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FEEDING TURKEYS A HIGHLY DIGESTIBLE SUPPLEMENT DURING PRESLAUGHTER FEED WITHDRAWAL

Introduction

It is standard commercial practice to deny poultry access to feed 8 to 12 h prior to slaughter. The feed is taken away so that the digestive tract will empty and there will be less chance of contamination of the carcass during processing. However, if the feed withdrawal period is too long the birds begin to pick at litter and ingest feces which remain in the crop and lead to contamination during processing. The intestinal tract can also become weak and can break if feed is withheld for too long. Also without access to feed the birds begin to lose weight. Occasionally turkeys are marketed at several ages for the same flock; therefore a period of starvation can occur for birds that are not necessarily shipped. Accumulation of fecal material in the digestive tract can be minimized by offering birds a highly digestible supplement. Providing this alternative feed during the pre-slaughter feed withdrawal period may reduce live weight loss, bird stress and grazing on manure. It is anticipated that administration of this supplement will improve carcass yields, reduce the incidence of stress related meat quality problems and reduce the microbial load of the upper gastrointestinal tract.

Trial

Three trials were conducted at the NSAC using 480 female turkey poults per trial. The birds were separated into 8 pens with half of the pens shipped at 63 days of age and the other half shipped one week later. Commercial feed was withdrawn 6 hours prior to catching from each pen. A highly digestible nutritive supplement (Table 1) was offered in half of the pens for 5 hours in duration. Water only was provided for the last hour before shipping. All birds were slaughtered in sequence so that 9 h after conventional feed was withdrawn had elapsed at the time of death. Twenty birds per pen (80 birds) were shipped for processing at 63 days of age. One week later, the same procedure was followed and 10 birds per pen (80 birds) were shipped for processing. The pens that had received supplement at 63 days of age received it again a week later along with half the pens not previously marketed.

Table 1. Composition of the Nutritive Supplement

Ingredients	Base Supplement	Color	Coating
Maltodextrin Corn germ Mono and diglycerides NaCl	95.6 2.0 2.0 0.36		
Carmel		0.33	
Hydrogenated tallow			3.0

Results

The supplement was only consumed in a significant quantity when it was new to the birds (~10g/kg of bird), upon a second exposure only small qualities of the supplement was consumed. To examine the effect of the supplement on live shrink and carcass yield the birds were weighed before feed withdrawal, after transport just prior to slaughter and after evisceration. The carcass yields (Table 2), based on the live weight before the conventional feed withdrawal period, and was improved for birds offered the supplement once. The carcass yield, based on the live weight just prior to slaughter, was unaffected by the consumption of the supplement regardless of the shipping date. This indicated that clearance of digesta was similar for both treatments. Microbiological profiles (Table 3) of the crops revealed that while the total number aerobic bacteria was unchanged for the two groups of birds, those birds ingesting the supplement had fewer *E.coli* and coliforms present. Since the birds would only consume the supplement on the first exposure it would only be effective in an all in all out management situation and not for multiple-marketed birds.

Table 2. Effect of Nutritive Supplement on Carcass Yield

Shipment	Treatment	Carcass yield 1	Carcass yield 2
1	Control	74.7%	78.1%
1	Supplement	75.8%	77.9%
2	Control	74.5%	78.3%
2	Supplement	75.1%	77.9%

Means do not differ significantly (P>0.05)

Table 3. Effect of Nutritive Supplement on Crop Microbial Profile

Treatment	Aerobic plate count (log_{10} CFU/g)	*E. Coli* (log_{10} CFU/g)	Coliforms (log_{10} CFU/g)
Control	7.40a	6.34a	6.46a
Supplement	7.04a	5.19b	5.37b
SE	0.108	0.146	0.190

A,B Means differ significantly (P<0.05)

Industry impact

This research indicates that this feed withdrawal supplement would have limited use in a multi-marketed turkey flocks since the birds will only consume it once. However, upon first exposure, birds live shrink was reduced and microbial loads in the crop were reduced. This could prove to be a valuable vehicle for delivery of antimicrobial treatments to further reduce bacterial populations and potentially improve product safety.

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