health to continue to push their anti animal agriculture agenda and will not be satisfied until either the bacteria or antibiotics are taken out of the antimicrobial resistance equation.

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PERFORMANCE OF ABF TURKEY ANTIBIOTIC-FREE COMMERCIAL TURKEY BROILERS: PERFORMANCES FROM TWO COMMERCIAL FARMS IN ONTARIO

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SUMMARY

Mortality rates averaged body weights and feed conversion of 21 consecutive flocks of ABF turkeys were reported here. They were all vaccinated for coccidiosis control since January 2005. The first eight flocks were on antibiotics but, from January 2007 onward, only Bio Mos (Alltech) was added to their feed. In other words, they had been antibiotic-free (ABF) for nearly three years. They were raised to about 11 weeks of age and averaged around 6 kg each with livability over 96% and a feed conversion of slightly less than two. There were four flocks of heavy toms grown along side of these hens. There were no incidences of coccidiosis and necrotic enteritis reported in all five years.

Comparison of performance between these ABF with the non ABF turkey broilers, as well as toms of the same farm, as well as with those of another Ontario farm will be made. Possible reasons for the success of preventing coccidiosis and necrotic enteritis during the periods of raising these ABF turkey broilers with or without Bio Mos will be reported.

Antimicrobials are added to commercial turkey diets partly to improve performance, but mainly to control or to prevent necrotic enteritis (4). This use of antimicrobials is well established practice and has long been used and considered to be safe. However, the persistence of some antibiotic resistant bacteria recovered from poultry, has led to regulatory changes some as severe as the prohibition of their use in Europe (3). All this has led to more production and increasing demand by consumers for drug free poultry (5).

However, the main reason cited for the reluctance to meet this demand. ABF poultry production necessitates the use of vaccination for coccidiosis control. However, it is well established that coccidiosis can be one of the predisposing factors to necrotic enteritis (1,6). Therefore, in any ABF production, vaccination against coccidiosis have to be applied and managed properly to prevent or reduce the occurrence of necrotic enteritis, a disease that can incur additional increase in production cost (2).

Here performances of ABF and non-ABF turkeys are compared and their inferences discussed.

MATERIALS AND METHODS

Data collection. Livability, condemnation, feed consumption, average daily gain body weight, and feed conversion rates of 13 ABF and 41 non ABF flocks were provided by two commercial growers in Ontario: Farm 1 (TD) provided data on 13 flocks of ABF and eight flocks of Non-ABF turkeys over a period from January 2005 to April 2009 on a total of 76,387 turkeys; and data of 512,415 of Non-ABF turkeys were provided by Farm 2 (SC) collected from January 2008 to January 2009. These are for comparison purposes. In general, hens were raised to ages of 75 to 81 days and toms from 118 to 122 days. Farm 2 was selected mainly because it provided sufficient numbers of flocks for meaningful comparison; and is representative of most commercial turkeys grown in Ontario, which is they are relying equally on either vaccination or medication for coccidiosis control but mainly on antibiotics for the control of necrotic enteritis.

Feed additives for bacterial control. All ABF birds were fed standard turkey pre starter ration containing 2 kg of Bio Mos/tonne of feed for 10 to15 days, thereafter 1 kg of Bio Mos was added to the grower and finisher feed. Non-ABF turkeys were raised on ration containing BMD or virginiamycin (Stafac) in feed.

Acid- Pak 4-Way was also added to the drinking water of toms from day one to four and later when poults were moved from the brooding barn to the growing barn as an anti stress product.

Coccidiosis control. All poults in Farm 1 were vaccinated against coccidiosis with Immucox® gel pucks (Vetech Laboratories Inc. Guelph Canada) containing *Eimeria meleagrimitis* and *E. adenoeides* at one day of age. Each puck of 100 doses was divided into two halves; and four plates placed in each brooder ring. Turkeys that were not vaccinated against coccidiosis were on monensin in their ration (100 ppm).

