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Plant Productivity with APEX-10 In Irrigated and Drought Conditions

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Dr. Erik Ervin, professor of turfgrass ecology and physiology, specializing in plant ecology, physiology, and biochemistry, evaluated the effects that **APEX-10** had on Penncross Bentgrass. The sites were grown under well-irrigated conditions and drought conditions in order to measure the effects **APEX-10** under these conditions.

TEST PLOTS

APEX-10 was applied on 8-13, 9-4, and 9-25 on a mature stand of Penncross Bentgrass grown on silt loam soil.

A (46-0-0) was applied in April, June, August and October at the rate of 1/2 lb. per 1000 sq. ft. and November at 1 lb. Sites were arranged, with 4-plots for the control and 4-plots for **APEX-10**.

The area was well irrigated to avoid any type of drought related conditions.

DROUGHT PLOTS

On 10-14, two 4” plugs were harvested from each plot, roots & soil were removed at thatch layer, placing additional stress on the plugs and to simulate a sod cut.

Each plug was transplanted to 12” sand filled cans and placed in the greenhouse. For 13-Days all pots were placed under a mist to acclimate to these conditions. On 10-29, half of the pots remained irrigated, while the other pots moved to another location in the greenhouse, in direct sunlight without irrigation for 26-Days.

RESULTS

IRRIGATED CONDITIONS

APEX-10 did not greatly increase the quality, color, or percentages of nitrogen within the leaf tissue. However, 6½ weeks into the study there was an increase in photochemical efficiency in plants treated with **APEX-10**. This is a precursor to what we found under drought stress conditions.

DROUGHT CONDITIONS

After 3½ weeks in drought conditions, **APEX-10** treated turf retained much higher visual quality, much less wilting, sustained growth, and function when compared to the control.

Conclusion

The trend is quite clear. **APEX-10** provided greater photochemical efficiency resulting in an increased in SOD antioxidant activity than plots without **APEX-10**. Plots treated with **APEX-10** under irrigated conditions had greater root mass and root growth. As a result, allowed for sustained leaf function and root growth under drought conditions. These are very promising results.

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Plugs after 60-Days grown in the field with proper rates of fertilizer and irrigation applied.

Plugs roots removed to the thatch layer and placed in direct sunlight for 26-Days without irrigation

APEX-10 Increase In Comparison To Control

Irrigated Conditions		Drought Conditions	
♦ Photo Chemical Efficiency	12%	♦ Photo Chemical Efficiency	52%%
♦ Root Weight	42%	♦ Root Weight	70%
♦ Quality	5	♦ Quality	36%
		♦ SOD Antioxidants	28%