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The PERMA project - Introduction and persistence of zoonotic pathogens from domestic and wild animals into farmland and transfer into the flour production chain, using the example of Shiga toxin-producing and antibiotic-resistant *Escherichia coli*

Tuesday, October 6, 2026 4:20 PM (1 minute)

Shiga toxin-producing Escherichia coli (STEC) are important food-borne pathogens and a serious threat to human health. They naturally colonize ruminants, like cattle, but are also increasingly found in plant-based foods, like flour, which has been linked to several international outbreaks. The source(s) contaminating the flour is still unclear; however, an indirect contamination via manure or animal feces, or from the grain field environment is speculated.
The PERMA project will investigate possible transmission routes for STEC into and along the flour production chain as well as STEC persistence in the environment on two German research farms. Due to their (veterinary) clinical significance, antimicrobial-resistant E. coli will be included into the investigation. Furthermore, possible contamination of the grain and during the milling process will be examined and the impact of the soil microbiota and the varying soil characteristics regarding environmental persistence of STEC will be assessed. The genetic and metabolic traits of flour-associated STEC strains are still poorly understood and might play a role in persistence and transmission. Therefore, these strains will be further characterized and compared to other STEC isolates from cattle, wildlife, food, and human sources. PERMA is a joint One Health project aimed at a better understanding of STEC in flour and flour products with regard to environmental persistence, transmission pathways and implications for human health.

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STEC, flour

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No, I am not a Junior Scientist.

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