



How nurseries can protect water quality

Conservation districts can provide technical assistance to help operators meet state rules

BY JASON ECK

NURSERIES CAN'T SURVIVE without water. However, the precious resource that keeps plant stock thriving, healthy, and green can also send pollutants into adjacent waterways if not managed properly.

Nursery operators face many challenges when it comes to protecting water quality. At the forefront is dealing with excessive amounts of water on their operations. However, technical assistance is available through local soil and water conservation districts (SWCDs). These are non-regulatory organizations that producers can seek out on a voluntary basis.

Often, grant funds or conservation programs are available to help producers finance conservation improvements, and ultimately, help protect water quality. USDA Natural Resources Conservation Service and Oregon State University Cooperative Extension Service also may be able to help.

State law requires that agricultural operations, including nurseries, take measures to prevent their facilities from being a source of water pollution. Oregon Department of Agriculture (ODA) water quality rules require nurseries to prevent pollution of waters of the state.

“Waters of the state’ is very comprehensive and includes any waterbody that is connected to surface or groundwater,” said Kevin Fenn, compliance lead with the ODA Water Quality Program. This includes most ditches and ponds.

In addition, regulation requires that streamside vegetation be allowed to establish itself and grow, stabilizing streambanks and providing surface runoff filtration for all streams. On streams that flow year-round, property owners must allow the establishment of vegetation for shade. “It is important to remember that straightened (ditched) channels may still be streams,” Fenn said.

Winter rains pose challenge

Rainfall, particularly in late fall and winter, can flush contaminants from nursery operations into nearby streams.

Julie DiLeone, Rural Lands Program supervisor with East Multnomah SWCD, said the top two nursery-related issues her district sees are erosion following harvest, and erosion from poorly constructed farm roads. Stormwater can make both of these issues worse.

“Nurseries typically do not have the capacity to capture stormwater, but the goal is that the stormwater is kept as clean as possible through best management practices on site,” Fenn said.

Nurseries commonly have bare ground in production areas. This is often problematic given that bare root stock plants are typically harvested in winter. Harvest activities disturb the soil and leave behind loose soil that stormwater can wash off the property, sending sediment, pesticides, and nutrients into water.

SWCDs can offer solutions to this type of erosion.

One solution for this problem is planting a cover crop in production areas. POCO barley and annual rye are common cover crops that are used on an annual basis and then tilled before planting. DiLeone has seen that some growers are taking the next step and experimenting with using perennial grass cover and then tilling out rows to plant trees.

“We’ve been trying to get them interested in grassed buffers and grassed waterways to redirect water around fields, to put something around the fields so water doesn’t flow off site, including county road ditches,” she said.

Cover cropping helps on steep terrain

Scott Eden, a conservation specialist with Clackamas



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SWCD, said topography is a big concern with nurseries in Clackamas County. Many nurseries operate on steep slopes with highly erodible soils, which makes planting a cover crop an effective way to control water.

“It really helps because you don’t have mud when harvesting,” he said, adding that his district is seeing some good examples of cover cropping.

Operators on steep land really need to think about the topography and be strategic about the placement of field borders and other systems for directing water. SWCDs can help operators learn about the soils on their property and identify potential problem areas.

“The bottom line [is] we want to work with them before harvest,” DiLeone said. “There’s not a lot we can do post-harvest.”

As for farm roads, any slope on a nursery property can be problematic and send water mixed with pollutants toward

waterways. Nursery operators may have an idea on how to improve a road in the short term. “They may not know how to build them to last the longest,” she said. “We’ve done a lot of them.”

Recycling ponds need attention

In addition to managing stormwater and addressing exposed soil in production, harvest, and heavy traffic areas, nursery operators also should prep their recycling ponds and surrounding areas before winter hits.

Nicole Ruggiero, rural conservation specialist with Tualatin SWCD, said contaminated overflow from recycling ponds, if not managed properly ahead of time, can lead to harmful algal blooms in the summer and have a negative effect on drinking water.

See sidebar for tips that operators can take in all three areas.

Nursery owners are encouraged to

contact their local SWCDs to learn about conservation options for their operations.

Lisa Kilders, Education and Outreach Program manager with Clackamas SWCD, said the district offers many conservation resources for nursery operators, including erosion control videos, workshops, and field tours.

She said it is important to show operators “that these practices are not only good for us but good for them and for water quality and their bottom line.”

SWCDs are ready to lend a hand.

“We acknowledge that nurseries are the largest sector of agriculture in the state, and we really want to help them do good things with conservation on their property,” Ruggiero said. ☺

Jason Eck is a program analyst with the Oregon Department of Agriculture Water Quality Program. He can be reached at Jason.Eck@oda.oregon.gov.

Preparing for winter rains

Many of the issues with contaminants from nurseries reaching streams comes when winter rains arrive. To protect water quality going into the winter season, the Oregon Department of Agriculture Water Quality Program recommends taking actions around three key areas:

Stormwater management

- Water is the transport mechanism for nearly all contaminants. It is critical to keep stormwater runoff clean.
- Divert stormwater from gutters and downspouts away from production areas. If collecting stormwater, reroute it and overflow water in the winter to vegetated areas.
- Operate and maintain stormwater conveyances (swales, ditches, sediment-retention basins, etc.) so the bed and banks are stable and not contributing sediment to surface water.
- Establish and maintain perennial vegetation on the banks

of stormwater conveyances.

- If drainage or conveyance ditches are subject to high-water velocities, provide additional protection such as hardening, riprap, check dams or bio bags.
- Establish and maintain permanent vegetative buffers adjacent to surface water (streams and ditches).
- Establish and maintain perennial vegetation in sensitive areas or areas prone to erosion.

Production, harvest, and heavy traffic areas

- Any exposed soil can lead to erosion and increase runoff of contaminants. Preventing erosion is much

cheaper than addressing

it, but there are also practices operators can take to address sediment runoff.

- Harden farm roads and heavy traffic areas with rock and gravel or pavement.
- Repair and maintain roads and heavy traffic areas as needed.
- Install erosion prevention mechanisms such as grassed waterways, filter strips, field borders, and cover crops.
- Install erosion control features such as wattles, silt fences, mulch, and sediment-retention basins, and check dams to slow and filter runoff during harvest.

Nursery recycling ponds

- Apply all pond water to crops/pasture before winter until pond is empty. This helps prevent overflow of potentially contaminated water.
- Monitor pond levels to ensure the ponds do not overflow during storm events.
- Do not empty pond into streams or ditches.
- Monitor pond water quality.
- Use pond water agronomically.
- Ensure pond berms are safe and structurally sound.
- Remove solids from ponds as needed and dispose of properly.