

# Water Quality & Agriculture

IT'S YOUR RESPONSIBILITY



**Oregon**  
Department  
of Agriculture

A Landowner's Guide to Oregon's  
Agricultural Water Quality Program

## Agricultural Water Quality Program

In 1972, the federal Clean Water Act was passed to clean up water pollution from human activities such as forestry, factories, wastewater treatment plants, and agriculture.

Oregon's Agricultural Water Quality Management Act (Act) was passed in 1993 with the input and support of the agricultural industry and the Oregon Board of Agriculture.

The Act is the foundation of the Oregon Department of Agriculture's (ODA) Agricultural Water Quality Management Program (Program). The Act directed ODA to assist the industry in preventing and controlling pollution from agricultural sources.

Working in partnership with Oregon's 45 local Soil and Water Conservation Districts (SWCDs), ODA identified 38 watershed-based Agricultural Water Quality Management Areas (Management Areas) throughout the state.

ODA Water Quality Specialists work with the agricultural landowners, and other stakeholders, who serve as Local Advisory Committee (LAC) members for each Management Area. Each LAC identifies local agricultural water quality problems and opportunities for improvement.

Agricultural Water Quality Management Area Plans (Area Plans) address agricultural water quality issues in Oregon. As the LACs helped create the Area Plans, they also helped write Area Rules (regulations) for that Management Area. The Area Rules ensure that all landowners do their part to prevent and control water pollution. The Program is designed to help anyone engaged in agricultural activities prevent water pollution.



▲ Fences are needed to keep animals from waterways.

## How might my activities affect water quality?

The primary water quality issues related to agriculture are excessive sediment, nutrients, stream temperature, and bacteria. These pollutants can harm people and fish.

Depending on how they are managed, agricultural lands can protect or impair water quality.

Runoff from farms and ranches can pollute water. Examples include:

- » Sediment from eroding croplands, pasture lands, and streambanks;
- » Erosion and runoff from farm roads;
- » Pesticides from irrigation runoff;
- » Nutrients from animal waste and fertilizers;
- » Bacteria from animal manure;
- » Warmer stream temperatures from inadequate streamside vegetation.

## What is required?

Compliance with the Area Rules is required by state law. Area Rules for each of the 38 Management Areas prohibit water pollution and activities that pollute or can lead to polluted water.

It is up to each landowner to ensure that his or her operation does not pollute Oregon's waters. Most agricultural operations already are in compliance. However, ODA investigates complaints or ODA-identified concerns associated with water pollution resulting from agricultural activities.

Area Plans recommend options crafted to address each Management Area's unique agricultural water quality issues. Each landowner can decide the solutions that best fit his or her operation.

---

## How is the Program enforced? Will my property be inspected?

If violations are found, corrective actions must be taken. ODA first works with landowners and operators to solve problems through education and technical assistance. Landowners and operators who are asked to solve a problem, but refuse to do so, could be subject to enforcement actions, including fines.

---

## What are the benefits of the Program?

- » Maintains flexibility for landowners to improve and protect water quality;
- » Promotes coordinated watershed planning;
- » Demonstrates agriculture's commitment to water quality stewardship;
- » May limit the need for more restrictive regulations;
- » Helps improve fish and wildlife habitat.

---

## Isn't agriculture already working toward improving water quality?

Absolutely. As dedicated land stewards, many farmers and ranchers already protect water quality:

- » Livestock operators use rotational grazing, provide off-stream water sources, and store manure under cover and away from water.
- » Nurseries recycle irrigation water and reduce chemical inputs.
- » Rowcrop growers rotate crops, apply straw mulch, and plant cover crops to reduce water runoff, erosion, and nutrient loss.
- » Dryland farmers use direct seed drills and other conservation practices to minimize soil erosion.



▲ Grass between orchard rows helps prevent leaching and runoff of fertilizers.

- » Landowners protect streamside vegetation that stabilizes streambanks, slows erosion, helps keep water cooler, and provides wildlife habitat. Some landowners plant additional native trees and shrub species along streams to protect water quality and enhance fish habitat.
- » Orchardists maintain grass in between trees and along waterways, apply water at low rates to conserve water and prevent leaching and runoff of fertilizers, and use pesticides only as needed.

## How can I help improve water quality?

The following recommendations may help you improve water quality, ensure that you are operating within the guidelines of your Area Plan, and comply with water quality Area Rules. It's likely that you already are doing one or more of these management activities. You may choose the approach that works for your operation, as long as it meets the requirements of the Area Rules and the goals of the Area Plans.

### LIVESTOCK GRAZING

Grazing systems should promote and maintain adequate vegetative cover to protect water quality by considering intensity, frequency, duration, and season of grazing.

Managed grazing improves the pasture plant community, creates more forage, helps prevent weeds, and supports animal health. Appropriate grass height will depend on whether you live on the east or west side of the Cascades. A rule of thumb is to graze when pasture grasses are 6-8 inches tall and to remove animals when grasses are 3-4 inches tall.

