

Windjammer®

Superior Soil Surfactant

Windjammer provides turf professionals with a product that enables highly maintained turf to withstand abiotic stress, such as drought, heat, and summer decline. It delivers healthy turf, enhanced color, and outstanding uniform soil moisture. Windjammer significantly reduces wilting and localized dry spot.

Turf Surfactants with a Difference

Windjammer is a key product in the Ocean Organics premium surfactant line which was formulated to optimize water use efficiency and provide firmer and drier playing surfaces. Windjammer's formulation is a blend of surfactant chains designed to handle even the most difficult hydrophobic soils plus a biostimulant to promote plant health. Windjammer is a phyto-safe EO/PO product.

We add our industry-leading seaweed extract to Windjammer for its many benefits related to improving plant fitness and enhancing the plant's ability to handle stress. Our extracts contain no nitrogen, so they will never cause growth flushes.

Windjammer provides higher infiltration rates that enable water, fertility, and pesticide applications to infiltrate the mat layer and reach the soils faster than any product currently available to turf professionals.

Application Rates

Apply 4-6 fl oz per 1000 ft² in minimum of 2 gal of water every 28 days.

After application, irrigate sufficiently to remove product from leaf surfaces.

Sizes: 2 x 2.5 gal cases, 30 gal drums, 275 gal totes



University Research Showed Windjammer Statistically Improved:

Improved:

- Turf Quality
- Canopy Greenness
- Percent Coverage
- Volumetric Water Content

Reduced:

- Wilting
- Localized Dry Spot (LDS)

Windjammer

Windjammer is a premier surfactant that provides unparalleled benefits:

- 6x the infiltration rate of the leading competitive products.
- Provides firm, dry, and fast playing surfaces.
- Enhances the efficacy and control of pesticide programs.
- Produces wilt points significantly lower than the competition.
- Delivers a slower, consistent dry down that reduces hand watering.



Windjammer improved turf quality and percent coverage under deficit irrigation in this surfactant trial at University of Arkansas. Untreated checks to the upper right.

UNIVERSITY OF ARKANSAS

Location/Scientists

University of Arkansas, Fayetteville, AR

Investigator: Dr. Mike Richardson

Study Director: Sarah Williams, Ph.D.,
Ocean Organics

Objective

The objective of this field study was to evaluate the performance of various surfactants when applied to creeping bentgrass research greens at University of Arkansas under deficit irrigation.

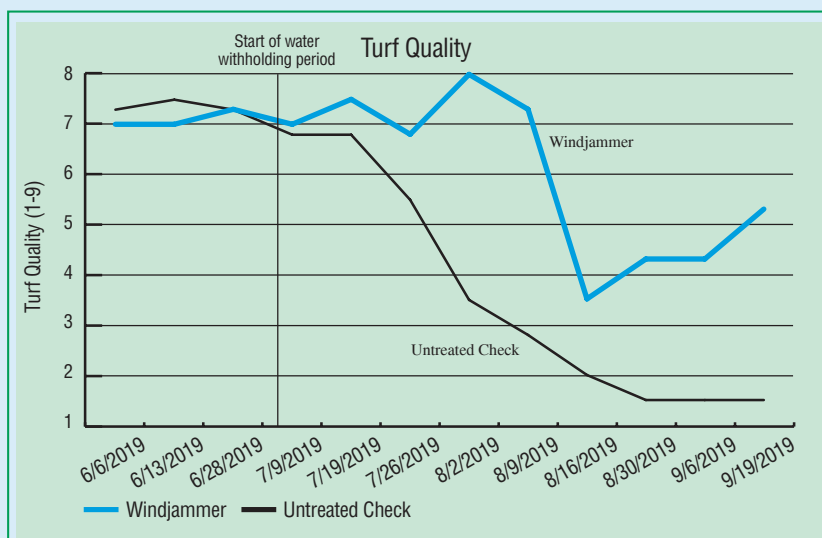


Figure 1: Turf Quality Data. Windjammer statistically improved turf quality as compared to the untreated control from July 26th to the end of the trial.

Table 1A: Turf quality data with statistical analysis. Windjammer statistically improved turf quality as compared to the untreated control from July 26th to the end of the trial.

	7/9/2019 Quality (1-9)	7/19/2019 Quality (1-9)	7/26/2019 Quality (1-9)	8/2/2019 Quality (1-9)	8/9/2019 Quality (1-9)	8/16/2019 Quality (1-9)	8/30/2019 Quality (1-9)	9/6/2019 Quality (1-9)	8/9/2019 Quality (1-9)
Windjammer	7.0 (ns)	7.5 (ns)	6.8 (ab)	8.0 (a)	7.3 (a)	3.5 (ab)	4.3 (a)	4.3 (a)	5.3 (a)
Untreated Check	6.8 (ns)	6.8 (ns)	5.5 (b)	3.5 (b)	2.8 (b)	2.0 (b)	1.5 (b)	1.5 (b)	1.5 (b)

Table 1B: Volumetric Water Content (VWC). Windjammer surfactant statistically improved VWC compared to the control.

