

Saturated Hydraulic Conductivity of Sand Based Root Zones cont.

From the front cover. Under Ontario conditions, the highest daily rainfall ever recorded occurred on October 15, 1954, during Hurricane Hazel when 18.29 cm fell over a 24 hour period. The previous rain that approached this amount per day was in 1887. During the 1954 rain, a once-in-a-hundred year storm, the maximum intensity of rainfall was 5.2 cm/hour which is easily accommodated by the USGA rate



of 15 cm/hr. During intense summer storms, which are very localized, 10 cm of rain may fall in 15 minutes on an individual field but the frequency of such

Examine this scenario. If using finer sand will result in a lower hydraulic conductivity and result in the root zone holding more plant available water – and savings of \$4,340 per season on one soccer field – more research must be done in this field.

storms is less than one per summer. Most rainfall is at a rate of 0.5 cm/hr or less. Should we design a root zone with sand which has a hydraulic conductivity of 10 cm/hr? There is a price to pay for designing a root zone to accommodate this infrequent occurrence of an intense rain. That price is the cost of water.

The facts of water movement in soil show that the higher the saturated conduc-

tivity of the root zone mix, the lower the amount of available water the root zone will retain. Thus more frequent irrigation will be required and less of the natural rainfall on the soil will be utilized as much of it will be lost by drainage. This loss through drainage is a waste of a valuable commodity.

If a saving of 25% can be achieved using a finer sand which will have a lower hydraulic conductivity but which will result in the root zone holding more plant available water, it will save 2,480 cubic metres of water with a value of \$4,340 per season on one soccer field.

With today's emphasis on more efficient use of water, there is a great and immediate need for research in the relationship between particle size distribution of sand, saturated hydraulic conductivity and aeration porosity in sand based root zones. This research must include the time required for a return to full aeration porosity on both an hourly basis and on a daily basis. Studies at Bingley Sports Turf

Research Institute have shown a significant decline in the hydraulic conductivity as a field matures, particularly those using organic amendments, or as the active and decaying root system develops. Therefore the project must extend over several years.

The studies must be done in the field. The technology is available. Where is the money for the research?

FYI

New Online Forum Available

The Professional Lawn Care Association of Ontario has added a new online forum to its website www.plcao.on.ca. STA members are invited to take advantage of this opportunity to initiate discussion, post questions and look for answers on a variety of turf-related topics.



NEW MEMBERS

WELCOME TO THE STA!

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Jim Floyd

Town of Oakville, ON
Stephen Booth

Nutrite, Kitchener, ON
Paul Proulx

Dol Turf Restoration Ltd.
Bond Head, ON
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