

Nutrient Management

- [Conservation Buffer Systems](#)
- [Crop Rotation](#)
- [Nutrient Management](#)

Conservation Buffer Systems

Conservation buffers are defined as areas or strips of land with permanent vegetation to help control and buffer the toxicity of pesticides that can be lost in surface water runoff. These buffers are typically placed around stream banks, all sources of water and surrounding perimeters of farmland. Conservation buffers minimize the environmental impacts from agricultural production and can greatly reduce the impact of erosion. Buffers can also provide other benefits such as creating habitats for small animals and stream bank protection.

Some pesticides are only moderately absorbed to soil particles and are transported from fields primarily by water. For vegetative buffers to effectively trap lost pesticide chemicals, water must infiltrate into the vegetative buffer or the chemicals must be removed from the solution by flowing over the soil surface making contact with soil or vegetation. Studies have indicated that increased soil infiltration is the key to trapping these pesticide chemicals in the buffer zones.

Crop Rotation

Crop rotation is best described as changing crops from year to year in a planned sequence. This management practice is common on sloping soils because of its potential for soil saving. In addition to saving soil, crop rotation also reduces fertilizer needs because alfalfa and other legumes replace some of the nitrogen that corn and other grain crops remove.

By implementing a crop rotational planting system:

- Pesticide costs may be reduced by naturally breaking the cycles of weeds, insects and diseases.
- Grass and legumes in a rotation protect water quality by preventing excess nutrients or chemicals from entering water supplies.
- Soil erosion may decrease and the diversity of an operation may increase

Before implementation, consider the following:

- Cover crops may help in crop rotation.
- Which crops are suited to your soils?
- The rotations meet the residue needs of your crop residue management plans. Generally, rotations that include small grains or meadow provide better erosion control.
- Small grains and meadow can always be used to replace any row crop or low residue crop to gain better erosion control.
- Corn (grains) can always be used to replace soybeans or any other low residue crop in the rotation to gain better erosion control.
- For crop rotations which include hay (meadow) the rotation can be lengthened by maintaining the existing hay stand for additional years.
- Avoid planting a grass after a grass if possible.
- For maintenance, switching crops helps to keep perennials in a rotation
- Consider herbicide carry over to avoid crop failures.

Nutrient Management

Nutrient management involves applying the correct amount, form and timing of plant nutrients for optimum yield and minimum impact on water quality. After taking a soil test, setting realistic yield goals and taking credit for contributions from previous years' crops and manure applications, crop nutrient needs are determined. Nutrients are then applied at the proper time, by the proper

application method. Nutrient sources include animal manure, biosolids and commercial fertilizers. These steps reduce the potential for nutrients to go unused and wash or infiltrate into water supplies.

Advantages include:

- Reduced input costs
- Good water quality
- Improved soil and organic matter

Before implementation, consider the following:

- Test the soil and livestock manure for their nutrient levels.
- Determine if organic wastes or sludge are available for use.
- Set realistic yield goals.
- Be sure to install proper soil conservation measures.
- Make certain to account for nitrogen credits produced by legume crops.