Best Management Practices and The Environmental Benefits of Turfgrasses

Dr. Charles H. Peacock

NC State University
Politicians!
You figure them out!!!!
They want Sustainable Solutions!

REVISED DRAFT WATER-EFFICIENT SINGLE-FAMILY NEW HOME SPECIFICATION

1.0 SCOPE AND OBJECTIVE

This specification establishes the criteria for water-efficient new homes under the U. S. Environmental Protection Agency’s (EPA’s) WaterSense® program. It is applicable to newly constructed single-family homes and townhomes, three stories or less in size. A new home must be built by a WaterSense builder partner and meet all of the identified criteria to become a WaterSense labeled new home.

The intent of this specification is to reduce indoor and outdoor water usage in new residential homes, thereby lowering consumer utility bills and encouraging water and wastewater infrastructure savings. EPA’s goal is that WaterSense labeled new homes will use approximately 20 percent less water than a standard new home by using a combination of prescriptive and performance-based approaches identified in this specification.

All homes, landscapes, and irrigation systems shall meet all applicable national, state, and local regulations. This specification is not intended to contravene state or local codes and requirements. Unless indicated, criteria for the individual components or products specified in...
4.0 **OUTDOOR WATER-EFFICIENCY CRITERIA**

4.1 **Landscape** – EPA has developed two options for designing the landscape of WaterSense labeled new homes; builders shall choose and implement one of these options. Option 1 provides a turfgrass allowance and Option 2 allows the builder/landscape professional to design a landscape that is sustainable with a specified amount of water (i.e., a **water budget**).

At a minimum, the **front yard** shall be landscaped to meet the criteria in either option. The entire yard shall be landscaped to meet the criteria in either option where landscaping of the entire yard is financed, installed, or sold as an upgrade through the homebuilder. The entire yard shall also be landscaped to meet the criteria in either option when irrigation systems, pools, spas, or **water features** have been financed, installed, or sold by the homebuilder.

Lots with **landscapable areas** equal to or less than 1,000 square feet are exempt from these landscape criteria.

4.1.1 **Landscape design**

4.1.1.1 **Option 1** – Turfgrass shall not exceed 40 percent of the **landscapable area**.

4.1.1.2 **Option 2** – Landscape design shall be developed using the **water budget** tool based on a 70 percent **evapotranspiration adjustment factor**.

4.1.2 **Turfgrass** – Turfgrass shall not be installed in strips less than 4 feet wide.
4.1.1 Landscape design

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4.1.3 Slopes – Plantings other than turfgrass shall be installed on slopes in excess of 4 feet of horizontal run per 1 foot vertical rise (4:1).

4.1.4 Mulching – Non-vegetated, softscape parts of the landscapable area shall include a 2- to 3-inch layer of mulching material.

4.1.5 Pools/spas – Pools and spas shall have an appropriate cover. The water surface area shall be deducted from the turfgrass allowance under Landscape Design Option 1 and included as landscapable area under Landscape Design Option 2.

4.1.6 Ornamental water features – Ornamental water features financed, installed, or sold as upgrades by the homebuilder must recirculate water and serve a beneficial use. The water surface area shall be deducted from the turfgrass allowance under Landscape Design Option 1 and included as landscapable area under Landscape Design Option 2.
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#7 No need to go elsewhere to get grass stains.
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#7 No need to go elsewhere to get grass stains.

#6 It smells good when you cut it.
Top ten reasons to have a lawn:

#5 It gives weeds a place to stand out and be recognized.
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#1 It just looks pretty.
Why Grow Grass?

- We grow grass for one reason: we can mow it and it survives, even thrives. Any other plant, even most other grasses would die after being mowed with any regularity. There are over 10,000 species of grass, yet only about 50 of those are suitable for use in a lawn.
Disadvantages of Growing Grass

Having a nice lawn surrounding your house not only improves the quality of your life, but also improves the value of your home and helps ecologically by filtering the air and water that passes through it.
Disadvantages of Growing Grass

But these benefits do have a cost associated with them.

