

Contents

Page

Review lecture

- Principles and applications of systems biology in improving efficiency of dairy cattle** 19-31
John P. McNamara - Washington State University

Amino acids and nitrogen

- 1. Investigations on the effect of a niacin supplementation to a diet deficient in ruminally degradable nitrogen on rumen metabolism and nitrogen excretion of lactating dairy cows** 33
P. Lebzien, K.-H. Südekum, S. Dänicke – Braunschweig/Bonn
- 2. Influence of sainfoin (*Onobrychis viciifolia*) cultivars on nitrogen balance of lambs artificially infected with the abomasal nematode *Haemonchus contortus*** 34
B.N. Azuhwi, Y. Arrigo, A. Gutzwiller, H.D. Hess, M. Kreuzer, I. Mueller-Harvey, H. Hertzberg, F. Dohme-Meier – Posieux/Zurich/Reading
- 3. Effects of protein and amino acid supplementation on growth and serum parameters in weaned Warmblood foals** 35
C. Krumbiegel, T. Raue, J. Fritz, A. Zeyner, E. Kienzle – Munich/Marbach/Rostock
- 4. Application of principles of diet dilution technique and modelling of N-utilization for estimation of optimal dietary amino acid ratios in growing chicken** 36
C. Wecke, J. Farke, F. Liebert – Göttingen
- 5. Effect of protein intake originating either from soybean meal or casein on true ileal lysine digestibility in newly-weaned pigs** 37
M. Eklund, N. Sauer, D. Jeziorny, M. Goerke, M. Rademacher, R. Mosenthin – Stuttgart-Hohenheim/Hanau
- 6. Standardized ileal amino acid digestibilities in fine and coarse particles of an over-heated soybean meal for grower pigs** 38
U. Messerschmidt, M. Eklund, V. T. S. Rist, P. Rosenfelder, H. K. Spindler, J. K. Htoo, R. Mosenthin – Stuttgart-Hohenheim/Hanau
- 7. Impact of tryptophan and valine on the performance of weaned piglets fed a low protein diet** 39
K. Büsing, S. Müller, W. Hackl, A. Zeyner - Rostock
- 8. Study on optimum tryptophan to lysine ratio in low protein diets for female fattening pigs** 40
K. Schedle, E. Corrent, J. Bartelt – Vienna/Paris/Cuxhaven

9. **N balance studies with graded dietary amino acid supply in growing boars of different body weight - Preliminary results** 41
S. Ebschke, C. Otten, S. Müller, F. Liebert, A. Berk – Göttingen/Bad Salzungen/Braunschweig
10. **N-utilization parameters are modulated when semi-synthetic mixtures with new protein sources are blended with a commercial feed for laboratory rats** 42
A. Pastor, F. Liebert – Göttingen
11. **The effects of autoclave sterilization of stock diets for laboratory animals on selected indices of protein availability** 43
M. Taciak, A. Tuśnio, M. Barszcz, E. Świąch, B. Pastuszewska, J. Skomial, J. Paradziej-Lukowicz – Jabłonna/Gdańsk

Environment

12. **Long-term effects of feeding tannin extracts on methane release, digestibility and urinary excretion of purine derivatives in sheep** 44
G. Wischer, A. M. Greiling, J. Boguhn, H. Steingaß, M. Schollenberger, K. Hartung, M. Rodehutschord – Stuttgart-Hohenheim
13. **The effect of high-sugar ryegrass hay, in comparison with a medium-sugar ryegrass hay and maize silage, on methane emissions and nitrogen excretion of dairy cows** 45
S. M. Staerfl, S. Amelchanka, T. Kälber, C. R. Soliva, M. Kreuzer, J. O. Zeitz – Zurich
14. **Urinary purine derivative excretion by heifers in response to increasing Quebracho tannin supplementation** 46
S. Ahnert, A. Susenbeth, U. Dickhoefer – Kiel
15. **Effects of induced drought stress and atmospheric carbon dioxide load on chemical composition of maize plant, its *in vitro* ruminal fermentation and microbial diversity** 47
B. Meibaum, B. Schröder, H.J. Weigel, R. Manderscheid, G. Breves – Hanover/Braunschweig
16. **Phytobiotics like blackseed oil, laurel oil and *Ferula eleaocytris* can modify ruminal fermentation *in vitro*** 48
K. Deckardt, F. Klevenhusen, A. Muro-Reyes, R. Chizzola, Q. Zebeli – Vienna

