

Green & Sustainable

President Brosnan and the college's environmental specialist take DelVal into the new age

By Ed Kracz

Where once there was mostly just a collection of wood chips outside Ulman Hall, there is now an environment-saving rain garden.

In the interest of energy conservation, Rudley Neumann Gymnasium has been outfitted with new lighting, and several buildings no longer have manual light switches but rather motion detectors that turn on and off when someone enters and exits a room or area of campus.

Bigger, gas-only cars purchased by the college for various employee uses are slowly being replaced by hybrid vehicles.

The green wave that began sweeping the country in recent years is rolling across the bucolic grounds of Delaware Valley College.

Going green is a multifaceted term typically attached to practices that reduce any harmful impact on the environment. Another word associated with going green is sustainability, which boils down to using resources wisely so they are not depleted.

It can be achieved in many ways, like recycling aluminum, paper and plastic. Recycling, however, can take on more complex and clever forms. DelVal, for instance, has constructed a biodiesel reactor that turns used cooking oil from the cafeteria into fuel for the college's farm equipment.

The aforementioned inroads DelVal has made are just a few ways it has endeavored to become more green and sustainable. Other steps include the installation of solar panels behind the school-run farmer's market to help with the store's energy needs, composting that turns leftover food scraps from the cafeteria into usable mulch in the many on-campus fields, and the replacement of old windows and doors in some dormitories and buildings, with the goal of getting all of the windows and doors replaced over time.

Colin Chambers, hired by DelVal four years ago to be its environmental health and safety specialist, estimated there are 1,000 to 1,200 pounds of food scraps generated by the school's cafeteria per week when classes are in session. Chambers also serves as an adviser to the college's Project EARTH club, which was started by environmentally conscious students about the same time he was hired.

"When I was hired, sustainability wasn't a big part of my official responsibilities, but it is part of what I am doing now because I am interested in it," said Chambers, who graduated



Michael Fleischacker (left) and Colin Chambers on the bridge at the new rain garden.



from Lehigh University after studying environmental science and biology.

Not coincidentally, the green push blossomed when Dr. Joseph S. Brosnan was appointed DeVal's 12th president in August 2007. Brosnan said in his inaugural address that he wanted to host an externally funded, international symposium examining sustainability and environmental restoration.

In the fall, that vision will lead to a three-day symposium called, "The Precarious Alliance: Strengthening Human Networks and Natural Systems." It will be held on campus Oct. 7-9, with major sponsorship from PepsiCo and the Burpee Foundation. The symposium will explore how society can adapt human networks to reduce and reverse trends of environmental degradation, economic instability and social disparities.

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"I think it's really critical that we become stewards of the world we live in and I think responsible use of energy and responsible awareness of the environment is critical for everybody, especially if you are going to educate young people," said Dr. Brosnan.

The symposium was only one step in the school's effort to raise awareness about sustainability issues. The rain garden and biodiesel reactor are two of the more visible examples of the progress made under Dr. Brosnan.

Dedicated in June, the rain garden was a collaborative effort involving the college, Doylestown Township and the Bucks County Conservation District to educate students and county residents alike on more efficient ways to handle storm water runoff. When storm water runs off a property, it can wash pollutants such as pet and wildlife waste, motor oil, pesticides and fertilizer into water sources such as ground wells, rivers and streams.

The project, funded by a Water Resources Education Network grant from the League of



Giovanni Thomas, the student who designed the rain garden.

DeVal's rain garden has a small, wooden bridge that spans two water retention basins, which are shaped almost like cereal bowls. The water comes off the roof of Ulman, via drain spouts, then filters back into the soil. Included in the garden are various types of plants, grasses and shrubs, such as sedge, alders, rhododendrons, birches and ferns. There are also loose stones on the periphery of the garden to further prevent runoff.

A byproduct of the rain garden is that it may ultimately serve as an aesthetic centerpiece when picnic tables and benches are placed in the surrounding quad area.

"It's intended to be used as an educational tool for both students and the community on how to better manage storm water runoff," said Chambers, "but that's the plan (to make

Women Voters, was opened to DeVal students last fall as part of a design competition. Giovanni Thomas, a junior in Professor Michael Fleischacker's environmental design class, produced the winning blueprint.



