

# EFFECT OF HIGH LEVELS OF THE DIETARY TALLOW ON THE QUALITY OF CHICKEN CARCASS

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**Abstract-**This work was carried to investigate the carcass abnormality's existence of chicken such as a wound as high level of tallow was added to broiler diets. When the tallow was added as common levels and high energy levels to the broiler diet, at the high treatment, the occurrence ratio of 1+ grade was low, the occurrence ratio of a wound to consider dermatitis was high, and the occurrence ratio of a bruise was a little high. The occurrence of dermatitis of chickens was 32.0% at the high energy treatment and 19.0% at the basal diet treatment and the high energy treatment was high as about 13.0%, the part of bruise to occur in large numbers was the wing as 8.0% at the high energy treatment and as 4.5% at the basal diet treatment.

**Index Terms** - thawing chicken, freshness, tissue

## □. INTRODUCTION

Broilers must be fed with the high energy diets to improve the performance of broiler. Oils that were relatively cheaper than proteins used to increase the energy concentration of broiler diet and the added oils were known to improve the performance of broilers. Specially, tallow is cheap comparatively out of oils and is the feed ingredient to increase the dietary energy concentration so that is largely used to the broiler diet. Tallow was only known that feed utility was low as well as affected to carcass of chickens in case of using many quantities, however, there were few researches that were investigated what kind of the effect of tallow on the quality of carcass of chickens. In result of a question at broiler families, if too many tallow were added to the diet, the abnormality of carcass such as a wound is occurred in progress of feeding because of weakness. This work was carried to investigate the carcass abnormality's existence of chicken such as a wound as high level of tallow was added to broiler diets.

## □. MATERIALS AND METHODS

Hubbard broilers were used in this work and were fed at the flatted house with no sexual division. Divided two treatments were the basal diet treatment and the high energy treatment. At starter period, the basal diet was 3.12% tallow and ME 3,150 kcal/kg and the high energy diet was 4.11% tallow and ME 3,180 kcal/kg (Table 1). At finisher period, the basal diet was 3.65% tallow and ME 3,200 kcal/kg and the high energy diet was 4.80% tallow and ME 3,250 kcal/kg (Table 1). Broilers were fed for 32 days and were slaughtered with commercial methods of common butcher house after about 8 hour's starvation. Slaughtered chickens were investigated on the quality grade of carcass, a wound, dermatitis, a bruise, an external wound, dislocation, scab and so on.

## □. RESULTS AND DISCUSSION

As Table 2 was shown that the appearance ratio of 1+ grade of the carcass of chicken according to supplemental level of tallow was 38.5% at the high energy treatment and 46.5% at the basal diet treatment and the basal diet

treatment was high as about 8% compared to the high energy treatment. The occurrence ratio of a wound of chicken according to supplemental level of tallow was 16.5% at the high energy treatment and 20.0% at the basal diet treatment and the high energy treatment was low as about 3.5% compared to the basal diet treatment (Table 3). The occurrence ratio of the thigh was 65.2% and that of the back was 28.3% at the basal diet treatment and the thigh and the back composited most of carcass. The occurrence ratio of the thigh was 72.7% and that of the back was 27.3% at the high energy treatment. The occurrence ratio was high at the thigh of the high energy treatment (Table 4). 4~9 cm size was 69.7% at the high energy treatment and 58.0% at the basal diet treatment on the size of a wound of chicken (Table 5). The occurrence of dermatitis of chickens was 32.0% at the high energy treatment and 19.0% at the basal diet treatment and the high energy treatment was high as about 13.0% (Table 6). If it was considered that a wound would be the dermatitis, the carcass abnormality of chicken was 48.5% at the high energy treatment and 39.0% at the basal diet treatment and the high energy treatment was high as 9.5% compared to the basal diet treatment. The occurrence ratio of bruise of chicken skin was 16.0% at the high energy treatment and 13.0% at the basal diet treatment and the high energy treatment was high as 3.0 compared to the basal diet treatment. The part of bruise to occur in large numbers was the wing as 8.0% at the high energy treatment and as 4.5% at the basal diet treatment.

## □. CONCLUSION

When the tallow was added as common levels and high energy levels to the broiler diet, at the high treatment, the occurrence ratio of 1<sup>+</sup> grade was low, the occurrence ratio of a wound to consider dermatitis was high, and the occurrence ratio of a bruise was a little high.

Table 1. Tallow and ME levels of experimental diets

(unit: %)

Items	Starter		Finisher	
	Basal diet	High energy diet	Basal diet	High energy diet
Tallow (%)	3.12	4.11	3.65	4.80
CP (%)	21.0	21.0	19.0	19.0
ME (kcal/kg)	3,150	3,180	3,200	3,250

Table 2. The occurrence ratio of 1+ grade of chicken according to the supplemental tallow levels

Division	The basal diet treatment	The high energy treatment
1+ grade (%)	46.5	38.5

Table 3. The occurrence ratio of a wound of chicken according to the supplemental tallow levels

Division	The basal diet treatment	The high energy treatment
Occurrence ratio (%)	20.0	16.5

Table 4. The occurrence ratio of a wound of chicken according to the supplemental tallow levels

(Unit: %)

Division	The basal diet treatment	The high energy treatment
Back	28.3	27.3
Thigh	65.2	72.7
Legs	4.3	-
Breast	2.2	-

Table 5. The occurrence ratio of a wound of chicken according to the supplemental tallow levels

(Unit: %)

Division	The basal diet treatment	The high energy treatment
A	5.0	12.1
B	35.0	48.5
C	22.5	21.2
D	12.5	9.1
E	25.0	9.1

\* A diameter mark of the apse line according to the supplemental tallow levels

\*\*A: 1-3 cm, B: 4-6 cm, C: 7-9 cm, D: 10-12 cm, E: over 13 cm

Table 6. The occurrence ratio of dermatitis of chicken according to the supplemental tallow levels

(Unit: %)

Division	The basal diet treatment	The high energy treatment
Excess	2.5	-
Common	1.0	7.0
Lack	15.5	25.0
Total	19.0	32.0

Table 7. The occurrence ratio of partial bruise of chicken according to the supplemental tallow levels  
(Unit: %)

Division	The basal diet treatment	The high energy treatment
Wing	4.5	8.0
Leg	4.5	4.0
Breast	4.0	4.0
Back	-	-
Total	13.0	16.0

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