



CONVOY OF HOPE

Center for
Agriculture &
Food Security

Regenerative Agriculture

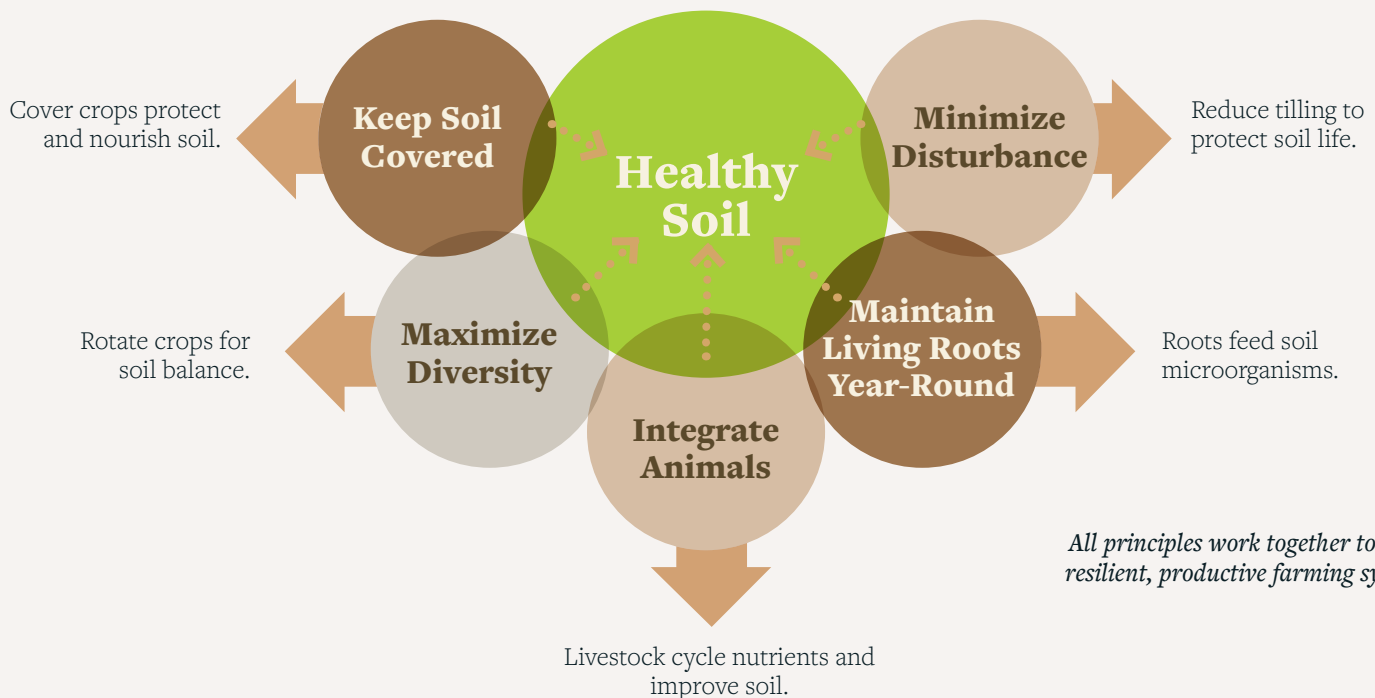
RESTORING RESILIENCE & IMPROVING SOIL HEALTH

Regenerative agriculture goes beyond sustainability. When soil health is improved it restores resilience to ecosystems. The basis for regenerative agriculture production techniques is increasing soil health and diversity.

Determining whether the soil is healthy requires looking at its chemical, physical, and biological aspects. Traditionally we have looked at soil's chemical and physical properties, but soil is a living ecosystem teeming with billions of microorganisms, fungi, algae, and other forms of life.

Healthy soil is reflected in healthy plants, healthy plants are reflected in healthy animals, and healthy animals are reflected in a healthy and safe food system. Farmers can create more sustainable ecosystems that require lower inputs by encouraging and caring for the microorganisms in the soil.

5 Key Principles of Regenerative Agriculture



All principles work together to create resilient, productive farming systems.

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5 KEY PRODUCTION PRINCIPLES OF REGENERATIVE AGRICULTURE

1. Use cover crops to protect the soil. Cover crops planted after harvest protect the soil from erosion, add organic matter, keep an armor on the soil to reduce weeds, shade the soil to keep it from heating up, reduce water lost to the atmosphere, hold nutrients in the soil for the next crop, can add nitrogen to the soil, and provide a habitat for beneficial insects.

2. Minimize soil disturbance. Reducing or eliminating tillage helps preserve soil structure, which allows for better water infiltration into the soil and reduces runoff and erosion. Reduced tillage or no-till also provides a better environment for mycorrhizal fungi that help plants communicate and share nutrients. No-till and reduced-till practices maintain soil aggregation and water infiltration.

3. Maximize diversity. There are several ways to increase diversity within a field, including crop rotation, intercropping, and use of multispecies cover crops. Rotating different crop families — grasses, legumes, brassicas — will break pest and disease cycles. Additionally, different plants have different root systems: some are shallower, and some can grow deeper into the soil and access different soil nutrients and water. Plant diversity mimics a natural ecosystem, prevents soil depletion, and aids in resiliency of a field.

4. Keep a living root in the soil year-round. Planting a cover crop between cash crops provides microbes with a constant food source. The plant photosynthesizes and feeds the microbes by exuding sugars through the roots. When we leave the soil bare without a living plant, the soil microbes go from feast to famine. The plant-microbe relationship is a mutual relationship where the plant feeds the microbes and the microbes put nutrients in the soil in a plant-available form. Providing a variety of plants will attract a variety of microbes, increasing the resilience of the soil.

5. Integrate livestock. Grazing livestock on diverse cover crops can improve soil much faster than just growing cover crops. The rumen of an animal is very similar to the microbial population in the soil. Proper management of grazing animals contributes natural fertilizer and helps cycle nutrients and stimulate plant growth. The integration of grazing animals mimics natural grassland ecosystems where plants and animals evolved together.



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