

## VARIOUS LEVELS EFFECT OF SKIPJACK TUNA GILL MEAL (*Katsuwonus pelamis* L) IN RATION ON BROILER CARCASS AND ABDOMINAL FAT

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### Abstract

*100 day old chick Arbor Acres CP 707 were randomly used in this experiment, using skipjack tuna gill meal; we've studied on broiler carcass and abdominal fat. Completely Randomized Design (CRD) with 2 x 3 factorial pattern, and each treatment were four times repeated. The first factor was crumble and mash ration, and the second factor were three levels of the skipjack tuna gill meal in ration. Results indicated that there is no significantly effect on broiler carcass but has significantly effect on abdominal fat.*

**Key words:** skipjack tuna gill meal, crumble and mash ration, broiler carcass and abdominal fat

### INTRODUCTION

Broiler growth and efficiency of feed use will generally be better if the starter feed is crumbs. Depending on feed size, it may be necessary to deliver the feed as crumbs. Poor quality crumbs will reduce feed intake and performance. Good quality crumbled feeds are preferred to mash feed, however if feeding a mash feed, feed particles should be sufficiently coarse and uniform in size. Mash feed may benefit from the inclusion of some fat in the formulation to reduce dustiness and improve homogeneity of feed components. Poor physical feed quality will have a negative impact on broiler performance. Good quality crumbled feed will give optimum performance. When feeding mash, a coarse uniform particle size is achieved (Arbo Acres, 2009) In formulating diets, it is essential to know the birds nutrient needs, and consequently the concentration of these nutrients in the various ingredients. Diets are compose of complex organic and inorganic molecules that must be reduced in size so as to enable absorption (Leeson and Summers, 2001). Studies which relate particle size to digestibility of nutrients are limited, and show inconsistent results with broiler performance. Cabrera (1994) in el-Khalek and Janssens (2010), found no effect of diet particle size on growth performance of

broiler chicks. Lott et al. (1992) reported that larger particle size resulted in reduced growth performance of broilers. On the other hand, Nir et al. (1994) has shown that increasing corn particle size increased broiler performance. The usefulness of a protein feedstuff for poultry depends upon its ability to furnish the essential amino acids required by the bird, the digestibility of the protein, and the presence or absence of toxic substances. As a general rule, several different sources of protein produce better results than single protein sources. Both vegetable and animal protein supplements are used for poultry (Scanes, et al; 2004). 50-65% of fish meal, can replace for best results. Most poultry rations incorporate some fish meal at levels of about 2-5% of the ration. Abdominal fat of commercial broilers (7 weeks of age), according to Richardson and Mead (2006), in some strain are between 2.75% to 3.15% and in male (2.67%) and female (3.27%).

Particle size has a major effect on the extent of self-selection by the birds and on separation of feed components. Chickens have a tendency to pick out the larger grain particles from the mash first, leaving the finer materials until last. When crumbled, chickens cannot pick out certain parts of the feed, but must eat an entire pellet. This is particularly

advantageous with young chicks as they are consuming such a small amount of feed and all nutrients must be obtained in each day's food intake (Bell and Weaver, 2002).

**MATERIALS AND METHODS**

100 day old chick Arbor Acres CP 707 (used randomizedly) and skipjack tuna gill meal; were studied on broiler carcass and abdominal fat. Research was done by using Completely Randomized Design (CRD) with 2 x 3 factorial patterns, and each treatment was four times repeated. The first factor were crumble and mash ration, the second factor were three levels of the skipjack tuna gill meal in ration (R-0= control ration with 100% fish meal,R-1= control ration with 98% fish meal plus 2% skipjack tuna gill meal,R-2= control ration with 96% fish meal plus 4% skipjack tuna gill meal).

**RESULTS AND DISCUSSIONS**

From Table 1, there are the results of skipjack tuna gill meal in ration to the broiler carcass from this research. The highest carcass was get from the broiler that fed crumbled ration (R-0), 74.39% and the lowest were get from broiler that fed mash ration (R-2), 72.20%. There is no interaction effect of feed size between crumbled or mash ration. The nutrition content in the ration are equal, especially the protein and energy. Even according to the Arbor Acres (2009), broiler growth and efficiency of feed use will generally be better if the starter feed is crumbs.

Table 1. The Effect of Skipjack Tuna Gill Meal in Ration on Broiler Carcass (%)

Ration	R-0	R-1	R-2	Average
Mash	72.59	73.40	72.20	72.73 <sup>a</sup>
Crumble	74.39	72.87	74.00	73.75 <sup>a</sup>
	73.49 <sup>a</sup>	73.13 <sup>a</sup>	73.10 <sup>a</sup>	

Because there is no significantly effect between R-0; R-1 and R-2, it means that the skipjack tuna gill meal can replace the function of fish meal place in the ration.

Table 2. The Effect of Skipjack Tuna Gill Meal in Ration on Broiler Abdominal Fat

Ration	R-0	R-1	R-2	Average
Mash	1.85	1.90	1.92	1.89 <sup>a</sup>
Crumble	2.04	2.12	2.08	2.08 <sup>o</sup>
	1.94 <sup>a</sup>	2.01 <sup>a</sup>	2.00 <sup>a</sup>	

In Table 2, there is the effect of skipjack tuna gill meal in ration on broiler abdominal fat. From Table 2, the average abdominal fat from mash ration is 1.89 and from crumble ration is 2.08. Between crumble ration and mash ration has significantly effect. It means that the crumble ration will give more abdominal fat to the broiler. But according to the ration, the highest abdominal fat is from R-1 (2.01%) and the lowest is from R-0 (1.94%). All results are under the results of Richardson and Mead (2006), between 2.75 and 3.15%. So it is better when we used skipjack tuna gill meal in the ration.

**CONCLUSION**

Even the results indicated that there is no significantly effect on broiler carcass, broiler that feed with crumbled ration has 73.10% of broiler carcass. The skipjack tuna gill meal, can replace the function of fish meal in the ration, because there is no significantly effect between the R-0, R-1 and R-2 to the broiler carcass percentage.

On abdominal fat, there is significantly effect, the broiler that fed with crumbled ration has average 2.08% on abdominal fat, but still lower than the usual results (between 2.75 – 3.15%).

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