

Tapping into resources

BY TRACY ILENE MILLER

ROD PARK REMEMBERS when state and federal officials blamed container nurseries in part for pollution in the Tualatin River, a major tributary of the Willamette River.

“The Department of Environmental Quality (DEQ) was coming after us hot and heavy,” he said.

It was the early 1990s, and the Tualatin Basin was undergoing a \$400 million cleanup. Regulators said the phosphorus in agricultural fertilizers was making its way via runoff into ditches, streams and rivers.

“One of the folks from the DEQ said, ‘We don’t care if we put you out of business. We’re going to stop you from polluting,’” Park said.

At the time, Park — the owner of Park’s Nursery in Gresham, Oregon — was serving on the OAN Executive Committee. He and other committee members, along with then-executive director Clayton Hannon, were concerned that all aspects of production could fall under a heavy regulatory burden. Oregon growers who had done business in California had experienced that and didn’t want to repeat it in Oregon.

OAN leaders persuaded nurseries in the Tualatin Valley to adopt, and agencies to accept, a voluntary container nursery water management plan.

The new system was built around outcomes rather than regulations. Nurseries just had to keep their irrigation systems self-contained from May to

October, and promise to capture and treat all runoff and keep it out of all waters of the state. It provided the added bonus of more water for nurseries to use in the growing season, when they need it most.

“It left ingenuity up to the industry,” Park said. “My opinion was that the industry as a whole would be more innovative than anything regulators would come up with.”

The nursery industry was also proactive in adopting the program statewide even though only the Tualatin was under DEQ mandate. With the passage of Senate Bill 1010, the plan was applied to all agricultural nonpoint issues — not just those at nurseries. The Oregon Department of Agriculture became the lead agency in managing these issues, rather than DEQ.

The bill was signed in 1991, the year Park served as OAN president.

“It has worked out well,” he said. “The industry has been a good steward of the environment.”

But now, 25 years later, attention is again being sharply focused on industries that use water.

“There are growing regulatory storm clouds over how agriculture is perceived for water quality more broadly, what role it plays,” OAN Executive Director Jeff Stone said. “And there are lawsuits out there that would blame agriculture for the state of water quality.”

Nurseries are not yet targets, according to Stone, but they need to remain exceptional stewards of their land and of

water resources. That means staying up to date with water quality methodologies. It also means making sure the next generation continues in the same spirit.

“After 25 years, you’ve got a new generation that wasn’t there to go through the fire of getting this in place,” Park said. “They may not be as familiar as they should be with the regulation. It behooves the industry to educate its members.”

Recapture as a resource

Because Senate Bill 1010 was designed to be non-prescriptive, each landowner is allowed to choose an approach to reusing, conserving and treating water that best suits their individual operational needs.

Monrovia’s 600-acre farm in Dayton, Oregon, is considered one of the most advanced when it comes to the reuse, treatment and recycling of nursery runoff.

According to Walter Suttle, technical services coach, the nursery irrigates an average of every other day during the 200-day growing season. But with the nursery’s efficient system of capture, Monrovia uses only about 1.5 acre feet of metered water to irrigate its crops with 7.5 to 8 acre feet of water during the season.

This means that on average, each drop of water is used more than five times.

More recently, on 90 new acres, Monrovia installed automatic irrigation equipment that measures weather parameters such as temperature, humidity, solar radiation, wind speed and rainfall. Then, using that data, a computer program cal-

Drain tiles at Monrovia in Dayton, Oregon, lead to pipes that discharge to water retention ponds. The water is treated and reused. It's estimated that each drop of water at Monrovia is used five times. PHOTO BY CURT KIPP

culates the exact amount of water needed at any point. This saves water, promotes healthy plant growth and reduces the need for pesticide applications.

“So, on a cloudy, cool day, we won’t use as much water,” Suttle said. “The algorithm calculates for a smaller amount of water, and when the irrigation is turned on, it only uses enough water to replace the water (lost that day).”

