

PORK SAFETY

Title: A Comparison of Resistance Patterns on Swine Farms Using or Excluding Antimicrobial Products. **NPB#98-209**

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Abstract: Seven swine farms were selected to study the effects of use or exclusion of antibiotics on antibiotic resistance patterns in bacteria. Three farms were confirmed to exclude the use of all antibiotics in their production, while 4 farms used antibiotics in both subtherapeutic and therapeutic amounts, as deemed typical of US production. All antibiotic use on the latter farms was documented for a minimum of 12 months prior to the initiation of the study. On each farm, fecal samples were collected from 24 pigs from specific weight groups and sows. Ground pork samples, originating from pigs from each farm, were also obtained. Bacteria, including nonpathogenic *E. coli*, O157:H7 *E. coli*, and *Salmonella spp.* were isolated from samples and tested against a variety of antibiotics using a standardized minimum inhibitory concentration (MIC) analysis. Differences in resistance patterns were evident between farm types in nonpathogenic *E. coli*, with farms excluding antibiotics demonstrating lower MICs, fewer resistant organisms, and fewer organisms with multiple resistance patterns, compared to farms that used antibiotics. Differences also occurred, but were less pronounced, in salmonella, with isolates from farms that excluded antibiotics demonstrating lower MICs. O157:H7 *E. coli* were only isolated from 2 farms, both of which used antibiotics in production, thus a relevant analysis on that bacterium was not possible.

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