

## CONTENTS

**Research Reports**

- Mussel shells as an environment enrichment and calcium source for floor-housed laying hens**  
M. Alm, R. Tauson, and H. Wall 159
- Effect of inert fillers with changing energy-protein ratio on growth performance and energy digestibility in broilers**  
J. D. Liu and J. Fowler 168
- Foot ash can replace tibia ash as a quantification method for bone mineralization in broilers at 21 and 42 days of age**  
M. N. Malloy, A. G. Stephens, M. E. Freeman, M. K. Jones, J. M. Faser, N. M. Dale, and A. J. Davis 175
- Effects of egg weight on the egg quality, chick quality, and broiler performance at the later stages of production (week 60) in broiler breeders**  
Javid Iqbal, Nasir Mukhtar, Zaib Ur Rehman, Sohail Hassan Khan, Tanveer Ahmad, Muhammad Safdar Anjum, Riaz Hussain Pasha, and Sajid Umar 183
- The effects of strain and incremental improvements in feed form on d 28 to 42 male broiler performance**  
R. B. Sellers, P. B. Tillman, J. S. Moritz, and K. G. S. Wamsley 192
- Effect of dietary *Lycium barbarum polysaccharide* on growth performance and immune function of broilers**  
Y. L. Liu, R. Q. Yin, S. S. Liang, Y. L. Duan, J. H. Yao, Y. L. Duan, and X. J. Yang 200
- Effect of supplemental zinc source and corn particle size on 40-day broiler performance**  
K. L. Foltz, B. G. Glover, and J. S. Moritz 209
- Effect of mixing and sampling method on pelleted feed nutrient analysis and diet formulation validation**  
D. A. Reese, K. L. Foltz, and J. S. Moritz 219
- Tonic immobility, heterophil to lymphocyte ratio, and organ weights in slow-growing chickens**  
T. Mutibvu, M. Chimonyo, and T. E. Halimani 226
- Effect of fan induced photoperiod on live performance and yield of male broiler chickens**  
J. L. Purswell and H. A. Olanrewaju 236
- Anise oil dosage and its effect on growth performance and jejunal lesions during a *Clostridium perfringens* challenge in battery trials, and growth performance in a floor pen trial**  
J. W. Charal, T. D. Bidner, L. L. Southern, M. E. Janes, M. E. Gutierrez, and T. A. Lavergne 240

<b>Nutritive value of dry citrus pulp and its effect on performance in geese from 35 to 70 days of age</b>	
C. Wang, G. L. Gao, J. X. Huang, K. S. Zhang, H. Zhong, H. W. Wang, J. Su, M. Xie, and Q. G. Wang	253
<b>Response of broiler chicks to non-steam- or steam-pelleted diets containing raw, full-fat soybean meal</b>	
M. M. Erdaw, M. M. Bhuiyan, and P. A. Iji	260
<b>Phytase dose effects in practically formulated diets that vary in ingredient composition on feed manufacturing and broiler performance</b>	
J. W. Boney and J. S. Moritz	273
<b>Colonization of mature laying hens with <i>Salmonella</i> Enteritidis by oral or intracloacal inoculation</b>	
P. Adhikari, D. E. Cosby, N. A. Cox, and W. K. Kim	286
<b>The effects of antibiotic, probiotic, organic acid, vitamin C, and <i>Echinacea purpurea</i> extract on performance, carcass characteristics, blood chemistry, microbiota, and immunity of broiler chickens</b>	
M. Nosrati, F. Javandel, L. M. Camacho, A. Khusro, M. Cipriano, A. Seidavi, and A. Z. M. Salem	295