Cornell Students Recognized Best!

Turfgrass Ph.D. candidates Zachary Easton (working with Marty Petrovic) and Micah Woods (working with Frank Rossi) won 3rd and 1st place respectively in the Crop Science Society of America turfgrass research division graduate paper contest. More than 50 graduate students were in the contest and to have two students from the same university emerge as winners demonstrates Cornell University’s innovative approach to research and the quality of Cornell’s students.

Rossi Named Outstanding Alumnus

Frank Rossi was named the 2004 outstanding young alumnus from SUNY Cobleskill. The New York Agricultural Statistics Service has published the first-of-its-kind New York Turfgrass Survey in 2001 and his foresight and correct management and knowledge of the site, i.e., soil and environmental factors, will greatly reduce potential contamination of our waters.

NY Turf Survey Released


Send Us A Letter

We enjoy receiving letters from readers reacting to the articles and information presented in CUTT. Encouraging a free-flowing, two-way communication between our readers and Cornell’s Turfgrass Team can only make CUTT a better, more relevant publication.

Send your comments to Cornell University Turfgrass Times, 134A Plant Science Building, Cornell University, Ithaca, NY 14853, or via email to fsr3@cornell.edu.

The newly released survey, which has been in the planning and implementation stages for the past five years, is the first of its kind to evaluate the magnitude and economic importance of the turfgrass industry in New York State. This important data will position the turfgrass industry as a growing agricultural commodity in New York State and enable the public, industry and government to work together to ensure its continued growth.

Ag & Markets Commissioner Chosen as ‘Friend’

The New York State Turfgrass Association (NYSTA) has named Nathan Rudgers, Commissioner of the New York State Department of Agriculture and Markets, with the “Friend of the Green Industry” award. This award is given to individuals who have excelled in support of the turfgrass industry.

Commissioner Rudgers was recognized for pledging his department’s support of the New York Turfgrass Survey in 2001 and his foresight in recognizing the importance of documenting the economic value of the turfgrass industry. The award was presented at NYSTA’s annual Turf & Grounds Exposition, “Economics and the Environment—Surveying the Landscape,” at the Rochester Riverside Convention Center in Rochester, NY.

Influence of Soil Type

No-till soils such as turf have greater infiltration rates due to a larger network of surface-connected macropores. Hamilton and Waddington found that older lawns had higher infiltration rates because of more time for macropores to form. They also noted that management practice will influence infiltration rate through a series of events. Fertilization increases plant tissue production, which increases soil organic matter, which causes an increase in microbes and earthworms, which will increase infiltration. The soil infiltration rate can be reduced by suspended sediment in runoff, which dogs the pores and lowers hydraulic conductivity. However, this is normally only a problem of cultivated soils with an exposed surface layer.

Nitrate applied to wet soil was shown to leach at levels as high as 20%, whereas when applied to an initially dry soil, levels were only 7%, further evidence that wet soils exhibited greater macropore flow. It was also found that non-absorbed and adsorbed tracers moved at essentially the same rate through saturated soil, indicating that the convective dispersive equation was not capable of capturing events well in the presence of macropores.

Wilkinson and Blouin found preferential flow to account for 35% of the overall flow and a significant portion of the Br tracer transport through a claypan. From this, they surmised that claypan soils would do little to retard the subsurface movement of NO3 in the presence of macropores. In many cases, macropores are responsible for the transport of nutrients such as NO3 at high concentrations (>10 mg L–1) deeply into the profile (1.8 m). In any case, matrix flow is generally an insignificant transport mechanism in the presence of macropore flow.

Restrictive layers are horizons of low permeability, exhibiting hydraulic conductivity much lower than the horizons above. Water which enters the profile will accumulate on the restrictive layer, saturating the profile. Once saturated, soluble nutrients and pesticides are free to move with the water, which may flow laterally as shallow subsurface flow or end up as runoff should the profile saturate completely (saturation excess runoff). In general, the restrictive layer is not completely impermeable as some water will drain through cracks, and earthworm burrows. Furthermore, soil surface phenomena can influence water movement as well. Soil surface sealing can be significant on cultivated soils. Raindrop energy can disturb smaller soil particles which are then redistributed into pores, effectively sealing them and reducing infiltration. Effluent and manures as well have the potential to clog pores and increase runoff production.

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