

USGA Innovation Through Technology

U.S. Opens at Pinehurst and Chambers Bay



Golfer Education and Buy-In is Key to Using Less Water

But we have a \$1m irrigation system



Why is the grass brown?

USGA Resources

- Videos, articles, infographics
- usga.org
- Water Resource Center
- usga.org
- usopen.com
- USGA Social Media
- USGA Members Program



Hand Watering



Irrigation with Sprinklers



Water Conservation Checklist and BMP's

- Hope for plentiful rain

Water Conservation Checklist and BMP's

- “You can't manage what you can't measure”



BMP's for Water Conservation

Introducing Superior Grasses

- Warm season grasses on fairways
- Pigments/paints
- Bahiagrass, wheatgrass and buffalograss rough



No irrigation was installed in the new bahiagrass rough at the Country Club of Mobile. Bahiagrass is drought tolerant and is helping this facility become more sustainable.

Table 1. Drought resistance comparisons of commonly used warm- and cool-season turfgrasses*

Relative ranking	Turfgrass species	
	Cool-season	Warm-season
Superior		Bermudagrass (common)
		Bermudagrass (hybrid)
Excellent		Buffalograss
		Seashore paspalum
		Zoysiagrass
Good		St. Augustinegrass
		Kikuyugrass
Medium	Tall fescue	
Fair	Perennial ryegrass	
	Kentucky bluegrass	
	Creeping bentgrass	
	Hard fescue	
	Chewings fescue	
	Red fescue	
Poor	Colonial bentgrass	
	Annual bluegrass	
Very poor	Rough bluegrass	

* Gibeault, V.A., S. Cockerham, J. Henry, and J. Meyer. 1989. California Turfgrass: its Use, Water Requirement and Irrigation. California Turfgrass Culture. 39(3, 4): p.4

BMP's for Water Conservation

Wetting Agents

- Fleet, Hydro90, Sixteen90, Symphony, Hydro-Cure, Cascade, Aqueduct, Revolution, AquaAid, Surfside, Duplex, Primer, Tricure, ReWet, SMS 200, 400 and 700.....

BMP's for Water Conservation

Wetting Agents

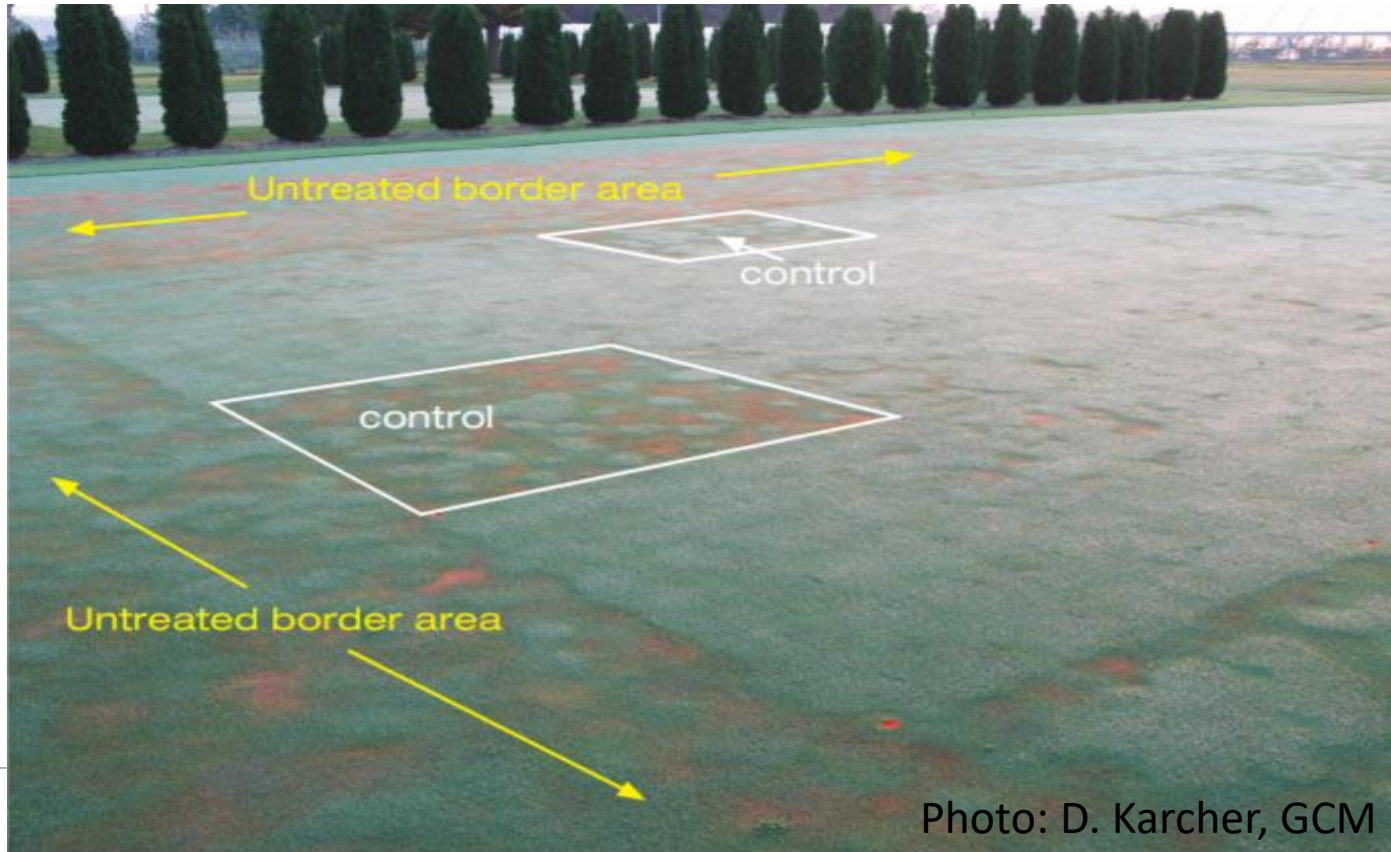
- Anionic and blends
- Nonionic and blends
 - POE's, Block Co-Polymers, Alkyl Polyglucosides, Modified Methyl Capped Block Co-Polymer, Humic Substance Redistribution Molecules, Multibranched Regenerating Wetting Agents

