

## Alum can clean up phosphorus from manure spills

Accidental manure spills in the United States have been occurring more frequently in the past 20 years due to the increase in the number of livestock hogs. As the primary treatment, first-responders usually remove the water column, but they often do not wait to see what has happened to the sediment.

Soil scientists Shalamar Armstrong of Illinois State University and Phillip Owens of Purdue University studied the fate of nutrients in this process. “We wanted to see if the response was effective, and if phosphorous and nitrogen were being treated,” said Armstrong.

They documented that, after a spill, phosphorous is stored temporarily in the sediment and then is released into the water. In the samples taken, phosphorous in the water columns were at concentrations that exceed the EPA criteria.

“Algae begins to grow rapidly in bodies of water where there is phosphorous,” Armstrong said. “Then microorganisms feed on algae, which depletes the oxygen source in the water column.”

The researchers also experimented with a solution. They showed that when alum is applied to some types of sediment, phosphorous is reduced enough to be below EPA limits.

