



REGENERATIVE AGRICULTURE AT HEIFER INTERNATIONAL

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KEY TAKEAWAYS



Many approaches have been developed to guide the transformation of food systems to benefit smallholder farmers, food production and the natural environment. These approaches share **common foundations around a holistic and systems-based approach** that recognizes the values of being locally centered and the interconnection of natural and human systems.



Heifer is adopting regenerative agriculture as a unifying framework, to provide a useful umbrella approach to integrate core principles as **foundational program elements**. This approach emphasizes the regeneration of production systems and producers, their communities, ecosystems and economies. Regenerative agriculture thus applies to all levels of the food system — from farms and their environments to farmers, communities and regional markets to all levels of the food system.



Regenerative agriculture is not a prescriptive list of interventions, but rather an outcomes-based, flexible and iterative approach that embraces core principles aimed at continuous improvement. **Practitioners conduct regular assessments** and select pathways to progressively enhance the regenerative capacity of their systems.



Ten key principles are identified to guide goal setting and the application of regenerative practices in programs.

Introduction to Regenerative Agriculture

Over the past 80 years, the Green Revolution has transformed agriculture by dramatically boosting food and fiber productivity to meet the demands of a growing global population. Driven by technological innovations, capital investment, and supportive government policies, this revolution significantly reduced famine and improved food security. These advancements have come at a high environmental cost, including large-scale land use changes, freshwater diversions, and increased reliance on energy-intensive inputs, such as fertilizers and pesticides.

Conventional agriculture has become highly extractive, contributing to land and soil degradation, water scarcity, and significant greenhouse gas emissions. While the Green Revolution successfully addressed immediate food needs, it also introduced practices with lasting environmental impacts which in the long term are not sustainable locally or globally. These agricultural practices, along with food transportation and consumption, have severely strained planetary boundaries. Agriculture now stands as a leading source of greenhouse gas emissions, the largest driver of deforestation and biodiversity loss, and the primary consumer of global freshwater resources. The widespread use of synthetic fertilizers has further polluted air, water bodies and oceans, creating dead zones and intensifying global warming.

The current food system is not sustainable for people either. We have moved away from local food production, becoming overly reliant on a few major food-producing regions. Today, more than 9 percent of the global population faces severe food insecurity with 821 million people undernourished.¹ The nutritional quality of food has also substantially decreased, resulting in hidden hunger, malnutrition and increasing health impacts globally. At the same time, over two billion people are overweight or obese, contributing to 9 percent of global deaths every year.²

To address these challenges, a transformation of the food system is essential. In response to the urgent need to transform food systems, a variety of approaches to sustainable agriculture have emerged, each aiming to balance productivity, farmers' and producers' well-being and resilience, and environmental stewardship.

