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Can a Golf Course be Carbon Neutral? A Preliminary Assessment

Green house gases (GHG) are in the news and pressure is mounting in Congress to pass legislation to regulate GHG emissions. The Washington Post reported on March 10th that the Senate would vote on legislation in June that will set restrictions and ultimately cap US emissions of GHG. The legislation is expected to impose a cap-and-trade system similar to systems in other world markets where carbon offsets or emissions certificates must be purchased for any carbon emissions over an established cap. Many banks and other investors are scrambling to invest in carbon offsets as legislation is expected to boost the price of U.S. credits from $2 to $5 per ton of carbon to $30 to $50 a ton.

Clearly, major utility and industrial firms will fall within the scope of any regulations. How far will the mandates reach? What are the consequences if golf courses, sports fields, and public parks would be required to assess and control GHG emissions? Turf management has increasingly improved environmental stewardship through improvements in water quality protection, reduction in water use, and increased efficiencies in fertilizer and pesticide use. How does a golf course figure into the GHG discussion?

A project was undertaken by students enrolled in the Advanced Turfgrass Science Class at Cornell University to establish the carbon budget for the operation of a golf course in a northeast climate. The course was considered to be an average course from the GCSAA Environmental Profile Research with total golf course property of 150 acres with 100 acres or managed turf to calculate the energy or Carbon Equivalents (CE) for management factors including mowing, fertilization, pest control, and irrigation. (Table 1.)

Several months were spent to review available literature to establish the relative contribution of a golf course to carbon sequestration. Would a golf course be a better sink for atmospheric CO2 than a parcel under agricultural management, a typical urban lot, or a forest system? In particular, is a woodlot a better carbon sink than turf? If so, can a golf course offset its carbon use by increasing the density of trees and total wooded area or simply pass along the cost of carbon offsets to the golfer through green or membership fees?

In the final summation, can a golf course be carbon neutral? How does the operation of the course affect the carbon balance? In our example we are using data generated from the Bethpage State Park Green Course that has been managed experimentally for eight years. This study has compared traditional management relying primarily on synthetic fertilizer and pesticides

continued on page 7

This Times

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