EPA's Proposed WasteSense Falls Short

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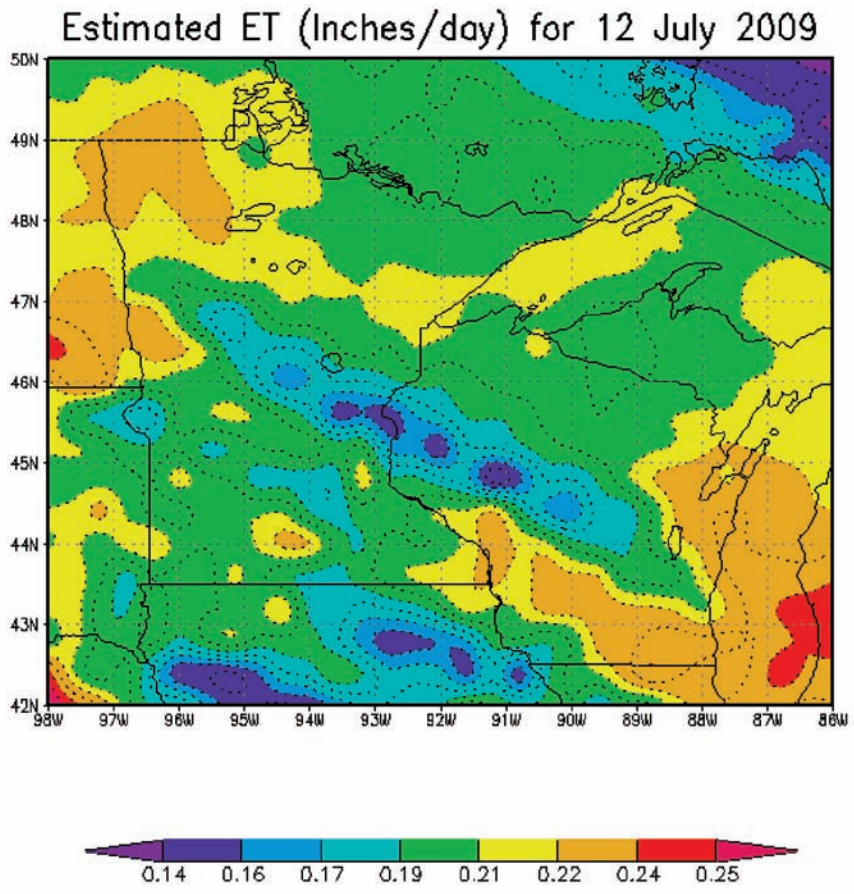
As a state specialist with UW-Extension, one of my duties is to work with governmental agencies to ensure that their policies related to turfgrass and urban soils are well grounded in science. Sometimes there isn't enough science to inform policy, in which case we strive to generate the data as soon as possible. Dr. Wayne Kussow anticipated the phosphorus regulations years before the whispers of phosphorus bans began. A pessimist might wonder about the ultimate value of that research because of the recent laws and rules restricting P use. However, it is clear to me that without his research the turf industry would have had no leg to stand on and would likely be faced with more severe rules and quite possibly even more negative public perception of turfgrass than currently exists.

The latest regulatory issue to cause waves among the turf industry is EPA's proposed voluntary program WaterSense (http://www.epa.gov/watersense). The WaterSense program is a specification that aims to reduce indoor and outdoor water use in newly constructed single-family homes. The program is loosely modeled after the agency's successful EnergyStar specification for consumer electronics. The proposed indoor specifications are non-controversial and include things like having high-efficiency toilets, showerheads, and faucets. However, the outdoor specifications are disappointing to say the least. They include two options.

Option 1: Reduce turfgrass to less than 40% of the landscapable area



ET rates for Wisconsin and Minnesota are available at the WI-MN Cooperative Agricultural Website http://www.soils.wisc.edu/wimnext/ and provide valuable irrigation scheduling information.

Option 2: Landcape design shall be developed using a water budget tool based on 70% evapotranspiration adjustment factor (crop coefficient).

