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PANAFRICAN POULTRY CONFERENCE

Lome, May 14th to16th, 2019

PROCEEDINGS

Summary

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Abstracts

selenomethionine cannot be used directly by the animal as it has to be first converted to L-SeMet before it can be used in protein production. Literature states that the relative utilisation of hydroxy-methionine, compared to L-methionine, for chicken and pigs is only 80% (EFSA Journal 2012;10(3):2623). Next to eggs and meat, milk is also an interesting way of providing extra Se to humans, especially infants. Vandaele et al. 2014 analysed the Se content in milk samples of dairy cows after supplementation of 0.3 mg Se/kg DM from SS, SY and a dust free preparation of L-SeMet. After 7 weeks of treatment, the Se concentration in the milk was the highest in the L-SeMet group (75 µg/kg).
From the above mentioned studies it can be concluded that adding L-SeMet to the animal diet is the most efficient way to increase the Se content of animal products (e.g. meat, milk and eggs). This practice provides an important opportunity to support human health and fight the hidden hunger in Sub-Saharan Africa.

EFFETS D'UNE SUPPLEMENTATION ALIMENTAIRE EN BeTaHitND SUR LES PERFORMANCES DE CROISSANCE ET LES RENDEMENTS EN VIANDE DES POULETS DE CHAIR MAINTENUS DANS DES CONDITIONS DE TEMPERATURES AMBIANTES ELEVEES

Missohou Ayao1, Salane Ramatoulaye1, Pagé Quentin[2], Konaté Cheikh Alioune3, Brévault Nicolas[2], Solène Toussaint[2], Marion Bournazel[2] et Klein Stéphanie[2]
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Les températures ambiantes élevées peuvent nuire aux performances zootechniques, réduire la consommation alimentaire, induire une hyperventilation, des problèmes de comportement et une dégradation de la qualité de la viande en aviculture. La supplémentation alimentaire en bétaïne peut réduire ces effets négatifs grâce à ses propriétés osmoprotectrices. De plus, la vitamine C et d'autres antioxydants peuvent protéger les poulets contre le stress oxydatif. Le but de cet essai était d'évaluer l'effet de BeTaHitND une bétaïne spécifiquement enrobée de graisse contenant des vitamines et des antioxydants, sur les performances des poulets de chair sous des températures élevées. L'essai a eu lieu à l'Ecole Inter-Etats des Sciences et Médecine Vétérinaires de Dakar (EISMV) au Sénégal. Des poussins 540 poussins Cobb500 non sexés d'un jour ont été répartis en deux lots et nourris avec un aliment témoin (LT ou sans additif) et un aliment supplémenté en bétaïne à raison de 750 g/t BeTaHitND (LB750). 5 répétitions ont été réalisées par lot. La température au cours de l'essai était comprise entre 22 ° C et 27,6 ° C. Chaque semaine, le poids vif des poulets de chair a été déterminé par pesée alors la fréquence et la sévérité des pododermatites la qualité de la litière ont été appréciées grâce à des grilles de notation. La consommation alimentaire et d'eau a été mesurée quotidiennement. La carcasse et le muscle pectoral ont été pesés à la fin de l'essai (n = 25 par groupe). Le poids corporel des poulets LBT750 était significativement amélioré à 42 jours par rapport au LT (2476 g contre 2321 ; $p < 0,05$). Il en est de même des poids vifs aux 7, 14, 21, 28 et 35ième jour d'âge. Le lot LB750g a une consommation alimentaire plus élevée (114,7 vs 113,5 g/j ; $p=0,67$) mais une meilleure efficacité alimentaire en comparaison au lot témoin (IC=2,03 vs 2.14 ; $p<0,01$). Le poids du muscle pectoral est également significativement plus élevé (580,1 vs 546,2 g ; $p<0,01$). La supplémentation en bétaïne n'a pas eu d'effet sur la qualité de la litière et le score de pododermatite. On en conclut que BeTaHitND influence positivement les performances de croissance et le rendement en viande dans des conditions de stress thermique.

