

Irrigation Management

Fact Sheet



Major objectives for good irrigation management practices include...

Knowing the precise amount of water to apply for the soil type in order to:

- 1 - minimize surface runoff and
- 2 - minimize deep percolation.

These two processes are the primary **transport mechanisms** causing water contamination.

Through these processes, sediments, chemicals, and fertilizers can be transported into waterways.



This brochure was produced by the Coos Soil & Water Conservation District in conjunction with the Coos & Coquille Agricultural Water Quality Management Area Plan and in partnership with the Oregon Department of Agriculture and the Natural Resources Conservation Service.

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Good irrigation management involves...

Understanding Soil Infiltration Rates

The rate at which a soil can absorb or take in water is called the **infiltration rate**. The infiltration rate of a soil is determined by several factors. One of the most important is **soil texture**.

The rate at which an irrigation system applies water is called the **application rate**. If the application rate of water is higher than the soil's infiltration rate, some of the applied irrigation water will collect on the surface, creating a potential for runoff. Runoff water is extremely wasteful of energy and topsoil, and can be a pollutant by spreading sediments, fertilizer, and pesticides down hill and down stream.

Apply Water According To Soil Moisture In The Root Zone

Irrigate when soils have lost more than 50% of water available to plants in the root zone. The root zone for pasture is approximately 2 – 4 inches deep.

Average soil infiltration rate (in./hr.)	
Coarse sand	.75 - 2
Fine sand	.5 - 1
Fine sandy loam	.5 - .75
Silt loam	.25 - .4
Clay loam	.1 - .25



The feel method can be used to test soil moisture:

1. Use a shovel to take a soil sample from the root zone.
2. Test soil moisture. At 50% soil moisture, sandy soils tend to ball under pressure. Loamy soil forms a ball and will “slick” or show water at the ball surface. Clay soils form a ribbon.
3. Irrigate if soils appear to have less than 50% available water.

Plant Drought-Resistant Grasses

Tall fescue, Smooth brome, and Perennial ryegrass are the most drought-tolerant grasses. Orchard grass and Timothy are moderately tolerant. Meadow foxtail and Kentucky bluegrass are the least tolerant.

Use Fish Screens

Unscreened irrigation intakes suck in fish as well as unwanted debris. State law requires irrigators to screen diversions that divert more than 30 cubic feet per second.

Oregon Water Trust

Oregon Water Trust can temporarily lease *unused* water rights to restore instream flow while protecting the water right from forfeiture due to non-use. Irrigation alone accounts for 82% of total surface water withdrawals in Oregon. Contact Oregon Water Trust at (503) 226-9055.



The following management practices have been recommended by the Coos and Coquille Local Advisory Committee and the Oregon Department of Agriculture as a means to avoid water quality problems.

Positive Management Practices

- Analyze soil and know crop needs to prevent over-application.
- Consult local resources such as Soil and Water Conservation Districts, the Natural Resource Conservation Service, OSU Cooperative Extension service, and consultants to develop an irrigation water management plan.
- Maintain ditches, tidegates and pipelines to minimize water losses.
- Maximize your water system efficiency by checking field layouts to ensure correct combinations of spacing, operating pressure, sprinkler head, and nozzle size/type that match the soil infiltration rate.
- Consider leasing water rights to instream use during periods of non-agricultural use.
- Provide fish screening at irrigation intakes.
- Check field layouts for flow uniformity.
- Maintain good soil fertility to make effective use of irrigation water.



Conditions That May Lead To A Water Quality Problem

- Uncontrolled surface runoff and deep water percolation.

Unacceptable Conditions

- Excessive amounts of sediment and nutrients from irrigation runoff, or other water-applied substances from chemigation or fertigation that enter waterways.

The following OAR concerning irrigation management was developed from the Coos and Coquille Agricultural Water Quality Management Area Plan which was adopted in March 2002.

Oregon Administrative Rule (OAR) 603-095-1540

(6) Irrigation Management

(a) Effective three years after rule adoption, application (direct, chemigation, and fertigation) and irrigation systems will be managed to minimize runoff and the introduction of nutrients and farm chemicals into waterways.

Conservation practices addressed here, such as the Positive Management Practices, may be eligible for USDA's Natural Resources Programs, such as the Environmental Quality Incentives Program (EQIP) and the Conservation Reserve Enhancement Program (CREP). These programs provide producers with financial, technical, and educational assistance for implementing conservation practices. Contact NRCS or FSA (below) for more information.

Development of an individual conservation plan for your operation may help you comply with the SB 1010 Coos & Coquille Agricultural Water Quality Management Area Plan. Contact the Coos SWCD Watershed Technical Specialist for assistance.

For More Help Contact...

Coos Soil and Water
Conservation District (SWCD)
382 N. Central Blvd.
Coquille, OR 97423
(541) 396-6879
www: <http://or.nacdnet.org/coosswcd/>

Oregon Dept. of Agriculture
Natural Resources Division
635 Capitol Street NE
Salem, OR 97301
(503) 986-4700

Natural Resources Conservation
Service (NRCS)
382 N Central Blvd
Coquille, OR 97423
(541) 396-2841

Farm Services Agency (FSA)
380 N Central Blvd
Coquille OR 97423
(541) 396-4323

Oregon Dept. of Environmental Quality
340 N Front Street
Coos Bay OR 97420
(541) 269-2721 ext 27

OSU Extension Service
Coos County Office
290 N Central Blvd
Coquille OR 97423
(541) 396-3121 ext 240

Information in this fact sheet was gathered from the Coos and Coquille Agricultural Water Quality Management Plan, the Natural Resources Conservation Service, and the Washington County Soil and Water Conservation District.

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Produced by Bessie Joyce, 2002.

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