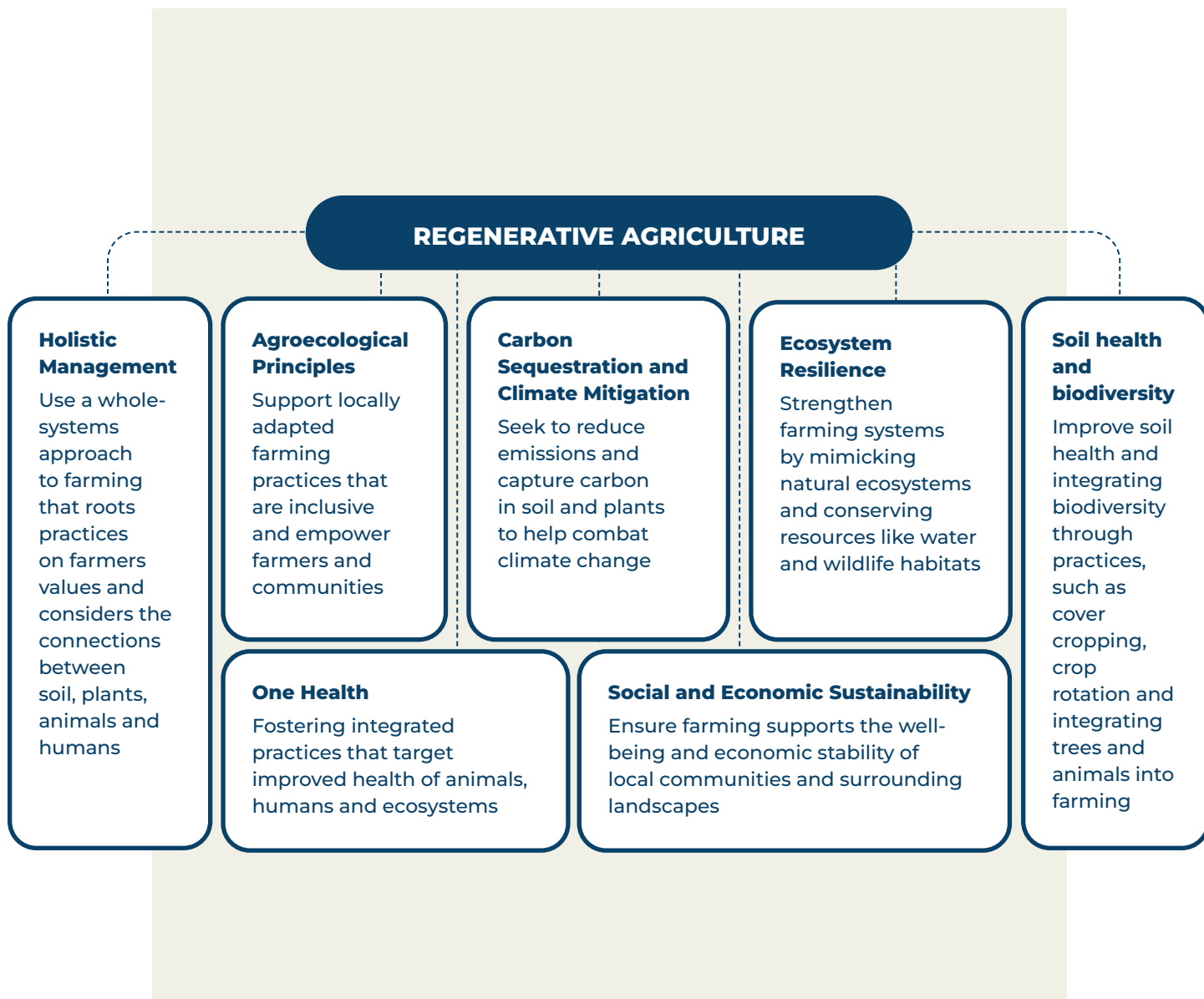
These approaches, including regenerative agriculture, agroecology, One Health, holistic management, organic farming and sustainable intensification, share many common elements, such as a focus on improving soil health, reducing chemical inputs, enhancing biodiversity and promoting resource efficiency. While each approach may emphasize different techniques or principles, they all strive to create more resilient and sustainable agricultural systems. They typically start with context setting, and seek to place farmer community values and goals as well as food production at the center. To effectively drive the transformation of global food systems, Heifer has crafted a common approach that weaves together these shared elements.

Regenerative agriculture — by emphasizing the (re)generation of positive farmer communities, food production and environments — can serve as a unifying framework, integrating core principles that emphasize the restoration of ecosystems, communities and economies. By adopting this approach, we can leverage the strengths of various sustainable practices to create a more holistic and impactful agricultural system.

The transformation of food systems represents one of the most potentially significant shifts in human history. By embracing regenerative agriculture, sustainable intensification and responsible consumption, we can transform food systems that works for both people and the planet, ensuring thriving and resilient smallholder livelihoods, and food security within the limits of our environment.

