be costly and/or time-consuming to implement. The path to the widespread adoption of regenerative agriculture, or what we like to call “*scaling regenerative agriculture the RIPE way*,” includes making it easier for farmers and ranchers to implement by removing financial barriers and simplifying the processes which reward farmers for adopting and maintaining key conservation practices.

In order to feed the expanding world, a high-yield growth model for agriculture has become the norm, leading to large-scale farming methods and the proliferation of foods consisting mainly of corn, wheat and soybeans. Conventional agricultural practices rely on cheap labor, cheap animal feed and dependency on synthetic fertilizers and other critical inputs. The results of these practices are produce, meat and dairy products that are far less nutritionally-dense than the products from a few generations ago (Davis and Riordan, 1999). Consumption of these nutritionally-poor foods has led to an abundance of public health issues. What’s more, it is the vulnerable, marginalized communities depending on access to cheap food face the brunt of the impact. . Unable to afford or even access sustainably-raised meat and produce, their food intake consists mainly of processed foods that contribute to the contraction of heart-related diseases, obesity and cancer (Siegal, 2016). Healthy, safe and high-quality food must be affordable and accessible to all populations and can be better assured through regenerative food production systems .

Regenerative agriculture practices are not only necessary for protecting the natural environment, but are a key component in mitigating future public health crises and addressing environmental injustices.

This graphic by Cutress et al (2021) highlights the many benefits of regenerative agriculture.

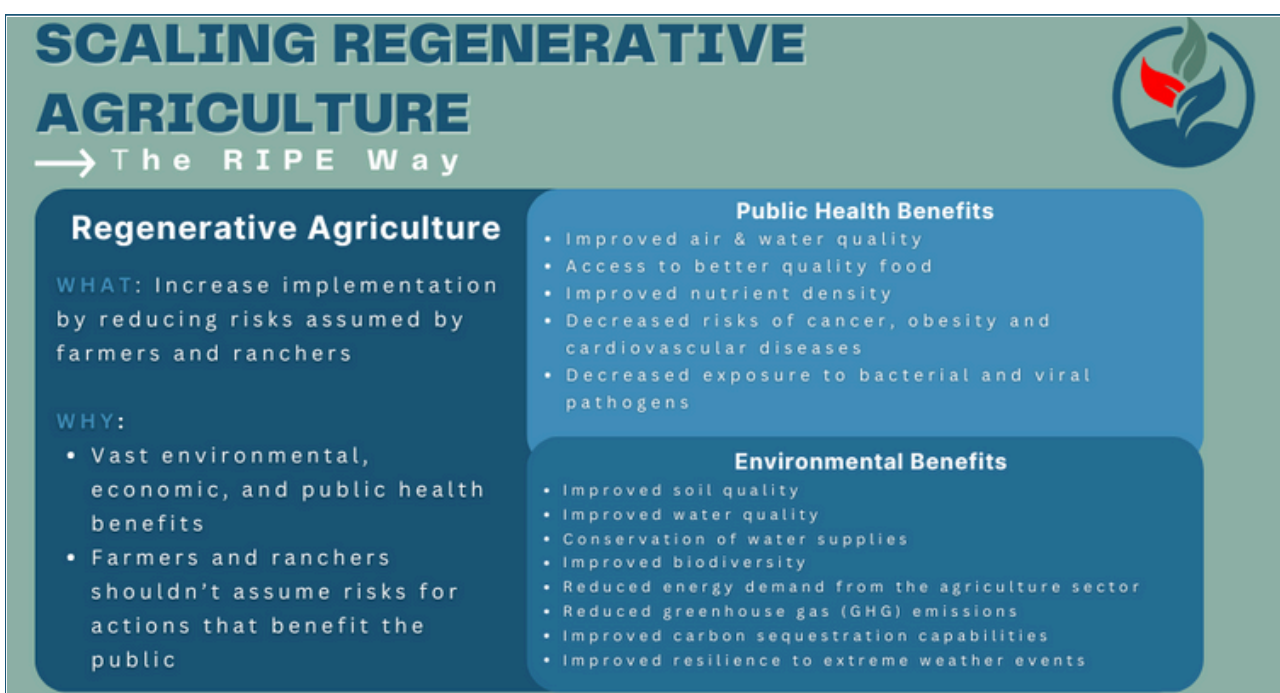


Regenerative agriculture practices on farms and ranches can have many benefits for the local ecosystems, including improved soil and water quality and availability, improved biodiversity, reduced greenhouse gas (GHG) emissions and reduced nutrient pollution (Food, Climate and Nature FAQs 2023). These practices can also provide socioeconomic benefits in terms of public health, producer livelihood, etc. Regenerative agriculture is a comprehensive solution in combating environmental issues (natural resource depletion, climate change, biodiversity loss etc.) and socioeconomic issues (the decline of rural America, equitable access to nutritious, healthy food, public health risks, etc) alike.