EFFECTS OF MORINGA OLEIFERA LEAVE MEAL IN THE DIET ON LAYER PERFORMANCE AND SELECTED BIOCHEMICAL PARAMETERS

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Background: The use of medicinal plant in poultry production is considered as a strategy to improve health status and animals performance. Generally, medical plants for use in animal diets need to be safe for animal health, so the effects on blood parameters need to be investigated. Objective: In this study the effect of different levels of Moringa oleifera leave meal (MOLM) in the diet on blood parameters and production performance of laying-type chickens from 1-day-old to 55 weeks of age was investigated. Methodology: A total of 450 day-old chicks were distributed into three dietary treatment groups with 0% (M0), 1% (M1) and 3% (M3) addition of MOLM, with 5 replicates of 30 birds each. During the experimental period, feed intake (FI), egg laying rate and feed conversion ratio (FCR) were recorded weekly. Blood samples for analysis of total protein, albumin, calcium, phosphorus, triglycerides and cholesterol were taken in 15 birds (3/replicate) at the 5th, 15th, 25th, 35th, 45th and 55th weeks of age between 9.00 am and 10.00 am. Result: An increase in MOLM during the growing phase did not affect FI of the birds significantly. In the laying period, FI was reduced in M1 and M3. The albumin and phosphorus level increased significantly ($p < 0.05$) in birds fed 3% of MOLM. Hens in control group provided statistically lower values ($p<0.05$) on average total cholesterol. Layers in the M1 group had the highest level of triglycerides and calcium ($p < 0.01$) with corresponding highest average egg-laying rate ($p < 0.05$). Egg weight increased with the increase in the Moringa oleifera level ($p < 0.05$). Birds fed 1% and 3% of MOLM had the lowest FCR. Conclusion: Results of this study indicate that 1% of MOLM in diet had a positive influence on egg production in laying hens, probably through stimulation of physiological process, as shown by the increase in triglycerides and calcium level. From the point of view of egg production, the use of 1% of Moringa oleifera leaves in the diet of laying hens should be encouraged.

Key words: Chicken; Moringa oleifera leaf meal; health; medical plant; metabolite; egg production

PERFORMANCE OF PULLETS FED DIETS CONTAINING WATER HYACINTH [*Eichhornia crassipes*] MEAL SUPPLEMENTED WITH MAXIGRAIN® ENZYME

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A total of 216 laying hens of Isa Brown strain were fed layers' diets containing varying levels of water hyacinth meal (WHM) replacing 0, 50 and 100 % wheat offal (WO) and supplemented with and without Maxigrain® enzyme in a 2 x 3 factorial arrangement. Diet 1 contained 0 % WHM, with no Maxigrain® enzyme added; Diet 2 and Diet 3 contained 10 and 20 % WHM, with no Maxigrain® enzyme added (replacing 50 and 100 % wheat offal respectively); Diet 4 contained 0 % WHM with Maxigrain® enzyme added; while Diet 5 and Diet 6 contained 10 and 20 % WHM (replacing 50 and 100 % wheat offal respectively) but with Maxigrain® enzyme added. The birds were randomly allotted to the six dietary treatments with three replicates per treatment; and each replicate consisted of 12 birds. They were housed in standard double-tiered Californian battery cages and managed intensively, with feed and water provided ad libitum. Data were collected on feed intake, egg production, nutrient digestibility and external and internal egg quality characteristics. Results show that age at first lay was significantly ($p<0.05$) higher for the 10 and 20 % dietary inclusion level of WHM (164 and 165 days respectively) than for the 0 % dietary inclusion level of WHM (156 days). Feed intake of the birds fed on the 10 and 20 % dietary inclusion level of WHM was significantly ($p>0.05$) higher than those fed on the 0 % dietary inclusion level of WHM. There were no significant ($p>0.05$) differences between birds fed on the different dietary inclusion levels of WHM in terms of total number of eggs laid/bird, hen day production (HDP), feed intake/dozen egg laid (FIPDEL), feed intake/kg egg laid (FIPKEL), number of cracked or broken eggs (%) and gross margin (GM)/bird. Digestibility of crude fibre (CF) and ether extract (EE), as well as total digestible nutrient (TDN) were