¹ *United Nations, Global Issues: Food.* <https://www.un.org/en/global-issues/food#:~:text=Global%20hunger%20remained%20relatively%20unchanged,with%207.9%20percent%20in%202019>

² *The World Counts, Number of Obese People.* This website shows data on obesity and hunger, illustrating that while hunger continues to be the world's biggest health problem, obesity is on the rise. <https://www.theworldcounts.com/challenges/people-and-poverty/hunger-and-obesity/statistics-about-obesity#:~:text=Worldwide%20obesity%20kills%204.72%20million,deaths%20for%20every%20100.000%20people>



An Integrated Approach

Regenerative agriculture is a holistic and integrative approach to farming and land management that seeks to restore and enhance the health of ecosystems, communities, and economies. Rooted in traditional and indigenous farming practices, regenerative agriculture gained modern attention in the mid-20th century as a response to the detrimental impacts of conventional agriculture, such as soil degradation, loss of biodiversity, and declining ecosystem health.

Regenerative agriculture is well aligned with the principles of Climate Smart Agriculture (CSA), holistic planned grazing, integrated landscape management, One Health and agroecology to create resilient agricultural systems that prioritize the well-being of the environment, animals and humans alike. Leveraging the contributions of these different approaches and drawing from a number of authoritative sources on regenerative agriculture, including Regen10, the Rodale Institute, the Savory Institute, the Noble Institute and Regeneration International, we have identified core intersectional elements that support the Heifer definition of regenerative agriculture.

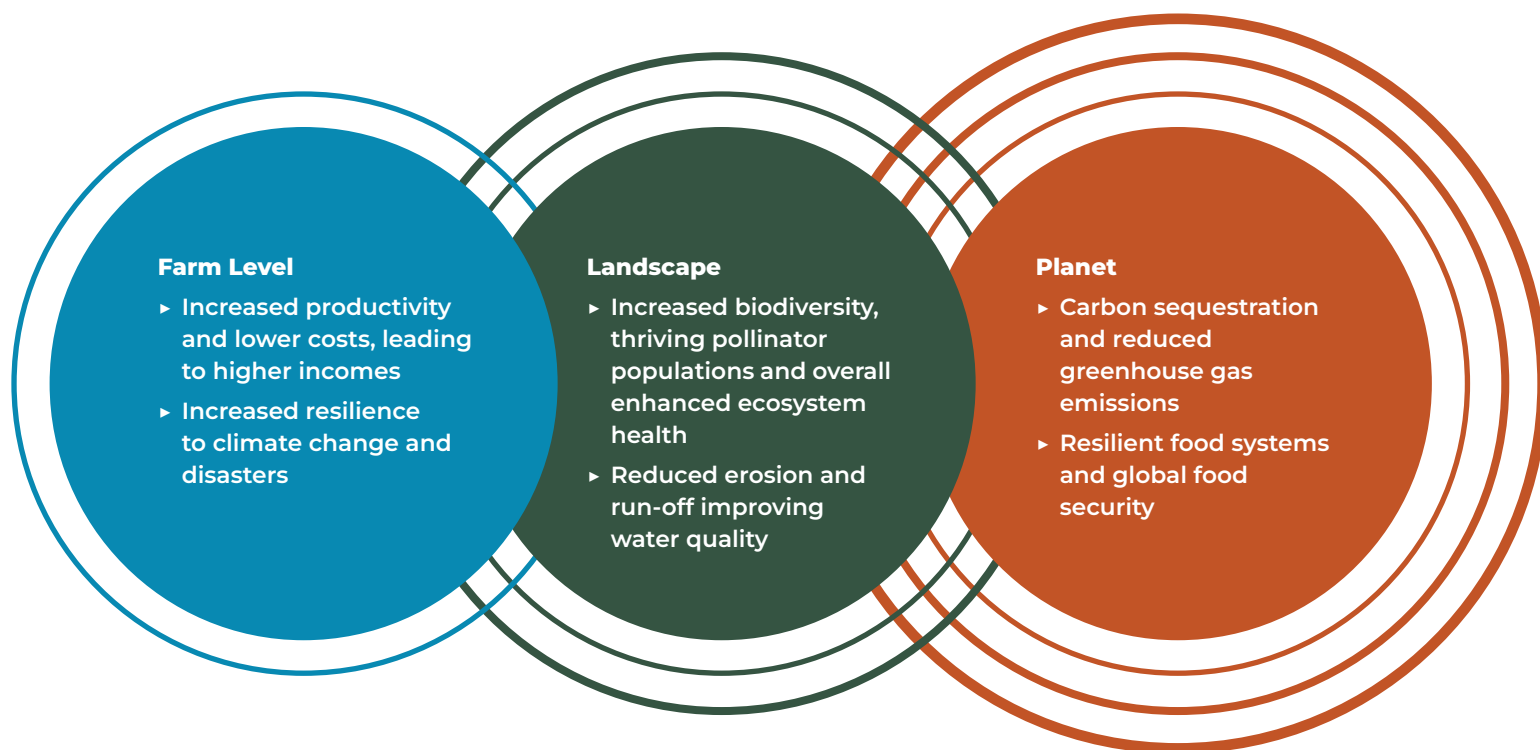
In summary, regenerative agriculture is a dynamic and evolving practice that regenerates the health of the land, communities and planet. It is a pathway to sustainable food systems that honor the intricate balance between ecological integrity, human well-being and economic viability.

