

REGENERATIVE FARMING:

INNOVATIVE APPROACH FOR CONSERVATION OF NATURAL RESOURCES, ENVIRONMENTAL AND HUMAN PROSPERITY

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WHAT IS REGENERATIVE AGRICULTURE?

“Regenerative Agriculture” describes farming and grazing practices that, among other benefits, reverse climate change by rebuilding soil organic matter and restoring degraded soil biodiversity - resulting in both carbon drawdown and improving the water cycle.

In other words, Regenerative Agriculture is a comprehensive land management method that combines the highest standards of organic farming, animal care, and social fairness, while also prioritising the improvement and expansion of soil health and biodiversity. It is viewed as a solution to several of our most pressing issues, including topsoil, water pollution, food scarcity, and climate management. Its distinctive feature is the restoration of good soil, which leads to healthy land, healthy animals, crop resilience and nutritional density, and, eventually, healthier

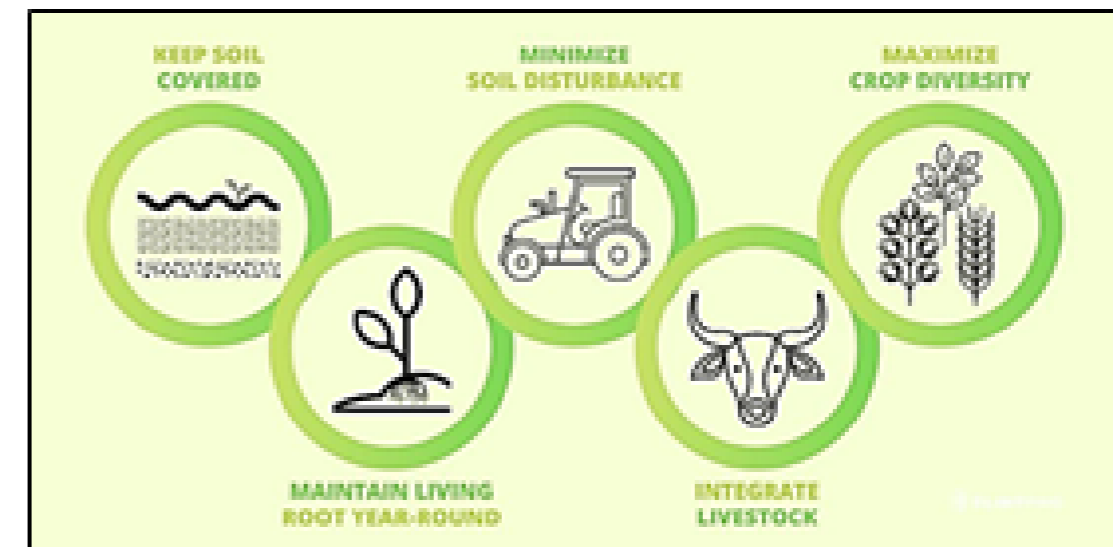
food for everyone. This not only helps to increase soil biota diversity and health, but also increases biodiversity both above and below the soil surface, while increasing both water holding capacity and carbon sequestration at greater depths, lowering climate-damaging levels of atmospheric CO₂ and improving soil structure to reverse civilization-threatening human-caused soil loss. Tillage, the use of agricultural chemicals and salt-based fertilisers, and carbon mining all have negative impacts on soil.

PRINCIPLES OF REGENERATIVE FARMING:

This is a system which seeks to replicate nature instead of constantly trying to overpower it. Reversing the cycle of soil degradation, regenerative agriculture is actually able to increase soil carbon levels. It has five core principles.

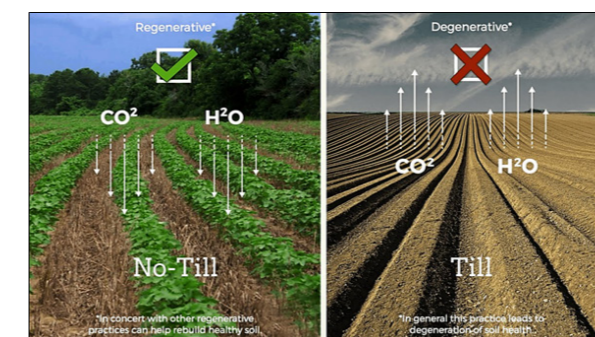
REGENERATIVE AGRICULTURAL PRACTICES:

In general, adopting regenerative practices means- “Same Land, Different Management”



1. No-till/minimum tillage:

Ploughing and tillage dramatically degrade soil and emit large volumes of carbon dioxide into the atmosphere. It can also result in bare or compacted soil, which is unfavourable to essential soil bacteria. In contrast, when used in conjunction with other regenerative practices, no-till/minimum tillage improves soil aggregation, water infiltration and retention, and carbon sequestration. Some soils, on the other hand, benefit from interim ripping to break up hardpans, which can enhance root zones and yields while also improving soil health and carbon sequestration.



