

TURFGRASS MAY BE CARBON "SINK"

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The turfgrass found on golf courses, lawns and public parks may have a benefit hidden under the surface. Soil scientists from the Agricultural Research Service and Colorado State University (CSU) have found that turfgrass may serve as a "sink" for storing carbon dioxide in the soil. Many ARS researchers have found that both rangeland and farmland can act as a carbon soil sink. In this process, some of the CO₂ from the atmosphere is captured by plant photosynthesis and trapped in the soil, helping mitigate the greenhouse effect. This study is one of the first to measure this process, called carbon sequestration, in an urban setting.

Ron Follett of ARS' Soil-Plant-Nutrient Research Unit in Fort Collins, Colo., and Yaling Qian of CSU studied 16 soil records from golf courses in the Denver area, some of which go back 45 years. They found that carbon sequestration lasts for up to 31 years in fairways and 45 years in greens, after which the rates slow or become negligible. While carbon sequestration exists on tees, it was not nearly as much as occurs on the fairways and greens, and the researchers are still investigating the reasons for this difference.

The researchers also noticed that a rapid increase in carbon sequestration occurs in the first 25-30 years after the turfgrass is established. The study found that nearly a ton of carbon per acre per year is stored in the soil of fairways and one ton per acre of carbon for greens.

The scientists are using computer models to figure out the potential rates for carbon sequestration on golf courses. They are also conducting a more detailed evaluation of soil samples in fairways and the irrigated and nonirrigated rough on golf courses.

More information about this research can be found in the June issue of Agricultural Research magazine, available on the World Wide Web at:

<http://www.ars.usda.gov/is/AR/archive/jun03/golf0603.htm>

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