Digestive Physiology of Pigs – North America: 16th International Symposium on Digestive Physiology of Pigs

DPP
Lake Geneva '25

From Discovery to Development

Welcome

On behalf of the Organizing Committee, we are happy to welcome you to Lake Geneva, WI , USA for the 16th International Symposium on Digestive Physiology of Pigs. This event has grown to become the premiere event where discussions focus specifically on various aspects of digestive physiology.

The first Symposium was held in Shinfield, Reading (UK) in 1979. Subsequently there have been symposia held triennially in France, Denmark, Poland, The Netherlands, Germany, France, Sweden, Canada, Denmark, Spain, United States of America, Poland, and Australia. This is the second time it will be held in the U.S., and the committee is committed to ensuring the Symposium lives up to the very high standard established by our predecessors.

Our Vision: To serve as the platform for creative dialog and transnational collaboration for promoting innovation in the science of the digestive physiology of the pig.

Our Mission: Maintain a premier international digestive physiology networking opportunity for global subject matter experts, allied industry members, and stakeholders to facilitate innovation, productivity, and sustainability within the pork industry.

The cutting edge scientific program will focus on the digestive tract of the pig, emphasizing physiology, immunology and microbiology. Additionally, this Symposium will review the latest advances in the field of digestive physiology of pigs, providing the basis for future research.

Thomas Burkey (University of Nebraska, Co-Chair)
Ruurd Zijlstra (University of Alberta, Co-Chair)
Andrew van Kessel (University of Saskatchewan, Co-Chair)

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Australasian Pork Research Institute Ltd, Australia

Dr. David Torrallaradona
IRTA, Spain

Prof. Romuald Zabielski
Warsaw University of Life Sciences, Poland

Keynote Speakers

Our distinguished keynote speakers will address our overall theme ("From discovery to development") within five thematic areas, showcasing the latest research and advancements in the field:

Theme I: Functionality of the Intestinal Microbiome and Host Response

- Benjamin Willing, Professor; University of Alberta, Canada
- Hervé M. Blottière, PhD; Research Director, Research Director at INRAE, France

Theme II: Advances in Understanding of Nutrient Digestion and Absorption

- Sonja de Vries, PhD; Wageningen University & Research, The Netherlands

Theme III: Functional Ingredients and Utilization of Feed Resources for Improved Digestive Function and Nutrient Efficiency

- Marie-Pierre Létourneau Montminy, PhD; University of Laval, Canada

Theme IV: Development of Digestive and Absorptive Capacity in the Neonate and Impact of Weaning on Intestinal Function

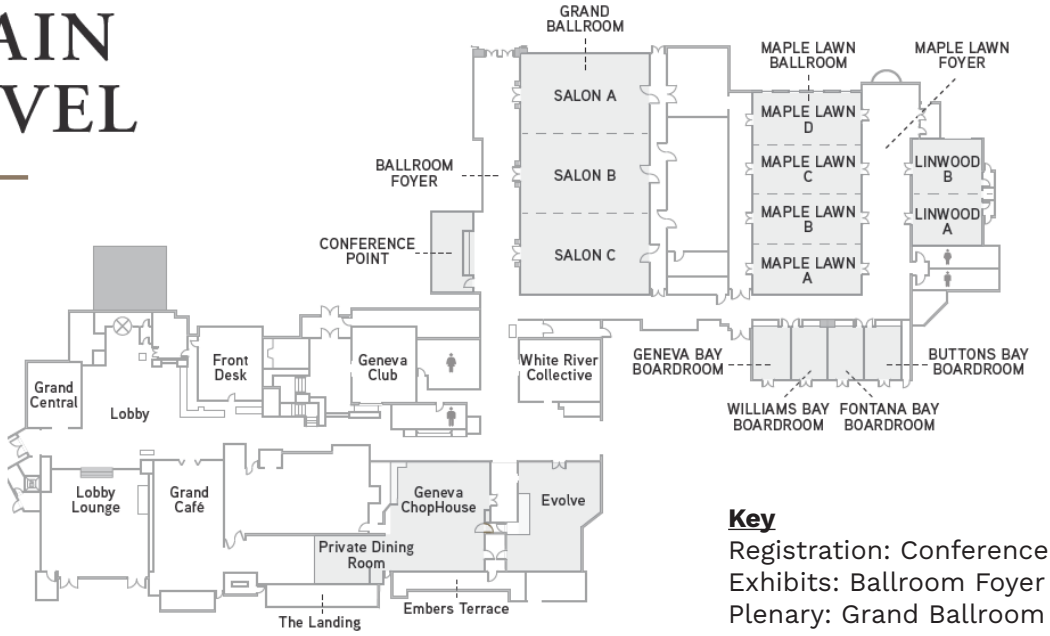
- Martin Beaumont, PhD; INRAE, France
- Huansheng Yang, Professor, Hunan Normal University, China

Theme V: Mucosal Immunity and Pathogenesis and the Role of the Digestive Tract in the Maintenance of Health

- Crystal L. Loving, PhD; Research Immunologist, USDA-ARS-NADC
- Jerrold Turner, MD, PhD; Harvard Medical School, USA

Symposium Floorplan

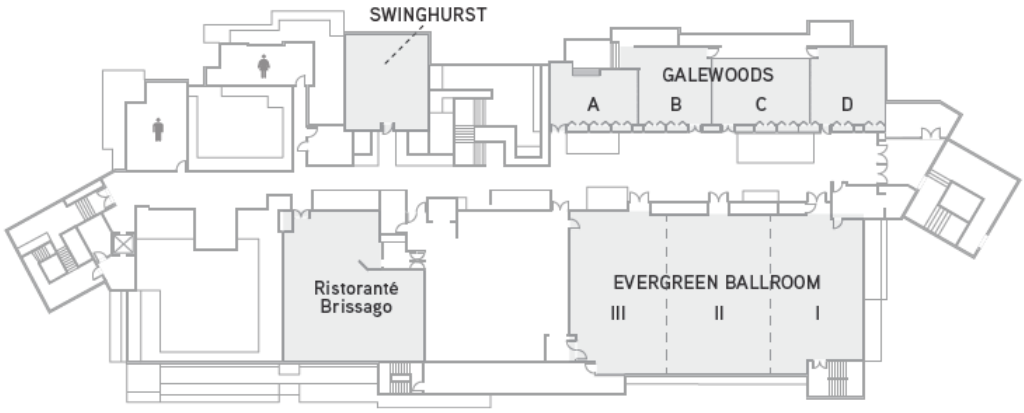
MAIN LEVEL



Key
Registration: Conference Point
Exhibits: Ballroom Foyer
Plenary: Grand Ballroom

Maple Lawn Ballroom: Posters and Meals
Geneva Chophouse: Student Reception

UPPER LEVEL



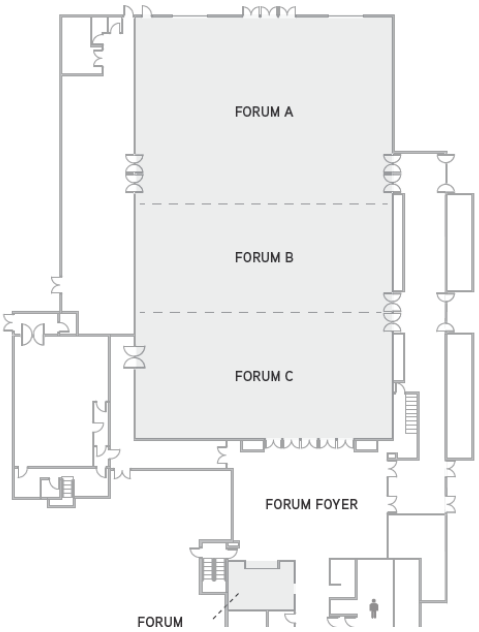
Key
Satellite Symposiums:
Evergreen Ballroom I & II
and Evergreen Ballroom III

