

Research Notes: Ecological Benefits of Turf and Other Vegetation

Some general market statistics*:

1. Total amount of turf cover in USA (1995 estimate): 31 million acres.
2. Total USA lawn & landscape industry size: \$70 billion.
3. Lawn care is one of the fastest growing segments of the Green Industry.

Basic benefits of turf*:

1. Remove dust and dirt from the air, approximately 12 million tons of it annually in the U.S.
2. Reduce soil erosion by slowing down water movement, stabilizing soil through an extensive root system, providing a protective groundcover over bare ground and by utilizing water that may otherwise be lost via stormwater runoff.
3. A 10,000 square foot lawn can absorb more than 6000 gallons of water without noticeable runoff. (source: The Lawn Institute)
4. Improves native soil quality and structure by providing organic matter, driving microbial activity and reducing compaction.
5. Reduce noise, dissipate heat and reduce glare
6. Improve surface and groundwater by filtering rainwater.
7. Provide a safe playing surface for children, adults and athletes
8. Decrease noxious pests, allergy related pollens and human disease exposure
9. Reduce fire hazard
10. Release oxygen and cool the air while consuming harmful carbon dioxide in the process
11. One estimate indicates that during the active growing season, a healthy lawn area of 25 square feet will provide enough oxygen for one adult person for one day. (source: The Lawn Institute)
12. Another estimate is that the grass and trees along the U.S. Interstate Highway System release enough oxygen to support 22 million people annually.

* Source: www.epa.gov/oppbppd1/PESP/strategies/2004/plcaa04.htm unless otherwise noted.

More benefits**:

1. Healthy turf absorbs rainfall more effectively, helping to prevent loss
2. Healthy turf helps keep us cool. Rural areas are an average 5-7 degrees cooler than urban areas
3. Healthy turf provides the most cost effective method to control wind and water erosion, which helps to eliminate dust and mud problems
4. Lawns help to purify water by acting as a filter to clean many types of pollutants

** Source: The O.M. Scotts Co. (www.scotts.com/scotts-sites/environment)

“Turfgrass sod in urban areas and communities can aid in the reduction of carbon dioxide emissions, mitigating the heat island effect, reducing energy consumption and contributing to efforts to reduce global warming trends.” - from a U.S. Congress report

More***:

1. A well maintained lawn and landscape can enhance the “curb appeal” adding as much as 15% to the value of a home.
2. 2500 square feet of lawn absorb carbon dioxide from the atmosphere and releases enough oxygen for a family of four to breathe.
3. On a hot summer day, lawns will be 30 degrees cooler than asphalt and 14 degrees cooler than bare soil.

4. Nature's Air Conditioner: The front lawns of 8 houses have the cooling effect of about 70 tons of air conditioning. That's amazing when the average home has an air conditioner with just a 4 to 4 ton capacity.
5. Healthy turf can reduce the amount of energy needed to operate air conditioners by 25%.
6. In addition: The cooling effect of irrigated turf reduces the amount of fuel that must be burned to provide the electricity which powers the air conditioners.
7. Soil Erosion: A healthy lawn absorbs rainfall six times more effectively than a wheat field and four times better than a hay field.

(Source: TPI website: <http://www.turfgraassod.org/webarticles/anmviewer.asp?a=135>)

About the Urban Heat Island Effect****:

During the summer, dark-colored rooftops, pavements and surfaces absorb and radiate heat from the sun. This phenomenon creates what is known as the Urban Heat Island effect, with urban temperatures 6 to 10 degrees higher than rural temperatures. Anyone who has experienced the change in temperature upon moving from an asphalt parking lot to a lush park on a hot summer day has experienced the Urban Heat Island effect.

Benefits of reducing heat absorbing surfaces by replacing with turf:

1. Cools ambient temperatures 6 to 10 degrees.
2. Increases evaporation creating an additional cooling effect
3. Decreases smog by lowering the level of airborne pollutants that create it by undergoing photochemical reactions.
4. A reduction of energy usage to run air conditioners means a decrease in pollutants (smog) created by power plants that would otherwise generate the necessary power to operate them.
5. By adopting "green practices" in the renovation of four older brownstone rowhouses in one City of Chicago project, the owners experienced energy savings that ranged from 15% to 49%.

(source: www.autodesk.com/mini-sites/green/stories/chicago.html)

Compiled by:
Joe Churchill
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