BMP's for Water Conservation

Wetting agent use

- Rewet hydrophobic soils
- Improve moisture uniformity
- Improve water use efficiency (reduce water requirements)
- Application frequency
- Wetting agents treat the soil, not the turf
 - WATER THEM IN

BMP's for Water Conservation

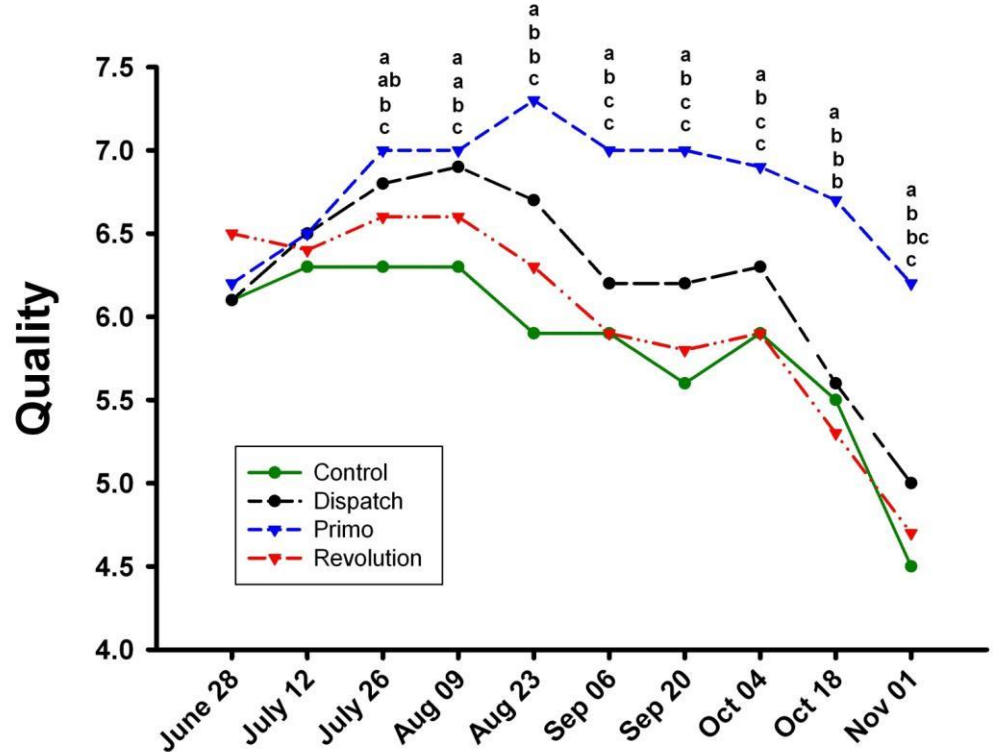


BMP's for Water Conservation



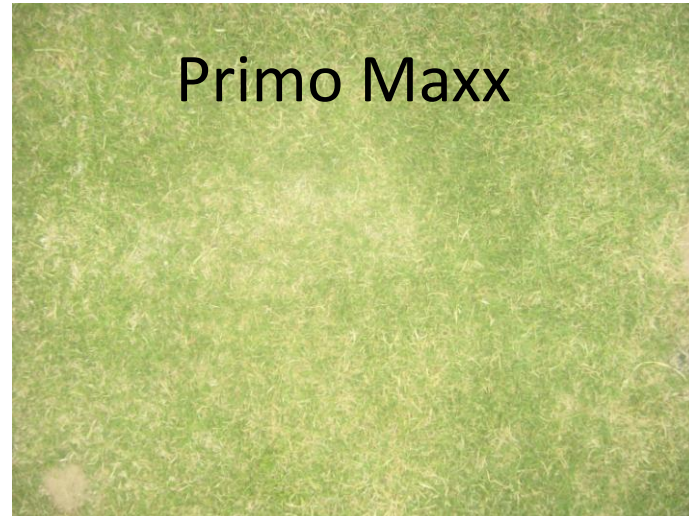
BMP's for Water Conservation

- PGRs (T-ethyl) 50% ET
- Bermudagrass in New Mexico



BMP's for Water Conservation

- Results 50% Eto on bermudagrass in New Mexico



BMP's For Managing Turf Through Drought

Saline Conditions

- Result from light and frequent applications of irrigation water
- Monitor with soil salinity meter
- Deep watering/flushing necessary for severe cases