Transport, epithelial and cell physiology

17. **Diets high in fermentable protein influence histamine-induced chloride secretion and the epithelial catabolism of histamine in the colon of weaned piglets** 49
S. Kröger, R. Pieper, H. G. Schwelberger, J. Wang, J. F. Richter, J. Zentek, J. R. Aschenbach, A. G. Van Kessel – Berlin/Innsbruck/Saskatoon

- 18. Effects of supplementation with zinc oxide on transport properties in the jejunum of piglets** 50
E.-M. Gefeller, H. Martens, J. R. Aschenbach, R. Pieper, S. Klingspor, U. Lodemann – Berlin
- 19. Foetal body composition and skeletal muscle properties at mid-gestation in response to maternal low or high protein diets during pregnancy** 51
C. Kalbe, L. Lefaucheur, B. Stabenow, K.-P. Brüssow, O. Bellmann, R. Pfuhl, W. Otten, C. C. Metges, C. Rehfeldt – Dummerstorf/Saint Gilles
- 20. Beta-hydroxybutyric acid/glucose ratio dependent orexigenic signaling in hypothalamic GT1-7 cells** 52
T. Laeger, H. M. Hammon, B. Kuhla – Dummerstorf.
- 21. Feeding increasing amounts of barley grain affects electrophysiological properties of the rumen epithelium in growing goats** 53
F. Klevenhusen, B. Glaser, M. Hollmann, L. Podstatzky-Lichteinstein, J. R. Aschenbach, Q. Zebeli – Vienna/Berlin
- 22. Transport of short-chain fatty acids (SCFA) across rumen epithelium by sodium-coupled monocarboxylate transporter 1 (SMCT1)** 54
R. Rackwitz, S. Bilk, A. Schmidt-Mähne, F. Dengler, G. Gäbel – Leipzig
- 23. Do monocarboxylate transporters (MCT) 1 and 4 play a role in SCFA-transport across ovine rumen epithelium?** 55
F. Dengler, R. Rackwitz, G. Gäbel – Leipzig
- 24. Pathways for the absorption of ammonia across the bovine ruminal epithelium** 56
J. Rosendahl, F. Stumpff, H. Martens, J.R. Aschenbach - Berlin
- 25. Initial characterisation of new porcine and bovine intestinal cell lines to be used as *in vitro* models for functional studies in the area of intestinal physiology** 57
K. Becker, P. Steinberg - Hanover
- 26. The inner and the outer submucous plexus of porcine colon contain neurones with different neurochemical coding** 58
C. Petto, G. Gäbel, H. Pfannkuche - Leipzig

Minerals

- 27. Influence of short chain fatty acids and pathologic pH variations on potassium transport across rumen epithelium** 59
M. Wagener, S. Leonhard-Marek – Hanover
- 28. Influence of high levels of dietary zinc on the expression of zinc transport proteins, metallothionein and DMT 1 in the jejunum of weaned piglets** 60
L. Martin, R. Pieper, W. Vahjen, J. Zentek – Berlin

29. **Effects of calcium restriction on the gastrointestinal calcium absorption in sheep in comparison with goats** 61
J. Richter, M. Wilkens, N. Mrochen, G. Breves, B. Schröder – Hanover
30. **Effects of different iron, manganese, zinc and copper sources on their bioavailability in weanling piglets** 62
M. Rimbach, K. Männer - Pinneberg/Berlin
31. **Experimental investigation on the bioavailability of different magnesium compounds in weaned piglets** 63
V. S. Aichner, B. R. Paulicks, W. Windisch - Freising-Weihenstephan
32. **Comparison of two types of basal diet for assessing the P availability of mineral P sources in broilers** 64
Y. Shastak, M. Witzig, M. Schollenberger, M. Rodehutscord – Stuttgart-Hohenheim
33. **Effect of a deficient and an adequate selenium supply on pancreatic carcinogenesis in a Kras-driven mouse model** 65
M. Tost, M. Aichler, I. Esposito, M. Brielmeier - Hanover/Munich

Undesirable Substances

34. **Effects of a deoxynivalenol (DON) contaminated wheat on feed intake and health status in horses** 66
A. Schulz, S. Döll, S. Dänicke, M. Coenen, I. Vervuert – Leipzig/ Braunschweig
35. **Time dependent effects of graded levels of *Fusarium* toxin contaminated maize grain on performance and development of hyperestrogenism in female piglets** 67
I. Rempe, U. Brezina, S. Döll, J. Spilke, S. Dänicke – Braunschweig/Halle
36. **Investigations on the degradation of pyrrolizidine alkaloids in Eastern Groundsel (*Senecio vernalis*) during ensilage** 68
S. Ronczka, R. Pieper, U. Korn, J. Zentek, K. Speer, B. Pieper - Dresden/ Berlin/Wuthenow
37. **Effect of increasing concentrations of deoxynivalenol (DON) in the diet on egg quality and health of laying hens of different genetic background** 69
M. Ebrahim, S. Döll, S. Dänicke - Braunschweig
38. **Effects of the flavonol quercetin on the toxicokinetics of the mycotoxin ochratoxin A in rats** 70
R. Blank, Z. Abbas, S. Wein, S. Wolffram - Kiel