Post vaccination management. Two hundred vaccinated poults were kept in each brooder ring or one half square foot per poult for seven days before being set free in the brooder barn. The poults were allowed one square foot or less each, until four to five weeks of age. This proximity between poults will allow proper recycling of oocysts.

Profit Calculation. The following prices were used for calculation**:** Feed cost 400 CDN $/ton; Immucox 3.5¢/dose; anticoccidial 9 CDN$/ton; Bio Mos 4way 5 CDN $/ ton; and BMF- virginiamycin 4 CDN $/tonne.

RESULTS and DISCUSSION

Necrotic enteritis. No incidence of necrotic enteritis was observed in Farm 1 over the five years. This includes all ABF and Non-ABF birds over the five years. This is also true for all the Non-ABF birds of Farm 2 whether they were vaccinated or they were medicated for coccidiosis control. This absence of necrotic enteritis is evidenced by the high rates of livability, particularly among the broilers, as reported in Table 1.

In addition to these higher rates of livability, the turkeys appeared heavier in body weight and lower in the adjusted feed conversion as well as lower in the rate of condemnation (Table 1).

Also in Farm 2, among the non-ABF broilers, those with vaccination for coccidiosis control appeared heavier in body weight and lower in adjusted feed conversion when compared to their counterparts that were medicated with monensin in the feed (Table 1).

Among heavy toms, these differences between the ABF and Non-ABF toms hold (Table 1). However, the number of ABF heavy tom is still small in number and not very insignificant. Interestingly, the disparity in feed conversion between heavy toms of Farm 2 that were vaccinated and those medicated for coccidiosis control have the same magnitude of differences as previously reported (Lee and Cosstick ,Gobbles 2007).

Profit calculations. When comparing the profit of weight (kg) sold of ABF turkey versus non-ABF of Farm 1 they were 0.753 and 0.739 respectively. This represents a difference of 1.4 cents per kg in favor of the ABF turkeys.

This little or no difference in cost of raising ABF versus Non-ABF turkeys has been reported previously (2), from a farm without either antibiotics or Bio Mos being added to the feed. Limited access to this farm which is located at far corner of Ontario and from other turkey farms; and repeated tilling of the litter allow this farm to raise turkeys with just coccidiosis vaccination; and with no incidence of necrotic enteritis. The same practice has continued for over six years

Here, however, Farm 1 is not that isolated from other turkey farms nor has the advantage of repeated tilling; therefore, it may need the feed additives such as Bio Mos to grow turkeys.

A common feature among these two farms and the one reported previously (2) is the use of vaccination for coccidiosis control and the practice of proper post vaccination management of the litter. This appears to be adequate for now in growing ABF turkeys.

In conclusion, although in performance differences between ABF and non-ABF birds were not statistically significant, all parameters appeared to be the same or slightly in favor of the ABF birds. All these results suggest that ABF turkeys can be grown like any other commercial turkeys in Ontario.

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Table 1. Comparison of performance between ABF and non- ABF turkeys.

Types of turkeys	Farm #	Age (days)	% Livability	Weight (Kg)	F/C	Condem.	Total #	# Consecutive Flocks	Immucox®	Anti-Coccidial
ABF broiler	1	**77**	**97.39**	**5.92**	**2.01**	**0.18**	**38,900**	**9**	+	**-**
Non-ABF broilers	**1**	77.5	97.37	6.00	1.98	0.14	29,650	8	+	-
Non-ABF broiler	**2**	75.6	95.09	5.55	1.97	0.35	150,778	9	+	-
Non-ABF broiler	2	77.5	95.12	5.495	2.01	0.37	65,773	4	-	+
ABF heavy toms	1	**121.5**	**89.9**	**15.78**	**2.40**	**4.12**	**4,750**	**4**	+	**-**
Non ABF Heavy toms	2	122	88.63	15.10	2.32	1.83	139,023	14	+	-
Non-ABF heavy toms	2	118.7	88.22	15.05	2.33 (2.46)	2.19	69,197	6	-	+