Student Program: Galewoods C & D

Symposium Floorplan

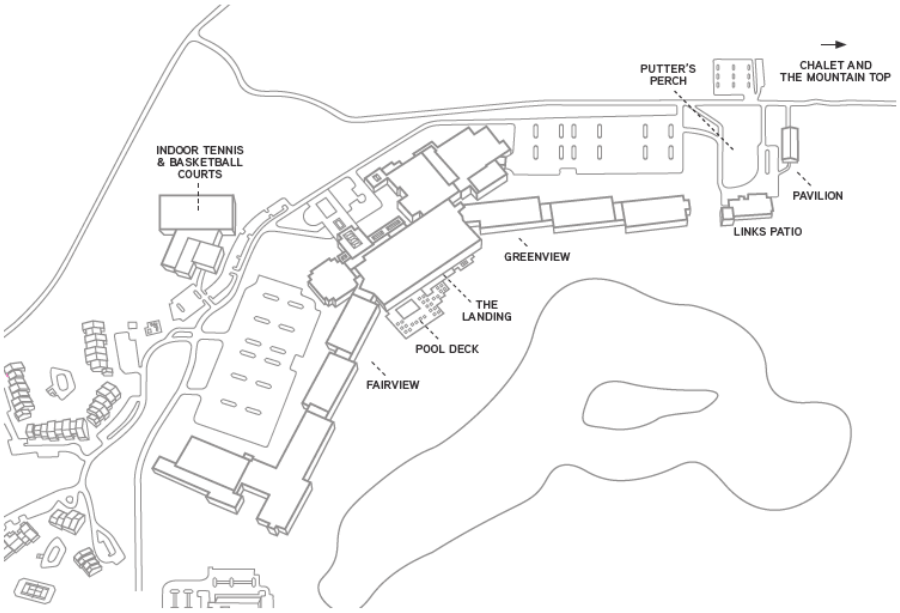
THE FORUM

BUILDING ONE



Key
Gala: The Forum Ballroom

EXPERIENTIAL VENUES



Key
Student Outdoor Reception:
Greenview Lawn

Welcome Reception:
The Landing & Pool Deck

Diamond Sponsor

Gold Sponsors

Gold Sponsors

Monday, May 19

Time	Event	Location
6:00 PM - 10:00 PM	DPP Student Social	Geneva Chophouse

Tuesday, May 20

Time	Event	Location
8:00 AM - 6:00 PM	Registration	
8:00 AM - 9:00 AM	Satellite Symposia Breakfast	Evergreen Foyer
9:00 AM - 12:00 PM	Satellite Symposium 1 *Mineral metabolism: a holistic approach for swine nutrition and health (Sponsor: Animine)*	Evergreen Ballroom III
9:00 AM - 12:00 PM	Satellite Symposium 2 *Advances in nutritional strategies to enhance nutrient utilization, growth and health of pigs (Sponsor: Evonik Nutrition & Care GmbH)*	Evergreen Ballroom I & II
12:00 PM - 1:00 PM	Satellite Symposia Lunch	Evergreen Foyer
1:00 PM - 4:00 PM	Satellite Symposium 3 *Mitigating antimicrobial resistance by promoting gut health in pigs (Sponsor: PIG-PARADIGM)*	Evergreen Ballroom I & II
1:00 PM - 4:00 PM	Satellite Symposium 4 *How to make antimicrobials in pig feed redundant, an Australian approach (Sponsor: DSM-Firmenich)*	Evergreen Ballroom III

Tuesday, May 20

Time	Event	Location
4:00 PM - 6:00 PM	DPP2025 Professional Development Student Workshop Session I: Networking: The key to your success Dr. Crystal L. Levesque, South Dakota State University Session II: Designing microbiome studies in pigs Dr. Benjamin Willing, University of Alberta Session III: Strengths and weaknesses of methods in assessing pig intestinal physiology Dr. Nicholas Gabler, lowa State University Session IV : Direct visualization assays in formalin-fixed tissues Dr. Eric R. Burrough, lowa State University	Galewoods C & D
6:00 PM - 10:00 PM	DPP Welcome Reception	The Landing

Wednesday, May 21

Time		Event	Location
8:00 AM - 12:00 PM		Registration	
6:30 AM		Breakfast	On your own
8:30 AM - 8:55 AM		Opening Remarks and Welcome Thomas Burkey, University of Nebraska	Grand Ballroom
8:55 AM - 12:30 PM		SYMPOSIA AND ORAL SESSIONS **Functionality of the Intestinal Microbiome and Host Response** Chair: Sarah Pearce, USDA-ARS Co-chair: Martin Nyachoti, University of Manitoba	Grand Ballroom
8:55 AM		Introduction Sarah Pearce/Martin Nyachoti	
9:00 AM	1	**KEYNOTE: Searching for the microbes that correlate with pig health, exploring microbial transfer and testing mode of action.** B.P. Willing*, *Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada.*	
9:45 AM	2	**EU Circles project: Machine Learning Approaches to Multi-Kingdom Gut Microbiota Reveal Key Predictors of Piglet Growth During the Nursery Phase.** F. Correa*[1], D. Luise[1], G. Palladino[2], F. Palum[11]bo[1], D. Scicchitano[2], G. Babbi[2], A. Castagnetti[3], M. Soverini[3], S. Rampelli[2], M. Candela[2], P.L. Martelli[2], and P. Trevisi[1], *[1]Department of Agricultural and Food Sciences, University of Bologna, 40127 Bologna, Italy, [2]Department of Pharmacy and Biotechnology, University of Bologna, 40126 Bologna, Italy, [3]Wellmicro srl, 40128 Bologna, Italy.*	

Wednesday, May 21

Time		Event	Location
8:55 AM - 12:30 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
10:00 AM		Short Break	
10:30 AM	3	**KEYNOTE: Gut Microbiota-host cells interaction in Health and Diseases.** *H. M. Blottière*[*1,2], [1]Nantes Université, INRAE, UMR 1280 PhAN, F-44000, Nantes, France, [2]Université Paris-Saclay, INRAE, MetaGenoPolis, MGP, F-78350, Jouy-en-Josas, France.*	
11:15 AM	4	**Litter Origin is associated with Gut Microbiome Composition During Tail-Biting Outbreaks in Growing-Finishing Pigs.** Sudario Roberto Silva Junior*[1], Courtney Archer[1], Lee Johnston[1,2], Yuzhi Li[1,2], and Andres Gomez[1], [1]*Department of Animal Science, University of Minnesota, St. Paul, MN, USA,* [2]*West Central Research and Outreach Center, University of Minnesota, Morris, MN, USA.*	
11:30 AM	5	**Exploring the Gut Microbiota's Impact on Sow Performance: Links Between Performance, Stage in Reproductive Cycle, and Key Factors in a European Sow Study.** M. Weiss*[1,2], G. A. Vestergaard[2], S. E bohdidi[2], L. H. B. Hansen[2], T. T. M. Knudsen[2], and D.S. Nielsen[1], [1]*University of Copenhagen, Department of food Science, University of Copenhagen, 1958 Frederiksberg, Denmark,* [2]*Novonesis, Novonesis, Animal Biosolutions, Biologiens vej 2, 2800 Kongens Lyngby, Denmark.*	

Wednesday, May 21

Time		Event	Location
8:55 AM - 12:30 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
11:45 AM	6	**Advances toward commercial use of fecal microbiota transplantation to mitigate weaning stress in pigs.** Paul Oladele, Wenxuan Dong, Brian Richert, and Timothy Johnson*, *Purdue University, West Lafayette, IN, USA.*	
12:00 PM	7	**Carbohydrate and nitrogen requirements for optimizing hindgut microbiome in pigs.** Ehsan Khafipour[1], Sandra Paredes[1], Qiong Hu*[1], Maria Sardi[2], and Ali Naqvi[2], *[1]Cargill Animal Nutrition and Health, Minneapolis, MN, [2]Cargill, Minneapolis, MN.*	
12:15 PM	8	**Fecal filtrate transplantation and dietary fibre supplementation as alternatives to veterinary antimicrobials.** A. Middelkoop*[1], J. Priem1, C. Larsen[2], T. Thymann[2], and F. Molist[1], *[1]Schothorst Feed Research, Meerkoetenweg 26, 8218 NA Lelystad, The Netherlands, [2]University of Copenhagen, Dyrlægevej 68, 1870, Frederiksberg C, Denmark.*	
12:30 PM - 2:25 PM		Lunch and Poster Sessions	Maple Lawn Ballroom
2:25 PM - 5:00 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
		Advances in Understanding of Nutrient Digestion and Absorption Chair: Crystal Levesque, South Dakota State University, Co-Chair: Pedro Urriola, University of Minnesota	

Wednesday, May 21

Time		Event	Location
2:25 PM - 5:00 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
2:25 PM		Introduction Crystal Levesque/Pedro Urriola	
2:30 PM	112	**KEYNOTE: Modulators of passage and nutrient absorption kinetics in the digestive tract of pigs.** S de Vries* and WJJ Gerrits, *Animal Nutrition Group, Wageningen University & Research, Wageningen, the Netherlands.*	
3:15 PM	113	**In vitro fermentation potential of undigested dietary protein in growing pigs.** H. Zhang*[1,2], J. Cone[1], A.K. Kies[3], W.H. Hendriks[1], and N. van der Wielen[1,4], *[1]Animal Nutrition Group, Department of Animal Sciences, Wageningen University & Research, Wageningen, The Netherlands, [2]State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, [3]ArieKiesAdvies, Druten, The Netherlands, [4]Division of Human Nutrition and Health, Department of Agrotechnology and Food Sciences, Wageningen University & Research, Wageningen, The Netherlands.*	
3:30 PM	114	**Evaluation of soybean-derived trypsin inhibitor proteins on gastric emptying, luminal pH, and endogenous enzyme activity in late-stage nursery pigs.** MJ Nisley*[1], ER Burrough[1], HB Krishnan[2], and NK Gabler[1], *[1]Iowa State University, Ames, IA, USA, [2]University of Missouri, Columbia, MO, USA.*	
3:45 PM		Short Break	

Wednesday, May 21

Time		Event	Location
2:25 PM - 5:00 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom

4:15 PM 115 **Basal ileal endogenous crude protein and amino acid losses in swine is influenced by age.**
JAL Barbosa*[1], H Moreira Junior[1], JL Brito[1], CEM Bertanha[1], SSS Sousa[1], A Gorrosterrazú[1], MLP Tsé[2], ABS Oliveira[3], F Dilelis[1], and US Ruiz[1], *[1]University of São Paulo (USP), Luiz de Queiroz College of Agriculture, Department of Animal Science, Piracicaba, São Paulo, Brazil, [2]São Paulo State University (UNESP), School of Veterinary Medicine and Animal Science, Department of Animal Production, Botucatu, São Paulo, Brazil, [3]Ingredion, Mogi Guacu, São Paulo, Brazil.*