significantly ($p<0.05$) better in birds fed the enzyme-supplemented diets than in birds fed diets without enzyme supplementation. Of all the external egg quality characteristics determined, only egg shell thickness (EST) and egg shell weight (ESW) had significantly ($p<0.05$) higher values in birds fed the 10 and 20 % dietary inclusion level of WHM than in birds fed the 0 % dietary inclusion level of WHM. Of all the internal egg quality characteristics determined, only egg yolk colour score (EYCS) and albumen weight were significantly ($p<0.05$) higher for birds fed diets supplemented with exogenous enzymes than for those fed diets without exogenous enzyme supplementation; while EYCS values obtained for birds fed the 10 and 20 % dietary inclusion level of WHM were significantly ($p<0.05$) higher than those obtained for birds fed the 0 % dietary inclusion level of WHM. It can be concluded that WHM could replace WO 100 % in layer diets with no detrimental effect on feed intake, egg production as well as on the external and internal egg quality characteristics; though better digestibility were obtained with exogenous enzymes addition.

EFFECT OF DIETARY LEVELS OF ONION AND GARLIC ON SPERM COUNT, VITALITY, AND ACROSOMAL DEFECTS OF THREE BREEDS OF COCKS.

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Raising poultry for reproductive purposes are now being adopted and practiced in most farms in Nigeria. Over the years, maintenance of fertile cocks in most poultry breeding farms has been difficult. Cocks with high semen producing capacity are often few and degenerate due to environmental factors such as age, poor nutrition etc. It was to this effect that the use of Allium sativum (garlic) and Allium cepa (onion) as semen enhancers on poultry production is proposed. The objective of this study is to determine the effects of breed and various levels of inclusion of onion and garlic as semen enhancers on sperm count, vitality and acrosome defects of cocks. A total of 36 sexually mature cocks of about 16 weeks and above composed of 12 Hubbard ®, 12 Haco spotted exotic and 12 Nigerian local breeds were assigned to a Random Complete Block Design experimental units comprising of 3 treatment groups for inclusion levels of onion and garlic and three block groups for the three different breeds for 30 days. The experimental treatments were: T1 (control): 600g feed. T2: T1 + 50g onion + 50g garlic. T3:T1 + 100g onion + 100g garlic. Sperm concentration (count), acrosomal defects (detached, swollen and comma shaped) and sperm vitality assessment (live and dead ratio) were analysed in the laboratory. Significant means were separated using Duncan New Multiple Range Test according to SPSS (2012). There was a significant difference ($p<0.05$) in percentage comma shaped acrosomal defect of Hubbard and Nigerian local breeds. The sperm count of the Hubbard and Nigerian local breeds (69.7x106 nl each) was higher than the Haco spotted exotic (66.9x106nl). A significant effect ($p<0.05$) was observed on vitaility (live and dead sperm) of T3 and T1 (control). T1 showed the highest percentage of dead sperm (76.6%) and lowest percentage of live sperm (20.1%) compared with T3 which has the lowest percentage dead sperm (56.6%) and highest percentage of live sperm (43.4%). Though there was no significant difference ($p>0.05$) observed in sperm count and acrosomal defects (detached, swollen and comma shaped) at the various inclusion levels, T3 showed the highest sperm count at 69.2x106nl followed by T2 (68.9x106nl) and T1 (68.3x106nl). T3 showed lowest detached acrosomal defect at 67.7% followed by T1 (70.8%) and T2 (71.2%). T2 has the lowest level of swollen acrosomal defect at 5.6% followed by T1 (6.1%) and T3 (9.0%). T3 has the lowest comma shaped acrosomal defect at 1.0% followed by T2 (1.2%) and then T1 (2.0%). The Hubbard breed appeared to be the best among the three breeds as it showed to have the highest sperm count. However, where the farmer chooses to use Hubbard and/or Haco spotted exotic breeds, T3 would be the best as it showed to have highest sperm count, lowest percentage of dead sperm, highest percentage live sperm, lowest percentage detached and comma shaped acrosomal defects.

