

In-House Composting of Litter to Control Dermatitis in Broilers

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In-house composting of litter between flocks is a technique of growing interest to the poultry industry in many parts of the USA. University research has documented the pasteurization process eliminates many pathogens in used litter such as *E. coli*, *staphylococcus*, *salmonella*, *aspergilla*, and respiratory viruses such laryngotracheitis (1, 2). Reductions in aerobic and anaerobic bacteria including *Clostridium perfringens* have also been reported (2, 3, 4). University of Delaware research has recently found the process reduces coccidial challenge in broilers as well as darkling beetle populations in used litter (5).

For the past year, several Delmarva poultry companies have been composting litter between flocks as a means of extending litter life, addressing nutrient and waste management concerns, and reducing disease challenges (6). Of particular interest was a strategy to break the cycle of dermatitis on repeater farms. When implemented properly and done repeatedly, this procedure has consistently eliminated or greatly reduced the incidence of dermatitis on these farms. It has also been used to successfully break the cycle of runting and stunting syndrome, and necrotic enteritis on farms. Flock performance on several diseased challenged farms have been documented prior to and following implementation of the composting procedure. Improvements in livability, body weight, feed conversion and cost per pound have resulted in growers improving their competitive position from below average to the top 80% percentile. On several of these farms growing large broilers the growers are making in excess of \$80 per 1000 birds more compared to their

previous conventional litter management program. Initial results from paired-house studies on two above average farms with no disease history also suggest an improvement in production efficiency with an estimated \$20 per 1000 birds higher pay. Preliminary University of Delaware research suggest part of this improvement is due reduced coccidial challenge.

On Delmarva aeration equipment has been used to construct and turn the windrows (Figure 1). Following a minimal heating cycle of ~5 days at > 130F the piles are leveled out in preparation for the next flock. The benefits of this program will be diminished if growers fail to properly manage ammonia, litter moisture and compost temperatures. Guidelines for implementing this procedure have been developed for Delmarva (7). It must be stressed these guidelines are based on Delmarva's



Figure 1. In-house composting of litter using Brown Bear aeration equipment.

production practices, housing, litter management and climate. Modified procedures may be needed for turkey production systems and in colder climates.

The higher costs associated with implementing this procedure is offset by improved performance, lower cost

of production and reduced bedding replacement. Several Delmarva poultry companies are assisting growers with the added cost of implementing this procedure and in Delaware, NRCS is considering this practice for cost share assistance under their waste treatment standard #629.