



The in-vessel composting equipment is in place and in full operation at Broken Sound Club. At far right, organic debris from the two golf courses is stockpiled and then shredded before being combined with the clubhouse food waste that is then fed into the composter.

The Greening of Broken Sound Club

A green waste composting operation is just one of many steps being taken in pursuit of sustainability.

BY JOHN H. FOY

In some respects, Broken Sound Club in Boca Raton, Florida is a typical residential club community. It is one of several properties developed by the Arvida Company on the lower south-east coast of Florida in the mid 1970s. Along with two golf courses and various other amenities for the approximately 3,200 members, there are more than 1,600 homes at Broken Sound. However, in the past four years, many changes in the club's overall operations approach have been made. John Crean, CCM, General Manager and COO, is leading a team project of improving environmental efforts and reducing the club's carbon footprint, while at the same time continuing to meet the mission statement of providing excellence.

The focus is to achieve energy and cost savings, while at the same time

doing the right thing for the environment. It all started with elimination of Styrofoam cups throughout the club. They were replaced with recyclable plastic cups that are routinely collected and included in a strict recycling program of cardboard, cans, and plastic. The club is paid for the materials they recycle, which helps offset their pickup costs. Prior to the start of the recycling program, the club was spending close to \$120,000 annually for waste removal.

This small first step was followed by replacing the majority of incandescent lightbulbs with compact fluorescents in the clubhouses. Also, after some research, it was determined that a \$15,000-per-year saving could be achieved with changing over nine natural gas water heaters to solar. The resulting savings, combined with an IRS tax credit and Florida Power and

Light rebate, will cover the initial investment for converting to solar water heaters in slightly more than one year's time.

Next up is a major clubhouse renovation project that will include more energy-efficient windows, construction, mechanical systems, and light and air-conditioning on-off sensors. It is estimated that the club's annual electric bill will be cut in half, and the upfront cost of these energy savings measures will be recouped in three to four years.

Joe Hubbard, CGCS, is director of golf maintenance at Broken Sound and oversees the Club and Old Course golf courses. The Club Course is a fairly typical layout that is surrounded by homes. The Old Course is on the other side of Military Trail and is a stand-alone facility, and while there are no homes on the course, a corporate



Before the start of the green waste composting program, a large quantity of material from the two courses and club house kitchens was routinely sent to a landfill at a significant annual cost for the club. After composting and curing, the finished product is used in the fairway topdressing and soil amendment program.

office complex borders one side of the property. Along with getting both courses certified in the Audubon Cooperative Sanctuary Program for Golf Courses (ACSP), Joe and his staff have been pursuing other measures to achieve economic and environmental sustainability and at the same time continue to meet member expectations for year-round top-quality conditioning.

The prolonged growing season of South Florida results in generation of a large quantity of green waste (e.g., grass clippings, palm fronds, and pruning debris from landscape plants). Yet, at Broken Sound there is very limited space available, and thus it has been necessary to put all of the green waste into dumpsters and have it hauled to a landfill. For the fiscal year 2008-2009, it cost the club almost \$70,000 for green waste disposal. In the fall of 2009, a demonstration in-vessel composting project was arranged with ECW, Inc., of Miami, Fla., to determine if on-site recycling of all of the green waste was indeed a viable and practical option.

Following off-site testing to determine the proper ratio of chipped green waste and food scraps from the main clubhouse kitchen, a mobile digester was set up at the club course maintenance



While the composting program is still a work in progress, the staff at Broken Sound is excited about the agronomic benefits being realized, as well the fact that tons of green waste is no longer going into the landfill.

facility. Part of the demonstration project involved further fine-tuning of the composting process. This was in addition to working out the logistics of using the compost in a fairway and rough topdressing program. Approximately one week is required for the in-vessel composting process, and the end product is put in a curing pile that is turned once a week for three weeks. The compost is then run through a hammer mill to produce a consistent quarter-inch particle size that is needed for uniform topdressing application. Based on the demonstration project, it was estimated that a permanent operation at Broken Sound would produce seven to nine cubic yards of finished, cured compost a day, and thus a quarter-inch application of material on the fairways and roughs of both courses could be made annually.

When there are no restrictions with water and fertilizers, it is possible to compensate for the very limited moisture and nutrient retention capacity of sandy soils, and in turn maintain a dense bermudagrass turf cover. Today, however, there are increasing water and fertilizer use restrictions, and the cost of fertilizers and other materials has dramatically increased over the past few years. Topdressing fairways and roughs with the compost at Broken Sound over the next few years is a needed soil amendment strategy for increasing both moisture and nutrient retention. There will be both short- and long-term benefits realized from this program. While compost is not a fertilizer, laboratory analysis of the material generated revealed that it did contain 1.2-1.8% total nitrogen, 0.2% phosphorous, 0.6% potassium, plus iron and other micronutrients. This slight amount of nutrient content produced a noticeable turf green-up response and improvement in density in seven days after test strip applications were made. For the long term, it has been estimated that the compost topdressing program will result in a one-third reduction in fertilizer and water use. Furthermore, amendment of the sandy fairways and roughs with compost will help reduce the impact of plant parasitic nematodes, which have become a major pest

concern at golf courses throughout Florida.

There are costs for purchasing and setting up an in-vessel composting operation. However, the amount of money saved by recycling of green waste, plus the savings that will be realized with reduced fertilizer use, will allow the club to recoup the initial investment in four to five years. By year six, and with selling some of the compost to landscape maintenance companies that work in the area, it is projected that the club will begin to show a profit from the composting

operation. The setup of a permanent green waste composting operation was approved by The Board of Governors of Broken Sound Club and will go into operation in early 2011.

Obviously, John Crean, Joe Hubbard, and the rest of the staff at Broken Sound have put in a lot of time and work into going green. Yet, it is also very satisfying knowing that their efforts are resulting in economic and environmental sustainability for the club.

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It is projected that with compost topdressing and amendment of the very sandy base soil of the fairways, fertilizer and irrigation inputs can be reduced by one third at Broken Sound.