Project Title: Evaluation of Diagnostic Tests for Detection of *Escherichia coli* O157:H7 in Feces of Cattle

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Layman's Summary

A total of four culture methods were compared for their ability to detect *E. coli* O157:H7 in the feces of inoculated weaned beef calves. Using a larger sample of feces (1 gram) from inoculated calves resulted in greater sensitivity of the method when compared to a smaller sample (.1 gram). The most sensitive method used two enrichment broths and had a test for the presence of the *E. coli* O157:H7 toxin, known as Shiga-like toxin. All methods had a high rate of detection of *E. coli* O157:H7 during the first seven days of postinoculation of the calves. The average limit for detectable shedding of *E. coli* O157:H7 was 25 days, however, one detection method rate dropped to 0% at day 11 post- inoculation. After an average of 14 days of negative tests for *E. coli* O157:H7, the calves were fasted on water for 24 hours, and no reoccurrence of *E. coli* O157:H7 shedding was detected. This result implies that fasted cattle that were previously positive for *E. coli* O157:H7 but test negative at a later time don't necessarily have a reoccurrence of shedding *E. coli* O157:H7 due to fasting, which is a form of stress. It is important to note that these results are from a controlled experiment and used younger cattle that were experimentally inoculated.

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