Fatty acids

39. **Milk fatty acid profile in dairy cows during early lactation, during an energy restriction at 100 DIM, and a following realimentation** 71
J.J. Groß, H. A. van Dorland, R.M. Bruckmaier, F.J. Schwarz – Bern/ Freising-Weihenstephan

40. **Influence of dietary precursor fatty acid concentrations on linolenic and vaccenic acid concentrations in cow's milk: a meta-analysis** 72
R. Khiaosa-ard Siepmann, M. Kreuzer, F. Leiber – Zurich
41. **Localization of the mineralocorticoid receptor in different fat depots of dairy cows supplemented with CLA** 73
K. Friedauer, D. von Soosten, S. Dänicke, H. Sauerwein, S. Häußler - Bonn/Braunschweig
42. **Peroxisome proliferator-activated receptor gamma2 (PPAR γ 2) mRNA is related to body fat content of dairy cows and is decreased by CLA treatment in the mammary gland** 74
B. Saremi, H. Sauerwein, D. von Soosten, S. Dänicke, M. Mielenz – Bonn/Braunschweig
43. **Effects of long term supplementation of dairy cow rations with conjugated linoleic acids on proliferation of peripheral blood mononuclear cells and their fatty acid profile** 75
L. Renner, J. Pappritz, R. Kramer, S. Döll, G. Jahreis, S. Dänicke – Braunschweig/Jena
44. **Response of hepatic genes involved in lipid metabolism to supplementation with rumen-protected conjugated linoleic acids in dairy cows** 76
R. Ringseis, G. Schlegel, W. Windisch, F.J. Schwarz, K. Eder – Gießen/Freising
45. **Effects of rumen-protected conjugated linoleic acids (CLA) and dietary concentrate proportion on blood parameters of periparturient dairy cows** 77
M. Petzold, U. Meyer, S. Döll, S. Dänicke - Braunschweig
46. **Concentrations of α -tocopherol and β -carotene in the milk of cows supplemented with conjugated linoleic acids** 78
G. Schlegel, K. Kupczyk, E. Most, F.J. Schwarz, R. Ringseis, K. Eder – Gießen/Freising
47. **Leptin and leptin receptor mRNA abundance in liver and subcutaneous adipose tissue throughout lactation in dairy cows supplemented with conjugated linoleic acids** 79
P. Friedrichs, S. Winand, H. Sauerwein, J. Pappritz, S. Dänicke, M. Mielenz - Bonn/Braunschweig

Energy

48. **Influence of energy supply pre- and postpartum on performance and metabolic parameters in dairy cows** 80
M. Urdl, L. Gruber, W. Obritzhauser - Irdning/Parschlug
49. **Variation of energy intake during lactation: Effects on dry matter intake and performance** 81
S. Remppis, H. Steingäß, L. Gruber, H. Schenkel – Stuttgart-Hohenheim/Irdning

