

# THE JOURNAL OF APPLIED POULTRY RESEARCH

March 2019

Volume 28, Number 1

## CONTENTS

### Review Article

#### **The genetic diversity of local african chickens: A potential for selection of chickens resistant to viral infections**

F. N. Mpenda, M. A. Schilling, Z. Campbell, E. B. Mngumi, and J. Buza

1

### Research Reports

#### **Response of broiler (*Gallus gallus domesticus*) performance and carcass traits to increasing levels of *Acacia angustissima* leaf meal as a partial replacement of standard protein sources**

X. Gudiso, V. Hlatini, M. Chimonyo, and P. Mafongoya

13

#### **Effect of *Saccharomyces cerevisiae* yeast products in reducing direct colonization and horizontal transmission of *Salmonella* Heidelberg in broilers**

T. G. Kiros, T. Gaydos, J. Corley, R. Raspoet, R. Berghaus, and C. Hofacre

23

#### **The Effect of Oxidized Fish Oils on Growth Performance, Oxidative Status, and Intestinal Barrier Function in Broiler Chickens**

Lulin Tan, Deng Rong, Yanyan Yang, and Bingkun Zhang

31

#### **Effect of sugar and starch levels on electrical conductivity of marinade solutions in improving water-holding capacity of marinated broiler breast meat**

Pensiri Kaewthong and Saowakon Wattanachant

42

#### **Effect of Pelletized Diets and the Proportion of Fines on Performance of Broilers Raised in High-Density Conditions**

Alvaro Mario Burin Junior, Heloisa Lais Fialkowski Bordignon, Cassiano Leopoldo Busatta Pasa, Alexandra Maria da Silva, Thais Lina Taniguti, Mayara Rodrigues Pivetta, and Jovanir Inês Müller Fernandes

52

#### **Effects of a Commercial Beta-Mannanase Product on Growth Performance, Intestinal Histomorphology, Bone and Body Composition, and Amino Acid Digestibility in White Pekin Ducks**

Jungwoo Park, Sungwoo Jung, and John B. Carey

63

#### **Effects of a Commercial Mannan-Oligosaccharide Product on Growth Performance, Intestinal Histomorphology, and Amino Acid Digestibility in White Pekin Ducks**

Jungwoo Park, Sungwoo Jung, and John B. Carey

72

#### **Economic evaluation of low pathogenic avian influenza in northeastern US live bird markets**

Jada M. Thompson and Ann Hillberg Seitzinger

78

#### **Evaluation of Phytase, Xylanase, and Protease in Reduced Nutrient Diets Fed to Broilers**

C. L. Walk and F. Poernama

85

<b>Evaluation of Correlations Between Nutrients, Fatty Acids, Heavy Metals, and Deoxynivalenol in Corn (<i>Zea mays</i> L.)</b>	94
A. Y. Pekel, A. Çaltık, M. S. Alataş, E. Kuter, Ö. Cengiz, G. Z. Omurtag, and G. İnan	
<b>Morphological Responses of the Small Intestine of Broiler Chicks to Dietary Supplementation With a Probiotic, Acidifiers, and Their Combination</b>	108
M. M. O. Elhassan, A. M. Ali, A. Blanch, A. B. Kehlet, and M.-C. Madekurozwa	
<b>The Antimicrobial Properties of A Vinegar-based Ingredient on <i>Salmonella</i> Typhimurium and Psychrotrophs Inoculated in Ground Chicken Breast Meat and Stored at 3±1°C for 7 days</b>	118
C. M. Harris and S. K. Williams	
<b>A Comparison of Equations to Depict and Predict Nutritional Kinetics in Fast-Growing Broiler Chickens</b>	124
R. Wang, R. A. Alhotan, L. Billard, and G. M. Pesti	
<b>Dietary Energy and Amino Acid Enhancement From a Multi-enzyme Preparation</b>	136
Pierre Cozannet, Mike T. Kidd, Nadia Yacoubi, Pierre-André Geraert, and Aurélie Preynat	
<b>Digestible threonine-to-lysine ratio in diets for brown egg-laying hens</b>	145
Guilherme R. Lelis, Fernando de C. Tavernari, Arele A. Calderano, Filipe A. Dalla Costa, Luiz F. T. Albino, Horacio S. Rostagno, Claudson O. Brito, Wagner A. G. de Araújo, and Valdir Ribeiro Júnior	
<b>Evaluating the effect of yeast cell wall supplementation on ideal threonine to lysine ratios in broilers as measured by performance, intestinal mucin secretion, morphology, and goblet cell number</b>	153
R. A. Abdaljaleel, A. M. Alsadwi, H. Leyva-Jimenez, M. N. Al-Ajeeli, Y. Al-Jumaa, and C. A. Bailey	
<b>Effect of a Polyherbal or an Arsenic-Containing Feed Additive on Growth Performance of Broiler Chickens, Intestinal Microbiota, Intestinal Morphology, and Lipid Oxidation of Breast and Thigh Meat</b>	164
Ilias Giannenas, Eleftherios Bonos, George Filliossis, Ioanna Stylianaki, Praful Kumar, Diamanto Lazar, Efterpi Christaki, and Panagiota Florou-Paneri	
<b>Evaluation of Antimicrobial Action of Chitosan and Acetic Acid on Broiler Cecal Bacterial Profiles in Anaerobic Cultures Inoculated With <i>Salmonella</i> Typhimurium</b>	176
Muhammad U. Sohail and Michael E. Hume	
<b>An investigation on iron sources fed to broiler breeder hens and the corresponding color of laid eggshells on the performance of the resulting progeny</b>	184
M. A. Ebbing, S. L. Vieira, C. Stefanello, E. Berwanger, A. Mayer, D. D. Maria, and A. K. Fireman	

## Field Reports

<b>Phenotypic evaluation for disposal in laying hens and asymptomatic infections by <i>Salmonella</i> spp. in the final production cycle</b>	
Dunya Mara Cardoso Moraes, Denise Russi Rodrigues, Édilon Sembarski De Oliveira, Eliete Souza Santana, Renato Clini Cervi, Valéria de Sá Jayme, and Maria Auxiliadora Andrade	194

<b>Presence and distribution of extended-spectrum and AmpC beta-lactamases-producing <i>Escherichia coli</i> on poultry farms in Slovenia</b> Olga Zorman Rojs, Irena Zdovc, Alenka Dovč, Jaka Žgajnar, Brigita Slavec, Uroš Krapež, and Jerneja Avguštin Ambrožič	200
<b>Efficacy of Sodium Bisulfate or Sodium Chloride for Reducing Broiler House Floor Microbial Populations</b> J. B. Payne, S. E. Watkins, S. Beitia, and G. K. Phillips	210
<b>Performance of an Automated Whole-House Spray Vaccination System</b> J. L. Purswell, S. L. Branton, and J. D. Evans	215
<b>Prevalence of Gastrointestinal Helminths in Thai Indigenous Chickens Raised Under Backyard Conditions in Northern Thailand</b> Kunlayaphat Wuthijaree, Christian Lambertz , Therdchai Vearasilp, Vite Anusatsananun, and Matthias Gauly	221