4:30 PM 116 **Feasibility of using an x-ray fluorescence device for digestibility studies in pigs.**
Y.J.Y. Manaig*[1], E. Gourlez[2], M. Taris[1], A.R. Monteiro[1], and F. De Quelen[2], *[1]Animine, Annecy, France, [2]INRAE, Institut Agro Rennes-Angers, PEGASE, Saint Gilles, France.*

4:45 PM 117 **Fiber Fermentation Kinetics of Wheat and Maize in Weaned Piglets.**
I. Kaikat*[1], L. Blavi[2], M. A. Ton Nu[2], S. Tibble[2], A. Koppenol[2], G. González-Ortiz[3], and J. F. Pérez[1], *[1]Animal Nutrition and Welfare Service (SNiBA), Department of Animal and Food Science, Universitat Autònoma de Barcelona (UAB), 08193 Bellaterra, Spain, [2]AB Neo, PL Fraga, C/ Comunidad de Murcia, parc. LIE-1-03, 22520 Fraga (Huesca), Spain, [3]AB Vista, Marlborough SN8 [4]AN, United Kingdom.*

Wednesday, May 21

Time	Event	Location
6:00 PM - 10:00 PM	*Ticketed Event:* A Night on the Lakes	Boat trip

Join us for an unforgettable evening on Lake Geneva as part of the 16th International Symposium on Digestive Physiology of Pigs. Attendees will be transported from the Grand Geneva Resort & Spa to Lake Geneva Cruise Lines, where they'll board a scenic cruise set against Wisconsin's beautiful lakeside views. Enjoy a welcome drink and an array of appetizers as you network with colleagues from around the world, relax to the gentle lake breeze, and experience the charm of one of Wisconsin's most iconic locations. Don't miss this unique opportunity to unwind and connect as we set sail on "A Night on the Lakes."

Thursday, May 22

Time	Event	Location
6:30 AM	Breakfast	On your own
8:00 AM - 12 :00 PM	Registration	
8:30 AM - 11:50 AM	SYMPOSIA AND ORAL SESSIONS **Feed Resources for Improved Digestive Function and Nutrient Efficiency** Chair: Chengbo Yang, University of Manitoba, Co-Chair: Ruurd Zijlstra, University of Alberta	Grand Ballroom
8:30 AM	Welcome Chengbo Yang/Ruurd Zijlstra	

Thursday, May 22

Time		Event	Location
8:30 AM - 11:50 AM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom

8:35 AM 118 **KEYNOTE: Approaches for reducing nitrogenous/phosphorus waste excretion in the pig-challenges and opportunities.**
Léa Cappelaere[1,2], Florence Garcia-Launay[3], Patrick Schlegel[2], and Marie Pierre Létourneau Montminy*[1], *[1]Laval University, Quebec, Quebec, Canada, [2]Agroscope, Posieux, Switzerland, [3]INRAE UMR PEGASE, Saint-Gilles, Britanny, France.*

9:20 AM 119 **Improving starch digestion in barley, wheat and maize by xylanase/glucanase, phytase, protease and their combination in an in vitro digestion model.**
X. Liu*[1], B.M. Flanagan[1], E. Roura[1,2], and M.J. Gidley[1], *[1]Centre for Nutrition and Food Sciences, Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Brisbane, Queensland, Australia, [2]Centre for Animal Science, Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Brisbane, Queensland, Australia.*

9:35 AM 120 **In vitro evaluation of chicory-induced modulation of intestinal health in weaning piglets: Approach combining in vitro digestion, dialysis, and fermentation with a triple cell culture model.**
T.S. Kulkarni*[1,2], P. Siegien[2], L. Comer[3], A. Richel[2], B. Cudennec[1], C. Dugardin[1], S. Theysgeur[1], A. Lucau[4], N. Everaert[3], M. Schroyen[2], and R. Ravallec[1], *[1]UMR-T 1158, BioEcoAgro, University of Lille, Lille, FRANCE, [2]Precision Livestock and Nutrition Laboratory, TERRA Teaching and Research Centre, Gembloux Agro-Bio Tech, University of Liège, Gembloux, BELGIUM, [3]Nutrition and Animal Microbiota EcoSystems lab, Division of A2H, Department of Biosystems, KU Leuven, Leuven, BELGIUM, [4]Joint Laboratory CHIC41H University of Lille-Florimond-Desprez, Lille, FRANCE.*

9:50 AM 121 **Safe level of soy antinutritional factors in diets of weaned piglets.**
M. A. Ton Nu*[1,2], L. Blavi Josa[2], L. Sobrevia[2], S. Laird[2], S. Tibble[2], and A. Koppenol[2], [1]AB Neo a/s, Videbaek, Midtjylland, Denmark, [2]AB Neo, Fraga, Huesca, Spain.

Thursday, May 22

Time		Event	Location
8:30 AM - 11:50 AM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
10:05 AM		Short Break	
10:35 AM	122	**The ratio of cystine to protein as a potential indicator of digestible amino acid concentration in heat-damaged animal byproducts for growing pigs.** J. Y. Sung*[1], M. K. Wiltafsky-Martin[2], and O. Adeola[1], *[1]Purdue University, West Lafayette, IN, USA, [2]Evonik Operations GmbH, Hanau, Germany.*	
10:50 AM	123	**Effect of bakery products and legume seeds in the diet on nutrient digestibility of growing-finishing pigs.** M. van Helvoort*[1] and P. Bikker[2], *[1]De Heus Animal Nutrition, Ede, The Netherlands, [2]Wageningen University & Research, Wageningen Livestock Research, Wageningen, The Netherlands.*	
11:05 AM	124	**A new sustainable grain protein concentrate can replace soy protein concentrate or hydrolyzed wheat gluten in piglet diets.** L.C.M. van Enckevort*, P.T. van 't Veld, and I.M. van As, *Denkavit Netherlands B.V., Voorthuizen, Netherlands.*	
11:20 AM	125	**Probiotic Bacillus subtilis C-3102 improved sow performance and reduced scouring on its progeny.** JB Lacuesta*[1], E Angeles[1], JM Raquipo[1], KJ Gayosa[1], and R Masilungan[2], *[1]Philchema, Inc, Quezon City, Philippines, [2]Phillippines College of Swine Practitioners, Quezon City, Philippines.*	

Thursday, May 22

Time		Event	Location
8:30 AM - 11:50 AM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
11:35 AM	126	**The use of protease improves the growth performance of newly weaned piglets fed diets reduced in energy and protein.** O.O Babatunde*, G Tactacan, M.S Vieira, L Lahaye, and M.L de Moraes, *Jefo Nutrition Inc., St-Hyacinthe, QC, Canada.*	
11:50 AM - 1:40 PM		Lunch and Poster Sessions	Maple Lawn Ballroom
8:30 AM - 11:50 AM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
		Development of Digestive and Absorptive Capacity in the Neonate and Impact of Weaning on Intestinal Function Chair: Nicholas Gabler, Iowa State University, Co-chair: Nathan Horn, United Animal Health	
1:40 PM		Welcome Nicholas Gabler/Nathan Horn	
1:45 PM	229	**KEYNOTE: Use of organoids to study the role of the microbiota in the early life development of the pig intestine.** M. Beaumont*, GenPhySE, *Université de Toulouse, INRAE, ENVT, Castanet-Tolosan, France.*	
2:30 PM	230	**Maternal dietary live yeast supplementation alters jejunal mucosal proteomes of piglets during suckling and postweaning phases.** Yuechi Fu*[1], Theresa Casey[1], Timothy Johnson[1], Jun Xie[2], Olayiwola Adeola[1], and Kolapo Ajuwon[1], *[1]Department of Animal Sciences, Purdue University, West Lafayette, IN 47907, United States, [2]Department of Statistics, Purdue University, West Lafayette, IN 47907, United States.*	

Thursday, May 22

Time		Event	Location
1:40 PM - 5:00 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
2:45 PM	231	**Hypothalamic and ileal transcriptomic insights of poorly adapted freshly weaned pigs.** L. Fabà*, T. G. Hulshof, M. O Wellington, and H. M. J. Van Hees, *Trouw Nutrition R&D, Swine Research Centre, Boxmeer, The 8 Netherlands.*	
3:00 PM		Short Break	
3:30 PM	232	**KEYNOTE: Comparison of intestinal development of different pigs reveals PPARα is involved in regulating intestinal villus size and nutrient digestibility.** Q. Wang*[1], L. Yin[1], Z. Wang[1], J. Li[1], Q. Wang[1], J. Li[1], Y. Yin[2], and H. Yang[1,2], *[1]College of Life Sciences, Hunan Normal University, Changsha, Hunan 410081, China, [2]Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, 410125, China.*	
4:15 PM	233	**Multi-omics characterization of swine colostrum and association of bioactive compounds with piglet survival and growth.** F. Correa[1], G. Rocchetti[2], P. Trevisi[1], M. Errico[2], B. Polimeni[1], A. Serra[3], M. Mele[3], L. Lucini[2], A. Gallo[2], and D. Luise*[1], *[1]Department of Agricultural and Food Sciences (DISTAL), University of Bologna, Bologna, Italy, [2]Department for Sustainable Food Process, Universita `Cattolica del Sacro Cuore, Piacenza, Italy, [3]Department of Agricultural, Food and Agro-Environmental Sciences, University of Pisa, Pisa, Italy.*	
4:30 PM	234	**Investigating the Impact of Early-Life Gut Microbiota Perturbation on Porcine Physiology and Immune Function.** L. Comer, M. Z. Akram, H. Zhao, and N. Everaert*, *Nutrition and Animal Microbiota Ecosystems Lab, Department of Biosystems, KU Leuven, Heverlee, Belgium.*	
4:45 PM	235	**Sensory additive in creep feed modulates post-weaning immune development and metabolism in piglets.** Z.W. Ng'ang'a[1,2], N. Tous[1], J. Tarradas[1], R. Beltrán-Debón[2], J.J. Pastor[3], S. López-Vergé[3], G. Tedo[3], and D. Torrallardona*[1], *[1]IRTA, Animal Nutrition, Constantí, Catalonia, Spain, [2]Universitat Rovira i Virgili, Tarragona, Catalonia, Spain, [3]Lucta S.A., Cerdanyola del Vallès, Barcelona, Spain.*	
6:00 PM - 10:00 PM		*Ticketed Event:* "Wisconsin: Heartland to the World" Gala	Forum

