USDA
United States Department of Agriculture

CONSERVATION CHOICES

# Soil Health Practices

Conservation practices that help improve soil health, reduce soil erosion, improve water quality, and provide other natural resource benefits.

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As a landowner or farm operator, you face many decisions when managing your natural resources. When it comes to improving soil health, consider installing the appropriate conservation practices listed in this handout to make the most direct impact.

The following basic principles will help improve the health of your soil: keep the soil covered; minimally disturb the soil; keep a living cover throughout the year to feed the soil; diversify as much as possible using crop rotations and cover crops; and incorporate livestock into your system.

This brochure details 12 conservation practices that will help improve the health of your soil. Several of these practices, such as no-till and cover crops, also support Iowa's Nutrient Reduction Strategy to reduce nutrients flowing into Iowa waters and eventually to the Gulf of Mexico.

To learn more about improving soil health, visit the staff at your local NRCS office to discuss a long-term plan to address this important resource. A conservation plan can be developed to improve management for all resource concerns. NRCS staff and your local soil and water conservation district (SWCD) are available to help you make the right choices to protect your operation and resources.



# Soil Health Practices

| Conservation Practice | Description | How it helps | Comments |
|---|---|---|---|
| **Conservation Cover** | | | |
|  | Establishing and maintaining permanent cover of either introduced or native grasses, legumes and forbs for nesting cover, winter cover, brood cover, pollinator habitat, and food for wildlife. | • Reduces soil erosion.<br>• Improves water and air quality.<br>• Enhances plant diversity.<br>• Increases soil organic matter & overall soil health.<br>• Manages plant pests. | |
| **Contour Buffer Strips** | | | |
|  *Photo by Anna McDonald* | Strips of grass or a mixture of grasses and legumes that run along the contour of a farmed field. They alternate down the slope of a field with wider cropped strips. Consider native grass and forbs for pollinators and beneficial insects. | • Reduces soil erosion, removing sediment, nutrients, and pesticides as they pass through.<br>• Buffer strips using native plants and grasses improves soil health in those areas.<br>• Pollinators & beneficial insects | |
| **Cover Crops** | | | |
|  | Crops, including grasses, legumes and forbs, for seasonal cover and other conservation benefits to the soil. They are planted prior to grain crop harvest or immediately after harvest. | • Reduces soil erosion.<br>• Improves soil biology.<br>• Improves water infiltration.<br>• Traps, sequesters nutrients.<br>• Reduces weed competition.<br>• Provides livestock grazing.<br>• Increases soil organic matter. | |
| **Crop Rotation** | | | |
|  | Growing different crops on the same piece of land year after year in a planned, recurring sequence. This could involve a rotation to a small grain or a grass legume meadow. | • Reduces soil erosion.<br>• Rotating with alfalfa and other legumes reduces fertilizer needs.<br>• Reduces pesticide costs.<br>• Adds biological diversity to the soil.<br>• Improves water quality. | |

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|---|---|---|---|
| **Forage and Biomass Planting** | | | |
|  | Planting grass and legumes suitable for pasture, hay, or biomass production.<br><br>This does not apply to the establishment of annually planted and harvested food, fiber, or other crops. | • Improves or maintains livestock nutrition and health.<br>• Provides forage supplies during periods of low forage production.<br>• Reduces soil erosion.<br>• Provides cover and habitat for wildlife. | |
| **Manure Management** | | | |
|  | Manage manure runoff by storing and containing it until conditions are appropriate for field application. See nutrient management for more information about applying manure. | • Manure is an excellent resource to enhance soil biology.<br>• Protects water quality by preventing runoff from livestock operations.<br>• Cuts fertilizer costs and reduces nutrient loss. | |
| **No-till/Strip-till** | | | |
|  | Performing no full-width tillage, regardless of the depth or timing of tillage operation. Long-term no-till is needed to attain the full benefit. Most experts consider true no-till to be at least five years without tilling the soil. | • Reduces soil erosion.<br>• Protects water quality.<br>• Increases water infiltration & plant-available moisture.<br>• Adds organic matter to the soil as it decomposes.<br>• Reduces soil compaction.<br>• Fewer inputs saves money. | |
| **Nutrient Management** | | | |
|  | Managing the **amount**, **source**, **placement**, and **timing** of plant nutrients and soil amendments, which reduces the potential for nutrients to go unused and washing or infiltrating water supplies. | • Improves crop production.<br>• Reduces input costs.<br>• Protects water quality.<br>• Properly utilizes manure, biosolids, and other organic by-products as plant nutrient sources.<br>• Improves soil conditions. | |

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| **Pest Management** | | | |
|   | Follow integrated pest management practices to reduce crop and environmental damages from insects, weeds and diseases. Continuous use of the same pesticide can encourage resistance in pest populations. | • Scouting and spot treatment for threatening pests can save money.<br>• Improves water quality when precautions are taken to keep chemicals from leaving the field.<br>• Reduces over-application. | |
| **Prescribed Burning** | | | |
|  | Fire applied to managed grassland, forestland, pasture land, wildlife areas, or hayland within a prescribed set of conditions, dates, and with appropriate safety precautions to achieve a specific purpose. | • Controls undesirable vegetation.<br>• Controls plant disease.<br>• Improves plant production.<br>• Removes debris.<br>• Enhances seed production.<br>• Manages native plant diversity and composition. | |
| **Prescribed Grazing** | | | |
|  | Managing the harvest of vegetation using grazing animals. This is often achieved through a rotational grazing system where pastures are divided (with fencing) into four or more paddocks. | Improves or maintains:<br>• species composition and vigor of plant communities;<br>• quantity and quality of forage for grazing animal health and productivity;<br>• water quality and quantity. | |
| **Tree/Shrub Establishment** | | | |
|  | Establishing woody plants in non-forested areas by planting seedlings, container/potted plants, cuttings or by direct seeding. | • Reduces soil erosion.<br>• Produces woody biomass for energy.<br>• Improves air and water quality.<br>• Provides wildlife habitat.<br>• Stores carbon in biomass.<br>• Controls snow drifting. | |