Recommendations include:

- » Rotate grazing among two or more pastures. This allows vegetation in one pasture to recover and reduces trampling and resulting erosion and runoff.
- » Allow grasses to regrow before autumn frosts or the dormant season.
- » Don't graze when soils are saturated; grazing compacts soils and destroys roots.
- » Provide off-stream water and minerals in each pasture; this reduces overgrazing of streamside areas and increases use of forage away from streams.
- » Add exclusion fencing to prevent overgrazing of streamside areas.

## LIVESTOCK MANURE AND HEAVY USE AREAS

Management of areas used for feeding and handling livestock is critical to the success of livestock operations and can also affect water quality.

On ranches and pastures:

- » Prevent runoff of sediment and manure from winter feeding and calving areas;
- » Place feed, water, and minerals as far as possible from streams to prevent overuse of streamside areas.

For penned animals:

- » Store manure on concrete pads and cover with a tarp or roof. This helps keep nutrients in the manure rather than leaching to water. Store manure away from surface water to prevent nutrient and bacteria runoff.
- » Cover heavily used animal walkways with sand, rock, and/or geotextile fabric, and regularly clean confinement areas for better rainwater infiltration; this helps keep animals out of mud and muck.
- » Capture clean rainwater in a tank to use as drinking water for livestock.
- » Establish a heavy use area away from streams and cover with a thick layer of sand, gravel, or hog fuel. A heavy use area protects pastures from compaction during the winter months, improving plant health and growth as well as animal health. It also helps rest pastures throughout the year to allow grasses to grow to proper grazing height.
- » Install gutters and downspouts on buildings next to heavy use areas. Route the clean water away from the heavy use area to a waterway, pasture, or tank; this lessens mud in heavy use areas.



▲ Manure is stored on a concrete pad under cover.



▲ Water is held in a tank as a drinking-water source for livestock.

## MANURE AND NUTRIENT APPLICATION

Crop nutrients, including manure, sludge, commercial fertilizer, and other added nutrients, should be applied in such a way that they do not enter streams or groundwater:

- » Apply evenly to pastures and only as much as your crops or pasture can use (agronomic rate). This helps prevent runoff of excess nutrients and reduces the costs for chemical fertilizers.
- » To prevent runoff, do not apply when soils are saturated or frozen.

Applying nutrients at an agronomic rate ensures that plants receive needed nutrients for growth and makes plants more competitive against weeds. It is also a good way to empty your manure storage area to make room for the next season's storage requirements.

To find out agronomic rates, compare manure nutrient content with Oregon State University fertilizer guide recommendations (search for 'fertilizer' at <http://extension.oregonstate.edu/catalog>). To avoid the expense and time of over-application, have your manure tested for nutrient content and take regular soil tests to determine the amount of nutrients already in the soil.

## IRRIGATION

Diverting water for irrigation can reduce stream flows enough to degrade fish habitat. Runoff or leaching of irrigation water from farm fields can deliver sediment, manure, warm water, and fertilizer and pesticide residues to ground and surface water.

Recommended practices include:

- » Schedule irrigation based on crop needs, soil type, climate, topography, infiltration rates, and your existing water rights.
- » Monitor irrigation to avoid over-watering and subsequent leaching of nutrients and other pollutants.
- » Minimize or eliminate irrigation runoff.
- » Improve irrigation efficiency by maintaining existing systems in good condition. Where appropriate, consider upgrading to a more efficient delivery system.



▲ Apply crop nutrients in such a way that they do not enter streams.

## STREAMSIDE VEGETATION

Agricultural activities must allow the establishment and development of the vegetation expected to grow along the stream naturally, given the soil type, elevation and climate. Plants need a chance to establish and grow to maturity. Healthy streamside vegetation provides shade, stabilizes banks, filters nutrients and sediment, and provides fish and wildlife habitat.

Recommended practices include:

- » Plant shrubs, trees, and other vegetation appropriate for your area to give nature a head start.
- » Fence livestock away from streams or limit streamside grazing by rotating pastures.
- » Provide an off-stream livestock water system.
- » Harden access points or stream crossings with rock to reduce erosion from trampling and allow plants to establish. Monitor crossings to prevent them from becoming sources of pollution.



▲ Fence livestock away from streams.

## UPLANDS AND EROSION CONTROL

A protective cover of crops and crop residue, grass, shrubs, or trees will capture, store, and safely release precipitation, thereby reducing the potential runoff of soil or pollutants. Keep soil where it belongs — on your fields.