(above) Professor Larry Hepner and solar panels at The Market.

(right) Chambers with the bio-diesel reactor, which converts used cooking oil into vehicle fuel.



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it an aesthetic centerpiece). And there will be an interpretive sign to help students understand the garden's function."

Better storm water management was also at the core of saving the college thousands of dollars after it was discovered rain water was running into the school's sewer lines, leading to a higher sewer and water bill.

"We were seeing something wrong with our sewer bill," said Ted Staniewicz, DeVal's director of facilities for the past four years. "It seemed outlandish."

An inspection was made of every urinal, toilet and faucet, and water efficient plumbing controlled by sensors was installed. The next step was to divert the storm water runoff away from sewer lines, so the college blacktopped areas of campus that re-routed the flow of rain runoff.

"If you have rain coming down and a flood of water is making it to the sewer lines, you're basically paying for Mother Nature," said Staniewicz.

The end result has been a savings of nearly \$100,000 on sewer costs while returning storm water to the ground, not to mention helping conserve the available water supply.

Now, another collaboration between the college and the surrounding community is in motion that would lead to the construction of a green roof atop Doylestown Hospital. Like the rain garden, the project enlisted students in Professor Fleischacker's class to come up with a winning design.

There are a number of different green roof systems, with soil depths ranging from 4 to 8 feet, deep enough to plant a variety of plants. The rooftop garden would help better manage storm water, and may even provide therapeutic value to patients. Further details of the project are still being worked out, but Fleischacker is excited about it becoming a reality.

"It can serve so many different purposes," he said.

What has become reality is the biodiesel reactor that turns cooking oil into fuel that can be used in the farm equipment used by the school. The project was spearheaded by Steve DeBroux, an associate professor in DeVal's natural resources and biosystems man-



Taking a break from rain garden construction: Fleischacker (left) students Brittany Mills and Glen Botterbrodt and arboretum horticulturist Mary Boyle.

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agement department, with help from Roger Rinker, a retired industrial chemist who lives in Doylestown.

The biodiesel reactor isn't much to look at. It's basically a 60-gallon, stainless steel jacketed reaction chamber housed in the barn where most of the large farm

equipment is kept. It stands about 5 feet high and has plenty of hoses jutting in and out of it. A fireproof wall surrounds it. Students will be trained in safety and operating procedures for the reactor.

The reactor will have the capability to produce about 40 to 45 gallons with each batch of cooking oil and it will take two days to make one batch. The fuel is not storable for more than six months and, if the temperature dips below 40 degrees, the fluid can congeal quickly and become unusable.

"The neat thing is you're using (cooking) oil twice," said DeBroux. "You're using it for food, then when it's no longer useful for that, it's still useful. It's a free 40 gallons at a time. It won't make us independent from Saudi Arabia, but every little bit helps."

The college's green collaboration has brought academia and facility managers together to achieve their goals of aiding the environment. Even more importantly, the push to do so has brought students together from different departments.

With the biodiesel reactor, DeBroux said, "I am pleased because even students who are not interested in chemistry even a little bit are suddenly showing interest in chemistry."

The project allows agriculture students to work with non-ag students, combating a division that tends to form on campus. This was an offshoot of Dr. Brosnan's vision.

"I wanted to bring people together around one theme so we could look at issues and get rid of this divide," the college president said. "Getting people to work collectively together is even more important than the (Precarious Alliance) conference itself."

That collective effort won't go away anytime soon, not with a world becoming more and more environmentally aware and fixated on achieving greater energy efficiency.

At Delaware Valley College, there remain many ways - some known and others still to be discovered - to continue the push toward greener practices.

"I think our long-term goal is to take a look at what are the other alternate energy opportunities for us that have a respectable return on the investment," said Staniewicz. "We keep up on things, and have even contacted companies in Spain about turbines and things like that."

On the future of the green movement at DeVal, Dr. Brosnan said, "This is a fairly sophisticated and multifaceted process. It is a part of our history and tradition. We've been land-based for a long time, so we need to be taking a look at what people are doing in crop production and in areas of conservancy. A lot of it is important and we will continue to monitor what is going on and what we can do." ■

Read about the symposium at:
www.precariousalliance.com