



Salmonella Presence on Hides, Carcasses and in Lymph Nodes in Beef Cattle Fed Palm Kernel Meal and Poultry Litter Based Diets in Honduras During Dry and Rainy Seasons

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Objectives

The effect of dietary poultry litter inclusions on the presence of *Salmonella* in the hides, carcass, and lymph nodes of beef cattle fed palm kernel meal-based diet during dry and rain seasons in Honduras were evaluated.

Materials and Methods

Beef cattle ($n = 149$ and 290 for dry and rain seasons, respectively) from the southeast, northeast, central, and northwest regions of Honduras were studied. Diets contained 0, 8, 10, or 19.9% (DM basis) inclusion of poultry litter, as well as 17, 20, 15, 20.4, and 30.9% of palm kernel meal. Swab samples of hides, carcasses at pre and post-evisceration phase, and subiliac lymph nodes were collected from each of 439 animals at abattoir located in Honduras. Hides and carcasses samples were obtained using pre-hydrated sponges. The lymph nodes were collected by cutting from the flank region. Depending on the type of sample conventional methods (hides), immunomagnetic separation (lymph nodes), and a commercial PCR assay BAX/GeneDisc (carcasses at pre and post-evisceration) were used to detect *Salmonella*. Procedures of R (v.3.3.2) were used for statistical analyses. Chi-square analysis was used, in which pairwise comparison test assessed the frequency of *Salmonella* presence among the sampling lo-

cations (hides, carcasses at pre and post-evisceration, and lymph nodes). Fisher's exact test was used when the frequency of *Salmonella* was studied by country location.

Results

The presence of *Salmonella* (10.3; 6.4; 0; and 10.9%) was not affected ($P = 0.64$) by dietary concentration of poultry litter (0, 8, 10, and 19.9%, respectively), or country location ($P = 0.42$). In addition, a positive association between the presence of *Salmonella* on hide samples during rainy season was observed ($P = 0.016$). Hide samples were 5.53 times more likely to result *Salmonella*-positive in the rainy season than dry season. Frequency of positive samples on hides (5.2% 23/439) was higher ($P < 0.05$) than pre-evisceration (0.5% 2/439), post-evisceration (1.4% 6/439), and in lymph nodes (2.1% 9/439). The presence of *Salmonella* in three latter was not significantly different ($P = 0.11$).

Conclusion

The dietary inclusion of poultry litter did not affect the presence of *Salmonella* on hides, carcass, or in lymph nodes of beef cattle fed in Honduras. Special measures should be taken during the rainy season to avoid cross contamination from the hides to carcasses at harvest.