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## Meat and Muscle Biology™



## Presence of *Salmonella* on the Carcass, Hide And Feces of Goats and Lambs from Major Livestock Shows in Texas Collected Over 4 Yr

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### Objectives

Goats and lambs raised for exhibition at major stock shows are subjected to different management techniques than animals raised for commercial production, often leading to increased stress, travel time and feeding techniques. While these stock show animals are not a primary concern relative to the U.S. lamb and goat meat supply, they are frequently raised by children, and have increased exposure to children and families at exhibitions. Ultimately these animals also end up in the food supply system. An understanding of the role of foodborne pathogens, such as *Salmonella*, in the feces, hide and carcasses of these animals is valuable to reducing the risk of human illness from exposure to goats and lambs. The objective of this study was to determine presence of *Salmonella* on the carcass, hide and feces from show goats and lambs over 4 yr in Texas.

### Materials and Methods

Animals in this study were goats or lambs exhibited at 2 large stock shows in Texas (late winter and early fall), and harvested at the Gordon W. Davis Meat Laboratory in Lubbock, Texas over a 4-yr period. Carcass swabs were taken at 3 time-points during the harvest process (pre-evisceration, post-evisceration, and after organic acid intervention was applied), and hide swabs were taken using a sterile pre-moistened sponge with 25 mL of Buffered Peptone Water. Fecal samples were collected by guiding fecal pellets from the descending colon, after evisceration, into a sterile

collection cup. Carcass swabs were screened using a real-time polymerase chain reaction (PCR) platform, cultured for confirmation. Hide swabs and feces were enriched in selective media, cultured using a Xylose-Lysine-Tergitol 4 (XLT-4) agar, and subjected to latex agglutination for confirmation. Isolates from all positive samples were frozen and stored with 20% glycerol in  $-80^{\circ}\text{C}$  for further analysis.

### Results

From lambs ( $n = 90$ ) and goats ( $n = 92$ ), over 4 yr, hide swabs ( $n = 182$ ), carcass swabs at pre-evisceration ( $n = 182$ ), post-evisceration ( $n = 182$ ) and post-intervention application ( $n = 182$ ), and fecal samples ( $n = 182$ ) were collected. Frequency of *Salmonella* detected from goat and lamb feces was similar (6.5% and 6.7% respectively). *Salmonella* on the hide was more frequently detected from lambs (16.7%) than goats (7.6%). *Salmonella* presence on small-ruminant (goat and lamb) carcasses was 1.1% at pre-evisceration, 3.3% at post-evisceration and 0.5% at post-intervention.

### Conclusion

*Salmonella* was detected on the hide and from the feces of show goats and lambs, as well as on small-ruminant carcasses. This information confirms the presence of this pathogen, and provides data to substantiate the importance of hygiene and sanitation at livestock shows and exhibitions to protect visitors and ultimately reduce the risk of pathogen contamination on the carcasses of lambs and goats.