Ten Regenerative Principles to be Applied

Regenerative agriculture principles must extend beyond the farm level to encompass communities, landscapes and regions. A broader approach is essential as the success of farm-level practices depends on the surrounding environment's ability to support regenerative methods.

For example, improving soil health or increasing biodiversity on a single farm can only thrive if neighboring lands and ecosystems also engage in sustainable management. Local infrastructure, such as water management systems, and community or regional level policies must be aligned to provide resources, knowledge, and market access for regenerative production. Additionally, implementing large-scale regenerative practices, such as watershed restoration and reforestation, is crucial for sustaining ecosystem health and strengthening the resilience and productivity of individual farms.

Application of regenerative agriculture principles can lead to positive outcomes at different levels:



Heifer's projects implement interventions at the farm, community and regional levels, recognizing their interconnectedness and mutual influence. Each level plays a vital role in building sustainable and regenerative systems, and neglecting one can hinder the success of others. For example, farm-level practices often rely on community support, while community resilience may depend on regional policies and market structures. Effective project planning should consider how interventions at each level can reinforce and complement one another, creating a more holistic and impactful approach. By addressing multiple levels, Heifer projects can drive deeper, systemic change — enhancing farming practices in the short term while building long-term resilience and sustainability across communities and regions.

While there are countless practices that can be included under regenerative agriculture, they can be summarized under ten key principles, listed in the table below and described in detail in the section that follows.

KEY PRINCIPLES OF REGENERATIVE AGRICULTURE



PROMOTES REGENERATIVE FOOD SYSTEMS

REGIONAL LEVEL

Strengthen
economic viability

Healthy landscapes
and foodscapes

PROMOTES REGENERATIVE FARMER COMMUNITIES



COMMUNITY LEVEL

Embrace values
and context

Share
knowledge

Strengthen
farming groups

PROMOTES REGENERATIVE FARM PRODUCTION



FARM LEVEL

Promote
renewable energy

Ensure
healthy soil

Promote
diversity

Conserve and
improve water

Promoting
OneHealth

Promoting Regenerative Farm Production

At the farm level, regenerative practices are aimed at improving soil structure, increasing organic matter, maintaining the natural water cycle, and promoting a diverse range of plant and animal life. By focusing on rebuilding soil fertility and biodiversity, regenerative agriculture creates resilient farming systems that can better withstand environmental stresses, sequester carbon, promote farmer well-being, and support sustainable food production.

At the farmer level, regenerative practices emphasize farmer well-being by considering fair and equitable contracts and pricing that respect the work force along the whole value chain. Regenerative agriculture's emphasis on generating specific outcomes, including the prioritization of specific metrics, such as soil carbon levels, ecosystem function and farmer income, is particularly valued.