Of these two options, the second has the most scientific merit, although it's not without concerns. For example, we know that crop (or landscape) coefficients vary by region, landscape type, and time of year; and it is therefore not desirable to impose a single value across the nation. Additionally, accurate ET data are probably not widely available throughout the US (WI and MN have access to very accurate ET data, but we are likely unique in that regard). On the other hand, we know that most people (homeowners and professionals alike) would use less water if they switched from the visual and/or experience method to some type of ET-based irrigation.

Unlike Option 2, there is little to no scientific data backing the specifications found in the first option. In fact, research can be found that demonstrates that turfgrass is similar or better than landscape plants with regard to water use (Beard, 1993; Cisar et al., 2005). This information

obviously depends heavily on the climate, plant selection, and how irrigation requirements are determined. The Beard (1993) article is particularly thought provoking. He poses the question, why are grasslands found naturally in drier areas than trees and shrubs? He summarizes research comparing ET rates from trees and shrubs and concludes that grasses use less water than trees and shrubs. Similarly, Cisar et al. (2005) found that once established, mixed species landscapes use more water than a St. Augustine lawn in Florida.

Finally, it is important to remember that turfgrass doesn't waste water, people do. A study by Peterson et al. (1999) found that homeowners in the Southwest US did not change their irrigation practices after switching their landscapes to xeriscapes (low water use plantings). Although the new landscapes required less water, the homeowners continued to over-water them. The EPA and other agencies concerned about reducing water use should pay close attention to this finding because it suggests that the only way to really save water is to require that irrigation is applied water based on crop needs and environmental demand.

Unfortunately, the EPA decided to include Option 1 and admitted that the 40% number was not based on science, but rather borrowed from other "green" programs like the US Green Building Council's LEED Certification Program. Unfortunately, Option 1 is clearly the easiest option for a home builder to implement, and I would hazard a guess that 95% of all new WaterSense homes will use this option.

But perhaps most concerning of all, the WaterSense specification states that turfgrass cannot be grown on slopes exceeding 4:1 regardless of which option is selected. This is another decision that has no credible science supporting it. This aspect of the specification will prove extremely problematic for humid regions, where intense rainfall can lead to erosion of poorly vegetated slopes. On a conference call with interested parties in June, the EPA stated that they recognize that turfgrass prevents soil erosion, but that many other plantings can do so just as well. They have failed to compile a list of those plantings, or acknowledge any research that has compared the erosion potential of turfgrass compared to ornamental plantings. Builders cannot be expected to choose the proper erosion control without guidance.

At least two scientific groups (Turfgrass Science division of Crop Science Society of America, and NCERA-192 a group of turf researchers from the North Central US) have written formal letters opposing the Option 1, and the 4:1 slope limitation. Other industry groups have responded with comments and position letters of their own (WI Green Industry Federation, Turfgrass Producers International, National Turfgrass Federation, and others). Although at the time of writing, EPA is still accepting public comments and has not finalized the specification, it seems to me that they are unwilling to consider eliminating Option 1 (40% turf or less), or the 4:1 slope limitation. The turf industry must be prepared to deal with states and smaller governmental agencies that will assume (justifiably) that the EPA's specifications were carefully vetted and are science-based, and implement copycat rules and building codes.

Because of the WaterSense program and the expected proliferation of local laws from it (probably including golf courses), the UW-Madison turfgrass research program will continue to look for scientifically sound ways of reducing water use on turfgrass areas. In Soil Science, we have examined using surfactants and ET-based irrigation to reduce irrigation requirements on putting greens, and we are looking at the practicality of large-scale water harvesting and subsurface drip irrigation for homes, schools, and commercial sites. This fall, we will be finishing construction of an automated rain shelter at the O.J. Noer Facility, allowing us to compare drought tolerance, irrigation strategies, and many other variables in a tightly controlled environment. Hopefully, this information will lead to better science-based policy in the future.

References:

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