This kind of technology will increasingly play a role in helping nurseries conserve water. Toward that end, Monrovia is in the second year of a five-year study, led by a researcher at Clemson University and including Oregon State University, partnering with a national team of 21 scientists from nine institutions and several nurseries.

The Clean Water3 (Reduce, Remediate, Recycle) project received an \$8.7 million grant from the USDA Specialty Crop Research Initiative to analyze all aspects

of water use. The objective is to provide science-backed information on nutrients, pathogens and pesticides in recycled water before and after treatment; average cost and return on investment of various technologies; and model-derived, site-specific recommendations for water management.

“We are partnering with this group in hopes of making improvements,” Suttle said. “They’re doing it on a benchtop scale to see what works best, and then scaling it up to try to get to ways that people can best utilize the methods.”

Outcomes of this study are expected to help growers make decisions to recast their use of water and know how to specifically employ technology to treat and reuse water and reduce the environmental impact of runoff.

Resources available

As the art and science of water con-

servation advances, many resources exist to help Oregon nurseries evaluate and update their practices. These include soil and water conservation districts, as well as the Natural Resources Conservation Service (NRCS). They offer technical support, as well as information on grants to offset costs of water reuse, conservation and treatment.

Oregon has 45 conservation districts, all guided by the principle that conservation efforts should be local, and action by landowners should be voluntary. Although they don’t enforce laws, they are directed by Oregon statutes to implement state goals of water quality, soil health, habitat expansion and more.

Available programs include the following:

Cost-sharing programs by district.

Many programs will help nurseries pay for conservation or restoration projects that address water quality, erosion control, >>



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Water conservation: Tapping into resources

soil health and pesticide reduction. For example, a project to convert a nursery from sprinkler to drip irrigation would be supported because such projects have a demonstrated water savings of more than 30 percent.

Jeremy Baker is a senior rural conservationist at the East Multnomah Soil and Water Conservation District in Portland, Oregon. He has worked as a planner for 15 years in Polk, Marion and Clackamas counties, and now in East Multnomah.

“I work with anyone who manages and owns land and wants to implement conservation or who wants to learn about how to do it,” he said. “We stay abreast of the science to bring to the landowner what is the latest; we try to stay diligent. If I don’t know about it or haven’t experienced it, I have a plethora of agency partners to get answers.”

The district-by-district programs go by different names, and the cost-sharing

percentages vary. In Baker’s district, the program is called the Cooperative Landowner Incentive Program, or CLIP. It will pay 50 percent of project costs.

“We identify objectives, inventory the resource, analyze the resource, come up with solutions, sit down and evaluate the alternatives, and then they decide what to do,” Baker said. “Landowners can get credit for doing the work, and once done, there is a final inspection.”

In Clackamas County, a similar program is called Dollars on the Ground, or DOG. The programs in other districts vary but they operate similarly. To find programs available in your area, download this document: www.oregon.gov/ODA/shared/Documents/Publications/NaturalResources/SWCDDirectory.pdf.

“Anything that is focused on conservation of resources and restoration is a cost-shareable item,” Baker said. “We try

to have a broad view of what will be considered conservation.”

Natural Resources Conservation Service (NRCS). Soil and conservation district staff work with conservationists at NRCS, where staff administer competitive, but voluntary, conservation programs, including the Environmental Quality Incentives Program (EQIP).

NRCS supports nurseries in applying for assistance to offset the costs of updating systems for water conservation, treatment and reuse. Through EQIP, nurseries can expect professional technical assistance to develop their conservation plans and support in preparing materials for an application.

Conservation Stewardship Program (CSP). In just six years, CSP has enrolled more than 70 million acres nationwide, including specialty crop growers, which includes nurseries. Private landowners enter the incentive program for five years and are financially rewarded for meeting benchmarks for conservation efforts tailored to each property that yield improvements such as better water and air quality and soil health.