50. **Effects of a short-term feed restriction during early lactation on milk production and metabolic parameters of dairy cows differing in milk yield and milk protein concentration** 82
K. Gellrich, T. Sigl, H.H.D. Meyer, M. Kaske, S. Wiedemann – Freising/Hanover/Kiel
51. **Body composition of Simmental cows and the relation of fat content to body condition parameters** 83
M.Steyer, T. Ettle, H. Spiekers, M. Rodehutschord - Poing-Grub/Stuttgart-Hohenheim
52. **Liver fat content and lipid metabolism in dairy cows during early lactation, and during an energy restriction at 100 DIM** 84
J.J. Groß, H. A. van Dorland, K. Eder, F.J. Schwarz, R.M. Bruckmaier – Bern/Gießen/Freising-Weihenstephan
53. **Expression of genes involved in carnitine metabolism in the liver of dairy cows in the transition period and in lactation** 85
G. Schlegel, J. Keller, F. Hirche, S. Geißler, F.J. Schwarz, R. Ringseis, G. I. Stangl, K. Eder – Gießen/Halle/Freising
54. **Metabolic responses in lactating dairy cows to an infusion with DL-beta-hydroxybutyrate for 48 hours** 86
H.A. van Dorland, M. Zarrin, M.C.M.B. Vernay, O. Wellnitz, R.M. Bruckmaier –Bern/Yasouj
55. **Changes of carbon isotope ratio of milk fat during lactation as an indicator of tissue fat mobilization in cows** 87
M. Holstermann, J. Molquentin, R. Blank, A. Susenbeth - Kiel
56. **Impact of plane of maternal nutrition and intensity of postnatal feeding on pancreatic and peripheral insulin response and subsequent growth of heifer Holstein calves** 88
U. Köhler, S. Spiegler, F. J. Schwarz, G. Sigl, S. Wiedemann, H. H. D. Meyer, M. Kaske - Hanover/Munich/Kiel
57. **Effects of ad libitum feeding of Holstein bull calves within the first three weeks of life on health status and subsequent performance** 89
P. Maccari, H.-J. Kunz, P. Sanftleben, M. Piechotta, M. Kaske – Hanover/Futterkamp/Dummerstorf
58. **Influence of salinity on energy metabolism in juvenile turbot (*Psetta maxima*)** 90
C. Dietz, K. T. Stiller, C. Schulz, A. Susenbeth - Kiel
59. **Fat partitioning in mature Simmental cows** 91
M. Steyer, T. Ettle, H. Spiekers, M. Rodehutschord - Poing-Grub/Stuttgart-Hohenheim
60. **High yielding dairy cows with a high liver fat content in early lactation respond with increasing plasma ghrelin concentrations during feed deprivation** 92
S. Börner, M. Derno, M. Röntgen, H. M. Hammon, B. Kuhla - Dummerstorf

61. **mRNA expression of hepatic receptors and transcription factors regulating lipid metabolism in periparturient dairy cows with different body fat mobilization** 93
C. Schäff, H. M. Hammon, M. Röntgen, B. Kuhla – Dummerstorf
62. **mRNA abundance of mammary GLUT1 and GLUT4 in response to long-term manipulated plasma concentrations of insulin and glucose in lactating dairy cows** 94
J.J. Groß, L. Kreipe, M.C.M.B. Vernay, O. Wellnitz, H.A. van Dorland, R.M. Bruckmaier - Bern
63. **Pancreatic and peripheral insulin response in high-yielding dairy cows with different fat mobilisation during early lactation** 95
U. Kautzsch, B. Kuhla, M. Röntgen, S. Görs, B. Losand, R. M. Bruckmaier, C. C. Metges, H. M. Hammon - Dummerstorf/Bern
64. **Nutrient flow and its relation to milk production in F₂ offspring of Charolais × Holstein crosses as measured by ¹³C enrichment in milk components during C₃ and C₄ plant feeding** 96
H. Hillal, C. C. Metges, H. M. Hammon - Dummerstorf
65. **Development of hepatic α_1 - and β_2 -adrenoceptors in neonatal calves** 97
D. Rohrbeck, J. Steinhoff-Wagner, H. M. Hammon - Dummerstorf
66. **Effects of 3 weeks feed restriction on fat and carbohydrate oxidation during restriction and realimentation in growing pigs: preliminary results** 98
R. Krüger, M. Derno, B. U. Metzler-Zebeli, S. Görs, K. Giggel, C. Schmelzer, H. M. Hammon, C. C. Metges - Dummerstorf

Digestion

67. ***In situ* ruminal degradation of crude protein and amino acids and *in vitro* protein digestibility of undegraded protein in DDGS** 99
E. Westreicher, H. Steingäß, M. Rodehutschord - Stuttgart-Hohenheim
68. **Risk factors of diet-induced systemic inflammation in cattle: a meta-analysis** 100
Q. Zebeli, B.N. Ametaj - Wien/Edmonton
69. **Particle size reduction at low and high food intake, and influence of chewing on particle breakdown in rabbits** 101
E. Findeisen, J. Hummel, K.-H. Südekum - Bonn
70. **Aspects of clinical relevance in feeding degus: capacity of crude fibre digestion and basic data on calcium metabolism in comparison to dwarf rabbits** 102
D. Hommel, P. Wolf, J. Kamphues - Hanover
71. **Effects of feed structure (grinding type and intensity, processing) on nutrient digestibility and performance in weaned piglets** 103
M. Arlinghaus, J. Bullermann, S. J. Sander, J. Kamphues - Hanover

