

Manure runoff depends on soil texture

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Research has documented the rise of nutrient runoff from flat agricultural fields with high rates of precipitation that adds nitrates and phosphates to waterways.

These nutrients increase the amount of phytoplankton in the water, which depletes oxygen and kills fish and other aquatic creatures. While injecting animal manure slurry into the soil has been proven to be an effective way of reducing [greenhouse gas emissions](#), there has been no research on the possibility of nutrients leaching from the soil and reaching waterways.

A collaborative study funded by the Danish Ministry of Food, Agriculture, and Fisheries was carried out between University of Copenhagen and University of Aarhus, Denmark, to investigate the influence of dairy slurry on leaching of manure nutrient components.

Loamy sand, a sandy loam, and loam were the three sub soil textures beneath the plow layer. Bromide was mixed into the slurry to represent dissolved nonreactive solutes like nitrate. The experiments were performed under low precipitation intensity and near-saturated conditions. Researchers analyzed the leaching of the bromide as well as particulate and dissolved phosphorus.

The results indicated that the slurry injected into the loam soil reduced leaching; however, there was no effect on bromide leaching in the sandy loam or loamy sand. The loamy sand also showed no difference in phosphorus leaching, but a reduction was noted in the sandy loam and

the loam.

Nadia Glæsner, who conducted the study, said, "This highlights the importance of [soil](#) texture when evaluating agricultural management strategies for reducing nutrient losses from [agricultural fields](#). Injection of dairy slurry might reduce leaching of nonreactive slurry components and phosphorus from fine-textured soils, but the effect was not seen on coarse-textured soils."

The full study is published in the March/April 2011 issue of the *Journal of Environmental Quality*.

Provided by American Society of Agronomy

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