Contribution ID: **431** Type: **Oral presentation**

TrophicHealth: Effects of fertilization on AMR and zoonotic pathogen accumulation along the trophic chain –towards a One Health perspective in circular agriculture

Tuesday, October 6, 2026 1:55 PM (9 minutes)

TrophicHealth investigates how circular agriculture may facilitate the transmission of antimicrobial resistance (AMR) and zoonotic pathogens among livestock, environmental reservoirs, and agricultural systems, and how ecosystem resilience may interrupt these transmission cycles. Using a pan-microbiome framework combined with metagenomic analyses, we identify pathogens, AMR determinants, and antimicrobial peptide-producing microorganisms that may contribute to the stabilization of microbial communities and suppression of harmful microbes. We characterize microbial communities in the field across soil, wastewater, plants, and potential animal vectors, and experimentally assess the spread and mitigation of AMR and pathogens using controlled mesocosm systems. By elucidating the ecological mechanisms underlying microbial transmission and resilience in circular agriculture, TrophicHealth aims to improve surveillance of AMR and zoonotic pathogens in agricultural environments and food production systems, while identifying potential mitigation strategies. The project will contribute to a One Health approach by supporting evidence-based surveillance and risk assessment efforts by institutions such as the Robert Koch Institute and the Umweltbundesamt, and by providing knowledge to support veterinarians and farmers in the transition toward sustainable and safe livestock farming.

Keywords

Circular agriculture, AMR, microbiome, OneHealth

Registration ID

OHS26-129

Professional Status of the Speaker

Professor

Junior Scientist Status

No, I am not a Junior Scientist.

Author: SOMMER, Simone (Ulm University, Evolutionary Ecology and Conservation Genomics, EcoHealth, Germany)

Presenter: SOMMER, Simone (Ulm University, Evolutionary Ecology and Conservation Genomics, EcoHealth, Germany)

Session Classification: Session 7: Research consortia on the topic of "Pandemic prevention and response within a One Health framework"

Track Classification: Research consortia on the topic of ”Pandemic prevention and response within a One Health framework” (only for the Pandemic networks currently funded by the BMFTR)