Project Title: Longitudinal evaluation of *Salmonella* prevalence across multiple production agriculture operations in the High Plains

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Objective: To evaluate fecal *Salmonella* prevalence variation across dairies and feedlots within the same geographical location.

Experimental Treatments: A convenience sample of 3 regionally co-located operations were enrolled that included 2 dairies and 1 feedlot. Samples have been collected monthly for 9 consecutive months. Sample collection consisted of 25 fresh fecal pats from the 5 pens within the 3 facilities along with water samples from each individual pen. Each monthly collection included 375 fecal and 32 water samples. Feces and water were cultured quantitatively (log_{10} CFU/g or ml) and qualitatively (% positive) for *Salmonella* within 30 hours of collection.

Key Results: *Salmonella* was recovered from 32% and 78% of pre- and post-enriched samples over the 9 collection periods. The prevalence varied across months; average prevalence of fecal *Salmonella* was 82% and 76% for feedlots and dairies, respectively. The tendencies of our data have followed the general trends of "seasonal effect" established in previous literature.

How can this information be applied in the industry? Our preliminary data help characterize the oscillating prevalence of *Salmonella* within production agriculture operations over time. We hypothesis that *Salmonella* recovered from these animals enter the animal both orally and/or transdermally. As such, its possible insecta may be an important component to observed prevalence. This information will help inform our understanding of the ecology of *Salmonella* in cattle populations and inform potential areas of meaningful control.

Figure 1. Prevalence of qualitative *Salmonella* by facility and by month of sample collection. Differences among the prevalence observed across the facilities were detected in all months except June.