Sports Turf Manager

for safe, natural sports turf

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Field Day Coverage

Thanks to generous sponsors and exhibitors and loyal participants, STA's Annual Field Day September 11 at Chinguacousy Park, Brampton, was another great success. See pages 11-15 for a photo gallery showcasing the popular event.

The Saturated Hydraulic Conductivity of Sand Root Zones

ARE THEY REALISTIC OR OVER-DESIGNED? DR. R.W. SHEARD, PH.D., P.AG.

In 1993, the original guidelines of the saturated hydraulic conductivity rate for sand used in constructing sports fields was set at 15 to 60 cm/hour by the USGA Greens Section. In 2004, the rate was changed to a single value of 15 cm/hr In 2007, Dr. Stephen Baker, writing in the *Turfgrass Bulletin* of the Bingley Sports Turf Research Institute, noted that the guidelines were set to cover a wide range of climatic conditions in the United States, ranging from the desert of Arizona to the hurricane regions of Florida. He suggested Canada, the northern US states and the UK, all with an intermediate rainfall intensity, should require a lesser rate. Under UK conditions, greens having a hydraulic conductivity as low as 3 cm/hr have proven satisfactory. In writing the recently released *Athletic Field Construction Manual,* the STA chose a rate of 10 cm/hr.

One objective of a relatively high hydraulic conductivity is to transmit excess water from the root zone as rapidly as possible and return the soil to its maximum aeration (non-capillary) porosity so that the roots will have an adequate oxygen supply. The higher the saturated conductivity, the more rapidly oxygen will return to the root zone. A saturated condition for an hour can certainly be tolerated by the root system without damage. In a study conducted at the Guelph Turfgrass Institute on a USGA specification root zone, irrigation was applied until water flowed freely from the drainage system. Using computer analysis of sensitive electronic measurements of water in the profile, it was shown that within 1.5 hours a significant portion of the aeration porosity was free of water. Removal of excess water was complete within 24 hours. How long would the rain delay be? Less than an hour!

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