

CONTENTS

ANIMAL WELL-BEING AND BEHAVIOR

- Gait parameters in four strains of turkeys and correlations with bone strength
E. O. Oviedo-Rondón, B. D. X. Lascelles, C. Arellano, P. L. Mente,
P. Eusebio-Balcazar, J. L. Grimes, and A. D. Mitchell..... 1989
- Developmental morphology study on the stomach of African ostrich chicks
J. X. Wang, P. Li, X. T. Zhang, and L. X. Ye..... 2006
- Lameness assessment with automatic monitoring of activity in commercial broiler flocks
A. M. Silvera, T. G. Knowles, A. Butterworth, D. Berckmans, E. Vranken,
and H. J. Blokhuis..... 2013
- Evaluation of the Danish footpad lesion surveillance in conventional and organic broilers: Misclassification
of scoring
V. P. Lund, L. R. Nielsen, A. R. S. Oliveira, and J. P. Christensen 2018
- Rearing system affects prevalence of keel-bone damage in laying hens: a longitudinal study of four
consecutive flocks
T. M. Casey-Trott, M. T. Guerin, V. Sandilands, S. Torrey, and T. M. Widowski..... 2029

GENETICS AND GENOMICS

- Allelic variation in *TLR4* is linked to resistance to *Salmonella Enteritidis* infection in chickens
Peng Li, Huihua Wang, Xingwang Zhao, Zhongyong Gou, Ranran Liu,
Yongmei Song, Qinghe Li, Maiqing Zheng, Huanxian Cui, Nadia Everaert,
Guiping Zhao, and Jie Wen..... 2040

IMMUNOLOGY, HEALTH, AND DISEASE

- Effect of whole yeast cell product supplementation (CitiStim®) on immune responses and cecal
microflora species in pullet and layer chickens during an experimental coccidial challenge
Ashley D. Markazi, Victor Perez, Mamduh Sifri, Revathi Shanmugasundaram,
and Ramesh K. Selvaraj 2049
- Phylogenetic and pathogenic analysis of *Mycoplasma Synoviae* isolated from native chicken breeds
in China
Shikai Sun, Xin Lin, Junmei Liu, Zhongqiang Tian, Feng Chen, Yongchang Cao,
Jianping Qin, and Tingrong Luo..... 2057
- Effect of feeding soybean meal and differently processed peas on the gut mucosal immune system
of broilers
I. Röhe, T. W. Göbel, F. Goodarzi Boroojeni, and J. Zentek 2064
- In ovo evaluation of FloraMax®-B11 on Marek's disease HVT vaccine protective efficacy, hatchability,
microbiota composition, morphometric analysis, and *Salmonella enteritidis* infection in broiler chickens
K. D. Teague, L. E. Graham, J. R. Dunn, H. H. Cheng, N. Anthony, J. D. Latorre,
A. Menconi, R. E. Wolfenden, A. D. Wolfenden, B. D. Mahaffey, M. Baxter,
X. Hernandez-Velasco, R. Merino-Guzman, L. R. Bielke, B. M. Hargis, and G. Tellez 2074
- Comparative expression of host defense peptides in turkey poult
Shaimaa K. Hamad, Sungwon Kim, Samer W. El-Kadi, Eric A. Wong,
and Rami A. Dalloul..... 2083
- The effect of feed supplementation with Zakarpacki zeolite (clinoptilolite) on percentages of T and B
lymphocytes and cytokine concentrations in poultry
Łukasz Jarosz, Dagmara Stępień-Pyśniak, Zbigniew Grądzki, Małgorzata Kapica,
and Agata Gacek 2091

Research Notes

- Safety evaluation of daidzein in laying hens: Effects on laying performance, hatchability, egg quality,
clinical blood parameters, and organ development
J. Lu, L. Qu, M. M. Shen, S. M. Li, T. C. Dou, Y. P. Hu, and K. H. Wang..... 2098

