



Soil Health FACTSHEET

Understanding Soil Health: A Factor of Soil Food Web and Soil Nutrient Cycle

Soil health refers to the capacity of soil to function as a living ecosystem that supports plant growth, sustains biodiversity, and maintains water and nutrient cycling. The soil food web refers to the complex network of organisms that live in soil, including bacteria, fungi, nematodes, and other microorganisms, as well as larger organisms such as insects, earthworms, and rodents.

The soil food web plays a crucial role in maintaining soil health by cycling nutrients, breaking down organic matter, and regulating plant growth. The soil nutrient cycle refers to the process by which nutrients are taken up by plants, returned to the soil through plant and animal waste, and made available to other plants through microbial processes. This cycle involves a variety of different processes, including nitrogen fixation, mineralization, nitrification, and denitrification. The soil nutrient cycle is a key component of soil health, as it helps to maintain soil fertility and support the growth of crops and other plants.

Cotton often done as a monoculture crop, under intensive tilling, high input doses, intensive irrigation and many a times under genetic uniformity, it leads to loss of top soil, soil compactness, salination and soil borne diseases leading to soil degradation and loss of fertility.

Conventional Agriculture is Detrimental for Soil Health

Under industrial forms of agriculture, the health of soil can be negatively impacted in several ways. Industrial agriculture often involves (a) intensive tillage practices leading to soil erosion, loss of top soil, sedimentation and water pollution (b) Heavy machinery use leading to soil compaction and limiting water infiltration as well as reducing soil microbial activity, Soil compaction, (c) Overuse of synthetic fertilizers, pesticides, and herbicides can damage soil health by killing beneficial microorganisms and disrupting soil food webs. This can reduce soil fertility and productivity over time, and also contribute to soil acidification, nutrient imbalances, and soil pollution.

Understanding Regenerative Agriculture Reviving Soil Health

Regenerative agriculture refers to a set of practices that focus on restoring and improving the health of soil, rather than simply sustaining it. These practices have a number of potential benefits for soil health, including:

- **Increased Soil Organic Matter:** Regenerative agriculture practices such as cover cropping, crop rotation, and reduced tillage can increase the amount of organic matter in soil. Organic matter is important for soil health as it improves soil structure, increases water holding capacity, and provides nutrients for plants.
- **Improved Soil Fertility:** By increasing the amount of organic matter in soil, regenerative agriculture practices can also improve soil fertility. Organic matter is broken down by soil microbes, which release nutrients that can be taken up by plants. This reduces the need for synthetic fertilizers, which can be costly and can have negative environmental impacts.
- **Enhanced Soil Water Holding Capacity:** Regenerative agriculture practices can help soil to hold more water, which can be particularly beneficial in areas with low rainfall or drought-prone regions. Practices such as cover cropping and reduced tillage can increase soil porosity, allowing water to infiltrate and be stored in the soil.
- **Reduced Soil Erosion:** Regenerative agriculture practices such as cover cropping, reduced tillage, and the use of grass strips or contour farming can help to reduce soil erosion. This is particularly important in areas where soil erosion is a major problem, as it can lead to the loss of valuable topsoil and reduce soil fertility.

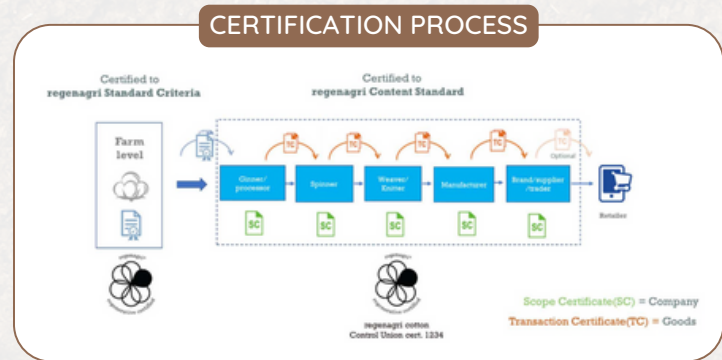


- **Improved Biodiversity:** Regenerative agriculture practices can help to increase the diversity of plants and soil microbes in agricultural systems. This can have positive effects on soil health, as different plants and microbes can help to cycle nutrients, control pests and diseases, and improve soil structure.
- **Reduced Greenhouse Gas Emissions:** Regenerative agriculture practices can help to reduce greenhouse gas emissions by sequestering carbon in the soil. Carbon is stored in soil organic matter, which is increased through practices such as cover cropping and reduced tillage. This can help to mitigate climate change by reducing the amount of carbon dioxide in the atmosphere.

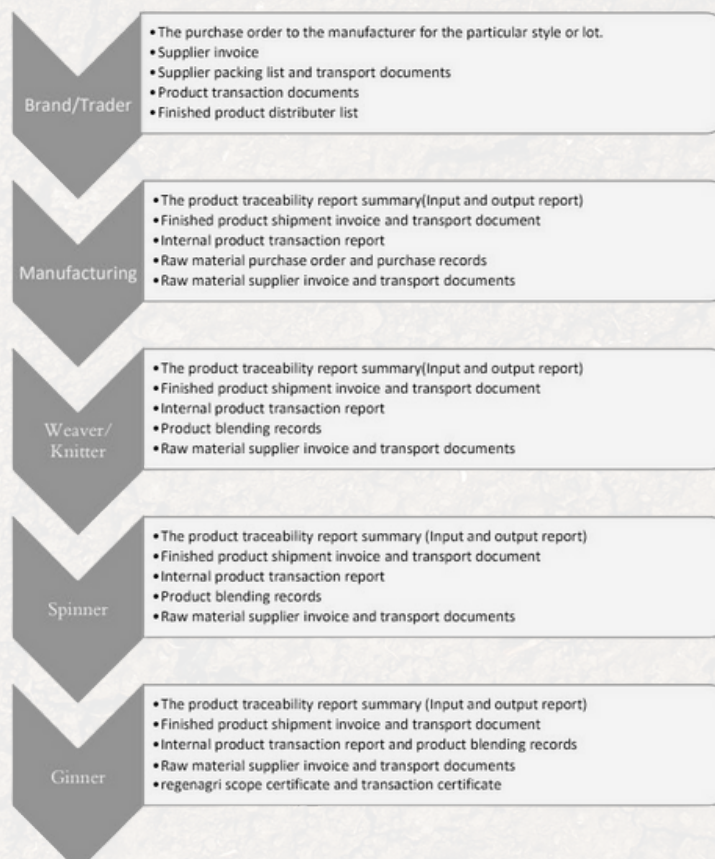
RegenAgri Certification

RegenAgri certification standard works around the key principles and practices of regenerative agriculture, including soil health improvement. It requires that farmers implement practices such as cover cropping, crop rotation, reduced tillage, and the use of compost and other organic amendments to increase soil organic matter and improve soil structure. The standard also requires that farmers monitor and assess soil health indicators such as soil organic matter, soil fertility, and water holding capacity to ensure that their practices are having a positive impact on soil health by reducing soil disturbance, increasing organic matter, and using soil biology-friendly practices.

The regenagri standard criteria are monitored at the farm level to issue the certificate which can be complimented with traceability verification under regenagri content standard at the goods level (transaction certificate) and at the company level (scope certificate)



TRACEABILITY FLOW PROCESS



This factsheet has been created in respect of a joint program on regenerative cotton initiated by CRB and Solidaridad. This factsheet is aimed to communicate science behind regenerative agriculture, as well as approach under certification in reference to 'regenagri cotton' program.