

Contents

Volume 33, No. 1–4, 2024

Vol. 33, No. 1, 2024

Review

Analysis of crude protein utilisation in ruminant rations: supplementation of limiting amino acids and their effect on the environment – an updated review

Sajid Q.U.A. (Niğde, Turkey), M. Wilk and M.U. Asghar (Wrocław, Poland)

3

A meta-analysis to determine the optimal values of precursors in the diet of dairy cows that increase the concentration of conjugated linoleic acid (CLA) in milk
 Acosta-Balcazar I.C., B. Estrada-Drouaillet, Y. Bautista-Martinez (Victoria, Mexico) and L.D. Granados-Rivera (General Teran, Mexico)

13

Animal physiology

Antidiabetic effect of black pepper, turmeric, and ajwa date pulp, seed, and their mixtures as antioxidants in alloxan diabetic rats

Sarfraz M. (Toba Tek Singh, Pakistan), H. Ullah (Okara, Pakistan), R. Iqbal, G. Shaheen (Bahawalpur, Pakistan), M.A. Albalawi, F.S. Alatawi, A. Omran (Tabuk, Saudi Arabia), A. Alareefy (Jazan, Saudi Arabia), N.M. Abdulsalam (Jeddah, Saudi Arabia), N.A. Khateeb (Al Ahsa, Saudi Arabia), M.S. Alatawi (Riyadh, Saudi Arabia), N. Zidan (Tabuk, Saudi Arabia) and A. Ditta (Khyber Pakhtunkhwa, Pakistan)

28

Effects of *Artemisia ordosica* aqueous extract on intestinal inflammation and antioxidant-related gene expression in lipopolysaccharide-challenged broilers

Guo S., K. Li, P. Zhang, X. Jin, Y. Xu, Y. Xing, S. Yan and B. Shi (Hohhot, P. R. China)

47

Monogastrics

The effects of micelle silymarin on growth performance, nutrient utilisation, and blood profiles of weaning piglets

Zhang Q., S. Cho and I.H. Kim (Cheonan, South Korea)

56

Agaricus blazei Murrill stipe promotes growth by improving anti-inflammatory activity and gut function in broilers

Ju Y., L.L. Huang, L.Y. Li, C.G. Zhao, X.H. Huang, J.Q. Ye, Z.L. Liu, X.G. Wang, L.L. Qi and X.Z. Liu (Nanning, China)

64

Ruminants

Effect of fluidised dried yeast (*Saccharomyces cerevisiae*) supplementation on milk composition, somatic cell count and milk yield at different lactation stages in Polish Holstein-Friesian cows

Kalińska A., M. Gołębiowski, K. Wnęk-Auguścik, J. Słószarz, M. Kunowska-Słószarz, M. Balcerak, T. Przysucha, B. Kuczyńska, K. Puppel and M. Kot (Warsaw, Poland)

76

Preliminary study of the effects of *Apilactobacillus kunkeei* EIR/BG-1 and *Enterococcus hirae* EIR/CM-2 supplementation on *in vitro* rumen fermentation and microbial population

Demirtas A. (Burdur, Turkey), S. Sevin, S.A.A. Musa (Ankara, Turkey), M. Sudagidan (Burdur, Turkey), N.N. Toprak, Y. Salgirli Demirbas, F. Kiran and H. Ozturk (Ankara, Turkey)

88

Influence of gender status and feeding intensity on the growth curves of body weight, dry matter intake and feed efficiency in crossbred beef cattle

Purwin C., I. Wyżlic, P. Pogorzelska-Przybyłek, Z. Nogalski and I. Białobrzewski (Olsztyn, Poland)

101

Effect of supplementation with a mixture of *Curcuma longa* and *Rosmarinus officinalis* extracts on growth performance, meat quality and lipid metabolism gene expressions in young castrated Polish White improved bucks

