



# Small Scale Solutions for your Farm

## Rotations for Soil Fertility



### Do You Have Problems with:

- Soil crusting
- Cloddy soil
- Water stress (too wet or too dry) for crops
- Soil erosion
- Soil compaction
- Low yield

A crop rotation can help to manage your soil and fertility, reduce erosion, improve your soil's health, and increase nutrients available for crops.

### Purposes and Benefits of a Rotation System

- Improve crop yields
- Improve the workability of the soil
- Reduce soil crusting
- Increase water available for plants
- Reduce erosion and sedimentation
- Recycle plant nutrients in the soil
- Provide better distribution of labor during the crop season by using different crops, planting dates, and harvest periods
- Improves air quality
- Reduce fertilizer & insecticide inputs
- Reduces soil loss
- Reduces nutrient and pesticide contamination of streams and well water
- Improve crop emergence, growth and health
- Reduces financial risk by using multiple crops
- More money in your pocket

### Crop Rotation Maintenance

- Periodic soil testing (initially every 1–3 years, then later at 3-5 years)
- Crop and pest scouting
- Annually, evaluate cropping sequence for income needs and soil concerns
- Calibrate sprayers, planters, and fertilizer applicators to:
  - Apply the recommended rates
  - Establish uniform distributions
  - Provide uniform seeding depths



Rotations need to include crops that provide good cover and root development to control erosion and improve soil health.



Rotations that include high residue crops build healthy soils and improve production.





## Crop Rotation Planning Considerations

- Identify soil erosion, nutrient, and soil health concerns.
- Soil test (every 1–3 years) for pH, organic matter, and nutrients. Use soil test recommendations to adjust pH and nutrient levels for optimum crop yields and quality.
- Determine nutrient (fertilizer, manure, or composts) needs.
- Choose the crops/varieties to meet the erosion, soil health, nutrient concerns, and other producer objectives.
- Evaluate and modify the crop sequence based on the identified concerns.
- Attend training needed for crop, soil, and pest scouting.
- Evaluate cover crop needs.
- Clean field equipment when moving from one field to another. Wash with water and/or physically remove the soil and plant residue from the equipment.



Rotations produce healthy crops.

## Practice Application

1. Using a map, lay out a crop rotation by year for the length of the rotation. See Example
2. Plan rotation for the operation to establish a nearly equal acreage for each crop each year.



Rotations are planned to produce residue cover for erosion control and moisture conservation.

### Four Field/Four Year/Four Crop Sample Rotation

Crop	Year	Field/Yield
Corn Grain, Oats, Hay, Hay	1, 2, 3, 4	#1 / 9.3
Oats, Hay, Hay, Corn Grain	1, 2, 3, 4	#2 / 9.7
Hay, Hay, Corn Grain, Oats	1, 2, 3, 4	#3 / 9.7
Hay, Corn Grain, Oats, Hay	1, 2, 3, 4	#HQ / 7.5



Rotations involving hay or cover crops improve soil, reduce fertilizer and pesticide inputs.





## Technical and Financial Assistance

Whether you measure your farm in terms of feet or acres, your local Natural Resources Conservation Service (NRCS) office has experienced conservationists that can help you develop a Conservation Plan to conserve, maintain, and restore the natural resources on your land and improve the long-term health of your operation.

There is no charge for our assistance. Simply contact your local office to set up an appointment. You may also be eligible to receive financial assistance. Your NRCS office will explain any programs that are available so you can make the best decision for your operation. All NRCS programs and services are voluntary.

## For More Information

Visit the Natural Resources Conservation Service or visit [farmers.gov/service-locator](https://farmers.gov/service-locator) to find your local NRCS office. You can also check with your local USDA Service Center, then make an appointment to determine next steps for your conservation goals.



NRCS partner assisting small scale farmer with developing a customized conservation plan. Photo by Erica Quinlan.

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