



Golf course equipment that is Tier-4 compliant produces up to 90% fewer emissions than older, non-compliant diesel engines.

ENVIRONMENTALLY FRIENDLY GOLF COURSE MAINTENANCE EQUIPMENT

BY USGA GREEN SECTION

Like the vehicles we drive every day, the equipment used to maintain golf courses has long been powered by gasoline and diesel engines. Reducing the impact that these engines have on the environment is important to golf facilities. Fortunately, many new technologies developed by the automotive industry to improve fuel efficiency and reduce emissions are making their way to golf course maintenance equipment.

Until the invention of fuel injection, carburetors were used to regulate the amount of fuel and air delivered to an engine. The automotive industry began using fuel injection in the 1950s, and by 1993 almost every new car was equipped with the technology (Utterback, 2005). Fuel injection replaced the carburetor because it delivers a more precise combination of fuel and air that results in more power, improved fuel efficiency and reduced emissions. Realizing these benefits, equipment manufacturers started offering fuel injected versions of the small gasoline engines used in turf maintenance equipment. The golf course

industry did not stop at fuel injection, adopting many other environmentally friendly technologies used in the automotive industry to further improve efficiency and reduce emissions.

Both hybrid and fully electric mowers are widely available. These units can produce the same quality playing conditions as their conventional gasoline- and diesel-powered counterparts. Hybrid and electric equipment also is very quiet, reducing distractions to golfers and pleasing homeowners living adjacent to golf courses. These types of equipment also provide an added benefit over conventional equipment – less reliance upon hydraulic components that can leak and kill turf.

Large equipment used to maintain fairways and rough often is powered by diesel engines. All diesel-powered golf course maintenance equipment manufactured after 2015 must meet the Tier 4 emissions standards established by the EPA. These standards have reduced non-road diesel engine emissions by up to 90 percent from previous emissions requirements (Regulatory, 2004).

Golf course superintendents must deliver conditions that meet high golfer expectations while being responsible stewards of the environment. Investing in improved equipment helps superintendents produce quality playing conditions and reduce emissions.

Source: Regulatory Announcement Clean Air and Nonroad Diesel Rule. May 2004, nepis.epa.gov/Exec/QueryPDF.cgi/P10001RN.PDF?Dockey=P10001RN.PDF.