→ It needs to be cut on a regular basis.
  – A healthy lawn is one with a good root system which is further developed through regular mowing at the proper height and frequency.
Disadvantages of Growing Grass

→ To look good, a lawn needs to be fed on a regular basis. Without regular and timely feedings of properly balanced fertilizers, a lawn will lose its vitality and decrease its ability to withstand diseases and insect damage.

– Lawns have a bad reputation as being polluters of our streams and rivers. While excess nitrogen does cause waterway problems, the culprit is more likely to be from farming areas. The farm fields have nothing holding back the run-off and the applied nitrogen then works its way into our waterways.

– Lawns on the other hand, are typically thick with vegetation that does an excellent job of slowing or stopping water run-off. Professionally applied fertilizers are typically applied at the correct rate with little or no excess run-off. Do-it-yourself homeowners are more likely to apply too much product that might result in excess run-off under the right conditions or on impervious surfaces where it goes into the nearest stormwater drain.
Disadvantages of Growing Grass

→ Pesticides. Probably the biggest disadvantage to owning a premium lawn.
  
  – Pesticides can be harmful to all concerned and extreme care must be taken in their use.
  
  – Pesticides are best used in small doses and only as needed. Putting down weed-killer across the entire lawn when only a few weeds live out back isn't good. Spot treatment of weeds is preferred and if you don't mind an occasional dandelion, forget weed controls altogether. Crabgrass and other invasive weeds need to be controlled annually before they become a major problem that is expensive and time consuming to correct.
Disadvantages of Growing Grass

→ Most insects are beneficial to our ecosystem and pose no threat to our lawns, yet many homeowners will kill-off everything in sight or out of sight just to get rid of the bugs.

  – Professional lawn care applicators must be licensed by the state to apply pesticides and for good reason. To obtain a license they must have a good working knowledge of these chemicals including all of the precautions associated with them. The rate of application is also important. Homeowners typically over-apply pesticides and the results can be devastating.
Disadvantages of Growing Grass

→ Some lawns may also need supplemental watering at various times throughout the year, but that can be greatly controlled by planting the right type of grass for specific geographic areas. Trying to put a lawn in locations that need to be watered daily is certainly not a good idea nor recommended.
Disadvantages of Growing Grass

✓ Each of these items can be considered disadvantages to having a lawn.
✓ Considering the alternatives though, a lawn is a pretty good choice and well worth the investment of time, effort and money required.
✓ Environmentally, a lawn more than pays for its upkeep by filtering our air and rain water, cooling our environment during the hot months, and providing a pleasing background for everything else that goes on around our homes and parks.
Some Grass Facts!

- Helps beautify the neighborhood.
Some Grass Facts!

• Creates a relaxing space of natural beauty. Grassy areas quickly affect people's moods by creating feelings of serenity, privacy, thoughtfulness or happiness. Its yearly cycles of growth and color changes, lifts the human spirit and links urban dwellers with their countryside heritage.
Some Grass Facts!

• Front lawns of just eight average houses have the same cooling effect as about 70 tons of air conditioning, while the average home-size central air unit has only a 3-4 ton capacity.
Some Grass Facts!

• While strict conservationists berate the lowly lawn as an expensive consumer of natural resources, it is actually a natural provider for our ecosystem. Healthy, dense lawns absorb rainfall six times more effectively than a wheat field, four times better than a hay field, and prevents runoff and erosion of our precious top soil. A healthy lawn also traps much of the estimated 12 million tons of dust and dirt released into the US atmosphere annually.
Some Grass Facts!

- Lawns purify water entering into underground aquifers. The lawns root mass and supporting soil microbes act as massive filters to capture and breakdown many types of pollutants common to our urban environment.
Some Grass Facts!

- A healthy, vibrant lawn also increases the real estate market value of a home and its salability. A Gallup Survey reported 62% of all US homeowners felt investment in lawns and landscaping were as good or better than other home improvements. The investment recovery rate is actually 100-200% for landscape improvement, compared to a deck or patio that will recover only 40-70% of the installation cost. Proper and well maintained landscaping adds 15% to a home's value according to buyers.
Some Grass Facts!

• Recovery rates among hospitalized patients are often quicker when their rooms view a landscaped area compared to patients with non-landscaped views.
Some Grass Facts!

