

THE UNIVERSITY of TENNESSEE 
INSTITUTE of AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
Food Science & Technology

October 21, 2010

Mr. James Yoder
Yoder Brothers Meats
1650 Briar Patch Lake Road
Paris, TN 38242

Dear Mr. Yoder,

As you requested, I estimated the potential hazard involving *Clostridium perfringens* associated with your hickory smoked sausage and your process.

The parameters you gave me included:

Percentage salt - 1.25%

Sodium nitrite - 156 ppm

pH of the product - approximately 6.0

*Surface temperature during smoking - approximately 100°F within 1 hour and held for 1 hour;
120°F for 30 min*

Internal temperature - approximately 70°F for around 2.5 hours

Cooling time - from 120°F to 40°F in 6 hours maximum

Packaging - Vacuum packaged

Frozen temperature - 10-20°F

Frozen storage - up to 1 year

From this information, I estimated of the potential incidence and growth or survival of *Clostridium perfringens* in your product during smoking, cooling, frozen storage and consumer handling. This was done using the USDA Agricultural Research Service's Pathogen Modeling Program Version 7.0 (PMP) as well as the following resources:

Jay, J.M., M.J. Loessner, and D.A. Golden. 2005. *Modern Food Microbiology*, 7th Ed. Springer, New York.

International Commission on the Microbiological Specifications for Foods. 1996. *Microorganisms in Foods 5. Characteristics of Microbial Pathogens*. Chapman and Hall, London.

Doyle, M.P., L.R. Beuchat, and T.J. Montville (ed.). 2001. *Food Microbiology: Fundamentals and Frontiers*, 2nd Edition. American Society for Microbiology, Washington, DC.