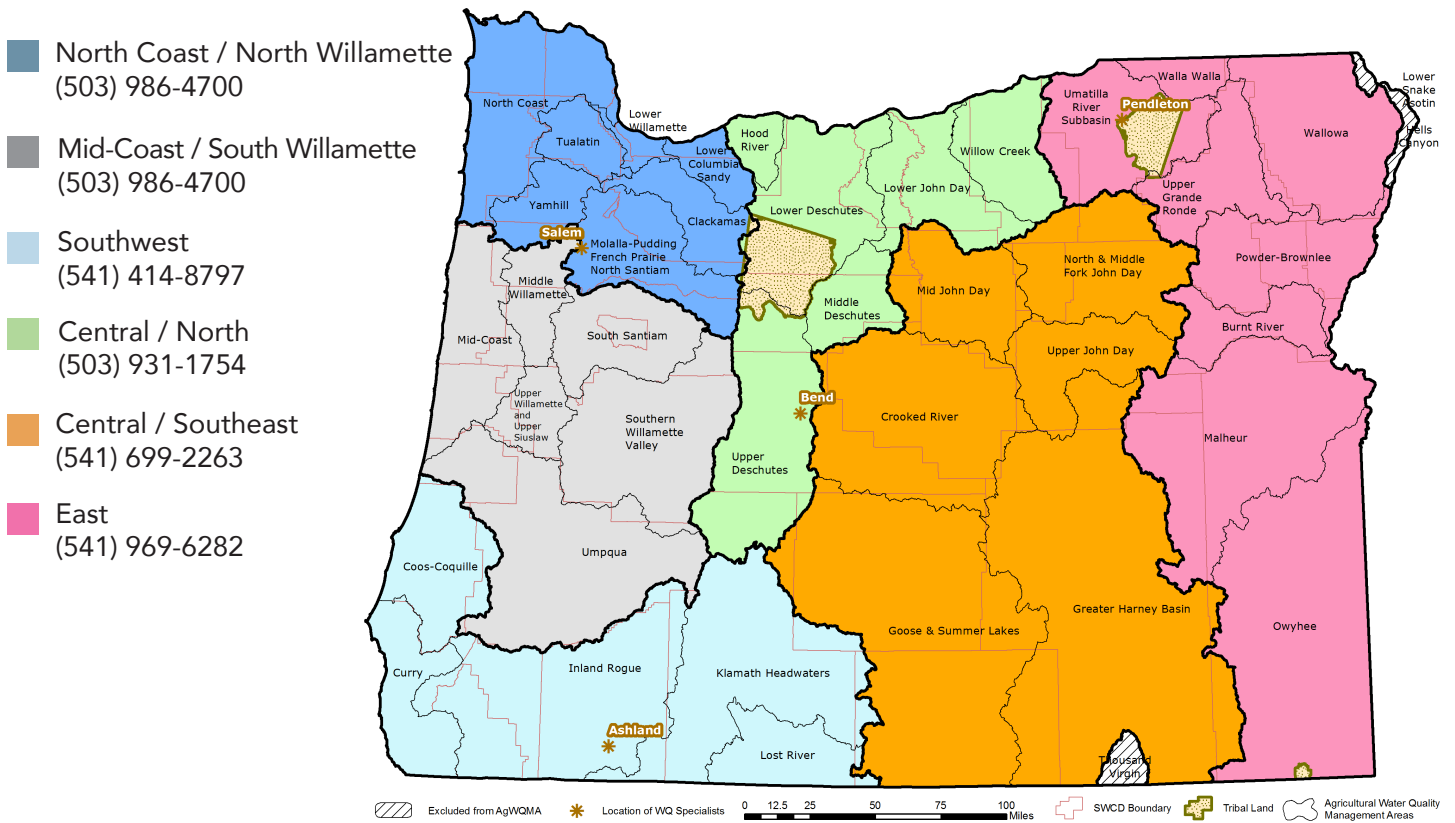
- » Maintain trees, shrubs, and grasses on steep slopes, and along drainage canals, ditches, and other water bodies.
- » Seed bare ditches to create grassed waterways after construction or maintenance activities.
- » Use direct seed or reduced tillage methods to leave high amounts of crop residue on fields to enhance soil health, reduce runoff, and improve yields.
- » Minimize areas of bare soil to maximize water infiltration.
- » Catch and store rain water from barn and shed roofs for other uses.
- » Capture eroding soil and slow runoff with filter strips, grassed waterways, and structures such as terraces and sediment basins.

## Where can I get help?

Technical assistance is available at no charge from local SWCDs, watershed councils, the Natural Resources Conservation Service, Oregon State University Extension, and ODA. SWCD staff are highly knowledgeable and can provide technical assistance.

In some cases, funds are available through grants and programs that deal specifically with water quality issues. Often, implementing management alternatives helps the environment and also makes operations more productive and profitable.

## AGRICULTURAL WATER QUALITY MANAGEMENT AREAS



## Where can I learn more?

Information about Area Plans is available at: <https://oda.direct/AgWQPlans>.

Information about the Program, regulations, recommended management activities, SWCDs, and other water quality and agricultural issues is available at: <https://oda.direct/AgWQResources>.