

# GCSANC

# THRU THE GREEN

## FERTILIZERS MAY BECOME VICTIMS

Fertilizer's in California may soon fall victim to the same type of regulatory restriction's that now hinder the use and registration of pesticides, if various environmental groups and some state legislators have their way.

Anti-fertilizer advocates often charge nitrate and phosphorus fertilizers with being a major source of water pollution. Research studies through the years however would tend to disupt the assertion that fertilizers when properly applied to turfgrass are a significant source of water pollution.

Phosphorous, for example, is transported to surface waters by three mechanisms;1) in solution by leaching, 2)in solution by runoff and 3)in sediments carried by runoff (Zobriski et al., 1971). Only small amounts of phosphorus are lost via leaching, however, with surface water being the major transport route.

"One of the most striking characteristics of native soil phosphorus and fertilizer phosphorus is immobility. Practically all phosphorus applied in soluble form is converted to water insoluble compounds within a few days. Furthermore, phosphorus adsorption by soil solids and uptake by plants and microorganisms tend to restrict the downward movement of phosphorus in percolating waters." (Edward and Harold 1970).

Since phosphorus is primarily by surface runoff, dense well-managed turf will provide a cover which will slow water movement, reduce soil loss, and also prevent soil compaction while the extensive root system funnels the water into the ground. (Barnett, et al., 1972).

A study of particulate phosphorus collected from a variety of urban land uses in Madison, Wisconsin, showed highest particulate phosphorus levels were found at actively eroding construction sites. One reading was taken after sodding a construction site and the phosphorus level fell dramatically. (Cowen and Lee 1976).

Therefore, well maintained turf should not be a contributor of phosphorus to surface water erosion and runoff are minimized.

Nitrogen is potentially more dangerous since plants available nitrate nitrogen can be leached from the upper surfaces of the soil profile in addition to the possibility of being moved over the surface in runoff waters. Research by Diets and Ellis (1970), on fertilized Michigan soil showed that nitrate derived from slow-release nitrogen fertilizers were not significantly leached into lower soil layers, and therefore reduced any pollution hazard. Another factor which greatly reduces the possibility of nitrates leaching into the deeper soil layers is the extensive root systems of a well maintained grass lawn. It has been estimated that in one cubic inch of soil beneath a bluegrass sod it is possible to have (con't. page 3)

