

## 2017 Reciprocal Meat Conference – Meat and Poultry Safety

## Meat and Muscle Biology™

**Shiga Toxin Producing Escherichia Coli Presence in Environmental Samples Collected from 4 Different Meat Processing Plants in Honduras**

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**Keywords:** beef processing, environmental surfaces, Honduras, STEC  
Meat and Muscle Biology 1(3):138

doi:10.221751/rmc2017.131

## Objectives

To create a baseline of Shiga toxin producing *Escherichia coli* (STEC) presence in meat processing facilities in Honduras.

## Materials and Methods

Swab samples from tables, saws, equipment, knives, aprons, walls, floors, drains, tubs, baskets, axes, boots, carts, hands, weighs and shelves were sampled in 4 different meat processing plants in Honduras. Plants A and B have an implemented HACCP system, while plants C and D have no food safety system in place. Surfaces were swabbed with pre-hydrated sponges, and all sponge samples were subjected to BAX STEC screening after enrichment. Presumptive positives underwent immunomagnetic separation for the serotype of interest and were plated onto modified Rainbow Agar. Individual colonies were confirmed through slide agglutination. Procedures of R (v3.3.2) were used for statistical analysis.

## Results

There was no significant difference ( $P = 0.93$ ) in the STEC presence among the 4 plants. The prevalence of STEC in environmental samples in plants A, B, C and D was 7.3% (4/55), 10.0% (4/40), 7.1% (1/14) and 11.1% (3/27), respectively. The use of HACCP as a food safety management system did not influence ( $P = 0.97$ ) the prevalence of STEC in environmental samples.

## Conclusion

The USDA-FSIS currently recommends that establishments test food contact surfaces for STEC (or virulence markers), and if the surface is found positive then the product that came in direct contact with those surfaces may be considered adulterated. Hence, it is crucial that meat plants maintain strict sanitation regimes for decontamination of environmental surfaces that may act as reservoirs for STEC. A reassessment of sanitation and HACCP plans in plants A and B is urgent, given that the system is not currently eliminating environmental STEC, while the development and implementation of food safety systems is needed in facilities C and D to protect public health in Honduras.