



12 Conservation Practices of High Functioning Soil



HIGH FUNCTIONING SOILS ARE MEASURED by their ability to cycle nutrients, store carbon, promote root growth, reduce erosion and hold water. When soils are healthy, farms, ranches and forests are more resilient to drought and other weather extremes, yields are more stable, and the crop is less prone to disease and pest problems.

The following 12 conservation practices have been identified by the USDA Natural Resources Conservation Service for promoting high functioning soils. Contact your [local field office](#) to learn how you can incorporate these and other conservation practices on your property.

CROPLAND

1. CROP ROTATION: Growing a planned sequence of various crops on the same land increases residue on the soil surface and soil organic matter, including carbon. This practice can also reduce erosion and break insect, disease, and weed cycles.

2. RESIDUE AND TILLAGE MANAGEMENT: This practice encompasses two approaches, reduced till and no-till. In either case, soil disturbance is reduced, preserving soil structure, organic matter, and aeration. Reduced tillage methods involve tilling the entire soil surface with equipment that does not invert or “turn over” the soil surface. In no-till, strip till, and direct seed operations, only a very narrow strip is tilled to allow seed to soil contact.

3. COVER CROP: These crops are grown for soil protection and improvement rather than immediate profit. Cover crops keep the soil covered, increase plant diversity, maintain living roots in the soil, build soil structure, and return nutrients to the soil.

FORESTLAND

4. WOODY RESIDUE TREATMENT: Cutting and scattering woody residue from forestry activities or natural disasters keeps soil covered. It can also increase soil organic matter. Additional benefits include reduced wildfire, insect, and disease risks.

5. TREE AND SHRUB ESTABLISHMENT: Planting trees and shrubs keeps soil covered, increases biodiversity, and maintains living roots throughout the year. This practice

can also lead to increased carbon storage and energy conservation.

6. TREE AND SHRUB PRUNING: Removing damaged or unhealthy branches and shoots can increase overall forest health. Pruned material is often left on site as residue that contributes to soil cover and soil organic matter.

7. FOREST STAND IMPROVEMENT: This practice involves removing selected trees and understory vegetation to increase overall plant diversity and improved root structure of remaining plants.

RANGELAND

8. BRUSH MANAGEMENT AND WEED CONTROL: Removing exotic or invasive woody and herbaceous species promotes diversity on the range and improves the health of native plant groups. Diverse plant groups maintain living roots throughout the year and increase soil carbon.

9. PRESCRIBED BURNING: This highly specialized practice requires intensive training and support, but the results can be transformative. In fire-adapted ecosystems, fire promotes long term diversity of range plant groups and stimulates native species. This in turn increases overall biodiversity.

10. CRITICAL AREA PLANTING: Establishing permanent vegetation can drastically reduce erosion. Soil health benefits include year-round soil protection, biodiversity, and robust root systems that increase soil carbon.

11. PRESCRIBED GRAZING: Intensively managing the movements and grazing habits of livestock protects soil and allows desirable vegetation to compete with invasives. The practice allows for rest periods between grazing to allow plant communities to recover, resulting in greater biodiversity, reduced soil disturbance, and more living roots.

12. RANGE PLANTING: Establishing perennial vegetation on grazing land introduces or reintroduces biodiversity, resulting in increased soil protection and healthy plant communities with carbon fixing living roots throughout the year.

Contact your local field office today!

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