72. **Enlargement (weight and length) of the small and large intestine of young pigs due to reduced prececal digestibility - a response to enhanced microbial activity?** 104
A. Mößeler, T. Schwarzmaier, P.-C. Gregory, J. Grunemann, J. Kamphues - Hanover
73. **Effects of tannin and activated charcoal on the digestibility and nutrient excretion of goats under subtropical conditions (Oman)** 105
A. Alkindi, E. Schlecht, A. Schiborra - Kassel-Witzenhausen/Göttingen
74. **Influence of addition of chopped straw, chopped hay or chopped alfalfa to concentrates on duration of feed intake and chewing intensity of horses** 106
G. Schlegel, B. Keimer, K. Eder – Gießen
75. **Comparative application of acid insoluble ash (AIA) and hexatriacontane (C36) as digestibility markers in horses - first results of a balance study** 107
D. Koslowski, I. Vervuert, F. Liebert – Göttingen/Leipzig
76. **Ultrasonographic imaging of abomasal milk clotting in calves on different diets** 108
D. Kirchner, L. Schwedhelm, M. Coenen, L. Bachmann – Leipzig
77. **Effects of rumen protected fats and fatty acids on the ruminal bacterial microbiome under physiologic and acidotic conditions in the RUSITEC system** 109
P. Janczyk, A. Reichetanz, K. Büsing, W.B. Souffrant, R. Adelman, A. Zeyner – Rostock/Hamburg
78. **Effects of varying starch and fiber contents in the diet on digestive processes in the cecum of rabbits** 110
K. Südmersen, P. Wolf, J. Kamphues – Hanover
79. **Effect of inclusion of essential oil and β -glucanase in barley-based diets on prececal nutrients digestibility in broiler chicks** 111
D. Ghofrani Tabari, M. R. Rezvani – Shiraz
80. **Apparent digestibility of crude nutrients of raw and cooked rations, with or without cereals, in adult Beagle dogs** 112
S. Handl, J. Illi, C. Iben - Vienna

Feed additives

81. **Bioavailability of the flavonol quercetin in cows** 113
L. M. Berger, S. Wein, R. Blank, C. C. Metges, S. Wolfram - Kiel/Dummerstorf
82. **Antioxidant effects of herbal feed supplements in broilers** 114
Y. Loetscher, M. Kreuzer, R. Messikommer - Zurich
83. **Effects of broccoli extract and essential oils on xenobiotic enzymes in the intestine of piglets** 115
K. Mueller, N. M. Blum, H. Kluge, K. Wendler, A. S. Mueller - Halle (Saale)/Steyregg

84. **Effects of feeding the probiotic bacterium *Enterococcus faecium* NCIMB 10415 under production conditions on immune status and virus shedding in german landrace piglets** 116
S. Kreuzer, P. Machnowska, J. Assmus, M. Sieber, R. Pieper, M.F. Schmidt, G. Brockmann, L. Tedin, R. Johne – Berlin
85. **Comparison of massive oral dosing of a probiotic *Enterococcus faecium* with ingestion of sow feces on probiotic cell number, lactic acid bacteria and bacterial metabolites in piglets** 117
I. Starke, W. Vahjen, J. Zentek - Berlin
86. **Effect of niacin supplementation on muscle fiber composition and fatty acid oxidation capacity of skeletal muscle of obese rats** 118
R. Ringseis, S. Rosenbaum, L. Herges, F. C. Mooren, K. Krüger, K. Eder - Gießen
87. **Effects of flavonoids on the metabolic status in newborn dairy calves: Preliminary results** 119
J. Flor, S. Wolfram, H. M. Hammon – Dummerstorf/Kiel
88. **Does inactivated yeast affect rumen dry matter degradability in low concentrate diet?** 120
A. E. Metwally, C. Fahn, W. Windisch - Freising-Weihenstephan
89. **Effect of exogenous phytase on the phosphorus metabolism of lactating cows fed a maize based diet** 121
L. Winter, U. Meyer, M. Spolders, P. Lebzien, S. Dänicke - Braunschweig
90. **Impact of a chemical or biological silage additive and their combination on the fermentation quality of grass silage** 122
R. Söffing, S. Hoedtke, B. Pieper, A. Zeyner - Rostock/Wuthenow
91. **Formation of biogenic amines in grass silages when a chemical or biological silage additive or a combination of both is used** 123
S. Hoedtke, R. Söffing, B. Pieper, A. Zeyner - Rostock/Wuthenow
92. **Precipitation ability of quebracho extract for different BSA concentrations** 124
M. Schweigmann, H. Harder, F. Taube, M. Gierus - Kiel
93. **Protein precipitation ability of different tannin extracts at variable pH values *in vitro*** 125
M. Schweigmann, F. Taube, M. Gierus - Kiel
94. **The effects of L-carnitine supplementation on metabolic profile in obese ponies during a several weeks lasting bodyweight reduction programme** 126
U. Schmengler, J. Ungru, A. Schulz, M. Ayecke-Thun, E. von Heimendahl, R. Boston, M. Coenen, I. Vervuert - Leipzig/Cuxhaven/Kennett Square
95. **Influence of dietary zinc supplementation on intestinal barrier function in weaned piglets** 127
S. S. Zakrzewski, J. F. Richter, J. D. Schulzke, M. Fromm – Berlin
96. **Effect of the former antibiotic feed additive Avilamycin or essential oils on the expression of genes related to oxidative defense, detoxification and growth in liver of piglets** 128
C. Becker, S. Donaubaue, W. Windisch – Freising

