

UNC Gillings School of Global Public Health

News & Events

Study: Sludge-based fertilizer may be causing human illnesses

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Treated municipal sewage sludge - that is, the solids from sewage treatment - may be causing illness in people up to a mile from where the sludge is spread on land.

Those are the findings of epidemiology researchers from the Gillings School of Global Public Health at The University of North Carolina in Chapel Hill.

Their study, "Land Application of Treated Sewage Sludge: Community Health and Environmental Justice," was published online March 11 in the journal *Environmental Health Perspectives*. It involved residents from North Carolina, South Carolina and Virginia who live near fields where sludge is applied as a soil amendment.

More than half of people interviewed reported acute symptoms such as burning eyes, nausea, vomiting and diarrhea after sludge had been sprayed or spread. People who live near fields in which industrial swine operations spray waste have reported similar symptoms.



A farmer spreads sludge to fertilize his fields.



Amy Lowman

"Study participants told us that onset of the symptoms occurred while the sludge was being applied or soon after," said Amy Lowman, MPH, research associate in epidemiology and the study's first author. "These were not one-time incidents, either. Respondents reported these illnesses occurring several times, and always after the biosolids were applied to nearby farmland."

Other symptoms reported by more than one respondent in the wake of sludge applications included difficulty breathing, sinus congestion or drainage, and skin infection and sores.

Respondents also reported sludge run-off into local waterways and cattle grazing on fields soon after sludge applications.

"Both of these situations are against state rules," Lowman said. "If there is run-off of treated sludge, there can be contamination of waterways or neighboring property. Livestock are not supposed to graze on sludge-applied fields for 30 days after application."

In addition, all three states require signs warning that such fertilization is in use, but several respondents reported that such signage either was not posted or not visible.



Dr. Steve Wing

"Most people in towns and cities don't know where their sewage sludge goes," said Steve Wing, PhD, associate professor of epidemiology at the Gillings School and a co-author of the study. "If they had to live near where it is being spread out, they might be more concerned about this practice. Many respondents in our study said it's not fair for rural people to bear the burden of urban waste disposal."

Lowman cautions that the study's findings are based on a relatively small sample size of 34 people and that more comprehensive tracking of sludge applications and human health is needed to better document relationships between the sludge application and illness.

"We're talking about a material containing chemicals and organisms that can make people sick," she said. "Although the EPA promotes land application of sludge, it has not said the practice is safe for people's health or the environment. More than half of people interviewed reported similar symptoms. These reports came from individuals in three different states, on separate occasions, who lived up to a mile from areas where sludge was applied. The findings are consistent with previous reports of health impacts and support calls for health and environmental agencies to pay more attention to the potential for sludge to impact people who live near land application sites."

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Gillings School of Global Public Health contact: David Pesci, director of communications, (919) 962-2600 or dpesci@unc.edu.

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The University of North Carolina at Chapel Hill | Gillings School of Global Public Health | Communications
125 Rosenau Hall, CB #7400 | 135 Dauer Drive | Chapel Hill, NC 27599-7400 |