Urbańska D.M. (Jastrzębiec, Poland), M. Pawlik (Warsaw, Poland), A. Korwin-Kossakowska (Jastrzębiec, Poland), K. Rutkowska (Warsaw, Poland), E. Kawecka-Grochocka (Jastrzębiec, Poland), M. Czopowicz, M. Mickiewicz, J. Kaba (Warsaw, Poland) and E. Bagnicka (Jastrzębiec, Poland)

111

Animal feed

Effects on *in vitro* digestibility and rumen fermentation of maize straw silage as a partial dietary replacement for Napier grass

Tresia G.E., B. Tiesnamurti (West Java, Indonesia), A. Alwiyah and A. Anwar (Deli Serdang, Indonesia)

119

Other topics

Duckweed production on diluted chicken manure

T. Stadlander, A. Schmidtke, C. Baki and F. Leiber (Frick, Switzerland)

128

Vol. 33, No. 2, 2024**Review**

- Faecal biomarkers of gastrointestinal functionality in animals
Rathod A.K. (Izatnagar, India) and A.P. Dhok (Nagpur, India) 149
- Dietary supplements used in rabbit nutrition and their effect on the fatty acid profile of rabbit meat - a review
Siudak Z. and D. Kowalska (Balice, Poland) 159

Animal physiology

- Effect of feeding high fat diets differing in fatty acid composition on oxidative stress markers and protein expression profiles in mouse kidney
Wypych A., M. Ożgo, M. Bernaciak, A. Herosimczyk (Szczecin, Poland), M. Barszcz, K. Gawin (Jabłonna, Poland), A.K. Ciechanowicz, M. Kucia (Warsaw, Poland), M. Pierzchała, E. Poławska (Magdalenka, Poland) and A. Lepczyński (Szczecin, Poland) 170
- Chestnut tannin supplementation can improve immune response and kidney function in parturient dairy cows
Prodanović R., S. Nedić, D. Bošnjaković, S. Nedić, L. Jovanović, S. Arsić, J. Bojkovski, S. Borozan, D. Kirovski and I. Vujanac (Belgrade, Serbia) 185

Monogastrics

- Assessment of Quillaja saponin as a feed supplement in maize-soybean-oilseed rape mealbased diet for enhanced growing pig performance
Biswas S. and I.H. Kim (Cheonan, Korea) 193
- Differences in phosphorus digestibility and metabolizable energy concentrations of rye or wheat-based compound feeds in pigs
Schmitz K., S. Kehraus and K.-H. Südekum (Bonn, Germany) 200
- Effect of multi-enzyme supplementation on growth performance, digestibility, blood profile, intestinal villus height, and faecal gas emission in weaning pigs
Cho S. (Cheonan, Korea), L. Cai (Mianyang, P.R. China), E. Kiarie (Guelph, Canada) and I.H. Kim (Cheonan, Korea) 211
- Insects as a natural component of pheasant diets: effects of full-fat *Hermetia illucens* meal on egg production and quality, hatchability, and selected physicochemical egg indices
Flis M., D. Józefiak, A. Bielak, K. Kasperek, B. Kierończyk and E.R. Grela (Lublin, Poland) 217

Ruminants

- Organic selenium supplementation increases serum selenium levels in healthy Xinjiang brown cattle fed selenised yeast
Li Z., J. Tang, J. Li, D. Ling, X. He, Y. Tang, P. Yi, Y. Yang (Nanning, China), H.E. Khoo (Guilin, China) and Y. Liu (Nanning, China) 226

- Analysis of fertility in Simmental cattle – genetic and environmental effects on female fertility
Nowak J., A. Otwinowska-Mindur, E. Ptak (Kraków, Poland) and A. Zarnecki (Balice, Poland) 235

Other topics

- Partial replacement of fish meal with soldier termite in juvenile Mozambique tilapia: Effects on growth performance, blood serum chemistry and histomorphology
Nephale L.E., N.A.G. Moyo and M.M. Rapatsa-Malatji (Sovenga, South Africa) 243

