

On-farm Fermentation of Poultry Carcasses

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Lactic acid fermentation of poultry carcasses can be adapted as a biosecure method of storing mortalities on-farm until transportation to a rendering facility is facilitated. Initial investigations were conducted in small-scale vessels to evaluate the combination of ground poultry carcasses and fermentable carbohydrate to assure rapid fermentation, biosecure stabilization, and long-term on-farm storage. Scale-up experiments followed to evaluate the system utilizing 10 kg additions of ground carcasses mixed with an appropriate fermentable carbohydrate over five consecutive days resulting in a 50 kg batch. Carbohydrates tested were sucrose (10%), whey (10%), 50:50 corn:whey (15%), whey permeate containing 83-86% lactose (10%), ground corn (20%) and ground wheat (10%). Ferment was monitored weekly for pH, fungal counts, and for populations of lactic acid and coliform bacteria. Successful fermentation of these batches was achieved with sucrose, whey, whey permeate, and corn at the levels tested.

A commercial disposal facility was constructed on a 90,000 capacity broiler farm to demonstrate the feasibility of on-farm fermentation of poultry carcasses. A grinding unit was specifically designed to allow for simultaneous addition of a carbohydrate source during carcass grinding. On a daily basis, broiler mortality was ground with 20% ground corn added as the carbohydrate source. The mixture was fed directly into a sealed storage tank of approximately 1800 lb capacity. Results indicated that fermentation could be adapted for the stabilized pathogen-free storage of broiler carcasses during a typical seven-week growout, which reduces daily transportation costs and eliminates the potential for transmission of pathogenic microorganisms through poultry via rendered products.