97. **Bioavailability of duodenal administered flavonoids and acute effects on milk yield in high-yielding German-Holstein cows - Preliminary results** 129
A. Gohlke, C.J. Ingelmann, G. Nürnberg, S. Wolfram, C.C. Metges – Dummerstorf/Kiel
98. **Influence of fatty acid pattern on intestinal quercetin absorption via the thoracic lymph duct in rats** 130
K. Murota, S. Wolfram, J. Terao, R. Cermak - Osaka/Kiel/Leipzig
99. **Effects of a phytogetic feed additive in sow diets on performance of sows and piglets** 131
M. Goerke, K. R. Wendler, K. Männer - Steyregg/Berlin
100. **Effect of *Bacillus cereus* var. Toyoi on shedding and translocation of *Salmonella* Typhimurium DT104 and the immune response in weaned piglets** 132
L. Scharek-Tedin, R. Pieper, W. Vahjen, J. Zentek – Berlin
101. **Influence of different levels of dietary zinc on hepatic proteomic profiles in weaned piglets** 133
A. Bondzio, R. Pieper, C. Weise, C. Gabler, P. Schulze, J. Zentek, R. Einspanier - Berlin
102. **Effects of probiotic strains of *Enterococcus faecium* and *Lactobacillus rhamnosus* on diarrhoea patterns and the faecal microbiome of sucking foals** 134
E. Günther, C. Ströbel, K. Romanowski, V. Urubschurov, K. Büsing, W.B. Souffrant, E. Kienzle, A. Zeyner - Rostock/Munich
103. **Effects of 25-hydroxyvitamin D₃ and/or phytase supplementation to the diet of laying hens in an early stage of laying on the expression of calcium transport proteins in the duodenum** 135
J. Stahl, G. Herm, M. Wilkens, B. Schröder, G. Weber, G. Breves – Hanover
104. **Gender-specific effect of a phytogetic feed additive on the intestinal physiology in broilers** 136
E. Rohrer, E. Humer, W. Windisch, K. Schedle – Wien/Freising
105. ***Enterococcus faecium* NCIMB 10415 does not protect interleukin-10 knock-out mice from chronic gut inflammation** 137
B. Priya Ganesh, M. Blaut, G. Loh – Nuthetal
106. **Effect of dietary β -galacto-oligosaccharides supplementation on growth performance, cecal microbial population and immune response in broilers** 138
H. Rehman, M. S. Yousaf, N. Fatima, A. Ijaz – Lahore

Feedstuff evaluation and feeding

107. **Does the physical form of diets - based on identical ingredients and chemical composition - affect foot pad health in broilers?** 139
A. Abd El-Wahab, M. Witte, B. Üffing, M. Tost, J. Kamphues – Hanover
108. **Effects of diets physical form and preparation (grinding type/intensity, processing) on the gastrointestinal tract, digestibility of nutrients and feed conversion ratio (FCR) in broilers** 140
M. Witte, B. Üffing, S. J. Sander, M. Tost, J. Kamphues – Hanover