Celebrate the agricultural heritage and innovations of North America at the "Wisconsin: Heartland to the World" Gala. Set in the elegant surroundings of the Grand Geneva Resort, this evening will highlight Wisconsin's iconic contributions to animal science and agriculture, alongside the rich traditions of North American farming. Indulge in a gourmet, farm-inspired menu that represent the heartland's bounty. With live entertainment, regional flavors, and a focus on the global impact of our work in animal nutrition and physiology, this gala promises a memorable evening of camaraderie, culture, and celebration.

Friday, May 23

Time		Event	Location
6:30 AM		Breakfast	On your own
8:30 AM - 12:05 PM		SYMPOSIA AND ORAL SESSIONS **Mucosal Immunity and Pathogenesis and the Role of the Digestive Tract in the Maintenance of Health** Chair: Kola Ajuwon, Purdue University, Co-chair: Andrew Van Kessel, University of Saskatchewan	Grand Ballroom
8:30 AM		Welcome Kola Ajuwon/Andrew Van Kessel	
8:35 AM	236	**KEYNOTE: The intestinal barrier. Too much of a good thing?** J.R. Turner*, *Laboratory of Mucosal Barrier Pathobiology, Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.*	
9:20 AM	237	**Evaluating the impact of F18 Enterotoxigenic E. coli ileum attachment on Notch and Wnt signaling during early disease in nursery pigs.** E. M. Due*[1], K. A. Miller[1], E. R. Burrough[1], E. T. Helm[2], and N. K. Gabler[1], *[1]Iowa State University, Ames, IA, USA, [2]Virginia Polytechnic Institute and State University, Blacksburg, VA, USA.*	
9:35 AM	238	**Enhancing intestinal health and antioxidant defense in weaned piglets treated with organic acids.** S. A. Flores[1], P. H. Pereira[1], I. C. Tavares[1], R. F Chaves[2], S. R. Silva Júnior[3], K. V. Z. Augusto[4], G. Heim[5], C. A. P. Garbossa[6], and V. S. Cantarelli*[1], *[1]Faculty of Animal Science and Veterinary Medicine, Federal University of Lavras, Lavras, Minas Gerais, Brazil, [2]AnimalNutri Ciência e Tecnologia, Patos de Minas, Minas Gerais, Brazil, [3]University of Minnesota, Saint Paul, Minnesota, United States of America, [4]Trouw Nutrition, Campinas, São Paulo, Brazil, [5]Trouw Nutrition, Amersfoort, Netherlands, [6]School of Veterinary Medicine and Animal Sciences, University of São Paulo, Pirassununga, São Paulo, Brazil.*	
9:50 AM	239	**Salmonella-infected myeloid cells express butyrate receptors in the lower porcine intestinal tract.** S.R. Becker*[1] and C.L. Loving[2], *[1]Immunobiology Graduate Program, Iowa State University, Ames, IA, United States, [2]USDA-ARS-National Animal Disease Center, Ames, IA, United States*	
10:05 AM		Short Break	
10:35 AM	240	**KEYNOTE: Interrogating porcine intestinal immune status to enhance disease resilience**. C.L. Loving*[1], J.E. Wiarda[1], S. R. Becker[2], and K.A. Byrne[1], *[1]USDA-ARS National Animal Disease Center, Ames, IA, United States, [2]Immunobiology Graduate Program, Iowa State University, Ames, IA, United States.*	
11:20 AM	241	**Intestinal plasma cells secreting IgA regulate Bacteroides uniformis commensalism and are dysregulated in weaned reaction.** W.J. Tang* and H.F. Wang, *College of Animal Science, Zhejiang University, Hangzhou, Zhejiang, China.*	

Friday, May 23

Time		Event	Location
8:30 AM - 12:05 PM		SYMPOSIA AND ORAL SESSIONS	Grand Ballroom
11:35 AM	242	**The influence of swine dysentery on concentration of short chain fatty acid, weight of intestinal tracts and intestinal morphology in growing pigs fed diets varying in soluble and insoluble fibers from co-products.** G.I. Lee*[1,2], K.E. Bach Knudsen[1], and M.S. Hedemann[1], *[1]Department of Animal and Veterinary Sciences, Aarhus University, Tjele, Denmark, [2]Department of Agricultural Science, Korea National Open University, Seoul, Republic of Korea.*	
11:50 AM	243	**The therapeutic effects of oat beta-glucans in an experimental porcine model of Crohn's disease.** Dominika Szkopek*[1], Lukasz Kopiasz[2], Jaroslaw Wolinski[1], Kinga Majchrzak Kuligowska[3], Kamil Zaworski[1], Katarzyna Dziendzikowska[2], Katarzyna Sikorska[4], Joanna Harasym[5,6], and Joanna Gromadzka-Ostrowska[2], *[1]Laboratory of Large Animal Models, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Instytucka Str. 3, Jablonna, Poland, [2]Department of Dietetics, Institute of Human Nutrition Sciences, Warsaw University of Life Sciences, Nowoursynowska Str. 159C, 02 776 Warsaw, Poland, [3]Department of Physiological Sciences, Institute of Veterinary Medicine, Warsaw University of Life Sciences, Nowoursynowska Str. 159, 02-776 Warsaw, Poland, [4]Centre for Radiobiology and Biological Dosimetry, Institute of Nuclear Chemistry and Technology, Drodna Str. 16, 03-195 Warsaw, Poland, [5]Department of Biotechnology and Food Analysis, Wroclaw University of Economics and Business, Komandorska Str. 118/120, 53 345 Wroclaw, Poland, [6]Adaptive Food Systems Accelerator-Science Centre, Wroclaw University of Economics and Business, Komandorska Str. 118/120, 53-345 Wroclaw, Poland.*	
12:05 PM - 2:35 PM		Lunch & Closing	Grand Ballroom

Digestive Physiology of Pigs – North America: 16th International Symposium on Digestive Physiology of Pigs

DPP
Lake Geneva '25

Poster Presentations

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47 **Threonine, tryptophan and valine as functional amino acids for improving growth performance of piglets during nursery in a natural disease challenge model.**
M.V. Curtasu*[1,2], B. Yanibada[2], A.R. Alfonso Avila[3], A. Simongiovanni[4,5], T Chalvon-Demersay[5], and M.P. Létourneau-Montminy[2], *[1]Aarhus University Viborg, Department of Animal and Veterinary Sciences, Tjele, 8830, Denmark, [2]Laval University, Faculty of Agriculture and Food Sciences, Department of Animal Sciences, 2425 rue de l'Agriculture, Québec, G1V 0A6, Canada, [3]Deschambault Animal Science Research Centre (CRSAD), 120-A chemin du Roy, Deschambault, G0A 1S0, Québec, Canada, [4]METEX ANIMAL NUTRITION, Paris, France, [5]EUROLYSINE, Paris, France.*

48 **Supplementation of a consensus bacterial 6-phytase variant on reproductive performance of sows fed diets without added inorganic phosphate and reduced energy and nutrients over two cycles.**
Deepak E. Velayudhan*[1], Georg Dusel[2], Ester Vinyeta[1], Leon Marchal[1], and Yueming Dersjant Li[1], *[1]Danisco Animal Nutrition & Health (IFF), Oegstgeest, The Netherlands, [2]University of Applied Sciences Bingen, Bingen am Rhein, Germany.*

49 **Impact of inulin supplementation and animal density modulation on intestinal health parameters in weaned piglets.**
P. Siegien*[1], M. Habets[1], M. Gillis[1], J. Wavreille[2], J. Bincelle[1], and M. Schroyen[1], *[1]Gembloux Agro-Bio Tech, Precision Livestock and Nutrition Laboratory, TERRA Teaching and Research Centre, Gembloux Agro-Bio Tech, University of Liège, 5030 Gembloux, Belgium, [2]Walloon Agricultural Research Centre, Animal production unit, Walloon Agricultural Research Centre, 5030 Gembloux, Belgium.*

50 **Mycotoxin mitigation strategies against the emerging mycotoxins enniatins on suckling and nursery piglet performance.**
S. van Kuijk*[1], G. Wang[1], A. Middelkoop[2], R.R. Santos[2], and H.V.L.N. Swamy[1], *[1]Trouw Nutrition, Stationsstraat 77, 3811 MH Amersfoort, The Netherlands, [2]Schothorst Feed Research, Meerkoetenweg 26, Lelystad, The Netherlands.*