Prevalence and drug resistance of avian <i>Eimeria</i> species in broiler chicken farms of Zhejiang province, China L.-H. Lan, B.-B. Sun, B.-X.-Z. Zuo, X.-Q. Chen, and A.-F. Du.....	2104
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------

MANAGEMENT AND PRODUCTION

Effects of dietary coarsely ground corn and 3 bedding floor types on broiler live performance, litter characteristics, gizzard and proventriculus weight, and nutrient digestibility Y. Xu, Y. M. Lin, C. R. Stark, P. R. Ferket, C. M. Williams, and J. Brake.....	2110
Characterization of indigenous <i>Aseel</i> chicken breed for morphological, growth, production, and meat composition traits from India U. Rajkumar, S. Haunshi, C. Paswan, M. V. L. N. Raju, S. V. Rama Rao, and R. N. Chatterjee.....	2120
Straight-run vs. sex separate rearing for two broiler genetic lines Part 2: Economic analysis and processing advantages M. J. Da Costa, G. Colson, T. J. Frost, J. Halley, and G. M. Pesti.....	2127
Influence of mycotoxin binders on the oral bioavailability of tylosin, doxycycline, diclazuril, and salinomycin in fed broiler chickens T. De Mil, M. Devreese, A. Maes, S. De Saeger, P. De Backer, and S. Croubels.....	2137

Research Note

Effects of chlorine and hydrogen peroxide sanitation in low bacterial content water on biofilm formation model of poultry brooding house waterlines P. Maharjan, G. Huff, W. Zhang, and S. Watkins.....	2145
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------

METABOLISM AND NUTRITION

Efficiency of early, single-dose probiotic administration methods on performance, small intestinal morphology, blood biochemistry, and immune response of Japanese quail Kazem Seifi, Mohammad Amir Karimi Torshizi, Shaban Rahimi, and Mohammad Kazemifard.....	2151
Nutritional evaluation of conventional and increased-protein, reduced-fiber canola meal fed to broiler chickens M. Gorski, C. Foran, P. Utterback, and C. M. Parsons.....	2159
Effects of dietary methyl sulfonyl methane (MSM) supplementation on growth performance, nutrient digestibility, meat quality, excreta microbiota, excreta gas emission, and blood profiles in broilers Y. Jiao, J. H. Park, Y. M. Kim, and I. H. Kim.....	2168
Effect of dietary supplementation of organic or inorganic zinc on carbonic anhydrase activity in eggshell formation and quality of aged laying hens Y. N. Zhang, H. J. Zhang, J. Wang, H. Y. Yue, X. L. Qi, S. G. Wu, and G. H. Qi.....	2176
Effect of dietary supplementation of organic or inorganic manganese on eggshell quality, ultrastructure, and components in laying hens Y. N. Zhang, J. Wang, H. J. Zhang, S. G. Wu, and G. H. Qi.....	2184
Nitrogen-corrected apparent metabolisable energy values of barley varies by treatment and species Majid Alahyari-Shahrab, Hoseein Moravej, Ruhollah Kianfar, and Woo Kyun Kim	2194
Effect of excess dietary fluoride on laying performance and antioxidant capacity of laying hens L. P. Miao, M. Y. Zhou, X. Y. Zhang, C. Yuan, X. Y. Dong, and X. T. Zou.....	2200
Detecting thresholds for bitter, umami, and sweet tastants in broiler chicken using a 2-choice test method Shira L. Cheled-Shoval, Naama Reicher, Masha Y. Niv, and Zehava Uni	2206
Dietary resveratrol supplementation prevents transport-stress-impaired meat quality of broilers through maintaining muscle energy metabolism and antioxidant status C. Zhang, L. Wang, X. H. Zhao, X. Y. Chen, L. Yang, and Z. Y. Geng	2219
Productive performance, egg quality, and hatching traits of Japanese quail reared under different levels of glycerin A. Ghayas, J. Hussain, A. Mahmud, K. Javed, A. Rehman, S. Ahmad, S. Mehmood, M. Usman, and H. M. Ishaq.....	2226
Interactions of full-fat canola seed, oat hulls as an insoluble fiber source and pellet temperature for nutrient utilization and growth performance of broiler chickens R. Barekatain, R. A. Swick, M. Toghyani, and C. T. de Koning.....	2233

