

**OSMOTIC FRAGILITY, CIRCULATING LUTEINIZING AND  
STEROIDAL HORMONES IN LAYING CHICKENS FED DIETARY  
INCLUSION OF ACETYLSALICYLIC ACID (ASA).**

**By**

**Aro, S. O., Baki, O. I. and Awoneye, O. O.**

**Department of Animal Production and Health, Federal University of  
Technology, Akure, Ondo State, Nigeria.**

**A paper presented at**

**The NSAP Conference, 26<sup>th</sup> -30<sup>th</sup> March, 2017 at Landmark University,  
Omu-Aran, Kwara State, Nigeria.**

# INTRODUCTION

- ❖ Osmotic fragility (OF)
- ❖ Acetylsalicylic acid (ASA)
- ❖ Properties of ASA
- ❖ ASA as an Anti-stress in Poultry Production
- ❖ Little information is however available on its effect on the osmotic fragility of the red blood corpuscles and circulating pituitary and steroidal hormones especially in laying chickens.

# **MATERIALS AND METHODS**

- ❖ Experimental site
- ❖ Experimental Animals
- ❖ Formulation of Diets
- ❖ Experimental Layout and Feeding Trial
- ❖ Data Collection and Analysis
- ❖ Statistical Analysis



**Table 2: Hormonal Profile of the Laying Hens fed Varying Levels of Acetyl salicylic acid (ASA)**

<b>SOV</b>	<b>ASA Level (%)</b>	<b>LH (IU/L)</b>	<b>PROG (nmol/L)</b>	<b>TEST (nmol/L)</b>	<b>E2 (pmol/L)</b>	<b>CORTISOL (nmol/L)</b>	<b>SEM</b>
<b>Breed</b>							
Isa Brown		0.20	0.70	0.12 <sup>b</sup>	229.37 <sup>b</sup>	1.35	17.23
Harco Black		0.20	0.73	0.68 <sup>a</sup>	440.38 <sup>a</sup>	2.18	18.77
<b>T</b>							
T1	0.00	0.20	0.53 <sup>c</sup>	0.43 <sup>b</sup>	91.80 <sup>b</sup>	2.18	0.35
T2	0.025	0.20	0.63 <sup>b</sup>	0.64 <sup>a</sup>	333.81 <sup>a</sup>	0.52	28.06
T3	0.050	0.20	0.86 <sup>a</sup>	0.66 <sup>a</sup>	438.12 <sup>a</sup>	2.18	25.29
T4	0.075	0.20	0.84 <sup>a</sup>	0.80 <sup>a</sup>	475.75 <sup>a</sup>	2.18	29.11
<b>BXT</b>							
Isa Brown	0.00	0.20	0.53 <sup>b</sup>	0.47 <sup>b</sup>	91.80 <sup>c</sup>	3.02 <sup>b</sup>	0.52
Harco Black	0.00	0.20	0.52 <sup>b</sup>	0.37 <sup>b</sup>	91.80 <sup>c</sup>	0.52 <sup>b</sup>	0.00
Isa Brown	0.025	0.20	0.53 <sup>b</sup>	0.30 <sup>c</sup>	91.80 <sup>c</sup>	0.52 <sup>b</sup>	0.00
Harco Black	0.025	0.20	0.68 <sup>a</sup>	0.81 <sup>a</sup>	454.82 <sup>a</sup>	0.52 <sup>b</sup>	24.47
Isa Brown	0.05	0.20	0.89 <sup>a</sup>	0.72 <sup>a</sup>	409.27 <sup>a</sup>	0.52 <sup>b</sup>	42.03
Harco Black	0.05	0.20	0.82 <sup>a</sup>	0.52 <sup>a</sup>	495.83 <sup>a</sup>	5.52 <sup>a</sup>	0.00
Isa Brown	0.075	0.20	0.86 <sup>a</sup>	0.82 <sup>a</sup>	282.26 <sup>b</sup>	0.52 <sup>b</sup>	0.00
Harco Black	0.075	0.20	0.88 <sup>a</sup>	0.79 <sup>a</sup>	572.50 <sup>a</sup>	3.02 <sup>b</sup>	37.40
<b>Breed</b>		NS	NS	*	*	NS	
<b>Treatment</b>		NS	*	*	*	NS	
<b>Breed*Treatment</b>		NS	*	NS	*	*	

# CONCLUSION

- ❖ Isa Brown breed was more fragile and osmotically liable to lysis at higher dietary ASA concentration than the Harco Black breed.
- ❖ Inclusion of ASA at 0.025% of the diet ameliorate heat stress in the Isa Brown breed.
- ❖ Increase in dietary ASA level caused gradual increase in progesterone, testosterone and E2 concentration in the laying chickens.

A large, solid green five-pointed star is centered on a white background. Inside the star, the words "THANKS", "FOR", and "LISTENING" are stacked vertically in a bold, black, serif font. The text is centered horizontally and vertically within the star's shape.

**THANKS  
FOR  
LISTENING**