

MEDIA RELEASE

Wednesday 18 September

Contaminated crops could lead to potential exposure to ‘forever chemicals’ through beef and milk

New research being presented at the CleanUp 2024 conference in Adelaide has revealed that using biosolids (organic matter recovered from sewage and wastewater) as fertiliser on agricultural land could lead to PFAS-contaminated beef and milk due to the absorption of the ‘forever chemicals’ by crops.

Researchers from the Minnesota Pollution Control Agency analysed samples from 3 different farms that had previously applied biosolids from wastewater treatment plants to their crops. At each farm, the researchers collected soil and crop samples that had been treated with biosolids within the current year, in the past, or with no known history of application.

‘Biosolids are being applied to farmland in 85 of the 87 counties in Minnesota, so it’s relatively widespread. What does that mean for farmers and food supply?’ said Ms Summer Streets, a research scientist in the Minnesota Pollution Control Agency and one of the researchers involved in the study.

The study found significantly higher concentrations of PFAS in soil and crops from fields with recent biosolid applications compared to those with no history of application. These results confirm findings by several other groups across the U.S. and globally.

‘Our study showed that there was uptake of several PFAS into crops. Depending on the type of PFAS and its properties, the uptake will differ in different parts of the plant,’ said Ms Streets. ‘We saw uptake of several PFAS, including PFOS, in corn stover [the stalk and leaves], which is used as additional feed for cattle.’

To assess the potential risks to human health, the researchers used a mathematical model to estimate the risk to adults and children from hypothetically consuming beef and milk from cows fed PFAS-contaminated crops.

They found that, in theory, cows fed a diet including PFAS-contaminated crops could result in levels of PFAS in beef and milk that may pose a risk to humans, particularly to expectant mothers and children.

‘We used our Department of Health’s toxicokinetic model to establish a reference dose for PFOS, mostly based on developmental and reproductive effects,’ said Ms Streets. ‘Many of these PFAS are highly bioaccumulative and have very long half-lives in humans. That lifetime exposure matters by the time you’re pregnant,’ said Ms Streets.

However, she emphasised that the model, while useful, still has many caveats.

‘The risk assessment model uses a very simple, hypothetical scenario with many assumptions. Some aspects may have underpredicted risk, and others may have overpredicted risk,’ said Ms Streets. ‘The focus was really on the potential impact of the contaminated corn stover.’

Nonetheless, the study provides useful baseline data to inform next steps for the use of biosolids in agriculture.

‘I think it’s really critical that agencies work together to come up with the best plan for managing land application of biosolids,’ said Ms Streets. ‘These data will be helpful for progressing our plans for managing biosolids in future. Minnesota is preparing a plan that will take effect in January. This research also underscores the need to end nonessential PFAS use, as Minnesota plans to by 2032. PFAS pollution prevention is the long-term solution.’

crcCARE is hosting CleanUp 2024 – the 10th International Contaminated Site Remediation Conference incorporating the 4th International PFAS Conference – in Adelaide from 18 to 16 September. crcCARE is a partnership of organisations dedicated to developing new ways of dealing with and preventing contamination of soil, water and air.

The conference program is available at: <https://adelaide2024cleanupconference.com/program>

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Presentation: Summer Streets, oral presentation, 11.00 am Wednesday 18 September (City Room 1, Adelaide Convention Centre)

Media: Complimentary media passes are available for any accredited media personnel who wish to attend the conference in person.