



FOR IMMEDIATE RELEASE

CONTACT: Jim Novak
Public Relations Manager
Turf Resource Center
2 East Main Street
East Dundee, IL 60118
Tel: 847/649-5555 Fax: 847/649-5678
jnovak@TurfGrassSod.org

Are Lawns Good for the Environment?

“A well-watered and fertilized lawn is a carbon sink. If people recycle the grass clippings, leaving them to decompose on the lawn, the U.S. lawn area could store up to 16.7 teragrams of carbon each year. That's equivalent to about 37 billion pounds.”

- Cristina Milesi, NASA Ames Research Center

Cristina Milesi set out to calculate how much of America's land surface is covered with turf and what impact if any all that grass has on the country's water and carbon cycles.

While working on her Ph.D. at the University of Montana and signed up for an e-business class. The final exam required her to submit a proposal for an e-business. That business, an e-mail service for homeowners that would tell them if they needed to turn on their sprinklers and for how long, got her thinking about the potential customer base. This meant she'd need to know how much surface area in the United States was covered by lawns. She found out that no one had ever published an observation-based estimate of lawn surface area in the United States.

Thinking such a study was ecologically important, Milesi submitted a research proposal to the NASA Earth System Science Fellowship Program. Several years later, she's arrived at some conclusions. One of which is, “Even conservatively, I estimate there are three times more acres of lawns in the U.S. than irrigated corn.”

In other word, lawns—including residential and commercial lawns, golf courses and sports fields—could be considered the single largest irrigated crop in America in terms of surface area, covering about 128,000 square kilometers in all. All that vegetation has some environmental benefits.

(MORE)

To calculate the ecological impacts of the turf crop Americans are cultivating, Milesi accounted for the fact that turf management methods vary from person to person, and business to business. She used computer simulation to calculate the effect of different management techniques on the water cycle and carbon cycle. The variables tested included watering a fixed amount (including rainfall) versus watering according to weather and evaporation rates, adding different amounts of fertilizer, and leaving the clippings on the lawn after mowing or bagging them for removal.

Among her conclusions; “If people recycle grass clippings, leaving them to decompose on the lawn, the U.S. lawn area could store up to 16.7 teragrams of carbon each year. That's equivalent to 37 billion pounds that effectively reduce greenhouse gas emissions.” The fact that recycling the clippings on the lawn would be so productive is a little surprising, according to Milesi. After all, decomposing grass is a source of carbon, with bacterial activity releasing carbon dioxide back into the atmosphere. But apparently, grass is more efficient than Milesi expected. The growth boost provided by the recycling of nitrogen from the decomposing grass clippings more than makes up for the carbon being released. “In fact, the model suggests that if we recycle the clippings on the grass, we can almost halve the amount of synthetic nitrogen fertilizer, and the carbon storage is still greater than it would be if we used the higher amounts of fertilizer but removed the clippings from the lawn.”

Another consideration, if grass wasn't there, much more soil would run off into storm drains, waterways and rivers, polluting reservoirs and hastening the erosion of hillsides and valuable farmland.

(MORE)

Even Congress noted the benefits of grass and other vegetation in a 1990 Farm Bill:
"... low growing dense perennial turfgrass sod in urban areas and communities, can aid in reducing carbon dioxide emissions, mitigating the heat island effect, and reducing energy consumption, thus contributing to efforts to reduce global warming trends"

For the complete article, visit <http://earthobservatory.nasa.gov/Study/Lawn/lawn.html>.
An article on her project is available at NASA's Earth Observatory.

###