PRACTICE



Promote renewable energy systems

Prioritizing just and equitable access to renewable energy systems along the production value chains will help ensure sustainable development and well-being while reducing greenhouse gas emissions. There are viable solutions to replace greenhouse gas-emitting energy sources while expanding access to energy for those without it. These alternatives span the entire production system, including electric fencing, biogas for cooking, and solar-powered chillers and coolers, among others. These yield multiple co-benefits including reduced cost, health benefits, reduced labor as well as climate mitigation.



Ensure healthy soil

Heifer supports practices such as composting, cover cropping, and reducing reliance on synthetic inputs, and minimal tillage to enhance soil fertility and structure. By increasing the biological diversity in our soils, incorporating organic matter back into the soil, these methods improve soil health, reduce erosion and compaction, increase water retention, and enhance nutrient availability, creating a robust foundation for sustainable farming.



Promote diversity including agroforestry and livestock in production systems

Create diversified farming systems by integrating a variety of crops and livestock within farming systems to foster a balanced and resilient agricultural ecosystem. Diverse crop rotations and the inclusion of animals, such as goats and chickens, help break pest cycles, enrich the soil with organic matter, and create a more dynamic and sustainable farm environment. Integrating trees and shrubs into agricultural landscapes provides multiple benefits. Trees offer shade, reduce wind erosion, improve soil health through leaf litter, and support biodiversity by creating habitats for various species. Agroforestry systems also contribute to carbon sequestration and climate resilience.



Conserve water and improve water quality

Efficient water management practices, such as rainwater harvesting, drip irrigation and construction of small water storage systems, are crucial to regenerating hydrologic regime and conserve natural flows which will improve water quality. These techniques not only conserve water but also ensure its optimal use, enhancing crop yields and sustaining farming activities during dry periods.



Promote One Health among livestock, including reducing chemical inputs

Prioritizing the health of livestock, people and the environment will help minimize communicable diseases, increasing healthy production and reducing costs. Minimizing the use of synthetic fertilizers and pesticides is essential to preventing soil degradation and protecting local ecosystems. Heifer promotes the use of organic alternatives and integrated pest management practices, which reduce harmful run off, maintain soil health and support beneficial insect populations.

Strengthening Regenerative Farmer Communities

At the community level, implementing regenerative agriculture goes beyond individual farm practices and involves building a healthy environment where people collaborate, share and learn from one another. A strong social fabric is crucial to community resilience, with knowledge, resources and support systems exchanged to uplift everyone involved.

When communities actively engage in supporting regenerative practices, they create an ecosystem where farmers can thrive. This includes mutual aid, community building, and the sharing of regenerative techniques that benefit not only individual farms but the broader community. Strengthening relationships between neighbors, fostering inclusive and collective learning, and working together to build resilience enables a more sustainable, regenerative system. In such a community, regeneration becomes a shared goal, with farmers encouraged and supported by their neighbors, leading to healthier lands and stronger, more connected societies.

PRACTICE



Embrace holistic values and consider context

By embracing holistic values, farmers consider the interconnectedness of environmental, social and economic factors, leading to more sustainable and resilient farming practices. Context setting ensures that farming decisions are tailored to the specific needs and conditions of each community, fostering practices that are both locally relevant and ecologically sound. Together, these approaches empower farmers to create regenerative systems that not only restore the land but also strengthen community bonds, enhance livelihoods, and support long-term sustainability.



Share knowledge within the community

Emphasizing the importance of understanding and respecting local and indigenous knowledge, practices and cultural contexts is critical to identifying solutions that are both effective and sustainable. By fostering collaborative learning environments, farmers gain agency to adapt sustainable practices to their specific local conditions, enhancing the overall effectiveness of regenerative techniques.



Strengthen local farming cooperatives and associations

Local farming cooperatives and associations are key to building collective bargaining power. Moreover, ensuring that all community members, including women, youth and marginalized groups, are involved in decision-making processes is crucial for equitable development. Heifer supports groups to gain better access to resources, markets and technical assistance, which enhances community resilience against economic and environmental shocks. Heifer also promotes inclusive practices that guarantee fair access to resources and benefits for everyone in the farming community.