Hydrolysis of phytate to its lower esters can influence the growth performance and nutrient utilization of broilers with regular or super doses of phytase	
L. A. Beeson, C. L. Walk, M. R. Bedford, and O. A. Olukosi.....	2243
Precision feeding: Innovative management of broiler breeder feed intake and flock uniformity	
M. J. Zuidhof, M. V. Fedorak, C. A. Ouellette, and I. I. Wenger.....	2254
The effects of <i>Bacillus coagulans</i> -fermented and non-fermented <i>Ginkgo biloba</i> on abdominal fat deposition and meat quality of Peking duck	
Xiaoyan Liu, Guanjun Cao, Jinglong Zhou, Xuan Yao, and Binghu Fang	2264
<i>Bacillus subtilis</i> strain specificity affects performance improvement in broilers	
L. Rhayat, V. Jacquier, K. S. Brinch, P. Nielsen, A. Nelson, P.-A. Geraert, and E. Devillard.....	2274
Nutritive value and the maximum inclusion level of pennycress meal for broiler chickens	
R. A. Alhotan, R. L. Wang, R. A. Holser, and G. M. Pesti.....	2281
Diet density during the first week of life: Effects on energy and nitrogen balance characteristics of broiler chickens	
D. M. Lamot, D. Sapkota, P. J. A. Wijtten, I. van den Anker, M. J. W. Heetkamp, B. Kemp, and H. van den Brand	2294
Maternal and genetic effects on broiler bone properties during incubation period	
R. Yair, A. Cahana, Z. Uni, and R. Shahar.....	2301
Effect of heat stress on amino acid digestibility and transporters in meat-type chickens	
W. S. Habashy, M. C. Milfort, K. Adomako, Y. A. Attia, R. Rekaya, and S. E. Aggrey	2312
Relative metabolizable energy values for fats and oils in young broilers and adult roosters	
M. P. Aardsma, R. D. Mitchell, and C. M. Parsons.....	2320
Relative biological value of 1 α -hydroxycholecalciferol to 25-hydroxycholecalciferol in broiler chicken diets	
J. C. Han, G. H. Chen, J. L. Zhang, J. G. Wang, H. X. Qu, Y. F. Yan, X. J. Yang, and Y. H. Cheng.....	2330
Optimization of dietary zinc for egg production and antioxidant capacity in Chinese egg-laying ducks fed a diet based on corn-wheat bran and soybean meal	
W. Chen, S. Wang, H. X. Zhang, D. Ruan, W. G. Xia, Y. Y. Cui, C. T. Zheng, and Y. C. Lin.....	2336
Effects of sodium, 1,25-dihydroxyvitamin D ₃ and parathyroid hormone fragment on inorganic P absorption and Type IIb sodium-phosphate cotransporter expression in ligated duodenal loops of broilers	
X. D. Liao, H. Q. Suo, L. Lu, Y. X. Hu, L. Y. Zhang, and X. G. Luo.....	2344
Research Note	
Impact of maternal heat stress in conjunction with dietary zinc supplementation on hatchability, embryonic development, and growth performance in offspring broilers	
Y. W. Zhu, W. X. Li, L. Lu, L. Y. Zhang, C. Ji, X. Lin, H. C. Liu, J. Odle, and X. G. Luo.....	2351
MICROBIOLOGY AND FOOD SAFETY	
The identification of fungi collected from the ceca of commercial poultry	
J. A. Byrd, D. Y. Caldwell, and D. J. Nisbet	2360
Prevalence, antimicrobial resistance and genetic diversity of <i>Campylobacter coli</i> and <i>Campylobacter jejuni</i> in Ecuadorian broilers at slaughter age	
Christian Vinueza-Burgos, Magali Wautier, Delphine Martiny, Marco Cisneros, Inge Van Damme, and Lieven De Zutter	2366
Expanded spectrum β -lactamase producing <i>Escherichia coli</i> isolated from chickens with colibacillosis in Egypt	
D. A. El-Shazly, S. A. Nasef, F. F. Mahmoud, and Daniel Jonas.....	2375
Evaluation of USDA approved antimicrobials on the reduction of <i>Salmonella</i> and <i>Campylobacter</i> in ground chicken frames and their effect on meat quality	
A. Moore, R. Nannapaneni, A. Kiess, and C. S. Sharma.....	2385
Assessing the impact of egg sweating on <i>Salmonella Enteritidis</i> penetration into shell eggs	
Janet A. Gradl, Patricia A. Curtis, Deana R. Jones, and Kenneth E. Anderson	2393

