United States Department of Agriculture

CONSERVATION CHOICES

Water Quality Practices

Conservation practices that help improve water quality, support Iowa's Nutrient Reduction Strategy, and provide other natural resource benefits.

Natural Resources Conservation Service
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As a landowner or farm operator, you face many decisions when managing your natural resources. When it comes to improving ground and surface water quality in and around your operation, consider installing the appropriate conservation practices listed in this handout to make the most direct impact.

This brochure details 12 conservation practices that will help improve the quality of water on your farm and leaving your land. These practices also help 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 water quality with these and other practices, visit staff at your local NRCS office to discuss a long-term plan to address this important resource concern. A conservation plan can be developed to improve management for all your 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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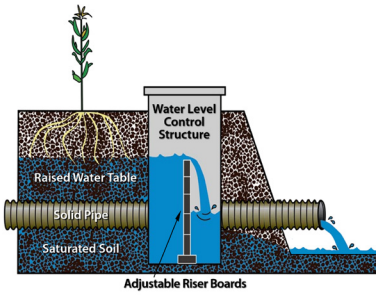
Water Quality Practices

Conservation Practice	Description	Benefits	Comments
Cover Crop			
	Crops, including grasses, legumes and forbs, for seasonal cover and other conservation purposes. Planted prior to grain crop harvest or immediately after harvest, cover crops reduce soil erosion, improve soil health, provide winter grazing for livestock, and reduce nutrient loss.	Reduces: ☑ Nitrates ☑ Phosphorus ☑ Sedimentation ☑ Pesticides	
Denitrifying Bioreactor			
	An edge of field, below ground structure containing a carbon source, such as wood chips, installed to reduce nitrate-nitrogen concentration in subsurface agricultural drainage via enhanced denitrification.	Reduces: ☑ Nitrates ☐ Phosphorus ☐ Sedimentation ☐ Pesticides	
Drainage Water Management			
	Using a water control structure in a main, submain, or lateral drain to vary the depth of the drainage outlet. The water table must rise above the outlet depth for drainage to occur. Water stays in the root zone when it is needed and drains it when there is too much.	Reduces: ☑ Nitrates ☑ Phosphorus ☐ Sedimentation ☑ Pesticides	
Filter Strip			
	A strip or area of vegetation next to a stream, lake, or other water body that helps remove sediment, organic matter, and other pollutants from runoff and wastewater. Filter strips also provide cover for wildlife.	Reduces: ☑ Nitrates ☑ Phosphorus ☑ Sedimentation ☑ Pesticides	

Conservation Practice	Description	Benefits	Comments
Manure Management			
	Storing manure through total containment until conditions are appropriate for field application. Containment could include storage ponds, above or below ground tanks, pits beneath a confinement, or a sheltered concrete slab area.	Reduces: ☑ Nitrates ☑ Phosphorus ☐ Sedimentation ☐ Pesticides	
No-Till/Strip-Till			
	Performing no full-width tillage, regardless of the depth or timing of the tillage operation. Most experts consider true no-till to be at least five years without tilling the soil. Strip-till involves tilling a narrow path ahead of planting for better seed placement, often incorporating fertilizer.	Reduces: ☑ Nitrates ☑ Phosphorus ☑ Sedimentation ☑ Pesticides	
Nutrient Management			
	Reducing the potential for nutrients to go unused by managing the amount (rate), source, placement (method of application), and timing of plant nutrients and soil amendments. Nutrient sources include animal manure, sludge, commercial fertilizers, and municipal biosolids.	Reduces: ☑ Nitrates ☑ Phosphorus ☐ Sedimentation ☐ Pesticides	
Pest Management			
	Evaluating and using a tailored system to reduce crop and environmental damages from insects, weeds and diseases. If pest control is economical, alternatives are evaluated based on cost, results, and environmental impact.	Reduces: ☐ Nitrates ☐ Phosphorus ☐ Sedimentation ☑ Pesticides	

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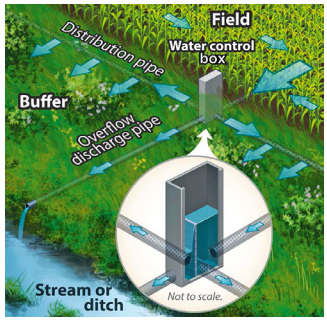
Prescribed Grazing			
	Managing the harvest of vegetation using grazing animals. This is often attained through a rotational or mob grazing system where pastures are divided (with fencing) into four or more pastures. Animals are moved from paddock to paddock on a schedule.	Reduces: ☑ Nitrates ☑ Phosphorus ☑ Sedimentation ☑ Pesticides	
Riparian Forest Buffer			
	A planned area of trees, shrubs, and grasses and forbs planted along a stream or river to help reduce excess amounts of sediment, nutrients, and pesticides in surface runoff. These buffers also reduce excess nutrients and other chemicals in shallow water groundwater flow.	Reduces: ☑ Nitrates ☑ Phosphorus ☑ Sedimentation ☑ Pesticides	
Saturated Buffer (Vegetated Subsurface Drain Outlet)			
 Frankenburger et al., unpublished	A shallow, lateral pipeline intercepts tile lines before they release water into a stream. The lateral line has control structures that raise the water table and slow outflow, allowing the buffers to naturally remove nutrients such as nitrate and phosphorus.	Reduces: ☑ Nitrates ☑ Phosphorus ☐ Sedimentation ☐ Pesticides	
Wetlands			
	A marshy area with saturated soils and water-loving plants that provides wildlife habitat and helps improve water quality by filtering sediments and chemicals. CREP wetlands (left) are targeted to receive tile drainage by gravity flow, treating the water before it enters water downstream.	Reduces: ☑ Nitrates ☑ Phosphorus ☑ Sedimentation ☑ Pesticides	