	7/19/2019 VWC (%)	8/8/2019 VWC (%)	6/28/2019 VWC (%)	7/9/2019 VWC (%)
Windjammer	13.7 (ns)	18.0 (a)	20.7 (a)	20.5 (a)
Untreated Check	12.9 (ns)	7.4 (b)	9.1 (b)	13.1 (b)

Methods

This trial was initiated on May 31, 2019 on a USGA bentgrass putting green (cultivar Flagstick). Treatment applications were made at approximately 28-day intervals. Irrigation was managed at optimum conditions during June, was restricted to 90% reference ET in July, and 70% reference ET in August. Windjammer was applied at a rate of 5 oz./1000 sq. ft.

Note: This University of Arkansas research was repeated in 2022 and 2023 with similar statistical results.

Conclusion

Plots treated with Windjammer maintained higher turf quality, percent coverage and volumetric water content in this deficit irrigation field trial on bentgrass greens. **Windjammer statistically improved turfgrass quality over the untreated control from 7/26/19 until the end of the trial. Percent coverage was statistically higher in Windjammer plots as compared to untreated controls on 8/6, 8/16, 8/23, 8/28, and 9/20. Treated plots also had a large, significant increase in volumetric water content (VWC) compared to the untreated controls.** In conclusion, Windjammer helped the bentgrass putting greens better withstand deficit irrigation and summer heat stress while yielding superior quality and coverage.

PURDUE UNIVERSITY

Location/Scientists

Dr. Cale Bigelow and
Dr. Jada S. Powlen, Purdue Turf
Science Research Group,
West Lafayette, Indiana

Study Director: Sarah Williams, Ph.D.,
Ocean Organics

Objective

The objective of this field study was to evaluate the performance of various surfactants when applied to creeping bentgrass (*Agrostis stolonifera*) on a sand-based rootzone at Purdue University during the 2019 growing season (June-early September).

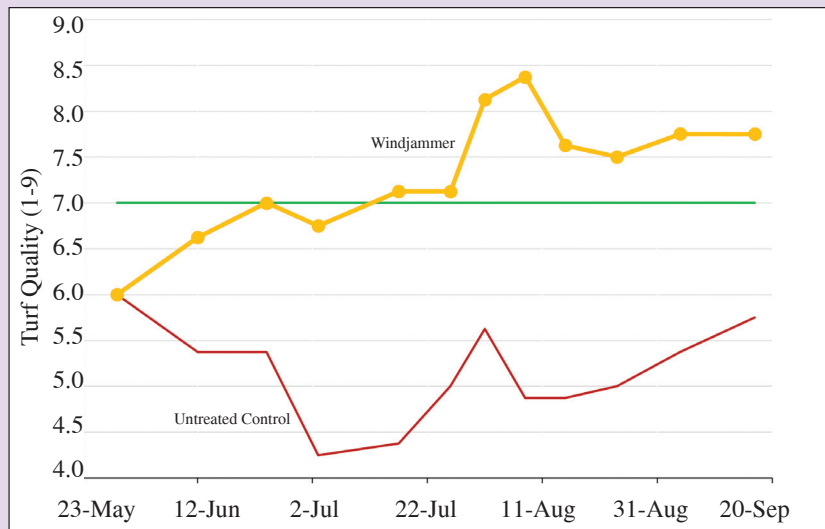


Figure 2A: Turf Quality. Windjammer statistically improved visual quality under summer stress relative to the control.

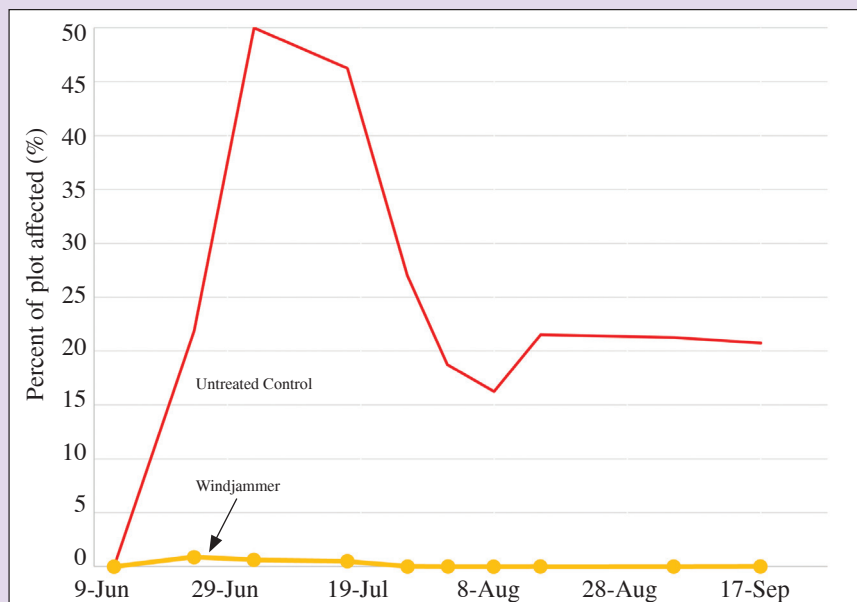
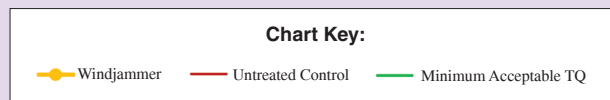


Figure 2B: Percentage Wilt/Localized Dry Spot. Windjammer statistically decreased percentage wilt/localized dry spot under summer stress relative to the control.