2. Crop rotation and cover crops:

If soil is left exposed to the elements, it will erode and the nutrients required for plant growth will either dry up or wash away. Simultaneously, planting the same plants in the same spot can result in an overabundance of some nutrients and a deficiency in others.

Farms and gardens may infuse soils with more (and more diversified) soil organic matter by rotating crops and carefully deploying cover crops, often while naturally avoiding disease and pest concerns. Always remember, bare soil is unhealthy soil. Artificial and synthetic fertilisers have disrupted the structure and function of soil microbial communities, bypassing natural biological nutrient absorption for plants, resulting in a reliant agroecosystem and weaker, less resilient plants. Cover crops, crop rotations, compost, and animal manures, which rebuild the plant/soil microbiome to support the liberation, transfer, and cycling of key soil nutrients, boost soil fertility in regenerative systems physiologically.



3. Well-managed grazing practices:

These boost soil fertility, insect and plant biodiversity, and soil carbon sequestration while also stimulating improved plant development, higher soil carbon deposits, and overall pasture and grazing area productivity. These activities benefit not only the environment, but also the animal and human consumers' health by increasing micronutrient availability and improving dietary omega balances. Feed lots and confined animal feeding systems significantly contribute to (i) unhealthy monoculture production systems, (ii) low nutrient density forage, (iii) increased water pollution, (iv) antibiotic use and resistance, and (v) CO₂ and methane emissions, all of which combine to produce broken and ecosystem-degrading food production systems.

Organic livestock are raised in a different way, with a focus on rotational grazing, which involves rotating animals through pastures in order to promote soil, plant, and animal health. Animal welfare is of the foremost importance, with the goal of meeting the animals' needs and maintaining their health without the use of antibiotics or hormones.

BENEFITS OF REGENERATIVE AGRICULTURE:

1. Climate change in the opposite direction

Capturing atmospheric carbon in the soil and ground vegetation is known as carbon sequestration. When this occurs, it has the potential to help reverse present worldwide patterns of rising greenhouse gas levels in the atmosphere and sea. Improving soil health and planting perennials are two of the most effective approaches to aid soil carbon sequestration.

2. Restore the health of watershed organisms

When it rains, healthy topsoil absorbs the water, whereas deficient soil is too dry to do so, resulting in water runoff. This runoff is hazardous because it carries any poisonous fertiliser or pesticides that have been sprayed into rivers, streams, and the ocean. Supporting organic soil matter and avoiding the use of chemicals ensures that we all have access to safe, clean water.

3. Build resistance to climate change

Healthy topsoil contains a lot of organic matter, which helps to keep moisture until it's needed, making it resistant to droughts and climate change. Cover crops also help to retain moisture in the soil, allowing plants to rely on their own water reserves when rain is limited.

4. Expand crop yields

Organic farming is often considered to provide poorer yields, however data suggests otherwise. Organic crops cultivated without GMOs or industrial pesticides are more tolerant to adverse weather, according to the Rodale Institute Farming System Trial. Organic systems, for example, produced up to 24-34 percent higher yields during a drought.

REGENERATIVE AGRICULTURE IN INDIA:

Natural farming is promoted in India as part of the Bharatiya Prakritik Krishi Paddhati Programme (BPKP), a centrally funded scheme known as Paramparagat Krishi Vikas Yojana (PKVY). BPKP aims to promote traditional indigenous practises that decrease the need of imported inputs. NITI Aayog, in collaboration with the Ministry of Agriculture and Farmers Welfare, hosted many high-level discussions on natural farming practises with international experts. Around 2.5 million farmers in India are already practising regenerative agriculture, according to estimates. It is expected to achieve 20 lakh hectares under any type of organic farming, including natural farming, in the next five years, with 12 lakh hectares under the BPKP. It is regarded as a cost-effective farming method with the potential to increase employment and rural development.

CONCLUSION

However, if a farmer uses regenerative methods and does not disturb the soil, he or she is minimising the consequences of climate change by increasing organic matter. And the more organic matter in the soil, the greater its water-holding capacity. Adopting regenerative agriculture practises not only helps farmers deal with current climate change impacts by making their farms more resilient and adaptive to what is happening around them now, but it also allows them to take long-term action by participating in a larger solution to the crisis through carbon sequestration.