

## TURF PESTICIDES & NITROGEN MONITORING REPORT RELEASED

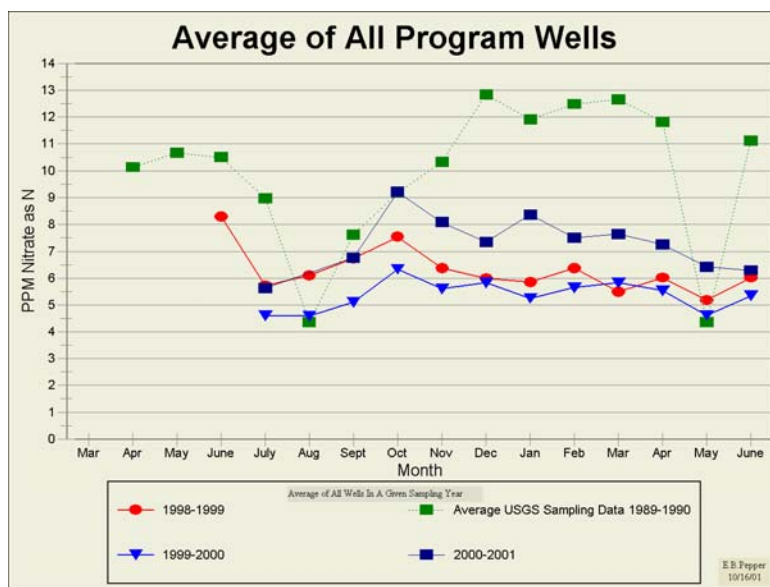
The Division of Agriculture & Resource Marketing Pesticide Section has completed a three year study of pesticides and nitrates in groundwater in the eastern Pawcatuck River Basin. The results of that study have been published in its ***“Turf Pesticides & Nitrogen Monitoring Project A Final Report.”*** The report describes the current water quality of selected turf growing areas within the watershed as it relates to pesticides and nitrates. It presents data collected by the Division of Agriculture & Resource Marketing in response to questions raised in other studies regarding the state of water quality in the study area. Two such studies over the years have raised questions concerning the condition of ground water quality in the area: the 1990 *“Rhode Island Private Well Survey”* by the Rhode Island Department of Environmental Management and the 1997 *“Hydrology, Water Quality, and Simulation of Ground-Water-Development Alternatives in the Usquepaug-Queen Ground-Water Reservoir, Southern Rhode Island”* by the U.S. Geologic Survey (USGS). This latter report states:

*“The high total nitrogen in wells RIW782-784 probably is due to the application of fertilizer to commercially cultivated turf fields.”*

and in its summary and conclusions

*“The high total nitrogen in these wells probably is due to the application of fertilizer to commercially cultivated turf fields.”*

The Project was not intended to be an all-inclusive look at water quality of the Pawcatuck Basin. However, it examines those wells reported by USGS as having high nitrate levels or wells with a high potential for them. The Divisions data shows clearly that the nitrate levels reported by USGS were not a result of turf cultivation, but most likely potato farming. The chart shows a comparison of the average levels observed by the Division and those reported by USGS. However, the report does indicate that applications of nitrogen fertilizers by turf growers are elevating the nitrate level of groundwater in this section of the watershed. While these levels have not exceeded EPA’s Maximum Concentration Level of 10 ppm, they tend to start at about 6 ppm in June of each year rising to as high as 9 ppm in the following October. This appears to be a clear correlation between the spring and summer fertilizer applications by turf operations in the area. The data collected also observes a close correlation between precipitation and irrigation, and nitrate levels.



Pesticides detected in the study with one exception Dacthal are all archeological pesticides which were usually used in potato production. A Dinoseb detection has been observed and is most probably a result of an old spill during potato production. All these materials are no longer available for use and again except for Dinoseb below any of EPA's MCLs. Dacthal is used throughout the state by landscapers and homeowners for lawn maintenance. Again, the levels of Dacthal observed are not posing a threat to public health or to the environment.

The Division is continuing to monitor on a bi-monthly basis for nitrates and is trying to obtain the resources necessary for improved pesticide monitoring. It is also working with agriculture in the watershed to implement the recommendations of the report. The report makes recommendations for protection of the water resource for both agriculture and communities. It recommends that:

1. Pesticides used in the study area should be those with very low leaching potential, and applied only as absolutely necessary. It is also advisable because of the high leachability of the soils in the area to apply pesticides at less than labeled rates.
2. Fertilizers should be applied in a manner and form (i.e. sub-label amounts, time release materials, etc...) which limits leaching to ground water.
3. Irrigation Management Plans should be developed for each field which do not already have them. For all fields these management plans should be stringently followed. Over irrigation should be avoided, especially, following pesticide or fertilizer applications.
4. Given the nitrate levels observed, soil and hydrologic characteristics of the area, renovating ground water may be achievable through the use of ground water wells for irrigation. Such an approach would require adherence to practical pesticide, fertilizer, and irrigation management plans.
5. Pesticide monitoring should be expanded in the area to provide growers with information on pesticide residuals and trends.
6. Nitrate monitoring should continue for the same reasons as recommendation number 5, as well as to gage effects of any best management practices turf growers may choose to put in place.
7. Due to the soil and hydrologic characteristics of the area, residential development should be limited to low density development of >2 acres per parcel. Such a change would limit the development level of the region while providing adequate groundwater recharge from precipitation to dilute nitrogen inputs from ISDS. Achieving nitrate reductions under this recommendation would require action at the local government level.

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