Training for Fertilizer Application Certification in Maryland

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Power Point Presentations and Draft Form of Training Manual Will Be Available at:
http://iaa.umd.edu/resources/industry-resources/2013-mtc-conference
Benefits and Hazards Associated With Fertilizer Application
What Are Turfgrasses?

Turfgrasses: Are........

1) A Perennial Plant Community

2) Are Plants Within the Poaceae Family

3) Tolerate Defoliation (Mowing) and Traffic

4) Have a Fibrous Root System
WHY TURFGRASSES?
TURFGRASS USES

- FUNCTIONAL BENEFITS And/Or USE
- RECREATIONAL USE
- AESTHETIC USE
FUNCTIONAL BENEFITS

- Erosion Control
- Modify Temperatures
- Water Quality / Purification
July 6, 2010
At 4:00 pm
Temperature Was 100 F

Parking Lot: 140 F  Synthetic Field: 157 F

Infrared Thermometer

Natural fields (Bermudagrass): 94 F

Transpirational cooling lowered temperatures by as much as 63 F
Influence of Plant Cover on Runoff

- Turfgrasses Reduce Run-off After Storm Events
- Filter Various Contaminants (Oil, Nutrients, And Pesticides)
- Reduce Soil Erosion
FUNCTIONAL BENEFITS

- Positive Influence of Plant Photosynthesis

Carbon Footprint!
Carbon Dioxide Sink (2-6 Tons/Acre/Yr) Thus Reducing Greenhouse Effect and Can Also Remove Other Air Pollutants Such as Ozone and Hydrogen Fluoride

- Oxygen Production
FUNCTIONAL BENEFITS

Organic Matter Content in a Grassland and a Forest Soil Profile

Improves Soil Structure By Increasing Organic Matter In Soils

From “Fundamentals of Soil Science” Foth et.al 1985

GRASSLANDS
Cimarron National Grassland
Washington Post Article; May 26, 1997

"There's No Bond Quite Like The One Between A Man and His Grass"

"of all the sensuous pleasures I get from grass, none is greater than the look, feel, and scent of it immediately after it's been cut"
Aesthetic Value In Parkland Settings
RECREATIONAL USES

- Football
- Golf
- Baseball
- Soccer
- Tennis
- Lawn Bowling
- Field Hockey
- Lacrosse
- Horse Racing
RECREATIONAL USES

- **Playability** and **Safety (Hardness/Footing)** Are Major Concerns For Recreational Uses

Clegg Impact Hammer Measures How Hard A Playing Surface Is

A Stimpmeter Measures Ball Speed On A Putting Green at 2011 U.S. Open
Risks of Turf Fertilizing

Eutrophication

You’ve seen ponds like this, stagnant and covered with algae. This pond is “eutrophic.”

◆ This can happen naturally over a long period of time or it may happen “unnaturally” if a waterbody receives runoff containing excess nitrogen and/or phosphorus.

◆ Excess nutrients allow some plants to overgrow, throwing off the balance of organisms living in the pond, & leading to low oxygen levels in the water.

◆ Result: a body of water that can’t support diverse populations of living things.
What Can Happen to Nutrients After Application to Turf?

**GOOD**
- Taken up by plants and other soil organisms
- Stored in the soil on clay particles and organic matter

**BAD**
- Runoff in water or with soil erosion
- Leach into ground water when water carries them past plant roots
- Volatilize – nitrogen can convert to a gas & be lost to the air

Depending on how nutrients are applied to turfgrass, the outcome may be good or bad for business & the environment.