

# LATE-SEASON SOIL SURFACTANT APPLICATIONS

Turfgrass plants are susceptible to a variety of stresses and potentially harmful conditions in the later months of the growing season, especially in northern climates.

A late-season application of Precision Laboratories' soil surfactants, before irrigation system winterization, can provide long-lasting benefits. Soils will retain valuable moisture from the final irrigation cycle, which prepares turfgrass for harsh winter weather.

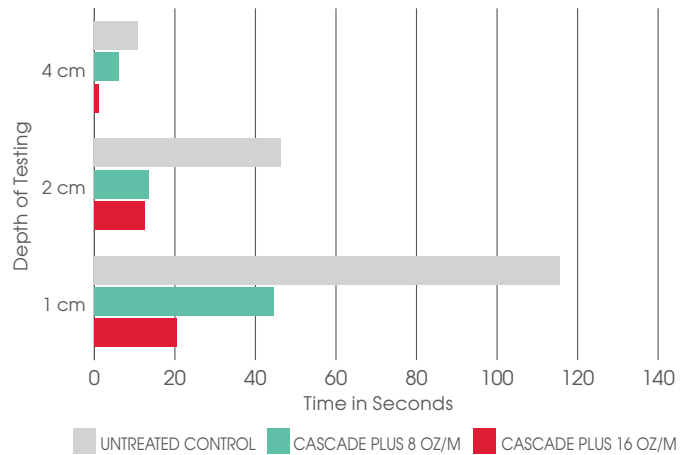
Products in the Precision line of soil surfactants that are most suited for late-season applications include VIVAX™, CASCADE™ PLUS and MAGNAPLEX™.

Research in collaboration with Dr. Doug Karcher from the University of Arkansas, indicates these applications also lead to a healthier plant in the spring, which results in faster green-up. The following CASCADE PLUS trials were conducted at the University of Arkansas experiment station in Fayetteville, Arkansas on a 'Tifeagle' ultradwarf putting green.

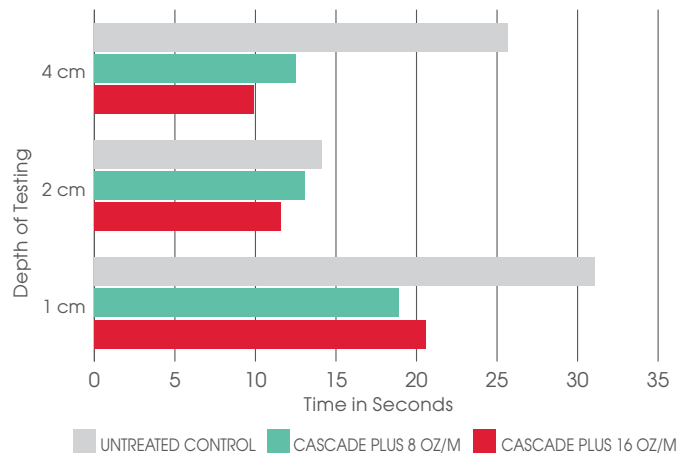
Water penetration measurements show how well the soil accepts water by measuring the time it takes for a water droplet to infiltrate. The data demonstrates that, even a month after the initial applications of CASCADE PLUS on December 10, penetration at the surface is still greatly improved at both rates. This results in less standing water and more water availability for the plant during dry conditions, which helps reduce potential crown hydration damage and increases plant health.

Water droplet penetration measurements were also taken the spring following the late-season application of CASCADE PLUS. Improvements in water infiltration can still be seen until April 1. This is particularly beneficial in early spring during snow melt because it reduces water accumulation at the surface, which protects against crown hydration damage.