51 **The impact of protein fermentation on intestinal health in pigs.**
L Noorman[1], S de Vries*[2], and WJJ Gerrits[2], *[1]Department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, The Netherlands, [2]Animal Nutrition Group, Wageningen University & Research, Wageningen, The Netherlands.*

52 **In vitro gastric and intestinal protein digestion kinetics in high-protein sunflower meal or soybean meal-based diets without or with exogenous phytase.**
F Njeri*[1], M Anh Ton Nu[2], H Schulze[3], and E. G Kiarie[1], *[1]University of Guelph, Guelph, Ontario, Canada, [2]AB Neo, Videbaek, Denmark, [3]Livalta, Peterborough, UK.*

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53 **Effects of a combination of protease and multi-strain Bacillus spp. direct fed microbial supplementation on the growth performance of weaned pigs fed a high fiber diet.**
P. Aymerich*[1], D. E. Velayudhan[1], M. Rodríguez[2], L. Marchal[1], and E. Vinyeta[1], *[1]Danisco Animal Nutrition & Health (IFF), Oegstgeest, The Netherlands, [2]Animal Data Analytics, S.L., Segovia, Spain.*

54 **An integrated analysis to investigate the effects of dietary isoacids supplementation on digestibility, fermentation products, microbiome, and gut pH of ileal-cannulated pigs.**
A. F. Bolivar-Sierra*[1], A. P. Benavides-Infante[1], M. T. Socha[2], L. A. Amundson[2], L. Alves Rodrigues[2], B. St-Pierre[1], C. L. Levesque[1], and J. Y. Perez-Palencia[1], *[1]South Dakota State University, Brookings, SD, USA, [2]Zinpro Corporation, Eden Prairie, MN, USA.*

55 **Effects of organic acid-preserved grain on sow and progeny performance, nutrient digestibility, and gut microbiome dynamics from gestation to slaughter.**
Shane Maher*[1], Torres Sweeney[2], Stafford Vigors[1], and John V. O'Doherty[1], *[1]School of Agriculture and Food Science, University College Dublin, Ireland., [2]School of Veterinary Medicine, University College Dublin, Ireland.*

56 **Impact of Superdosed Microbial Phytase on the Fate of Phosphorus and Calcium in Gastrointestinal Tract of Growing Pigs.**
J. Labarre*[1,2], A Narcy[3], M. Jlali[4], D.B Bueno Dalto[5], T.D. Crenshaw[6], P. Schlegel[7], and M.P. Létourneau-Montminy[1], *[1]Laval University, Department of Animal Science, Quebec G1V 4G2, Canada, [2]Université Paris-Saclay, INRAE, AgroParisTech, UMR MoSAR, 91120, Palaiseau, France, [3]INRAE, Université de Tours, BOA, Nouzilly, 37380, France, [4]Adisseo France S.A.S, Department of R&I in Monogastric Animal Nutrition, European Laboratory of Innovation, Science and Expertise, 69190 Saint-Fons, France, [5]Agriculture and Agri-Food Canada, Sherbrooke R&D Centre, Quebec J1M 0C8, Canada, [6]University of Wisconsin, Department of Animal and Dairy Sciences, Madison 53706, Wisconsin, USA, [7]Agroscope, Swine Research Unit, Posieux, 1725, Switzerland.*

57 **Evaluation of a monoglyceride blend as a sustainable alternative to zinc oxide on nursery pig performance and intestinal health.**
A.L.B. Mezzina[1], E.M. Pereira[1], C.A.F. Melo[1], F.A. Coelho[1], A.C.R. Oliveira[1], C. Veloso[1], F.M. Santos[1], N.A.C. Gomes[1], M.S. Monteiro[1], A.P. Poor[2], B.D. Muro[2], R.K.G. Messias[3], and C.A.P. Garbossa*[1], *[1]University of São Paulo, Pirassununga, São Paulo, Brazil, [2]Poulpharm, Izegem, West Flanders, Belgium, [3]BASF, São Paulo, São Paulo, Brazil.*

58 **Regulation of growth and inflammatory responses to lipopolysaccharide challenge in weanling pigs fed dietary nucleotides.**
A.S. Lawal*, Y. Fu, M.N. Brackett, O. Adeola, and K.M. Ajuwon, *Purdue University, West Lafayette, IN 47907, USA.*

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59 **Impact of Dietary Calcium and Microbial Phytase On the Fate of Phosphorus and Calcium in the Gastrointestinal Tract of Growing Pigs.**
J. Labarre*[1,2], A. Narcy[3], M. Jlali[4], D.B. Dalot[5], T.D. Crenshaw[6], P. Schlegel[7], and M.P. Létourneau-Montminy[1], *[1]Laval University, Department of Animal Science, Quebec G1V 4G2, Canada, [2]Université Paris-Saclay, INRAE, AgroParisTech, UMR MoSAR, 91120, Palaiseau, France, [3]INRAE, Université de Tours, BOA, Nouzilly, 37380, France, [4]Adisseo France S.A.S, Department of R&I in Monogastric Animal Nutrition, European Laboratory of Innovation, Science and Expertise, 69190 Saint-Fons, France, [5]Agriculture and Agri-Food Canada, Sherbrooke R&D Centre, Quebec J1M 0C8, Canada, [6]University of Wisconsin, Department of Animal and Dairy Sciences, Madison 53706, USA, [7]Agroscope, Swine Research Unit, Posieux, 1725, Switzerland.*

60 **Impact of a free organic acid blend on growth performance and mortality of nursery pigs under commercial conditions when combined with pharmacological zinc oxide and free benzoic acid.**
A. Hintz*[1], R. Edler[2], E. Little[2], J. A. Acosta[1], B. Lawrence[1], M. Castillo[1], and D. Hancock[1], *[1]NOVUS International, Chesterfield. MO, USA, [2]Pipestone Research, Pipestone, MN, USA.*

61 **Life cycle assessment of low dietary crude protein strategies to improve pig nitrogen efficiency in different geographical contexts.**
L Cappelaere*[1], M-P Létourneau-Montminy[1], and F Garcia-Launay[2], *[1]Département des sciences animales, Université Laval, Quebec, Quebec, Canada, [2]PEGASE, INRAE, Institut Agro, Saint-Gilles, France.*

62 **Farming conditions and dietary interventions can affect the health and performance of pigs from weaning to growing via modulation of the microbial profile and its metabolism.**
D. Luise*[1], G. Palladino[2], F. Correa[1], F. Palumbo[1], M. V. Graziosi[1], E. Perez Calvo[3], G. Litta[3], D. Scicchitano[2], G. Babbi[2], A. Castagnetti[4], S. Rampelli[2], M. Candela[2], P. L. Martelli[2], and P. Trevisi[1], *[1]Department of Agro-Food Sciences and Technologies, University of Bologna, 40127 Bologna, Italy, [2]Department of Pharmacy and Biotechnology, University of Bologna, 40126 Bologna, Italy, [3]dsm-firmenich, Animal Nutrition and Health, 4303 Kaiseraugst, Switzerland, [4]Wellmicro, 40138 Bologna, Italy.*

63 **A water-based organic acid blend improves growth performance, pig quality at nursery exit, and mortality under commercial conditions.**
A Hintz*[1], R Edler[2], E Little[2], J Acosta[1], B Lawrence[1], M Castillo[1], and D Hancock[1], *[1]NOVUS International, Chesterfield. MO, USA, [2]Pipestone Research, Pipestone, MN, USA.*

64 **Effects of supplemented guanidinoacetic acid on animal-related indicators of sows and their offspring.**
S. J. Esfarjani N.*[1,2], P. Loibl[3], J. Steinhoff-Wagner[1], and G. Dusel[2], *[1]Technical University of Munich, Freising-Weihenstephan, Germany, [2]University of Applied Sciences Bingen, Bingen am Rhein, Germany, [3]Alzchem Trostberg GmbH, Trostberg, Germany.*

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65 **Non-nutritive sweeteners induce unique metabolomic changes in weaned pigs compared to antibiotic supplementation.**
Kwangwook Kim*, *Michigan State University, East Lansing, Michigan, USA.*

66 **Monosaccharides degradation and in vitro fermentation dynamics of total dietary fiber from cereal-based feed ingredients for growing pigs.**
Y. W. Xu*, M. Y. Huang, Y. Cao, J. B. Zhao, D. D. Han, and J. J. Wang, *College of Animal Science and Technology, China Agricultural University, Beijing, China.*

67 **Efficacy of combined feed additive on phosphorus digestibility and retention in rapeseed cake and rapeseed meal when fed to growing pigs.**
I. K. Matthiesen*[1,2], J. V. Nørgaard[2], L. H. B. Hansen[3], T. Hinrichsen[4], B. Fisker[4], and M. E. van der Heide[2], *[1]Danish Agro, Karise, Denmark, [2]Aarhus University, Tjele, Denmark, [3]Novonesis, Kongens Lyngby, Denmark, [4]DSM-Firmenich, Broendby, Denmark.*

68 **Effects of Three Probiotic Preparations on Growth Performance, Oxidative Stress, and Gut Microbiota of Duroc-Landrace-Yorkshire Ternary Hybrid Growing Pigs.**
T Kiros*[1], H Zhang[2], S XU[2], X Shen[3], and Z YU[3], *[1]Phileo by Lesaffre-North America, Milwaukee, WI, USA, [2]Phileo by Lesaffre-China, Shanghai, China, [3]Nanjing Agricultural University, Nanjing, China.*