Each NRCS district has its own funding priorities, so a first step is to meet with a staff member from your district who can discuss your conservation plan ideas, the process and the options. To find your district’s staff, go to www.nrcs.usda.gov/wps/portal/nrcs/site/or/home/.

Energy Trust of Oregon. Working with local vendors, growers can get rebates for making upgrades to water systems that save water and conserve energy. For instance, nurseries can receive up to a 50 percent rebate for a variable frequency drive. For approved vendors who can help in the process of selecting equipment for a rebate, go to www.energytrust.org/ag. For more information on specific rebates for improvements, go to energytrust.org/library/GetDocument/1875.

Oregon Department of Agriculture (ODA). For approaches to designing nursery ponds, Stone recommends Ray Jaendl, program area director, at 503-986-4713. For water quality specialists by district, go here: www.oregon.gov/ODA/AboutUs/Pages/ODADirectory.aspx. ©

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Don Schmidt Nursery Co. in Boring, Oregon, uses dryland farming techniques to raise its field-grown Japanese maples, dogwoods, cherry trees and other species. The result is trees that are hardier and better able to withstand environmental stress. PHOTO BY CURT KIPP



DRYLAND FARMING

provides an alternative By Tracy Ilene Miller

A FEW OREGON nurseries are getting their water not from streams, or even aquifers, but from the soil. It's called dryland farming, and Don Schmidt Nursery Co. in Boring, Oregon, has used the technique for more than 70 years.

The nursery's production manager, Alan Tabler, also uses the technique at his own growing operation, Tabler-Chord Nursery in Sandy, Oregon. "This is nothing new," he said. "It's from the 1400s to the 1500s, and the nursery industry used to do it this way."

It wasn't until after World War II, when irrigation became the norm, that this system was abandoned, he said.

Dryland farming is a system that works closely with nature, but it is only effective when all of the steps are completed. Otherwise, the benefits won't be maximized, Tabler said.

Here's how it works. First, in early spring, trees are trimmed hard before the plants leaf out. This increases root growth, pushes up top growth and increases the plant's vigor.

"Overall, we're trying to get our growth early and not when it's hot or

cold," Tabler said. "In general, we get a little less caliper, but we get as much growth as other people, so we get better caliper and quality over time."

After the trimming is done, tractors go down both sides of the row for the first pass of the season. A 30-inch disc is used to mulch the weeds. Three or four passes are made before switching to a grape hoe next to the trees. This cuts in half the need for hand hoeing, which comes next.

Discing then starts. This cuts into the hard pan at a depth of 6–8 inches. As a result, moisture is wicked up via osmosis into the root zone. With a few tractors, Tabler says, it takes 8–10 days over 200 acres to return to the beginning. The process repeats all summer long.

At the end of the season, because there is no watering, the plants take their cues from nature and go dormant at the right time. They avoid getting caught in the first cold spells of late October.

If hoeing is done before the weed seed has matured, and there is no additional rain or irrigation, there will be fewer weeds in the current year as well as the next.

"You're trying to work with nature

rather than against her," Tabler said. "We plant our liners in the fall, taking advantage of the fall rains rather than when it's too wet in the springtime."

Dryland farming may require more hand hoeing, Tabler said, but because there is no soil moisture on the top, there is less weeding after the first discing and hoeing of the season. There's also less need for spraying because there's no wet foliage in warm conditions to encourage powdery mildew and no new growth in fall for aphids to attack.

"While we are not organic, discing allows for sustainable agriculture, which will become more and more important in the future," Tabler said.

The tractors may cost the same as setting up systems to move water, and more trimming is necessary with dryland farming, but according to Tabler, the system still saves money.

"It's a whole system of promoting vigor and quality over time," Tabler said. "Our rotation is 6 to 10 years, sometimes longer. If it was a shorter term, it would even be better than the compaction we see (from tilling)." ☺