Effects of feeding Original XPC™ to broilers with a live coccidiosis vaccine under industrial conditions: Part 2. Cecal microbiota analysis	
S. H. Park, S. Roto, H. Pavlidis, D. McIntyre, K. Striplin, L. Brammer, and S. C. Ricke	2400
Evaluation of disinfectants and antiseptics to eliminate bacteria from the surface of turkey eggs and hatch gnotobiotic poult	
M. J. Sylte, L. C. Chandra, and T. Looft	2412
MOLECULAR AND CELLULAR BIOLOGY	
Expression of host defense peptides in the intestine of <i>Eimeria</i> -challenged chickens	
S. Su, D. M. Dwyer, K. B. Miska, R. H. Fetterer, M. C. Jenkins, and E. A. Wong	2421
Obesity-associated cardiac pathogenesis in broiler breeder hens: Pathological adaption of cardiac hypertrophy	
C. Y. Chen, H. Y. Lin, Y. W. Chen, Y. J. Ko, Y. J. Liu, Y. H. Chen, R. L. Walzem, and S. E. Chen	2428
Obesity-associated cardiac pathogenesis in broiler breeder hens: Development of metabolic cardiomyopathy	
C. Y. Chen, Y. F. Huang, Y. J. Ko, Y. J. Liu, Y. H. Chen, R. L. Walzem, and S. E. Chen	2438
Study on the expression of human lysozyme in oviduct bioreactor mediated by recombinant avian adeno-associated virus	
A. P. Wang, Y. J. Wang, S. Wu, W. Y. Zuo, C. M. Guo, W. M. Hong, and S. Y. Zhu	2447
Research Note	
Enhanced expression of proteins involved in energy production and transfer in breast muscle of pedigree male broilers exhibiting high feed efficiency	
W. G. Bottje, K. Lassiter, S. Dridi, N. Hudson, and B-W. Kong	2454
PHYSIOLOGY AND REPRODUCTION	
Differential proliferation and metabolic activity of Sertoli cells in the testes of broiler and layer breeder chickens	
Mélanie Faure, Edith Guibert, Sabine Crochet, Pascal Chartrin, Jean-Pierre Brillard, Anne Collin, and Pascal Froment	2459
Phenamil, an amiloride derivative, restricts long bone growth and alters keeled-sternum bone architecture in growing chickens	
Tara R. Price, Kristin Moncada, Hector Leyva-Jimenez, Kye Won Park, Peter Tontonoz, and Rosemary L. Walzem	2471
PROCESSING AND PRODUCTS	
The quality of eggs (organic and nutraceutical vs. conventional) and their technological properties	
Agnieszka Filipiak-Florkiewicz, Katarzyna Dereń, Adam Florkiewicz, Kinga Topolska, Lesław Juszczak, and Ewa Cieślik	2480
Differences in textural properties of cooked caponized and broiler chicken breast meat	
J. U-chupaj, Y. Malila, C. Gamonpilas, K. Kijroongrojana, M. Petracci, S. Benjakul, and W. Visessanguan	2491