109.	Effect of rotational or continuous grazing on feed intake and live weight gain of sheep in the steppe of Inner Mongolia	141
	J. Hao, B. Bösing, U. Dickhoefer, A. Susenbeth – Kiel	
110.	Impact of concentrate supplementation on feed intake and live weight gain of sheep grazing in the Inner Mongolian steppe	142
	J. Hao, M. Ohm, U. Dickhoefer, A. Susenbeth – Kiel	
111.	Effect of supplemental cellulose in the basal diet of broilers on the precaecal amino acid digestibility of test ingredients determined by regression analysis	143
	H. Kluth, M. Petzold, C. Georgi - Halle (Saale)	
112.	Estimating ruminal crude protein degradation of forages using in situ and in vitro techniques	144
	B. Edmunds, K.-H. Südekum, H. Spiekers, F. J. Schwarz - Bonn/Poing-Grub/Freising	
113.	Effects of increasing levels of alfalfa silage in diets for fattening bulls	145
	T. Ettle, M. Steyer, A. Obermaier, H. Spiekers, S. Weinfurter - Poing-Grub	
114.	Fresh and preserved green fodder modify effects of urinary acidifiers on urine pH of horses	146
	G. Goren, J. Fritz, N. Dillitzer, E. Kienzle - Munich	
115.	Grazing effects on the nutritive value and nutritional yields of forage in Inner Mongolian grassland	147
	H. Ren, H. Wan, P. Schönbach, M. Gierus, F. Taube – Kiel	
116.	Grazing-induced patches in the Inner Mongolia steppe as affected by grazing intensity and management system	148
	M. Ohm, P. Schönbach, M. Gierus, H. Wan, B. Bösing, F. Taube– Kiel	
117.	Grazing system as factor influencing fattening performance and meat quality of sheep from two breeds grazing different alpine vegetation types	149
	H. Willems, C. Werder, M. Kreuzer, F. Leiber – Zurich/Lätti	
118.	Effect of diet diversity on intake of leaves from woody plants in dairy sheep	150
	J. S. Meier, A. Liesegang, M. Kreuzer, S. Marquardt – Zurich	
119.	Crude protein fractions of fresh, wilted and ensiled red clover	151
	M. Krawutschke, N. Weiher, J. Thaysen, F. Taube, M. Gierus – Kiel/Rendsburg	
120.	Effect of drying procedure on crude protein fractions of red clover and relationship with the specific polyphenol oxidase activity	152
	N. Weiher, M. Krawutschke, F. Taube, M. Gierus – Kiel	
121.	Effect of a mixture of lactic acid bacteria on the amount of protein degradation in grass silages of different raw material	153
	E. Kramer, P. Leberl, C. Kalzendorf – Pinneberg/Stuttgart/Oldenburg	
122.	Nutritional and ecological aspects of dairy feeding systems under semi-arid environments in Jordan	154
	O. Alqaisi, T. Hemme, M. Hagemann, A. Susenbeth - Kiel	
123.	Performance of yaks (<i>Bos grunniens</i>) on high altitude alpine pastures in Eastern Nepal	155
	S.R. Barsila, N.R. Devkota, F. Leiber, M. Kreuzer, S. Marquardt – Zurich	

124.	Nutritional composition, microscopical and microbiological assessment of grass and alfalfa hay from European zoos	156
	P. Leberl, M. Clauss, W. Wagner – Stuttgart-Hohenheim/Zurich/Karlsruhe	
125.	Heart rate and heart rate variability in horses on pasture: short-term effect of putting out on grass and long-term effect of adaptation to the new surrounding	157
	A. Becker, A. Orgis, K. Romanowski, J. Langbein, E. Mohr, J. Müller, A. Zeyner - Rostock/Dummerstorf	
126.	Parallel measurements of feed intake rate and chewing activity as well as heart rate and heart rate variability in horses consuming an oats-barley mix, meadow hay and meadow grass in their most familiar surroundings	158
	A. Orgis, A. Becker, K. Romanowski, J. Langbein, S. Quellmalz, E. Mohr, J. Müller, A. Zeyner - Rostock/Dummerstorf/Leipzig	
127.	Effects of corn silage of a Brown-midrib hybrid on dry matter intake, milk yield and milk composition in German Holstein dairy cows compared to a common hybrid	159
	T. Gorniak, U. Meyer, S. Dänicke - Braunschweig	
128.	Cecal response of turkey fed diet diluted with whole grain wheat	160
	J. Jankowski, Z. Zdunczyk, J. Juskiwicz, D. Mikulski - Olsztyn	
129.	Influence of different feed treatments on feed intake, body weight gain and feed conversion rate in growing chicken	161
	C. Wecke, H. von Reichenbach, F. Liebert – Göttingen/Reinbek	
130.	Do grinding intensity and physical form of diets have an influence on <i>in vitro</i> adhesion of <i>Salmonella Typhimurium</i> and on the occurrence of mannose residues in the mucus as receptors for Salmonellae in the porcine ileum and caecum?	162
	A. Callies, S. J. Sander, J. Verspohl, A. Beineke, J. Kamphues- Hanover	
131.	Effects of different physical forms of the diet on the microflora in the gastrointestinal tract of broiler chickens	163
	B. Üffing, M. Witte, M. Tost, S. J. Sander, J. Verspohl, J. Kamphues – Hanover	
132.	Does the physical form of diets predispose broilers for developing proventricular dilatation?	164
	M. Witte, B. Üffing, Monica Tost, A. Beineke, J. Kamphues – Hanover	
133.	Effects of feed structure (grinding type and intensity, processing) on microbial populations in the gastrointestinal tract of young pigs	165
	J. Bullermann, M. Arlinghaus, S. J. Sander, J. Verspohl, J. Kamphues - Hanover	
134.	Meta-analysis of various studies dealing with effects of feed particle size on alterations of the pars nonglandularis in the porcine stomach	166
	S. J. Sander, J. Kamphues – Hanover	
135.	Earthworms as a potential source of animal protein for aquafeeds for common carp	167
	N.N. Tuan, U. Focken – Stuttgart-Hohenheim/Hanoi/Ahrensburg	
136.	The effects of composition and autoclave sterilization of diets for laboratory animals on pellet hardness and growth performance of mice	168
	M. Barszcz, A. Tuśnio, M. Taciak, B. Pastuszewska, J. Skomiał - Jabłonna	