Promoting Regenerative Food Systems

Implementing regenerative agriculture at the regional level involves integrating individual farms within the broader landscape and market systems to create a mutually supportive and sustainable relationship. The goal is to ensure that markets recognize and reward the multiple benefits that farms contribute, such as improved soil health, carbon sequestration and biodiversity. For example, market systems should pay farmers not only for their products but also for their role in ecosystem services, fostering a regenerative relationship between production and the environment. Policies that encourage farmer participation in local markets, support sustainable water use, promote fair labor practices, and foster social contracts are essential in creating a resilient agricultural economy.

Activities that strengthen these relationships, such as regional farmers markets or cooperative models, build economic, environmental, and social resilience, ensuring that farmers, their lands and the broader region thrive together. Sustainable policies, water management practices and a focus on equitable labor conditions further enable these regenerative systems to function effectively at a larger scale.

PRACTICE



Support economic viability and livelihoods

Supporting diversified income streams and local market development is vital for economic resilience. Heifer helps farmers develop value-added products, ensures equitable and fair pricing, and facilitates access to investment and appropriate financing, which collectively promote sustainable livelihoods.



Secure healthy landscapes and foodscapes for all

Enhancing key connections between soil, water, nature and communities at a landscape level helps foster productive and resilient ecosystems. Healthy, interconnected landscapes, in turn, support the creation of resilient foodscapes that produce nutritious food while maintaining the ecological balance. As a result, regenerative agriculture not only feeds communities but also sustains the vital systems that ensure long-term food security and environmental health.



