# Soil Health Practices

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

#### Natural Resources Conservation Service Des Moines, Iowa

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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.

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## Soil Health Practices

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

the soil.

Improves water quality.

legume meadow.



#### Conservation Practice

#### Description

#### How it helps

### Comments

### Forage and Biomass Planting



Planting grass and legumes suitable for pasture, hay, or biomass production.

This does not apply to the establishment of annually planted and harvested food, fiber, or other crops.

- Improves or maintains livestock nutrition and health.
- Provides forage supplies during periods of low forage production.
- Reduces soil erosion.
- 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.
- Protects water quality by preventing runoff from livestock operations.
- Cuts fertilizer costs and reduces nutrient loss.

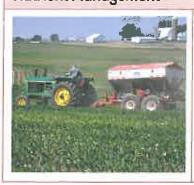
#### No-till/Strip-till



Performing no full-width tillage, regardless of the depth or timing of tillage operation. Long-term notill 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.
- Protects water quality.
- Increases water infiltration & plant-available moisture.
- Adds organic matter to the soil as it decomposes.
- Reduces soil compaction.
- 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.
- Reduces input costs.
- Protects water quality.
- Properly utilizes manure, biosolids, and other organic by-products as plant nutrient sources.
- Improves soil conditions.

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#### Conservation Practice

#### Description

#### How it helps

#### Comments

#### 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.
- Improves water quality when precautions are taken to keep chemicals from leaving the field.
- 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.
- · Controls plant disease.
- Improves plant production.
- Removes debris.
- Enhances seed production.
- 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:

- species composition and vigor of plant communities;
- quantity and quality of forage for grazing animal health and productivity;
- 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.
- Produces woody biomass for energy.
- Improves air and water quality.
- Provides wildlife habitat.
- Stores carbon in biomass.
- Controls snow drifting.