

## **Comparison of Antimicrobial Susceptibility of Staphylococcus aureus Isolated from Bulk Tank Milk in Organic and Conventional Dairy Herds in the Midwestern United States and Denmark**

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### **Source:**

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### **Abstract:**

An observational study was conducted to compare the antimicrobial susceptibility patterns of Staphylococcus aureus isolated from bulk tank milk in organic and conventional dairy farms in Wisconsin, United States, and southern Jutland, Denmark. Bulk tank milk samples and data regarding management and production were collected from 30 organic and 30 conventional dairy farms in Wisconsin and 20 organic and 20 conventional dairy farms in Denmark. S. aureus isolates were tested for resistance against 15 antimicrobial agents by semiautomatic microbroth dilution methods in each country.

Of the 118 bulk tank milk samples in Wisconsin, 71 samples (60%) yielded at least one S. aureus isolate, and a total of 331 isolates were collected. Of the 40 bulk tank milk samples from Denmark, 27 samples (55%) yielded at least one S. aureus isolate, and a total of 152 isolates were collected.

Significant differences between organic and conventional dairies were detected only to ciprofloxacin in Wisconsin and avilamycin in Denmark. Significant differences ( $P < 0.05$ ) between the two countries were detected in nine antimicrobials. Denmark had a higher probability of having reduced susceptibility to ciprofloxacin and streptomycin ( $P = 0.015$  and  $0.003$ , respectively). Wisconsin isolates had a higher probability of having reduced susceptibility to seven other antimicrobial agents (bacitracin, gentamicin, kanamycin, penicillin, sulphamethoxazole, tetracycline, and trimethoprim).

We found small differences between organic and conventional farm types in each country and larger differences between the two national agricultural systems.

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