

MONITORING THE TURFGRASS MICROENVIRONMENT

Keeping on-site weather records should be a common practice at most turfgrass facilities. The monitoring is accomplished by one or more microenvironmental stations interfaced by wire or radio communications to a computer with software for storing the data. The computer also has a software program for processing the environmental data into daily, weekly, and monthly means for the average, maximum, and minimum levels of individual microenvironmental parameters. A set of suggested guidelines for sensing devices and placement are presented in the accompanying table.

Information on seasonal weather and microenvironmental trends serve as a basis for (a) scheduling future cultural practices, (b) prediction of pest activity, and (c) diagnosis of environmental stress problems. Soil temperatures are effective indicators for shoot growth, root initiation/growth, turf recuperative ability, weed seed germination, timing preemergence herbicide applications, disease development, timing of turf establishment, and scheduling winter overseeding. Net radiation and relative humidity monitoring are valuable in assessing evapotranspiration (ET) rates.

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The goal of the six issue per year TURFAX™ newsletter is to provide international turf specialists with a network for current information about turf. This newsletter is faxed to all Institute Affiliates that use the ISTI technical assistance services on an annual basis. Faxing is more costly, but ensures quick delivery to those outside the United States.

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UPCOMING JB VISITATIONS:

Sept. 5 to 11 - Eastern Oregon & Idaho.
Oct. 4 to 12 - Italy.
Oct. 26 to 31 - Anaheim, California.
Nov. 7 to 15 - Japan.

Suggested guidelines for monitoring microenvironmental parameters over/in a turf.

Environmental parameter	Unit(s)		Sensor location	Monitoring schedule	Sensor type
	English	Metric			
net radiation (300-60,000 nm)	Cal./cm ² /min	W m ⁻²	top of turf canopy	daily cumulative	net radiometer
temperature: air	°F	°C	top of turf canopy	hourly	thermocouple - shielded
turf canopy	°F	°C	center of canopy	hourly	thermocouple
soil	°F	°C	1 and 4 inch (25 and 100 mm)	hourly	thermocouple
relative humidity	%	%	top of turf canopy	hourly	psychrometer, shielded and aspirated
wind velocity	miles/hr	m s ⁻¹	top of turf canopy	hourly	cup anemometer
rainfall	inch(es)/day	mm d ⁻¹	above turf canopy	daily total	collection device