**JANUARY SOIL WETTABILITY**



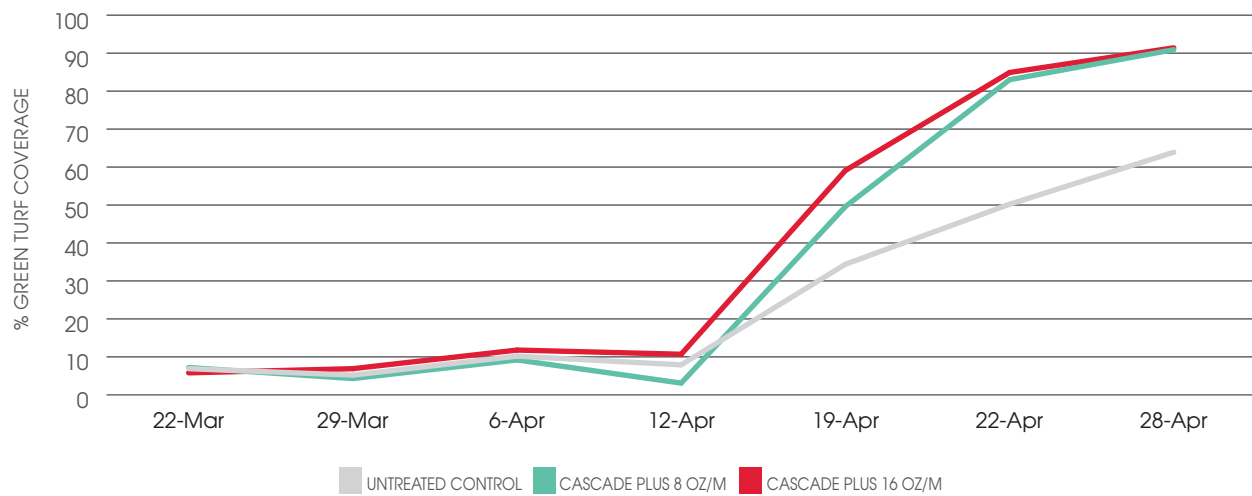
**APRIL SOIL WETTABILITY**



# LATE-SEASON SOIL SURFACTANT APPLICATIONS

Improving infiltration, distribution and availability of water with a late-season CASCADE PLUS application led to faster green up in the spring for a healthier and more playable stand of turfgrass.

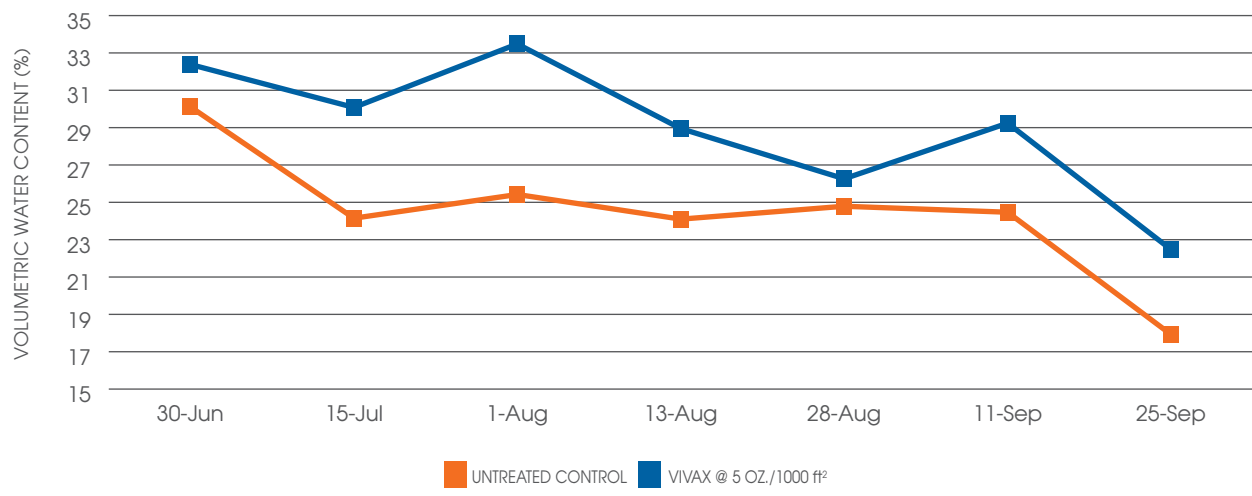
**GREEN TURF COVER**



University of Arkansas experiment station, Fayetteville, AR

Increasing volumetric water content in the soil wards off localized dry spot after irrigation systems have been winterized. A 5 oz. per 1000 ft<sup>2</sup> application of VIVAX prolongs the last irrigation cycle of the season. This results in better utilization of subsequent rain events to promote a healthier plant heading into the winter months.

**GREATER VOLUMETRIC WATER CONTENT**



Spring Hollow Golf Course, Spring City, PA

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