69 **Feeding live black soldier fly larvae increases the voluntary feed intake of suckling piglets.**
N.S. Stöhr*[1,2], L Schneider[1], J Stracke[2], R Jha[3], and G Dusel[1], *[1]University of Applied Sciences Bingen, Bingen am Rhein, RLP, Germany, [2]University of Bonn, Bonn, NRW, Germany, [3]University of Hawaii, Manoa, HI, USA.*

70 **Impact of a feed additive containing a Bacillus-based probiotic, microbial phytase and carbohydrase on protein and amino acid digestibility in rapeseed cake and rapeseed meal for growing-finishing pigs.**
I. K. Matthiesen*[1,2], J. V. Nørgaard[2], T. Hinrichsen[3], B. Fisker[3], and M. E. van der Heide[2], *[1]Danish Agro, Karise, Denmark, [2]Aarhus University, Tjele, Denmark, [3]DSM-Firmenich, Broendby, Denmark.*

71 **Microencapsulated organic acids and essential oils enhance sow performance and piglet outcomes in field conditions.**
O.O Babatunde*[1], G Tactacan[1], L Lahaye[1], A Seemacharoensri[1], and P Assavacheep[2], *[1]Jefo Nutrition Inc., St-Hyacinthe, QC, Canada, [2]Chulalongkorn University, Bangkok, Thailand.*

72 **Effects of supplemental phytase on growth performance, blood inositol levels, and immune characteristics of weanling pigs.**
A Mallea*[1], SA Lee[2], and H Stein[1,2], *[1]Division of Nutritional Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, USA, [2]Department of Animal Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, USA.*

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73 **Improving creep-feed consumption with an intake promoter enhances performance in post-weaning piglets.**
A.J. Galindo[1,3], D. Solà-oriol*[1], F. J. Crespo[2], and M. Paniagua[3], *[1]Animal Nutrition and Welfare Service, Bellaterra, Catalunya, Spain, [2]HTBA (HealthTech Bio Actives, S.L.U.), Barcelona, Catalunya, Spain, [3]Quimidroga SA, Barcelona, Catalunya, Spain.*

74 **Effects of reducing calcium-phosphorus ratio and adding phytase and 25-Hydroxyvitamin D3 on growing-finishing pigs performance, digestibility and bone characteristics.**
F. M. Santos[1], C. C. S. Martins*[2], E. Perez-Clavo[3], M. F. Prata[2], C. P. Lozano[2], and C. A. P. Garbossa[1], *[1]University of São Paulo, Pirassununga, SP, Brazil, [2]DSM-Firmenich, São Paulo, SP, Brazil, [3]DSM-Firmenich, Kaiseraugst, Switzerland.*

75 **Different weaning ages and Zinc sources influence gut health in nursery pigs.**
P. Trevisi*[1], D. Luise[1], C. Negrini[1], F. Correa[1], M. Mazzoni[2], A. Romeo[3], Y. J. Manaig[3], and A. Monteiro[3], *[1]Department of Agricultural and Food Sciences, 40127 Bologna, Italy, [2]Department of Veterinary Medicine, University of Bologna, 40064 Ozzano dell'Emilia, Italy, [3]Animine, 74960 Annecy, France.*

76 **Impact of dietary tributyrin in late gestation and lactation diets on litter performance and immune status of prolific sows.**
John K. Htoo*[1] and Sarah Asmussen[2], *[1]Evonik Operations GmbH, Hanau Wolfgang, Germany, [2]Livestock feed tests Denmark ApS, Bylderup Bov, Denmark.*

77 **Effect of encapsulated amino acids on the growth and faecal metagenome of nursery pigs.**
F. Correa*[1], D. Luise[1], F. Palumbo[1], A. Simongiovanni[2], S. Lecuelle[2], A. Castagnetti[3], and P. Trevisi[1], *[1]Department of Agricultural and Food Sciences, University of Bologna, 40127 Bologna,Italy, [2]EUROLYSINE, 80080 Amiens, France, [3]Wellmicro srl, 40128 Bologna, Italy.*

78 **Impact of benzoic acid source either free or using fat matrix protection on weaned pig response to diarrhea under an E. coli F18 challenge, and on growth performance and feed efficiency in commercial conditions.**
J. A. Acosta*, B. Lawrence, A. Hintz, M. Castillo, and D. Hancock, *NOVUS International, Chesterfield. MO, USA.*

79 **Effect of medium-chain fatty acid supplementation levels on growth performance, fecal score, and gut permeability in weaning pigs.**
M Mejia*[1], J. Torres[1], C. H. Kwon[1], E. Safaie[1], S. Greer[1], E. Davis[2], M. Metz[2], and Y. D. Jang[1], *[1]University of Georgia, Athens, GA, USA, [2]Fortiva, Arden Hills, MN, USA.*

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80 **EU Circles project: Multi-kingdom microbiota analysis identified distinct microbial networks associated with the supplementation of a blend of chestnut and quebracho extracts, impacting the metabolism of nursery pigs reared under different farming conditions.**
P. Trevisi*[1], D. Luise[1], G. Palladino[2], D. Scicchitano[2], G. Babbi[2], A. Castagnetti[3], S. Rampelli[2], M. Candela[2], P. L. Martelli[2], and F Correa[1], *[1]Department of Agricultural and Food Sciences, University of Bologna, 40127 Bologna, Italy, [2]Department of Pharmacy and Biotechnology, University of Bologna, 40126 Bologna, Italy, [3]Wellmicro srl, 40138 Bologna, Italy.*

81 **Supplementation of a postbiotic product in gestating and lactating sows positively affect piglets' performances.**
B. Polimeni*, F. Correa, D. Luise, A. Zurru, F. Palumbo, M. Benatti, and P. Trevisi, *Department of Agricultural and Food Sciences, University of Bologna, Bologna, Italy.*

82 **Daily pattern of feeding behavior and SID lysine balance response to low protein diet in weaned pigs.**
Yao Zhu* and Jeroen Degroote, *Faculty of Bioscience Engineering, Laboratory for Animal Production and Animal Product Quality, Ghent University, 9000 Ghent, Belgium.*

83 **The impact of a novel whey protein concentrate (FXP™) on serum C-reactive protein and intestinal morphology of nursery pigs during a natural enteric health challenge.**
S. Rossman*[1], J. Simmons[2], A. Woodward[2], and N. Horn[2], *[1]Iowa State University, Ames, Iowa 50011, [2]United Animal Health, Sheridan, Indiana 46069.*

84 **Effect of pistachio shell powder on growth performance of weanling pigs.**
Y Kim*[1], SA Lee[2], and H Stein[1,2], *[1]Division of Nutritional Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, USA, [2]Department of Animal Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, USA.*

85 **Improved phosphorus digestion and utilization following dietary phosphorus depletion-repletion in growing pigs.**
G.C. McKibben*[1], S. Becker[2], P. Wilcock[2], G. Cordero[2], G.A. Gomes[2], and N.K. Gabler[1], *[1]Iowa State University, Ames, Iowa, United States of America, [2]AB Vista, Marlborough, Wiltshire, United Kingdom.*

86 **Supplementation with 2-Fucosyllactose improve growth performance, jejunal digestion and absorption of nutrients in lactating piglets by increasing the proliferative capacity of stem cells.**
W. Wang*[1,2], K. Yu[1,2], and W. Zhu[1,2], *[1]Laboratory of Gastrointestinal Microbiology, Jiangsu Key Laboratory of Gastrointestinal Nutrition and Animal Health, College of Animal Science and Technology, Nanjing Agricultural University, Nanjing 210095, China, [2]National Center for International Research on Animal Gut Nutrition, Nanjing Agricultural University, Nanjing 210095, China.*

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87 **Supplementation of a consensus bacterial 6-phytase variant increased bone Zn concentration and maintained performance of piglets fed diet without added trace minerals (Zn, Cu, Fe and Mn).**
Y Dersjant-Li*[1], G Dusel[2], K Schuh[2], D. E. Velayudhan[1], E. Vinyeta[1], and L Marchal[1], [1]*Danisco Animal Nutrition, IFF, Oegstgeest, The Netherlands,* [2]*University of Applied Sciences Bingen, Berlinstrasse 109, 55411 Bingen am Rhein, Germany.*

88 **The effects of supplementing a blend of polyphenols from chestnut and quebracho extracts with different levels of zinc oxide on the performance and diarrhea incidence in weaned piglets.**
V. Cantarelli[1], J.F. Durau[2], G.M. Stingelin[2], J.B. Lancini [3], O. Desrues*[3], N. Panciroli[3], and E. Santin[3], [1]*AnimalNutri Swine Experimental Center, Brazil,* [2]*Labitah Animal Health Ltda., Brazil,* [3]*Silvateam S.p.A., Italy.*

89 **Ammonia, methane, and odour in pigs: the role of nutrition in emission pathways.**
E.C. Teunissen*[1,2], P. Bikker[1], and A.J.M. Jansman[1], [1]*Wageningen Livestock Research, Wageningen University & Research, Wageningen, The Netherlands,* [2]*Animal Nutrition Group, Department of Animal Sciences, Wageningen University & Research, Wageningen, The Netherlands.*

90 **Effects of reducing dietary calcium with a fixed STTD P levels on performance, carcass traits and bone characteristics in growing-finishing pigs supplemented with phytase.**
C. C. S. Martins*[1], E. Perez-Calvo[2], C. P. Lozano[2], M. F. Prata[1], and C. A. Silva[3], [1]DSM-Firmenich, São Paulo, SP, Brazil, [2]*DSM-Firmenich, Kaiseraugst, Switzerland,* [3]*State University of Londrina, Londrina, PR, Brazil.*

