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Teambuilding efforts by grounds department at the University of California-Davis benefit the environment and the bottom line

Closer Look: Sustainable Landscapes
Cary Avery, the associate director of grounds and landscape maintenance at the University of California-Davis, discusses the campus' sustainability programs.
www.facilitiesnet.com/1429641nd

By Dave Lubach, Associate Editor

When the University of California-Davis started converting turf areas into sustainable landscapes, the process did more than influence current and prospective students attracted to the campus because of its appearance. It changed a course for the university to become one of the most sustainable campuses in the nation.

Over the last decade, the university has transformed about 600 acres of turf into sustainable landscapes. Planting more than 12,000 trees, as well as 200 acres of shrubbery and other native plants, has helped the university significantly reduce mowing time for grounds crews. It has saved thousands of gallons of water by reducing irrigation needs, and it has turned turf areas that were costly to maintain into drought-tolerant landscapes that students, staff and visitors can enjoy.

Thanks to a team approach that embraces the ideas and suggestions of many campus departments, adding sustainable landscapes has produced tangible savings for the university in the last decade — most notably, a 10-15 percent reduction in mowing costs and a 20-25 percent reduction in water costs.

Building a team

Cary Avery, the associate director of grounds and landscape maintenance, and his staff have received plenty of help in trying to achieve the university's sustainability goals. The creation of a landscape design team three years ago — a consortium of campus groups that includes grounds and landscape services, landscape architects, arborist staff, and civil and industrial service crews — offers the department additional expertise.

The university's efforts to convert turf areas into sustainable landscapes is one example of the team's efforts. The program involves the expansion of the arborist onto the main campus, where the landscape team partners with academic programs to design landscapes that reflect subjects being studied inside a certain building or reflect the research taking place inside.

"For instance, (if there is a landscape near) the geology department, we have a rock garden there," Avery says. "With the art groups, we're allowing them to assist in design gardens within the art buildings. They're also implementing some of their artwork with what I would call sustainable with reused chairs. They're experimenting with a lot of things."

The campus offers plenty of space for the design team to work. At 5,300 acres, the university is the largest campus in the University of California system. Only about 150 acres of the campus is devoted to turf, and about 50 of those acres are used for athletic programs. Sustainable landscapes that incorporate campus-generated mulch from tree and shrub pruning, along with native Northern California plants, have replaced other turf areas.
Native Northern California plants make up a significant part of the sustainable landscapes at the University of California-Davis. The landscapes have helped reduce water costs by 20-25 percent over the last decade.

"We're also planting with a lot more ornamental grasses and drought-tolerant plants," Avery says. "So when we are looking at landscape conversions, it's with the idea of reducing workload by moving turf and planting lower-maintenance plants that use less water."

With the landscape department, arborist staff and the campus' academic arm all making contributions, the campus' sustainable landscape efforts have produced tangible results.

"We've improved the overall aesthetics of the campus, with some of the more sustainable plantings, than having turf just to have turf in certain areas," Avery says. "We've created nice gardens utilizing all the skill from the different groups around campus and integrated all the knowledge from around campus to have a really good situation here."

**Savings across the board**

Adding sustainable landscapes has produced savings related to mowing, irrigation and energy. For example, over the last decade, the university has realized savings of 10-15 percent in mowing costs.

"We used to mow twice a week," Avery says. "Now, we mow once a week, and we'll go back and sweep where we need to sweep when there's excess build-up. We've reduced some workload in terms of mowing but at the same time increased (5) in terms of weeding and manual labor with the landscapes."

One of the university's current projects involves converting a mile-long median of a campus road from turf, which required regular maintenance, into a sustainable landscape that features drought-tolerant plants. Avery says the university expects maintenance costs for that area to drop by 40-50 percent, or $40,000-$50,000 a year.

"It will be a gorgeous landscape when it is completed," he says. "We continue to always look for areas to improve that could better utilize irrigation or a particular academic group. Those are the types of things we're looking at."

The university's aggressive tree-planting program also has generated significant energy savings. A recent study determined the campus saves $65,000 annually in energy costs and $58,000 related to erosion and pollution control, Avery says. The additional shade created by the large number of trees has resulted $430,000 a year in energy savings.

But such savings do not show up on the bottom line overnight, Avery says.

"We've lowered maintenance costs, but when you do landscape conversions to more sustainable landscapes, the return on investment is usually two to five years," he says. "You don't get an immediate return because the workload increases the first one to two years. There's more manual labor. You've gone from a more mechanized maintenance program to more manual labor."

The university also has realized savings of 20-25 percent on its water bills because of reduced irrigation in the last decade. Much of the credit for these savings goes to an aggressive maintenance plan, experimentation with new technology and a centralized irrigation system.

"We're starting to use a lot more subtractor irrigation technology," Avery says. "These are things we think are the future. We're strong advocates of utilizing new technology when it works for us."

Avery's staff monitors the campus irrigation system for leaks daily and conducts a yearly preventive maintenance inspection on the entire system during the winter months.
"We try to get through the entire system," Avery says. "Every valve and controller is turned on. All the valves are checked, and all the heads are checked and documented as to what’s running and what’s having problems and if there are any cracks or breaks."

Not surprisingly, the department's sustainability efforts have affected its purchasing decisions. While factors such as emissions and noise are important when purchasing grounds care equipment, durability also plays a central role in making sustainable purchasing decisions.

"We look at air quality in our purchases, but what far outweighs anything for us is durability." Avery says. "It might be the greatest thing our field environmentally, but durability is No. 1 because we have to do the work day in and day out."

"I can't over-emphasize durability as something that's important because of budgets. We've all had budget reductions, and we're looking for equipment overall that will last and we don't have to replace right away. It's remarkable to tell a story because something is great environmentally. But if it breaks down three months after you bought it, it doesn't do anybody any good."

Responsibilities evolve

The focus on sustainable landscapes has affected the way Avery assigns duties for his staff of 62 full-time employees. Because many of the campus landscapes do not require the same kinds or amounts of traditional care, workers pick up trash, spray weeds and perform other touch-up projects for a few hours in the morning before shifting to large-crew projects for the rest of the day.

"We have found that we have really been able to manage our workload better," Avery says. "We've gone from a self-directed workforce on a directed focus. We do large-crew projects. It's helped a lot in terms of training and getting people to work on sustainability."

Avery says that despite the evolving workload, the department's sustainability efforts continue to pay off.

"Our staff is very engaged at this point," he says. "One of the things that was a challenge for us was changed management practices. I spent a lot of time working with staff how to manage these new landscapes and how to get staff to understand how (they) benefit the campus and area as a whole in our sustainable practices."

"Instead of mowing and weeding, which they still do, they're doing more hand-weeding. They're interested in the plants because the plants look better. (The plants) are easier to maintain, but there are certainly challenges that come along with it, too, and we've done well with those challenges."

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