Key words: sperm count, acrosomal defects, vitality, onion, garlic.

TUESDAY, 14th May 2019

Place: Auditorium

08h00 – 17h00	**REGISTRATION**	**Chairman**
08h00 – 09h00	Arrival of participants	
09h00 – 10h30	Opening ceremonies	
10h00 – 10h30	COFEE-BREAK	
10h30 – 13h00	**Session 1: Environment and poultry production systems**	Ayao MISSOHOU/ Jacob HAMIDU
10h30 - 11h15	**Invited lecture** Quels génotypes de volailles pour l'Afrique sub-Saharienne **M. Tixier-Boichard**	
11h15 - 11h30	Productive and reproductive performance of indigenous poultry breeds in South Africa. **P. A. IDOWU**	
11h30 - 11h45	Changes in the environment and poultry production systems: its impact on smallholder poultry farmers in South Africa. **H. SWATSON**	
11h45 - 12h15	**Key note** How traditional poultry can help Africa **L. PERRAULT**	
12h15 –12h45	**Key note** Thermoregulation in poultry production system **E. DECUYPERE**	
12h45 – 14h30	LUNCH	
14h30 - 17h30	**Session 2: Nutrition, feeding and Metabolism**	Eddy DEYCUPERE/ Amivi TETE-BENISSAN
14h30 - 15h00	**Invited lecture** Asticots, source alternative de protéine pour l'alimentation de volailles. **C. BRESSAC**	
15h00 – 15h15	Effect of dietary levels of *moringa oleifera* seed meal on growth, haematological and biochemical profiles of broiler finisher chicken. **N. J. ANYANWU**	
15h15 – 15h30	Benchmark study of 20 commercial mycotoxin binders. **T. RIJSSELAERE**	
15h30 – 15h45	The influence of broiler feed form on the metabolic and skeletal disorders. **N. KULEILE**	
15h45 – 16h00	Influence of dietary fat inclusion in layer's diet on production and egg quality parameters. **N. KULEILE**	
16h00 – 16h30	COFEE-BREAK / SESSION POSTER	
16h30 – 16h45	Effets de l'incorporation dans la ration de la farine de graines non decortiquees de pasteque (*citrullus*	Okanlowon ONAGBESSAN/

	lanatus) sur les performances zootechnico-economiques des poulets de chair dans la region de thies (senegal). **S. B. Ayssiwede**	Essodina TALAKI
16h45 – 17h00	Growth performance and gut morphometric responses of broiler chicks fed diets containing black soldier fly meal. **O. ADENIJI**	
17h00 – 17h15	Effet de l'incorporation des feuilles *de manio*c dans l'aliment sur les performances de production des poules pondeuses. **R. DJEUTA**	
17h15 – 17h30	Hematological and serum biochemical indices of pullets fed commercial diets supplemented with plantain ash. **C. NWOGU**	