• Athletic playing fields covered with dense turf have proven to be safer for the athletes as demonstrated by a simple egg drop test. When a dozen raw eggs were dropped from a height of 11 feet onto a two-inch thick piece of dense turf, none broke; two thirds of the dropped eggs broke on thin turf from that height, and from just 18 inches, all the eggs broke on an all-weather track!
July 21, 2008, 2:20 PM

Are Playground Safety Mats Too Hot to Handle?
By SEWELL CHAN

Updated, 3:43 p.m. | Rubber safety mats have become a fixture of children’s playgrounds in New York City, buffering heads, hands and other body parts when children slip and fall. But two news accounts today — in The Daily News and in Metro New York — question whether the mats themselves pose a hazard: They can get so hot under the summer sun that they can
Rubber safety mats have become a fixture of children’s playgrounds in New York City, buffering heads, hands and other body parts when children slip and fall. But two news accounts today — in The Daily News and in Metro New York — question whether the mats themselves pose a hazard: They can get so hot under the summer sun that they can burn bare feet.

The Daily News found that some of the mats could get as hot as 160 degrees. Two of the city’s burn centers evidently reported treating 10 cases of playground burns last year, and at least three lawsuits have been filed by parents over playground burns.

“Playgrounds should be designed with canopies,” Geoffrey Croft, the founder of the NYC Park Advocates, a parks watchdog group, said in a phone interview. “The city should be pressuring the manufacturers to come up with a solution.”

This afternoon, Betsy Gotbaum, the city’s public advocate and a former city parks commissioner, said in a statement:

It’s unacceptable that children suffer severe and completely avoidable injuries due to equipment installed and maintained by the city. How many burn cases will it take before the city wakes up and acts? Signs warning against bare feet on the playground are not sufficient to ensure children’s safety. The city needs to do more to...
TURF WAR

Americans can’t live without their lawns—but how long can they live with them?
by Elizabeth Kolbert

In 1841, Andrew Jackson Downing published the first landscape-gardening book aimed at an American audience. At the time, Downing was twenty-five years old and living in Newburgh, New York. He...
Elizabeth Kolbert

- **Elizabeth Kolbert** (b.1961) is an American journalist and author. She is best-known for her 2006 book *Field Notes from a Catastrophe*, and as an astute observer and commentator on environmentalism for *The New Yorker* Magazine.

- Kolbert spent her early childhood in the Bronx; her family then relocated to Larchmont, New York, where she remained until 1979.

- After graduating high school, Kolbert spent four years studying *literature* at Yale University. In 1983, she was awarded a Fulbright Scholarship to study at the University of Hamburg, in Germany.
mower was patented, and a few decades later the gasoline-powered mower hit the market. An advertisement for an Ideal Junior Power Mower, from 1922, celebrated the exceptional efficiency of the new technology. It asserted that many property owners, “who previously had to hire two or three men to keep their grass cut, now do the work with one of these.”

A lawn may be pleasing to look at, or provide the children with a place to play, or offer the dog room to relieve himself, but it has no productive value. The only work it does is cultural. In Downing’s day, the servant-mowed lawn stood, eloquently, for the power structure that made it possible: who but the very rich could afford such a pointless luxury? As mechanical mowers enabled middle-class suburbanites to cut their own grass, this meaning was lost and a different one took hold. A lawn came to signal its owner’s commitment to a communitarian project: the upkeep of the greensward that linked one yard to the next.

“A fine carpet of green grass stamps the inhabitants as good neighbors, as desirable citizens,” Abraham Levitt wrote. (By covenant, the original Levittowners agreed to mow their lawns once a week between April 15th and November 15th.) “The appearance of a lawn bespeaks the personal values of the resident,” a group called the Lawn Institute declared. “Some feel that a person who keeps the lawn perfectly clipped is a person who can be trusted.”

