**Golf course ‘living lab’ Cal State Poly’s aim**

**By DOUG SAUNDERS**

POMONA, Calif. — Dealing with society’s trash is an issue that draws little attention from the public until a landfill needs to be created or closed down. After operating a 200-acre landfill on campus property since 1977 in conjunction with the Los Angeles County Sanitation Districts, California State Polytechnic University here hopes to close the landfill and build an 18-hole golf course that will serve as a living laboratory.

The landfill has served two purposes over the last four decades. It has been a repository for the tons of refuse from the growing LA metropolis, and has served as an outdoor lab for waste management, environmental sciences, engineering, and agriculture.

“The landfill has been very beneficial to the university from not only an economic standpoint, but also as an educational tool,” said Ed Barnes, executive director of the Land Lab and Asset Development for Cal Poly Pomona.

At some point landfills do reach capacity and the next question was how to best close this one down. Strict EPA guidelines specify the closure procedures for landfills. The university has decided that, in conjunction with closure and monitoring regulations, creating a golf course can continue to provide economic and educational benefits into the future.

“Our desire,” Barnes said, “is to build and 18-hole course that will generate income through greens fees, provide a recreational outlet for students, be of value to our athletic program, and give more opportunities for internships for our colleges of hotel and restaurant management, turfgrass management, landscape architecture, and biosciences.”

Cal Poly recently selected Golf Dimensions, a golf course management firm based in Irvine, to help the university through the project’s planning and construction phases. Golf Dimensions recently completed the...
Acidity tests

Continued from page 15

such as phosphorus in particular are there but unavailable. Simply by liming a low-pH soil, phosphorus becomes available and you see benefits in terms of rooting. Hummel added that microbial activity is also increased simply by adding lime.

"When you have a pH of 5.2," he said, "microbiological activity is slow and you get a little thatch. Simply liming it, and bringing the pH up into the mid-fives, you increase the microbiological activity and, as a result, you are able to keep up with the organic accumulation so you get thatch decomposition. It demonstrates pretty clearly the importance of thatch on water movement into the soil."

Hummel suggested golf course and lawn-care managers purchase their own soil pH meters. "We found that the inexpensive ($50 or so) meters are actually pretty accurate," he said, recommending that the meter should have automatic temperature correction and a reference electrode. A kit to calibrate the meter should also be bought, he said.

Determining pH is simple, Hummel said. "Put a soil sample in a cup, add water, let it sit a half hour and take the reading."

He listed liming guidelines:

• Apply in the fall or spring.
• Coordinate the application with core cultivation if possible "because lime neutralizes acidity where it is at. It does not move down into the soil. So anything you can do to get it down deeper, the better off you will be."
• Use a maximum of 50 pounds per 1,000 square feet on established turf.
• If you have high pH soils, add elemental sulfur applications to lower the pH to slightly acidic.

While nitrogen is so dynamic in the soil that it is rarely tested for, Hummel did recommend "management factors" for phosphorus and potassium.

Phosphorus, he said, "is essential in establishment. And if you are in newly established field, a soil test is valuable to determine phosphorus levels. Established turf is unaffected by additional phosphorus because it has a very fibrous root system and obtains whatever phosphorus is there. Phosphorus is very mobile in soils. Its availability is very closely tied to pH."

Potassium content in turf, he said, is about half that of nitrogen.

Saying that secondary nutrients — calcium and magnesium — are important, Hummel added, "But in most native soils we rarely run into deficiencies."

Referring to the Cation Exchange Capacity (CEC), which defines the soil's ability to hold nutrients, Hummel said: "Sand and silt have little CEC. Most CEC in a soil is in clay or organic matter. So, add organic matter to a soil and it improves CEC."

Soil reports also divulge "percent base saturation," the ratio of basic cations in the soil — calcium, magnesium and potassium. The recommended percent-ages of basic cations in soil, he said, are: potassium, 2-7 percent; calcium, 65-85 percent; magnesium, 10-20 percent; and hydrogen, 0-5 percent, when present.

He listed as calcium sources: calcitic limestone, 32 percent; dolomite limestone, 22 percent; gypsum 19-23 percent; superphosphal fertilizers 12-21 percent; and natural organic fertilizers, like bone meal and some poultry manure products.

He recommended magnesium oxide as the best source for magnesium. "It's 33 percent magnesium and is a granular form that is easy to apply," he said, adding that other sources are dolomite lime, 12 percent; potassium magnesium sulfate, 11 percent; and magnesium sulfate, 9 percent.

"A soil test is only as good as you send in," Hummel said. "First, identify the different soil and turf areas. Then, collect a representative sample from each area. Use 10 to 20 subsamples using the top 2 inches of soil, excluding thatch. The depth of the sample should reflect the depth of rooting."

"Soil testing, though a widely used tool, can be misused or better used," he said, asking people to maximize their soil test programs by deciding on a reputable lab and staying with it; keeping accurate records; sampling to the same depth each time; and sampling at the same time of year.

All in a Day's Work.

REWARD Herbicide. Works Against Weeds in 24 Hours.

REWARD Herbicide brings precision and speed to your weed control program.

• Works faster than other commonly used landscape herbicides
• The least expensive non-selective herbicide
• Can be used in grounds maintenance, landscape and aquatic areas
• Broad-spectrum — broadleaf, grass and aquatic weed control
• Easy on surroundings
• User friendly
• Low use rates
• Reduces inventory

For more information, contact your authorized Zeneca Distributor, or call Zeneca Professional Products Toll Free at 1-888-617-7690.

www.zenecaprofprod.com

REWARD Landscape and Aquatic Herbicide

Always read and follow label directions carefully. REWARD® is a registered trademark of a Zeneca Group Company. Scythe® is a trademark of Mycogen Corporation. ©1996 Zeneca Inc.