Vol. 33, No. 3, 2024**Review**

- Effects of level and type of essential oils on rumen methanogenesis and fermentation: A meta-analysis of *in vitro* experiments
Pangesti R.T., A. Jayanegara and E.B. Laconi (Bogor, Indonesia) 263
- Different forms of butyric acid in poultry nutrition – a review
Mazur-Kuśnerek M., K. Lipiński, Z. Antoszkiewicz (Olsztyn, Poland) and P. Matusevičius (Kaunas, Lithuania) 270

Animal physiology

- QRFP43 modulates the activity of the hypothalamic appetite regulatory centre in sheep
Szlis M., B.J. Przybył, K. Pałatyńska and A. Wójcik-Gładysz (Jabłonna, Poland) 281
- Regulatory functions of lecithin nanoparticles on post-thaw quality of buffalo bull semen: a morphological analysis of spermatozoa
Eliraqy E.Z., A.M. Sakr, M.A. Hassan, H.A. Madian, L.A. AbdEl-Rafaa, M.G. Gharib, H.S. Abou-Seri (Dokki, Egypt) and Sh.M.M. El-ganainy (Minia, Egypt) 287

Monogastrics

- Dietary inclusion of almond hull on growth performance, nutrient digestibility, faecal microbiome, faecal score, and noxious gas emissions in weaning pigs
Ahammad G.S., C.B. Lim and I.H. Kim (Cheonan, Korea) ... 295
- Effectiveness of emulsifier and carbohydrase in *Lupinus albus* seed-rich diets on digestibility, some physiological indicators and performance of growing pigs
Zaworska-Zakrzewska A. (Poznań, Poland), K. Ciołek (Gorzyń, Poland), D. Łodyga, P. Galuba, R. Mięka and M. Kasprzowicz-Potocka (Poznań, Poland) 302
- Characterisation of gut microbiota in early chicken development
Wu B., Y. Bai, Y. Guan, Ch. Lou, Z. Chen and Hua Li (Foshan, China) 311

Ruminants

- Effects of quebracho tannin supplementation in early lactation dairy cow rations on milk yield parameters, rumen fermentation, digestibility and blood parameters
Arik H.D., Z.S. Inanc, O. Kahraman, S. Damar and A.B. Akkaya (Konya, Turkiye) 321