91 **Effects of supplementing pure vitamin E vs lower levels of vitamin E in combination with a polyphenol compound on growth performance and oxidative stress in weanling pigs.**
L. Blavi*, L. Sobrevia, S. Laird, M. A. Ton Nu, S. Tibble, and A. Koppenol, *AB Neo, Fraga, Huesca, Spain.*

92 **Effect of increasing insoluble dietary fiber levels on growth performance and microbiota in weanling pigs.**
L. Blavi*, L. Sobrevia, S. Laird, M. A. Ton Nu, S. Tibble, and A. Koppenol, *AB Neo, Fraga, Huesca, Spain.*

93 **Self-supplementation of amino acids by piglets under different sanitary conditions in a choice-feeding setting.**
I. Minussi*[1], A. J. M. Jansman[2], J. E. Bolhuis[1], and W. J. J. Gerrits[1], [1]*Wageningen University & Research, Wageningen, The Netherlands,* [2]*Wageningen UR, Livestock Research, Wageningen, The Netherlands.*

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94 **Choice white grease equivalence of fat emulsifier in diets fed to growing pigs.**
SA Lee*[1], V Perez[2], and H Stein[1], *[1]Department of Animal Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, USA, [2]Kemin Ind., Des Moines, IA, USA.*

95 **Effects of a Novel Whey Protein Concentrate (FXPTM) on Adhesion of Enterotoxigenic Escherichia coli F4 and F18 in Intestinal Epithelial Cells.**
Hang Lu*[1], Julie Simmons[1], Karely Cantu[1], Nathan Horn[1], Adrienne Woodward[1], Joel Spencer[1], and Aaron Gaines[2], *[1]United Animal Health, Sheridan, IN, USA, [2]Ani-Tek, Social Circle, GA, USA.*

96 **Effects of Organic Acid Supplementation via Water on the Performance of Weaned Piglets.**
K.V.Z. Augusto*[1], G. Heim[2], B. Pellicci[3], and A.M. Silvestrim[1], *[1]Trouw Nutrition, Campinas, São Paulo, Brazil, [2]Trouw Nutrition, Ameersfort, The Netherlands, [3]CEAPA, São Manuel, São Paulo, Brazil.*

97 **Effect of dietary Acid-Binding Capacity (ABC) and Crude Protein (CP) level on post-weaning pig growth and health.**
J.P. Glynn*[1,2], G.E. Gardiner[1], and P.G. Lawlor[2], *[1]Department of Science, South East Technological University, Waterford, Ireland, [2]Pig Development Department, Animal & Grassland Research & Innovation Centre, Teagasc, Moorepark, Fermoy, Co.Cork, Ireland.*

98 **Wheat bran and Palmaria palmata as functional ingredients for post-weaning piglets.**
Élisabeth Chassé*, Mihai-Victor Curtasu, and Knud Erik Bach Knudsen, *Aarhus University, Viborg, Denmark.*

99 **Spray-dried plasma as a functional protein in weaned pig diets with or without mycotoxins.**
L. K. F. Müller[1], A. S. da Silva[1], D. Paiano[1], L. F. S. Rangel[2], J. D. Crenshaw*[2], and J. Polo[2], *[1]Universidade de Estado de Santa Catarina, Chapecó, Santa Catarina, Brasil, [2]APC LLC, Ankeny, Iowa, USA.*

100 **Effect of supplementing a Bacillus subtilis based probiotic on the concentration of free amino acids in serum of heat stressed growing pigs.**
A. Morales*[1], M. Cervantes[1], F. González[1], J.A. Valle[1], S.M. Mendoza[2], and J.K. Htoo[3], *[1]ICA Universidad Autónoma de Baja California, Mexicali, B.C., México, [2]Evonik Corporation, Kennesaw, GA, USA, [3]Evonik Operations GmbH, Hanau Wolfgang, Germany.*

101 **Efficacy of a Novel Whey Protein Concentrate (FXPTM) in Reducing Salmonella Adhesion and Invasion in Porcine Intestinal Epithelial Cells.**
N Horn*[1], A Woodward[1], J Spencer[1], A Bhunia[2], and A Gaines[3], *[1]United Animal Health, Inc., Sheridan, IN, USA, [2]Department of Food Science, Purdue University, West Lafayette, IN, USA, [3]Ani-Tek, Social Circle, GA, USA.*

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Functional Ingredients and Utilization of Feed Resources for Improved Digestive Function and Nutrient Efficiency

102 **Protective Effects of a Novel Whey Protein Concentrate (FXPTM) on Porcine Rotavirus-Induced Epithelial Damage.**
N Horn*[1], A Woodward[1], J Spencer[1], A Bhunia[2], and A Gaines[3], *[1]United Animal Health, Inc., Sheridan, IN, USA, [2]Department of Food Science, Purdue University, West Lafayette, IN, USA, [3]Ani-Tek, Social Circle, GA, USA.*

103 **Chlorhexidine nanoparticles as alternatives growth promoters show beneficial effects on digestibility of weaned piglets.**
A.C.R. Oliveira[1], A.L.B. Mezzina[1], N.A.C. Gomes[1], F.A. Coelho[1], C. Veloso[1], J.A.E. Martínez[1], F.S.S. Tavares[1], F.M. Santos[1], H. Silveira[2], and C.A.P. Garbossa*[1], *[1]University of São Paulo, Pirassununga, São Paulo, Brazil, [2]Brazilian Nano Feed, Santo André, São Paulo, Brazil.*

104 **Boosting weight uniformity in nursery pigs with Bacillus-based probiotics: A meta-analysis.**
L. H. B. Hansen*, L. Raff, and J. N. Jørgensen, *Novonesis, Animal Biosolutions, Kongens Lyngby, Denmark.*

105 **Supplementation with guanidinoacetic acid improves growth performance and protein deposition of heat-stressed growing pigs.**
L. D. Campos*[1], D. A. Marçal[1], L. Hauschild[1], B. Jayaraman[2], and J. K. Htoo[3], *[1]Department of Animal Science, São Paulo State University (UNESP), School of Agricultural and Veterinary Sciences, Jaboticabal, São Paulo, Brazil, [2]Evonik Methionine (SEA) Pte. Ltd., Singapore, [3]Evonik Operations GmbH, Hanau Wolfgang, Hesse, Germany.*

106 **Zinc and copper sources as alternatives to pharmacological zinc oxide: impact on growth performance, digestive function and intestinal health.**
Hadhemi Baccouri[1], Clara Negrini[2], Alessandra Rigo Monteiro*[3], Luca Lo Verso[1], Marie-Pierre Létourneau-Montminy[1], and Frédéric Guay[1], *[1]Laval University, Quebec, Canada, [2]University of Bologna, Bologna, Italy, [3]Animine Precision Minerals, Annecy, France.*

107 **The response of piglets on threonine supplementation to a low threonine diet, in function of dietary protein content.**
S. Millet* and S. Goethals, *ILVO (Flanders Research Institute for Agriculture, Fisheries and Food), Merelbeke-Melle, Belgium.*

108 **Increasing exogenous phytase increases phosphorus digestibility but decreases hindgut digestion in phosphorus-deficient diets fed to growing pigs.**
J. Y. Sung* and O. Adeola, *Purdue University, West Lafayette, IN, USA.*

109 **Effect of dietary benzoic acid on nutrient digestibility and growth performance of weaned pigs fed diets containing pulse grain.**
L.F. Wang, E. Beltranena, and R.T. Zijlstra*, *University of Alberta, Edmonton, AB, Canada.*

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Functional Ingredients and Utilization of Feed Resources for Improved Digestive Function and Nutrient Efficiency

110 **Evaluation of the effect of feeding medium-chain fatty acids on production performance of piglets: a meta-analysis.**
A Kihal*, M Puyalto, and JJ Mallo, *Norel Animal Nutrition, Madrid, Spain.*

111 **High dietary lysine to enhance growth following a dietary protein restriction after weaning.**
M. Girard[2], G. Bee[2], P. Silacci[2], R. Ruggeri[2], C. Larsen[1], and J.G. Madsen*[1], *[1]Department of Veterinary and Animal Sciences, University of Copenhagen, 1870 Frederiksberg, Denmark, [2]Research Group Swine Nutrition and Pork Quality, Agroscope, 1725 Posieux, Switzerland.*

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Functionality of the Intestinal Microbiome and Host Response

9 **Exploring the impact of alternative carbohydrate sources on the gut microbiota of pigs.**
D Schokker*[1], F Veldkamp[2], S van Hemert[1], N Stockhofe[1], JMJ Rebel[1,3], and IC de Jong[2], *[1]Wageningen Bioveterinary Research, Lelystad, Flevoland, The Netherlands, [2]Wageningen Livestock Research, Wageningen, Gelderland, The Netherlands, [3]Wageningen University, Wageningen, Gelderland, The Netherlands.*

10 **Impact of dietary fibers on bacterial community composition and volatile fatty acids production in pigs.**
O. Munezero*[1], E. M. Due[2], N. K. Gabler[2], T. E. Burkey[1], and S. C. Fernando[1], *[1]University of Nebraska-Lincoln, Lincoln, Nebraska, USA, [2]Iowa State University, Ames, Iowa, USA.*

11 **A balancing act: the crucial role of the microbiome in antimicrobial-free fed piglets.**
C. Turni* and V.H. Tran, *Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, St Lucia, Australia.*

