

## PORK SAFETY

**Title:** Factors Affecting *Campylobacter* Status of Swine, NPB #98-151

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### I. Abstract:

Four Yucatan miniature gilts, naturally infected with *C. jejuni*, had cecal cannulas surgically implanted. For 7 days prior to and for 7 days following a 48 hr. fast, cecal samples were collected and mean values were determined for pH, volatile fatty acids (VFA), and colony forming units (cfu) of *C. jejuni*. This was replicated 3 times. To study the effects of transport stress, full-fed gilts were loaded onto an open stock trailer and transported for 3-5 hr. Cecal samples were collected for 48 hr. before and for 48 hr. after transportation, and pH, VFA, and cfu were measured. A diet formulated with 50% lactose was fed for 48 hr. and cecal samples were evaluated for changes in pH and VFA. *C. jejuni* bacteria from the gilts in this study were sensitive to the antibiotic erythromycin. In an attempt to eliminate *C. jejuni* from the gastrointestinal (GI) tract, gilts were fed an oral suspension of 1.6 g erythromycin/pig/day (800 mg twice daily) for 10 days. Cecal contents were collected every second day, and values for pH, VFA, and cfu were determined. Pigs were euthanatized and ileocolic lymph nodes and cecal contents cultured for *C. jejuni*. Following the 48 hr. fast, cecal pH increased by 1.66 units (approximately 50 times); acetic, propionic, and butyric acids decreased by 61%, 71%, and 19%, respectively; and the cecal concentration of *C. jejuni* increased by over one hundred-fold. Values returned to pre-fast levels within 5 days of full feed. We observed no changes in measured cecal values following transportation or following a diet of 50% lactose. Concentrations of cecal bacteria progressively decreased during antibiotic treatments and cecal samples were culturally negative for *C. jejuni* by 7 days. Lymph node and GI tract cultures for *C. jejuni* were also negative upon necropsy. These data are important for food safety considerations because feed withdrawal, commonly associated with shipping and slaughter, can increase the shedding of *Campylobacter* in swine. Experimentally, it is possible to eliminate *Campylobacter* from the GI tract of swine.

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