

located at 3186 Old Tunnel Road, Lafayette.

His completed courses include Carmel Valley Golf & Country Club Carmel Valley, Lake Merced Golf & Country Club, San Francisco, Canyon Golf Club, Rodeo and the Villages Golf & Country Club, San Jose.

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TURFGRASS ITS CONTRIBUTION TO THE ENVIRONMENT

by Anthony Terzis

For many years Golf Course Superintendents have provided thousands of acres of healthy turf for the enjoyment of millions of people. Until recently, grass has been praised mainly on its aesthetic value. Because of the increased public awareness of pollution and the environment, it behooves us to look at the contribution turf makes in improving and protecting our environment.

We can begin by considering grass as a life support system. Green plants, whether they are phytoplankton, "the grass of the sea," or a wheat crop, provide the base for a food chain. This means everything we eat, plant or animal, begins with something green.

In their life processes, plants take polluting gases from the air and liberate pure oxygen. Recent research indicates that equal amounts of oxygen are produced by plants in the sea and on land. In fact, the average 18-hole golf course of 150 acres during the growing season provides enough oxygen for 10,350 people day after day. But the production of oxygen is just one of many benefits living turf provides.

Turfgrass is a regulating factor of man's environment. Each year the burning of fossil fuels puts large quantities of carbon dioxide into the atmosphere. Scientists warn that since carbon dioxide has an insulating effect, the result will be a warming of the earth through the "greenhouse effect." This could bring about a melting of polar ice caps and a flooding of coastal cities. One-half of the carbon dioxide produced each year is taken up by the oceans. The other half remains in the atmosphere to become incorporated into the roots, stems and leaves of green plants through the process of photosynthesis. In spite of this, we remove a million acres a year from production, paving them over with highways, shopping centers and apartments.

Another chemical formed during fuel combustion is nitrogen dioxide. The action of sunlight on it and unburned gasoline produces photo-chemical oxidants such as ozone and peroxyacetyl nitrate (PAN), which, while harmful to some vegetation, have a lesser effect on bluegrass. Another air pollutant, hydrogen fluoride, can cause injury to crops in minute concentrations of 1/10 part in one billion, but grass can accumulate several thousand times that amount without injury.

Grass and trees are effective dust traps. They act to slow the

air and thus dust particles can settle out. Twelve million tons of particulate matter are released into the atmosphere each year in the United States. These particles are attracted to the leaf surface through static electricity where they are held until rainfall washes them into the soil. The effectiveness of this is illustrated by a study done in Frankfort, Germany. Tests showed that the air in Rothschild Park carried less than 1/6 the amount of dust particles as the town center. Furthermore, streets lined with trees carried about 1/4 the dust particles of streets without trees.

Obviously, a golf course should mean more than a water hazard, a dogleg to the left, or a well-manicured green. Its greenery serves the entire community by enhancing the quality of the environment. Golf Course Superintendents can be proud that they have one of the leading roles in establishing and maintaining hundreds of thousands of acres of green grass.

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