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Comparison of antimicrobial resistance in conventional and organic pig production in Germany

Wednesday, October 7, 2026 12:00 PM (15 minutes)

We compared antimicrobial resistance in *E. coli* and the prevalence of cephalosporin resistant *E. coli* in organic and conventional fattening pigs and their derived meat in Germany. Boot sock samples were collected from 368 conventional and 131 organic pig farms. At retail, 430 and 306 samples from fresh conventional and organic pork, respectively, were collected. *E. coli* were isolated using routine methods and a predefined selective procedure targeting *E. coli* resistant to 3rd generation cephalosporins. Minimum inhibitory concentrations of 15 antimicrobials for *E. coli* were tested using broth microdilution, and resistance genes of selectively isolated *E. coli* were identified using whole genome sequencing.

The proportion of completely susceptible *E. coli* was higher among isolates from organic farms (77.8 %) than from conventional farms (49.8 %, $p < 0.05$). Likewise, the prevalence of cephalosporin-resistant *E. coli* was lower in samples from organic farms (13.0 % vs. 36.7 %). Significantly lower resistance rates were observed to ampicillin, tetracycline, trimethoprim and sulfamethoxazole among isolates from organic farms. Significant differences were neither found in resistance rates nor in the prevalence of cephalosporin-resistant *E. coli* in pork. These differences likely arise during the final phase of the fattening period or from the subsequent production steps (i.e. slaughter and processing). Further research is needed to elucidate the underlying reasons.

Keywords

organic production, pigs, *E. coli*

Registration ID

161

Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

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