From Toxic to Friendly Fairways on Long Island

A Suffolk County Health Department study conducted in cooperation with the New York State Department of Environmental Conservation and as a condition of the New York State Pesticide Registry indicates that golf courses, long thought of as major groundwater polluters, are in fact more groundwater friendly than homeowners and farms. Much of the skewed reporting of this issue dates back to a report from the New York State Attorney General's Office titled *Toxic Fairways.*

In the Health Dept. survey, 20 wells located on or downgradient from 10 different golf courses were sampled for pesticides. This study included 12 new shallow monitoring wells in areas considered to be "worst case scenarios" immediately adjacent to treated areas on the golf courses. The results show that 17 of the 20 wells monitored had no detectable level of pesticides or metabolites. Two wells at West Sayville and one well in Sands Point did have detections that exceeded the maximum concentration levels (MCL) for certain pesticides.

Interestingly, the levels of nitrate in the groundwater samples were slightly below that of residential land and much lower than the average concentrations on agricultural land. Furthermore, an editorial in the September 3, 1998 News-Review on Long Island promotes the use of open space for golf courses as a result of the groundwater survey.

Excerpted from a news article citing the Suffolk County Health Department study.

Erosion Control Best with Sod

Establishing highly disturbed areas following construction activity poses substantial risk to surface water quality. The movement of sediment may include substantial nutrient loading of water bodies as well as sedimentation from the particulate additions. Effective means of stabilizing these sensitive areas are available from natural and man-made materials.

Researchers at the University of Maryland (including Cornell alumnus Dr. Mark Carroll, Ph.D. '88), investigated the effectiveness of two natural (dry oat straw and turfgrass sod) and four man-made erosion control materials (wood excelsior fiber mats, woven mesh jute fabric, polyester netted coconut fiber, and coconut fiber woven strand). Soil was disturbed on an 8% slope to simulate construction activity. A rainfall simulator was used to establish a condition likely to result in erosion on the plots that were covered with one of the erosion control materials. Rainfall was applied for 30 minutes to establish an antecedent soil moisture, then a 3.8 inch rain was applied for 30 minutes. This storm is likely to occur 1 out of every 5 years.

The sodded plots were the only treatments that extended the time needed to initiate runoff from the site. The other materials had similar runoff initiation times to bare soil. Sod decreased to total amount of runoff by 61% as compared to bare soil. Straw reduced the runoff 25% and jute 16%. All the man-made erosion control materials reduced runoff equally, between 18 and 25%.

There was no significant difference among erosion control materials for sediment loss, except that the open woven coconut strand mat was 9 to 50 times less effective than sod. This was likely due to the mat being first to wet and then pull away from the soil surface, allowing for surface flow under the mat. In addition, with regard to infiltration, the sod was able to maintain a high rate of infiltration longer than the other materials before slowly declining.

The researchers concluded that on moderately sloping hillsides, natural erosion control materials such as sod and straw are equally effective or superior to man-made materials. Of the man-made materials the jute was most effective in reducing the volume of runoff and reduced sedimentation.

From: Krenitsky, E.C., M.J. Carroll, R.L. Hill, and J.M. Krouse. 1998. Runoff and sediment losses from natural and man-made erosion control materials. Crop Science 38:1042-1046.

Scanning the Journals

A review of current journal articles

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