Over time, the fact that anyone could keep up a lawn was
BENEFITS OF TURFGRASSES
Functional

• Soil erosion control and dust prevention
• Groundwater recharge and surface water quality
BENEFITS OF TURFGRASSES

Functional

• Heat dissipation and temperature modification
BENEFITS OF TURFGRASSES
Functional

• Noise abatement and glare reduction
BENEFITS OF TURFGRASSES
Functional

• Air pollution control
  – Grasses have been shown to effectively sequester toxic emissions such gases from automobiles.
BENEFITS OF TURFGRASSES

Functional

• Nuisance animal reduction
  – Closely mown turf reduces the number of snakes, rodents, mosquitoes, ticks, chiggers and bees. As undesirable small animals seek haven in taller grasses, flowers and shrubs at locations more distant from the home, they are less likely to invade the house.
  – Also, more people die each year from bee stings compared to snake bites. Bees are attracted to clover, which is usually a large component in a “natural” lawn.
BENEFITS OF TURFGRASSES
Recreational

• Low cost surfaces
  – safety
    • Better traction, cushioning, resiliency and lower surface hardness
  – physical health
    • In a study at 12 high schools in PA, it was determined that 20% of injuries were definitely or possibly related to field conditions
  – mental health - aesthetics
  – spectator entertainment
    • Ball roll and bounce are influenced by turf cover as are player movements.
BENEFITS OF TURFGRASSES
Aesthetics

• Beauty
  – Quality of life
  – Mental health
  – Social harmony
  – Community pride
  – Increased property values

• Compliments trees and shrubs in landscape
Beware of the lawn
BENEFITS OF TURFGRASSES

Functional
BENEFITS OF TURFGRASSES

Functional
Recreational
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BENEFITS OF TURFGRASSES

Functional
Recreational
Aesthetics

AND IT JUST REALLY LOOKS PRETTY!
BEST MANAGEMENT PRACTICES - Goals

- Reduce the off-site transport of sediment, nutrients, and pesticides.
- Control the rate, method, and type of chemicals being applied.
- Reduce the total chemical loads by use of IPM, economic thresholds, alternative pest control strategies and fertility testing.
BEST MANAGEMENT PRACTICES - Goals

- Educate managers and the public on the relationship of environmental issues and systems management.
Preventative Strategies

- Land Use BMPs
- Source Prevention BMPs
IPM is a program that uses information about turfgrass pest problems and environmental conditions which may precipitate these problems, and integrates these with turfgrass cultural practices and pest control measures to prevent or control unacceptable levels of pest damage.
IPM

It is a preventative approach incorporating a number of objectives including the following:

- development of a healthy turf that can withstand pest pressure
- judicious and efficient use of chemicals
- enhancement of populations of natural, beneficial organisms
- effective timing of handling pest problems at the most vulnerable stage, often resulting in reduced pesticide usage.
IPM

- It is an ecologically based system that uses biological and chemical approaches to control. As with BMPs, IPM strategies should be incorporated into every aspect of turf management especially as they relate to environmental impact.
IPM programs rely on six basic approaches for plant and environmental protection

- **Genetic** - selecting improved grasses which perform well in specific areas and show a resistance to environmental stress and pest problems
IPM programs rely on six basic approaches for plant and environmental protection

- **Regulatory** - using certified seed and sod to prevent unwanted weed contamination and guaranteeing true-to-type seed, sod and sprigs of the best adapted turfgrass species and cultivars
Cultural - following recommendations made for proper cultural practices which will maintain the turf in the most healthy condition and influence its susceptibility and recovery from pest problems. Proper application of practices such as proper mowing techniques, good nutrient management, sound irrigation management, aerification, vertical mowing, and topdressing should produce a high quality turf.
IPM

- *Physical* - mechanical removal of pests (i.e. hand weeding in selected areas) and cleaning equipment to prevent spreading of diseases and weeds from infected areas
IPM

- **Biological** - for a limited number of pest problems biological control can be used whereby natural enemies are favored or introduced to effectively compete with the pest; biological control can also include developing habitat to favor natural predation such as installing bird and bat houses thus favoring an increase in populations which feed on insects
IPM

- *Chemical* - Pesticides are a necessary and beneficial approach to turf pest problems, but use can be restricted in many cases to curative rather than preventive applications, thus reducing environmental exposure.
How Do We Approach This?

Information

Communication

Understanding
Video Games
Open Late Night

BINACO
Investments
We Do Mortgages