WEDNESDAY, 15th May 2019

Place : Auditorium

08h00 – 17h00	**ENREGISTREMENT**	
09h00 – 10h30	**Session 2: Nutrition, feeding and Metabolism (Suite)**	Michèle TIXIER-BOICHARD/Povi LAWSON-EVI
09h00 – 09h30	**Invited lecture** Biofortification of animal products with l-selenomethionine to fight "hidden hunger". **L. SEGERS**	
09h30 – 09h45	Effets d'une supplémentation alimentaire en betahit[nd] sur les performances de croissance et les rendements en viande des poulets de chair maintenus dans des conditions de températures ambiantes élevées. **A. Missohou**	
09h45 – 10h00	Effects of *moringa oleifera* leave meal in the diet on layer performance and selected biochemical parameters. **K. VOEMESSE**	
10h00 – 10h15	Performance of pullets fed diets containing water hyacinth [*eichhornia crassipes*] meal supplemented with maxigrain® enzyme. **A. A. MALIK**	
10h15 – 10h30	Effect of dietary levels of onion and garlic on sperm count, vitality and acrosomal defects of three breeds of cocks. **C. NWOKEOCHA,**	
10h30 – 11h00	COFEE-BREAK / SESSION POSTER	
11h00 - 13h00	**Session 3 : Reproduction and incubation**	Kodjo A.. AKLIKOKOU/
11h00 - 11h30	**Invited lecture**	

	Incubation environment during final embryonic development and performance, robustness and welfare in poultry**.** **B. Tzschentke**	Servet YALCIN
11h30 – 11h45	Effet du temps de stockage des œufs sur le développement embryonnaire et la croissance juvénile des pintadeaux. **Y.A. Emmanuelle KOUAME**	
11h45 – 12h00	The appropriate time to improve day-old chick production, post hatch growth through *moringa oleifera* leaf extract inoculation into hatching egg. **A. BILALISSI**	
12h15 – 12h30	Making Hatchery Operation and Machinery Cheaper for Small Holder Hatchery Operators. **D. WAKPAL**	
12h30 - 12h45	Determining the key loopholes that leads to lower chick quality: case study of the hatcheries. **J. HAMIDU**	
12h45 – 13h00	On-farm evaluation of three strains of lactobacillus sp based probiotics on the growth traits and semen quality of local toms. **D. CHINONSO**	
13h00 - 14h30	LUNCH	
14h30 - 16h15	**Session 4 : Product Quality, Processing and Safety**	Kwasie EKLU-GADEGBEKU/ Christophe CHRYSOSTOME
14h30 - 15h00	**Invited lecture** Incubation conditions and broiler meat quality. **S. YALCIN**	
15h00 – 15h15	Carcass and meat quality characteristics of broilers fed dietary fermented mixture of okara and palm kernel cake. **ANYANWU Vivian Chinenye**	
15h15 – 15h30	Evaluation de la qualité sanitaire des viandes de poulets grillés au sud du Benin. **S. K. U. EDIKOU, CERSA**	
15h30 – 15h45	Effect of different dietary energy levels on blood lipid profile and meat quality of broilers. **C. NNAEMEKA**	
15h45 – 16h15	**Key note** Egg signals as quality parameters **P. SIMONS**	
16h15 – 16h30	COFEE-BREAK	
16h30 – 17h45	VISIT CERSA FACILITIES	K. Tona/S. Karou

THURSDAY, 16th May 2019

Place : Auditorium

09h00 - 10h30	**Session 5 : Economics of production**	Barbara TZSCHENTKE / Georges ABBEY
09h00 – 09h30	**Invited lecture** The global egg market and the commercial egg layers for the future – by Hendrix Genetics **Benoît PELÉ, Peter ARTS, Naomi DUIJVESTEIJN, Louis PERRAULT***	
09h30 – 09h45	The potential of utilising the indigenous venda and ovambo chickens for egg production in resource limited communities in South Africa. **H. SWATSON**	
09h45 – 10h00	Demande des produits avicoles et préférence des Consommateurs dans la région maritime au togo. **Kodjovi LAGNO**	
10h00 –10h30	The economic viability intensive and semi-intensive production of village chickens. **R. PYM**	
10h30 - 10h45	COFEE-BREAK	
10h45 – 12h30	**Ronde Table**	
12h30 – 14h15	LUNCH	
14h15 – 15h00	**African Poultry Network session**	RRoel MULDER /Bob PYM
15h00 – 16h30	**Closing Ceremonies**	