Are Super-Shedder Feedlot Cattle Really Super?

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Abstract

The objective of this study was to determine the frequency and duration of super-shedding in cattle by enumerating Escherichia coli O157:H7 in feces and to compare lineage and pulsed-field gel electrophoresis (PFGE) subtypes from super- and low-shedders. E. coli O157:H7 was enumerated from fecal samples obtained from the rectums of 400 feedlot cattle. Super-shedding steers (N=11) were identified, transported, and penned individually. Freshly voided fecal pats were sampled 2 h before and 6 h after feeding for 7 d, then once daily for an additional 19 d. Isolates (N=126) were subtyped using PFGE, and lineage was typed using a lineage-specific polymorphism assay. Of the 11 super-shedders identified at the commercial feedlot, only five were confirmed as super-shedders at the research feedlot, with no super-shedders identified 6 d after sampling at the commercial feedlot. Super-shedding was not consistent in fecal pats collected from the same individual at different times of the day. Isolates exhibited three distinct PFGE subtypes, with most isolates (97.6%) displaying the same subtype, including those obtained from steers that transitioned from super- to low-shedding. The short duration of super-shedding and its lack of continuance suggest that these individuals may not play as great a role in the dissemination of E. coli O157:H7 within the feedlot as previously proposed.