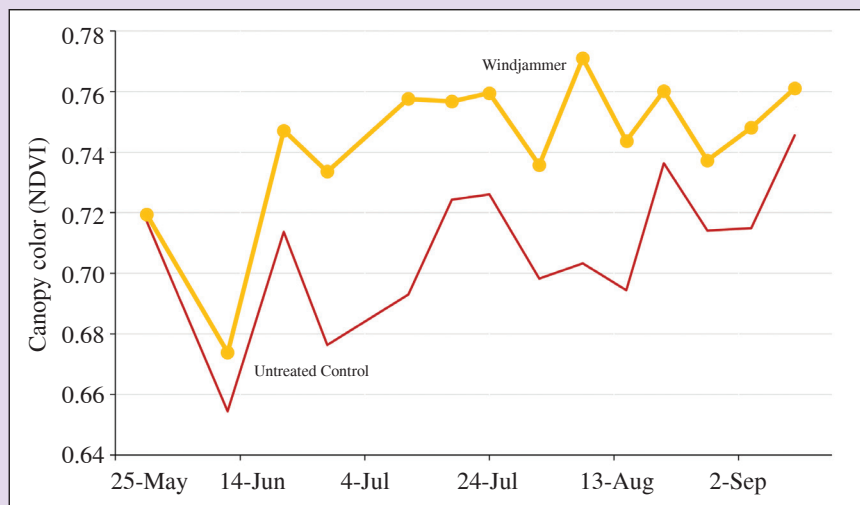


Figure 3: Canopy Greenness. Windjammer statistically improved color under summer stress relative to the control.

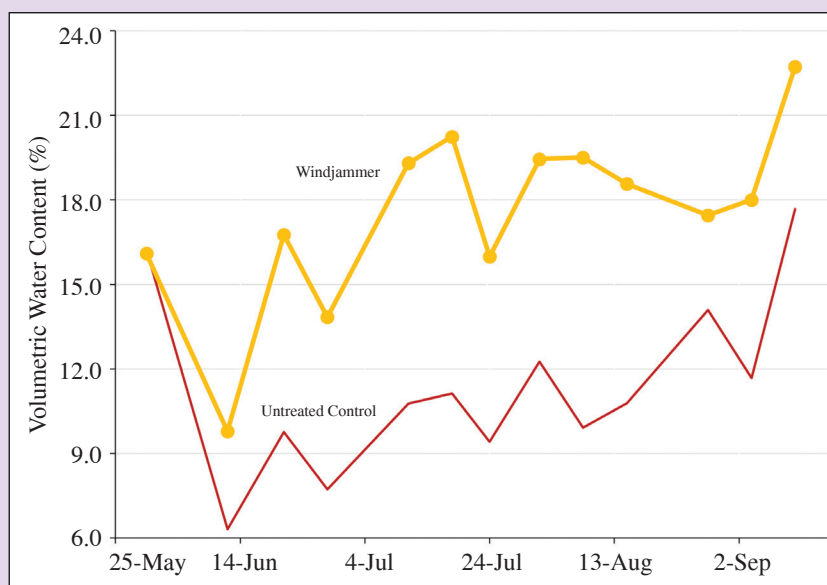
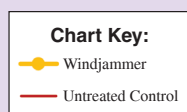


Figure 4: Volumetric Water Content. Windjammer statistically increased volumetric water content under summer stress relative to the control.

PURDUE UNIVERSITY RESEARCH CONTINUED

Methods

The study area consisted of a mature stand of 'V-8' creeping bentgrass grown on a sand-based rootzone with a soil pH of 7.9. Experimental plots were 3 x 6 ft with four replications of each treatment arranged in a randomized complete block design.

Conclusion

Windjammer helped the bentgrass putting greens better withstand summer heat stress while yielding superior quality. **Plots treated with Windjammer maintained significantly higher turf quality, canopy greenness and volumetric water content. In addition, Windjammer significantly decreased wilting/ localized dry spot.**

Note: This Purdue University research was repeated in 2022 and 2023 with similar statistical results.

Ocean Organics has been processing seaweed and formulating fertilizers for over 40 years. Our innovative processing technology yields products richer than others yet with fewer solids and lower viscosity. This means our extracts, with better blending, mixing and stability characteristics, can be used with a broader range of materials. Our seaweed-based fertilizers, plant health materials and surfactants lead the industry in quality, effectiveness, cost efficiency and environmental sustainability.



Ocean Organics®

Manufacturing

Waldoboro, Maine • 207-832-4305

Administration

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