

# Know Your Carbon Footprint

“Going green” is not only good from an ecological standpoint, it’s good for business

By John Jonasson

In these difficult times, many golf courses are “going green” to attract new golfers and, in doing so, are reducing their operating costs. This new philosophy pays off: “Going green” makes good cents.

In addition to economic pressures, environmental pressures continue to mount. While the golf industry has improved its environmental performance so people understand and appreciate the benefits golf courses provide, government agencies and many environmental and political groups either do not understand the benefits or discount them because of philosophical beliefs. Environmental pressures continue to grow, including a spotlight on pesticide use and management, fertilizer use and management, water use for irrigation, habitat endangerment, community health, groundwater and surface-water contamination, air pollution and even complaints about increased traffic/noise.

A key component of “going green” is to address your operation’s greenhouse (GHG) gas emissions and to reduce its carbon footprint. With current environmental trends, no golf course will be exempt from pressures related to climate change. Government, at all levels, contemplates enacting climate change/greenhouse gas legislation. Some organizations, including golf courses, may be required to quantify, report and reduce their greenhouse emissions.

## Defining greenhouse gases

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHG). GHG either occur naturally or are emitted to the atmosphere through natural processes and human activities. Some GHGs are created and emitted solely through human activities and are under our control. The principal GHGs resulting from human activity are:

- **Carbon dioxide**, which enters the atmosphere through the burning of fossil fuels (oil, natural gas, propane, coal, etc.), solid waste, trees and other wood/organic products, and

also of other chemical reactions. It can be removed from the atmosphere (sequestered) when it is absorbed by plants (trees, turfgrass) as part of the biological cycle.

- **Methane**, emitted during production and transport of coal, natural gas and oil. Methane is also produced from agricultural practices (including turf management) and by the decay of organic waste in municipal solid waste landfills.

- **Nitrous oxide emissions**, which depend on soil conditions, fertilizer application rates and meteorological conditions.

To be prepared for climate-change pressures, and to enhance the social responsibility principles of your golf course, consider initiating a GHG environmental assessment/action plan. It can pay off well.

## Golf course examples

Two courses make a good example of the savings possible. The first, an 18-hole public course in western Canada, is open all year. Its GHG emissions and reduction targets for each input area are: fuel use, 100 tons with 20-ton reduction; utilities, 260 tons with 50-ton reduction; waste, 75 tons with 15-ton reduction; and fertilizer use, 6 tons with 1- or 2-ton reduction). That means a reduction goal of about 85 tons is quite reasonable.

If a moderate effort to reduce inputs occurs with BMPs and new low-cost technologies, then a conservative 20 percent to 25 percent reduction could be realized, with a total GHG reduction of about 85 tons.

The second course is a 27-hole private operation in central Canada, where golf is played seven or eight months per year. Its GHG emissions and targets are: fuel use, 110 tons with 25-ton reduction; utilities, 890 tons with 200-ton reduction; waste, 90 tons with 20-ton reduction; and fertilizer, 27 tons with 5-ton reduction.

On this course, about 250 tons of GHGs could readily be eliminated. How does one quantify the progress made?



### QUICK TIP

There’s much more to healthy turfgrass than exceptional green color and a quality look. Your turfgrass subliminally tells you that due to proper fertilization, disease management and the right amount of water, it’s in the best shape possible. This means your course looks great and plays even better, which makes everyone happy — even the guy looking to blame his poor golf game on your turf management skills. In many ways we say there is “more than meets the eye,” but this is apparent in golf course management. Good luck this season from everyone at Agrium Advanced Technologies.



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## Certification program

Par “0” is a certification program that promotes environmental stewardship and eco-efficiency in the golf industry. Par “0” allows golf operations to become environmental leaders. The program enables golf clubs to implement eco-efficiency plans to become carbon neutral.

Carbon-neutral golf operations will have a competitive advantage within the new low-carbon economy and will reap the benefits of being part of the GHG solution. We recommend a three-phased approach:

Phase 1: Quantify the carbon footprint.

Phase 2: Conduct an eco-efficiency assessment of the golf operations.

Phase 3: Implement changes to improve environmental performance and to reduce the environmental footprint.

The eco-efficiency business movement concentrates on courses becoming environmentally responsible and more competitive. Environmental performance is linked to financial performance, resulting in financial savings and a benefit to the environment. Eco-efficiency supports a corporate and social responsibility in a community where customers and consumers are concerned with environmental matters and responsibility.

Courses are recognized for GHG reduction at different levels:

■ **Bronze:** Given to operations that participated and have their carbon emissions (footprint) quantified, with recommendations to reduce their footprint.

■ **Silver:** Given to operations that have their carbon emissions footprint quantified and an on-site eco-efficiency assessment (with recommendations for improvement) conducted. The site-specific recommendations provide a roadmap to the business with respect to becoming carbon neutral over a period of time.

■ **Gold:** Awarded to companies that received both silver and bronze certificates and have reduced their carbon emissions from their operations and have become carbon neutral. Carbon-neutral status may also be achieved through purchasing high-quality carbon credits.

■ **Platinum:** This highest-level certificate is awarded to companies that have received bronze, silver and gold certificates and is based on the entire golf operations (clubhouse included) being carbon neutral through reducing emissions or by purchasing high-quality carbon credits. Platinum courses are carbon neutral and have accounted for their total operational carbon emissions as well as the carbon emissions embodied in the products/services they sell and use.

Reducing carbon footprint is like losing body weight — the formula is straightforward: Carbon footprint equals inputs minus carbon sequestered. The best results for reducing carbon footprint are realized by reducing your largest inputs. The high carbon inputs with the highest emission factors should be minimized or eliminated. These high-input areas are like the deserts or fatty foods one eliminates to lose weight. Primary greenhouse gases include (in order of highest to lowest emission factors) CFCs (from coolants/refrigerants), nitrous oxides (from fertilizer use), methane (from waste generated at course diverted to landfill), carbon (from fuel sources such as diesel, gasoline, propane, etc.), and utility power like electricity from coal, natural gas, nuclear sources.

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### QUICK TIP

With tournament season approaching quickly, it's time to begin drying out the course and lowering the cutting heights. In order to obtain the most precise cut, make sure mower reels are sharpened and properly set, and ensure you have the most appropriate irrigation equipment for spot-watering. For more information on irrigation equipment and cutting-unit maintenance, contact your local John Deere Golf sales representative, or visit [www.johndeere.com](http://www.johndeere.com)