Bacterial Counts in Recycled Manure Solids Used as a Deep Pack or Mattress Covering in a Dairy Free-stall Housing System

Author: Caleigh Payne

Major: Animal Science

Project Advisor: Jeff Firkins

On-farm recycling of manure solids for use as bedding on dairy farms reduces transportation costs for manure application, reduces bedding costs, and provides a sustainable approach to utilizing manure with minimal impact on the environment. A disadvantage to using recycled manure solids as bedding for dairy cows is the potential exposure of cows to fecal-borne bacteria that can result in mastitis and reduced milk quality. An experiment was conducted to determine if the potential risk to pathogen exposure could be reduced by limiting the amount of bedding in each stall. Fifteen lactating Holsteins cows were housed in one pen with unlimited access to eighteen stalls. Nine of the stalls were bedded with 100 to 150 mm of recycled manure solids while the remaining nine stalls were bedded with vinyl surfaced mattresses covered in 25 to 50 mm of recycled manure solids. Surface bacterial counts of Gram-negative bacteria, coliforms, and *Klebsiella* species in recycled manure solids did not differ between the deep bedded stalls and mattress covered stalls bedded with a thin cover of recycled manure. Surface counts of streptococcal bacteria were reduced in deep bedded stalls compared with mattress covered stalls with a thinner covering of recycled manure. These results indicated that additional bedding in stalls for cow comfort did not increase the risk of exposure to potential mastitis causing pathogens.