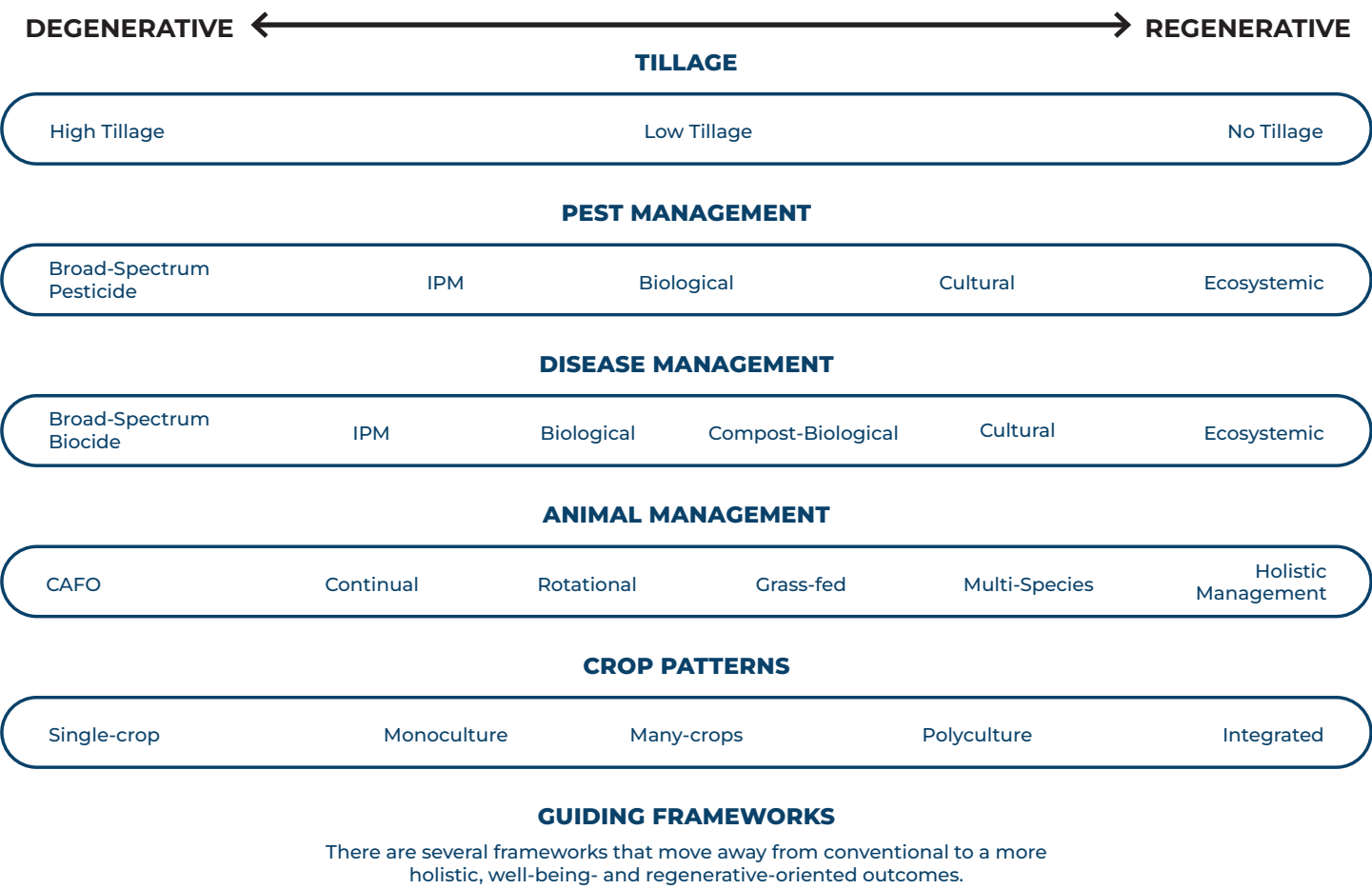
Regenerative Agriculture as a Journey

Regenerative agriculture is a dynamic, outcome-based approach that evaluates agricultural practices based on their ability to restore and enhance critical systems, such as soil health, biodiversity, water cycles, farmer livelihoods, communities and indeed the entire food system. As such, it contrasts with degenerative practices which are extractive in nature and leave systems poorer.

Unlike rigid frameworks, regenerative agriculture doesn't impose fixed standards, allowing for flexibility and adaptation to local contexts and needs. Regenerative agriculture starts with the identification of the primary goals for the system as identified by local communities, followed by an assessment of current conditions, identification of opportunities for improvement, and a robust monitoring plan that encourages the refinement of practices over time to achieve more regenerative outcomes.

This approach emphasizes progress over perfection, encouraging farmers to implement regenerative techniques incrementally. For example, a farm might begin by planting cover crops to improve soil health and later adopt more advanced practices like rotational grazing or agroforestry. Even small actions, such as reducing chemical inputs or increasing biodiversity, can create significant positive impacts over time. By enabling gradual adoption, regenerative agriculture is accessible to farms and communities at any scale or stage of readiness, fostering continuous improvement and long-term sustainability.

The goal is to support producers on their journey toward regenerative agriculture, strengthening resilience and improving environmental health with each step. The following diagram illustrates the continuum from degenerative to regenerative agriculture, showing that regardless of a farm's current practices, there are always opportunities to progress toward regeneration.



Source: Ethan Soloviev, 2011

Next Steps

Over the coming months, this regenerative agriculture document will be reviewed by regional and country representatives to ensure it is representative of the diversity of Heifer's programs. Appropriate modifications will follow.

Several examples of how Heifer's programs have incorporated regenerative agriculture principles can serve as models for country programs that are less familiar with these principles and how they may be applied to different contexts.

Upon internal agreement on Heifer's definition of regenerative agriculture, Heifer country programs are beginning to create individual capacity statements, outlining how their country program is following regenerative agriculture principles. This exercise falls under the organization-wide efforts underway to implement Heifer's Caring for the Earth (C4E) strategy, which forms an integral part of the organization's prioritized focus on sustainable, locally-led development.

Caring for the Earth

Sustainably Enriching and Scaling Impact

For additional information about Caring for the Earth, visit:

<https://www.heifer.org/our-work/focus-areas/climate-and-environment.html>



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