In regards to the quality of fruit and vegetable production, many studies have drawn a connection between reduced soil quality and lower nutrient density. Soil scientist, Dr. Christine Jones, explains that disrupting normal biological processes in the soil results in less nutrient acquisition by plants (Karas).

Effects such as soil salinisation, acidification and pollution as a result of overgrazing and heavy-handed synthetic fertilizer application result in these nutrient deficiencies in plants. Geomorphologist, David Montgomery, has conducted studies linking regenerative farming practices with enhanced nutritional profiles of both livestock and crops.

Regenerative practices such as no-till, cover crops and diverse crop rotations rebuild soil organic matter and soil health. Results demonstrated that soil on no-till farms contained more than double the amount of topsoil organic matter as conventional farms. The more robust soil was shown to have a direct impact on the nutrient density of the crops grown in it. For example, when comparing wheat grown with cover cropping practices to conventionally-grown wheat in Oregon, a higher density of mineral micronutrients and phytochemicals was observed in the regenerative wheat (Montgomery, 2022).



**SCALING REGENERATIVE AGRICULTURE**  
→ The RIPE Way

**Regenerative Agriculture**

**WHAT:** Increase implementation by reducing risks assumed by farmers and ranchers

**WHY:**

- Vast environmental, economic, and public health benefits
- Farmers and ranchers shouldn't assume risks for actions that benefit the public

**Public Health Benefits**

- Improved air & water quality
- Access to better quality food
- Improved nutrient density
- Decreased risks of cancer, obesity and cardiovascular diseases
- Decreased exposure to bacterial and viral pathogens

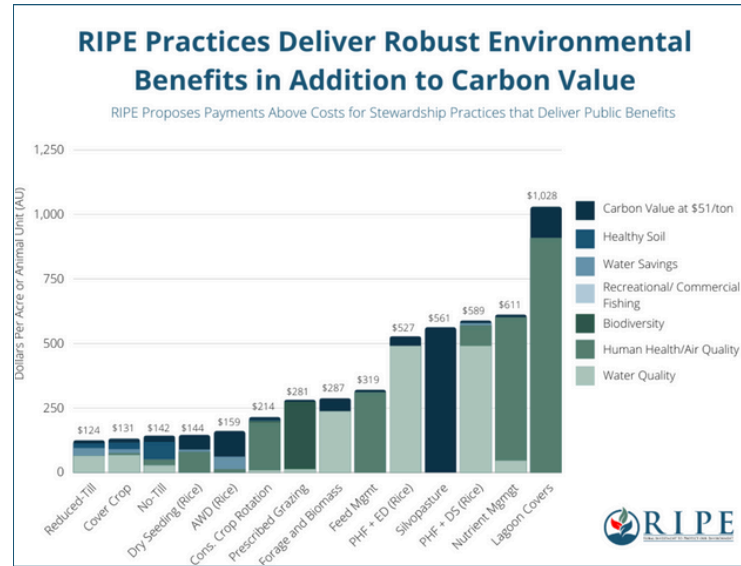
**Environmental Benefits**

- Improved soil quality
- Improved water quality
- Conservation of water supplies
- Improved biodiversity
- Reduced energy demand from the agriculture sector
- Reduced greenhouse gas (GHG) emissions
- Improved carbon sequestration capabilities
- Improved resilience to extreme weather events

Further research needs to be conducted to provide robust evidence for the link between soil health and human health. Current studies at universities like CSU Chico are investigating the precise impact on the nutrient density and profitability of produce production systems as leaders in this area of research.

Ultimately, creating a system that financially incentivizes the use of climate-smart practices would not only benefit the health of our planet, but it would also lead to a healthier lifestyle and living environment for farmers and consumers alike. Farmers require fair compensation for their efforts, low-income and rural communities deserve safe living environments and all consumers need equitable access to foods that satisfy basic nutrient requirements to avoid life-threatening diseases.

In looking at the big picture, implementing regenerative and climate-smart agriculture methods can minimize the environmental impact of food and fuel production systems while creating a pathway to healthy, nutritious food systems that are accessible for all.



In order to promote the adoption of regenerative agriculture practices, we must compensate producers for their time and remove financial burdens and risk associated with adoption. This can be achieved through an advanced conservation production system supported by private markets and incentivized by public policy. This will be achieved when there is thorough recognition of the public benefits created by regenerative farming systems in terms of the environment, economy, and public health.

**RIPE's mission is to make regenerative agriculture more accessible and affordable to farmers and ranchers through public policy, advocacy, research, education and outreach. Help us scale [regenerative agriculture the RIPE Way](#) and benefit producers and the planet.**

**SCAN TO LEARN WHO WE ARE & WHAT WE DO:**



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