Behind the Banner: Antibiotic Resistance in Livestock Show Bacteria

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The purpose of this study was to investigate whether bacteria found in livestock at stock shows are developing resistance to common antibiotics. This research aims to provide insights into antibiotic resistance in livestock environments, inform better antibiotic stewardship, and safeguard both animal and public health. The research question proposed for this project was: Are bacteria found in livestock at stock shows developing resistance to commonly used antibiotics in livestock management? It was hypothesized that if bacteria found in livestock at stock shows are developing resistance, then gram-negative bacteria will show higher levels of resistance compared to gram-positive bacteria. Bacterial samples were collected from 10 sheep and 10 pigs at stock shows. Samples were cultured on nutrient agar plates, gram-stained to identify bacterial types, and subjected to antibiotic susceptibility testing using Penicillin, Baytril, Lincomycin, and a control (distilled water). Zones of inhibition around the antibiotic discs were measured. The results showed 30% of samples contained only gram-negative bacteria, while 70% had mixed populations of bacteria. Lincomycin demonstrated the highest effectiveness with minimal bacterial growth (AEI = 1). Baytril and Penicillin exhibited intermediate resistance (AEI = 2), and the control high resistance (AEI = 3). The findings support the hypothesis that mixed bacterial populations influence resistance. Lincomycin remains most effective, while the resistance for Baytril and Penicillin highlights the need for improved antibiotic management in livestock. This underscores the importance of implementing evidence-based strategies to mitigate the spread of resistant bacteria and preserve the efficacy of available treatments.

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