Nutrient management to protect groundwater

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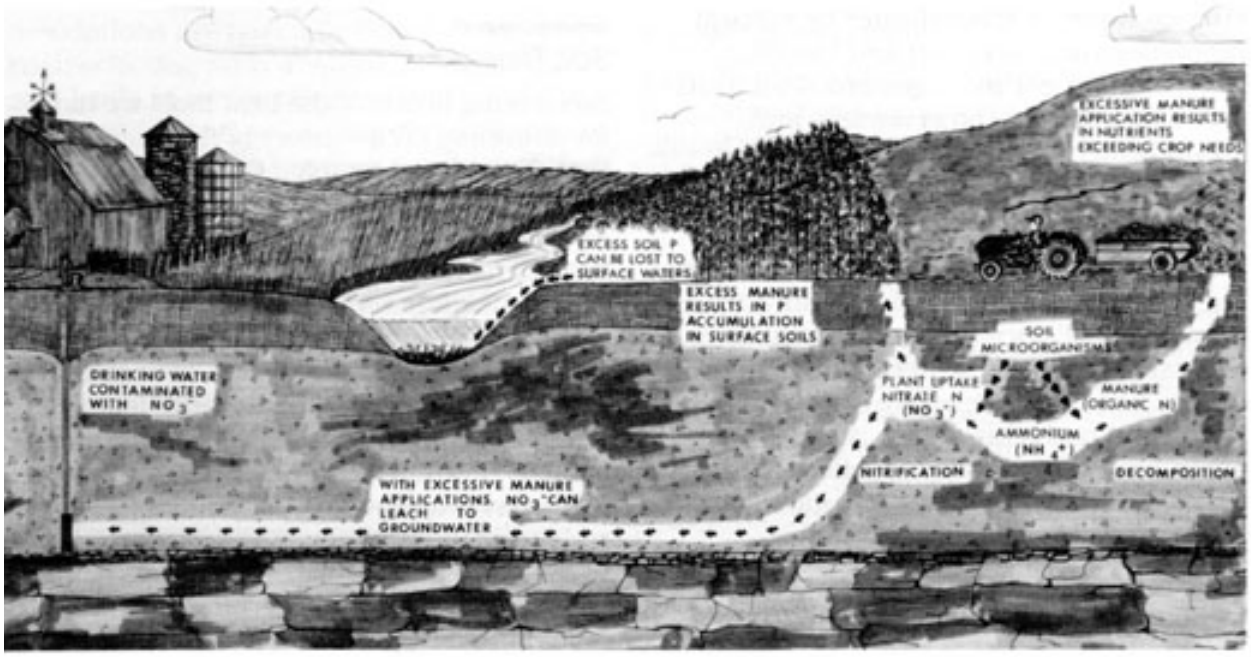
Considerable national attention is being given to nitrate nitrogen (N) contamination of groundwater and phosphorus (P) contamination of surface water. The source of this contamination is non-point in nature, meaning that it cannot be specifically identified. Agricultural practices, however, have been implicated as causing much of the non-point source contamination.

Water is the most common ingredient in all natural processes and is the medium for movement of nutrients away from the land surface. It is constantly being recycled from water surfaces and through plants to the atmosphere by evapotranspiration and back again to the earth's surface as precipitation to produce stream flow and groundwater flow on and within our land surface. As water moves through this cycle, it dissolves nutrients from soil minerals, crop residues, fertilizers, manures and other materials. Thus nutrients, like water, have their own natural cycle.

The earth contains an abundant supply of plant nutrients, but not all agricultural soils contain adequate nutrients for intensive crop production, particularly N. P and potassium (K). Fertilizers, manures and other organic materials are required to supplement nutrients supplied by the soil. All nutrients, whether they are synthetic or naturally occurring, can become mixed with surface water or groundwater by natural processes such as runoff and leaching. Therefore, proper management of all nutrients is crucial to protect surface and groundwater quality.



Managing the amount, form, placement and timing of nutrient applications is the only realistic and practical approach to minimizing the risk of surface and groundwater contamination. Education and demonstration programs are urgently needed to help producers become more aware of potential environmental problems and to get them to adopt best management practices. Other less desirable alternatives include legislative action and enforcement.

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