Free topics

137. **Can UVB exposure of laying hens contribute to an improved vitamin D content of eggs?** 169
G. I. Stangl, J. Lietzow, C. Brandsch, N. Seeburg, F. Hirche, M. Glomb, H. Kluge - Halle
138. **Inhibition of the pro-inflammatory NF- κ B pathway by a grape seed and grape marc meal extract in intestinal epithelial cells** 170
D. K. Gebner, R. Ringseis, M. Siebers, J. Keller, J. Kloster, W. Gaiping, K. Eder – Gießen
139. **Growth of porcine intestinal bacteria in the presence of ZnO** 171
W. Vahjen, J. Liedtke, J. Zentek – Berlin
140. **Resveratrol and ϵ -viniferin decrease electrogenic glucose absorption in porcine jejunum and ileum *in vitro*** 172
M. Guschlbauer, M. Burmester, B. Schröder, L. Bode, S. Kulling, G. Breves – Hanover/Karlsruhe
141. **Short note about an analytical problem of the parameter 3-methylhistidine (3-MH) versus 1-methylhistidine (1-MH) as an indicator for muscle protein degradation** 173
A. Sünder, S. Neumann, F. Liebert – Göttingen
142. **Determination of cholesterol and cholesterol oxides in biological materials by capillary gas chromatography with mass spectrometry** 174
M. Czauderna, M. Marounek, D. Duskova, J. Kowalczyk – Jabłonna/Praha
143. **Identification of small molecule markers by ESI-TOF MS in digesta and urine of piglets fed diets high in fermentable carbohydrates or protein** 175
R. Pieper, K. Neumann, S. Twardziok, F. Klautzsch, J. Zentek, A.G. van Kessel – Berlin/Saskatoon
144. **Simultaneous identification of DNA and RNA viruses present in pig faeces using process-controlled deep sequencing** 176
J. Sachsenröder, S. Twardziok, P. Janczyk, J. Hammerl, S. Hertwig, R. Johné - Berlin
145. **A field study examining the effects of an extract of *Solanum glaucophyllum* on selected serum mineral parameters around parturition in dairy cows** 177
J. Fritz, W. Bittner, H. Bachmann, W. Rambeck – Munich/Stockdorf/Basle
146. **The influence of moderate fat mobilization on the immunohistochemical localization of two apoptosis-related proteins (bax and bcl-2) in bovine adipose tissue** 178
D. Germeroth, H. Sauerwein, K.-H. Südekum, S. Häußler - Bonn
147. **Trophic and epigenetic effects of dietary butyrate supplementation in chicken** 179
G. Mátis, Á. Kenéz, A. Kulcsár, G. Csikó, Z. Neogrády, K. Huber - Hanover/Budapest

Workshop: Metabolism and efficiency of fermentation in biogas plants

- | | | |
|------------|---|----------------|
| W1. | Efficiency of biogas formation as a function of microbial population | 183-185 |
| | D. Weichgrebe, P. Stopp, G. Breves - Hanover | |
| W2. | Microbiological and epidemiological aspects of hygienic conduct of biogas plants and agricultural utilization of digestate | 186-188 |
| | W. Philipp - Stuttgart-Hohenheim | |
| W3. | Fermentability of fiber-rich substrate as a base of new biogas technologies | 189-190 |
| | S. Becker, G. Breves, D. Weichgrebe, P. Stopp - Hanover | |
| W4. | Production of biogas in Lower Saxony | 191 |
| | G. Höher - Hanover | |
| W5. | Anaerobic substrate utilization and efficiency of biogas plants | 192-195 |
| | H. Öchsner - Stuttgart-Hohenheim | |
| | List of Authors | 197-208 |