Effects of yeast and exogenous fibrolytic enzyme inclusion in the diet of hair lambs on performance, carcass traits, physicochemical parameters and meat fatty acid profile Fróes R.S. (Salvador, Brazil), L.R. Bezerra (Patos, Brazil), D.P.V. Castro (Juazeiro, Brazil), A.M. Barbosa (Salvador, Brazil), J. Arce-Cordero (San Jose, Costa Rica), J.M.M. Missasse (Unango, Mozambique), T.M. Silva (Salvador, Brazil), J.M. Pereira Filho (Patos, Brazil), T.C. Rocha and R.L. Oliveira (Salvador, Brazil) ..	331	Animal physiology	
Effects of replacing ryegrass silage with alfalfa hay on N utilisation efficiency, intake, and digestion in sheep Reffatti T.S., M.F. da Silveira, A.C. Fluck, O.A.D. Costa (Dois Vizinhos, Brazil), J.M. Lourenço (Athens, USA), A.C. Belon, R.V.D. Santos, L. Zorzi and E.D.S. Rafain (Dois Vizinhos, Brazil) ..	342	Apoptotic and anti-migratory effects of <i>Achillea millefolium</i> dichloromethane extract on MDA-MB-231 human breast cancer cells Qurtam A.A. and F.A. Nasr (Riyadh, Saudi Arabia)	469
Animal feed		Effects of cholinergic receptor antagonists on gastrointestinal growth factors in newly hatched chickens Jaszczka K., A.K. Grzegorzewska (Kraków, Poland), M. Capcarová (Nitra, Slovakia), C.G. Scanes (Milwaukee, USA) and K. Pierzchała-Koziec (Kraków, Poland)	478
Optimising substrate conditions for microbial fermentation of vinegar residue Gu Y., S. Xia, H. Chen, W. Liao, K. Deng and G. Bian (Nanjing, China)	349	Monogastrics	
Comparing the chemical composition of lesser duckweed (<i>Lemna minor</i> L.) grown in natural and laboratory settings Miltko R., M.P. Majewska, W. Wojtak, M. Bialek, B. Kowalik and M. Czaundera (Jablonna, Poland)	357	Effects of single or combined feeding with <i>Bacillus subtilis</i> and organic acid mixture on egg production, physiological responses, and cholesterol level in chicken eggs Park J.M., B.K. An, T.S. Yang and K.E. Kim (Seoul, Republic of Korea)	486
Other topics		Implementation of a metabolizable energy regression model for black soldier fly larvae fat in broiler chicken diets: effect on growth performance, nutrient digestibility, and selected physiological indices Kierończyk B., S.A. Kaczmarek, (Poznań, Poland) M. Hejdysz (Złotniki, Poland), P. Szymkowiak, M.R. Aslam, M. Rawski, P.A. Kołodziejewski, R. Mikula, K. Stuper-Szablewska and D. Józefiak (Poznań, Poland) ..	493
Validation of new proprietary software (r-Algo) for predicting meat chemical composition from ultrasound images of skeletal muscles in live animals: Pectoralis major muscles of broiler chickens Ahmadi B. (Guelph, Canada), T. Schwarz (Cracow, Poland) and P.M. Bartlewski (Guelph, Canada)	368	Effects of supplementation with <i>Angelica sinensis</i> Radix and its powder formulation on growth performance, serum antioxidant capacity, immune response and intestinal microflora of broiler chickens Song J., B. Ji, Y.N. Peng, Z. Ye, Z.Y. Wang, T.W. Zhao and Y. Liang (Lanzhou, China)	504
Editorial news and events – Memorial of Professor Aleksandra Ziiolecka	380	Effect of dietary wheat gluten levels on intestinal mucin flow and composition in young pigs Świąch E. (Jablonna, Poland)	517
Vol. 33, No. 4, 2024		Ruminants	
Review		Different <i>Festulolium</i> cultivars in lamb nutrition – feed value, growth performance, and meat quality Purwin C., P. Pogorzelska-Przybyłek (Olsztyn, Poland), B. Stefańska (Poznań, Poland), P. Żukowski (Olsztyn, Poland), A. Winiarska-Mieczan (Lublin, Poland) and S.J. Krzebietke (Olsztyn, Poland)	525
The role and molecular mechanisms of copper in regulating animal lipid metabolism Fu Y. (Tai'an, China), J. Yang (Chengdu, China), J. Chen and Y. Li (Tai'an, China)	401	Short communication	
Metal nanoparticles – a real threat or harmless companions for the thyroid gland? A review Wysoczańska K., D. Tomaszewska-Zaremba and A. Wójcik-Gładysz (Jablonna, Poland)	416	The effect of natural and synthetic zeolites on polysaccharidase activity in the rumen of Jersey heifers Majewska M.P., U. Wolska-Świątlicka, R. Miltko, G. Belżeczki, A. Kędzierska and B. Kowalik (Jablonna, Poland)	535
The impact of phytogenic feed additives on ruminant production: A review Nastoh N.A., M. Waqas, A.A. Çınar and M. Salman (Samsun, Turkey)	431	Evaluation of the biochemical composition of the greater duckweed <i>Spirodela polyrrhiza</i> (L. Schleiden) Miltko R., M.P. Majewska, N. Frączek and B. Kowalik (Jablonna, Poland)	542
The potential of black soldier fly (<i>Hermetia illucens</i> L.) larvae in chicken and swine nutrition. A review Osuch B., M. Barszcz and D. Tomaszewska-Zaremba (Jablonna, Poland)	454		

Other topics

Content of orotic acid and selected bioactive compounds in ovine milk during lamb rearing Wojtak W., M. Białek, A. Białek, E. Molik and M. Czauderna (Jabłonna, Poland)	547	List of reviewers	571
Impact of slaughter method on stress in organic common carp (<i>Cyprinus carpio</i>) Łosiewicz B. and H. Szudrowicz (Warsaw, Poland)	562	Authors index	572
		Contents of Journal of Animal and Feed Sciences, Volume 33	575