12 **Feed intake modulates fecal microbial communities in weaning pigs.**
H Tran*, AJ Mercado, B Rimal, and B de Rodas, *Purina Animal Nutrition, Gray Summit, MO, USA.*

13 **Unlocking the power of novel precision biotic on microbiome-gut-brain axis modulation: Enhancing undocked tail pigs' resilience to social stress.**
W. Ren*[1], C. Gruber[2], I. Gradner[2], J. Howard[2], N. Reisinger[2], R. Argamasilla[3], and E. Perez Calvo[3], *[1]dsm-firmenich, Animal Nutrition and Health, R&D Center, Bazhou, China, [2]dsm firmenich, Animal Nutrition and Health, R&D Center, Tulln, Austria, [3]dsm-firmenich, Animal Nutrition and Health, Kaiseraugst, Switzerland.*

14 **Using a multi-strain Bacillus spp. probiotic to improve growth performance and modulate the gut microbiome in weaned pigs.**
E. Vinyeta*[1], D. E. Velayudhan[1], Q. Wang[2], S. Bialkowski[2], J. Walker[2], C. Shen[3], K. Rassmidatta[4], and Y. Ruangpanit[4], *[1]Danisco Animal Nutrition & Health (IFF), Oegstgeest, The Netherlands, [2]Health & Biosciences (IFF), Wilmington, Delaware, USA, [3]IFF Nutrition & Biosciences, Brabrand, Denmark, [4]Kasetsart University, Kamphaengsaen Campus, Nakhon Pathom, Thailand.*

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Functionality of the Intestinal Microbiome and Host Response

15 **A prairie province wide survey of Canadian swine fecal microbiomes reveals a high degree of variation between barns.**
M. B. Rogers*[1], B. McCuaig[2], E.L. McCarthy[2], S. L. Saundh[2], R. de Almeida Mesquita[2], T. Prisnee[3], M.O. Wellington[2], A. K. Agyekum[2], J. Harding[4], B. Willing[3], and M. Links[2], and A. Van Kessel[2], [1]Vaccine and Infectious Disease Organization, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [2]Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [3]Faculty of Agricultural, Life and Environmental Sciences, University of Alberta, Edmonton, Alberta, Canada, [4]Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

16 **Exploring the interplay between mucin O-glycans and the gut microbiome in pigs.**
L Richardson*, L Kautto, and N Packer, *ARC ITTC FAAB, School of Natural Sciences, Faculty of Science and Engineering, Macquarie University, North Ryde, Sydney, NSW 2109, Australia.*

17 **Effect of Saccharomyces cerevisiae boulardii CNCM I-1079 on bile acid signaling and fecal microbiota composition in post-weaning piglets.**
C. Achard[1], F. Bravo de Laguna[1], A. Gavaldá-Navarro[2], I. Alvarez-Acero[3], F. Villarroya[2], S. de Pascual-Teresa[3], E. Chevaux[1], D. Saornil[1], M. Castex[1], and I. R. Ipharraguerre*[4], *[1]Lallemand SAS, Blagnac, France, [2]Department of Biochemistry and Molecular Biomedicine, Faculty of Biology, Barcelona, Spain, [3]Institute of Science and Technology of Food and Nutrition (ICTAN-CSIC), Madrid, Spain, [4]Institute of Human Nutrition and Food Science, University of Kiel, Kiel, Germany.*

18 **Blood metabolic and fecal microbial profile of sows fed high and low fiber diets with hessian or straw enrichment prior to farrowing.**
E. A. Soumeh*[1], S. E. James[2], R. J. Moore[3], L. M. Staveley[4], K. J. Plush[4], and T. L. Nowland[2], *[1]School of Agriculture and Food Sustainability, The University of Queensland, Gatton Campus, Gatton, QLD, Australia, [2]Aquatic and Livestock Sciences, South Australian Research and Development Institute, Roseworthy, SA, Australia, [3]School of Science, RMIT University, Bundoora West Campus, Bundoora, VIC, Australia, [4]SunPork Group, Eagle Farm, QLD, Australia.*

19 **Yeast produced on milk permeate reduce post-weaning diarrhea in piglets.**
N Canibe*, K Jerez-Bogota, KE Bach Knudsen, and SK Jensen, *Aarhus University, Department of Animal and Veterinary Sciences, Blichers Allé 20, 8830 Tjele, Denmark.*

20 **Stimulation of bacterial growth from porcine strains by neuroendocrine catecholamines.**
J d'Amedor de Mollans, F Blanchet, and D Guillou*, *Mixscience, Bruz, Bretagne, France.*

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21 **Analysis of cecal microbial communities in weaned pigs fed high canola meal diet without or with acidifier and their association with glucosinolate metabolism.**
Emily Fowler*[1], Jinsu Hong[2], Crystal Levesque[1], and Benoit St-Pierre[1], *[1]Department of Animal Science, South Dakota State University, Brookings, SD, USA, [2]Department of Animal Science, University of Minnesota, Saint Paul, MN, USA.*

22 **Impact of in-feed fucosidase on pig gut microbiota and health.**
D. Georgaki*[1], O. Højberg[1], A.A Schönherz[1], C. Poulsen[2], and N. Canibe[1], *[1]Animal and Veterinary Sciences, Aarhus University, Denmark, [2]IFF International flavors and fragrances, Denmark.*

23 **Inclusion of spray dried porcine plasma as a zinc oxide alternative in creep feed and pre-starter diets of piglets impacts plasma metabolites and gut microbiota.**
Z.W. Ng'ang'a*[1,2], J. Tarradas[1], N. Tous[1], R. Beltrán-Debón[2], P. Javier[3], L. Laghi[4], F. Correa[5], D. Luise[5], P. Trevisi[5], and D. Torrallardona[1], *[1]IRTA, Animal Nutrition, Constantí, Catalonia, Spain, [2]MobioFood Research Group, Universitat Rovira i Virgili, Tarragona, Catalonia, Spain, [3]APC Europe, S.L., Granollers, Barcelona, Spain, [4]Department of Agricultural and Food Science, University of Bologna, Cesena, Italy, [5]Department of Agricultural and Food Science, University of Bologna, Bologna, Italy.*

24 **The effect of protein level and essential amino acid supplementation on the gut microbiota and its metabolic function in weaned piglets.**
M. H. Kroier[1], A. A. Schönherz[1], H. N. Lærke, N. M. Sloth[2], M. Loomans[3], J. J. Koehorst[3], M. Suarez-Diez[3], and N. Canibe*[1], *[1]Department of Animal and Veterinary Sciences, Aarhus University, Foulum, Blichers Allé 20, DK-8830 Tjele, Denmark, [2]SEGES innovation P/S, Agro Food Park 15, DK-8200 Aarhus N, Denmark, [3]Laboratory of Systems and Synthetic Biology, Wageningen University & Research, Stippeneng 4, 6708 WE Wageningen, The Netherlands.*

25 **Effects of Sucrosomial? Iron on gut microbiota in term and preterm piglets.**
X. Wang1, P. Lipinski[1], M. Ogluszka[2], R. Mazgaj[1], J. Wolinski*[3,4], D. Szkopek[3], K. Zaworski[4], Z. Kopec[1], B. Zelazowska[1], G. Tarantinoe[5], E. Brilli[5], and R.R. Starzynski[1], *[1]Laboratory of Iron Molecular Biology, Department of Molecular Biology, Institute of Genetics and Animal Biotechnology, Polish Academy of Sciences, 05-552 Jastrzebiec, Poland, [2]Department of Genomics and Biodiversity, Institute of Genetics and Animal Biotechnology, Polish Academy of Sciences, 05-552 Jastrzebiec, Poland, [3]Laboratory of Large Animal Models, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, 05 110 Jablonna, Poland, [4]Department of Animal Physiology, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, 05-110 Jablonna, Poland, [5]Scientific Department, Pharmanutra S.p.A, 56122 Pisa, Italy.*

26 **Effects of a novel source of Magnesium-protected Zinc in controlling in vitro Escherichia coli proliferation.**
Z. Garlatti*[1], V. Courtois[2], E. Bacou[1], N. Joguet[2], T. Chalvon-Demersay[2], J. Le Cour Grandmaison[1], and A. Juanchich[2], *[1]TIMAB Magnesium, Dinard, France, [2]Centre Mondial de l'Innovation Roullier, Saint-Malo, France.*

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Functionality of the Intestinal Microbiome and Host Response

27 **Exploring the prebiotic potential of non-digestible carbohydrates: insights from In Vitro fermentation pattern and microbial community.**
N Razmgah*, N Canibe, A. A Schönherz, É Chassé, M Skou Hedemann, and K. E Bach Knudsen, *Department of Animal and Veterinary Sciences, Aarhus University, 8830 Tjele, Denmark.*

28 **Functional ingredients to optimize gut functionality in post weaning piglets.**
S. K. Kar, E. Zaccaria, G. Binnendijk, P. van Wikselaar, and A. J. M. Jansman*, *Wageningen Livestock Research, De Elst 1, 6708 WD Wageningen, The Netherlands.*

29 **Influence of corn based fibrous co-products on colon mucosa gene expression and mucosal- associated microbiome of growing pigs.**
H. Miller*[1], C. Anderson[2], S.S. Schmitz-Esser[2], A. Ericsson[1], and A.L. Petry[1], *[1]University of Missouri, Columbia, MO, USA, [2]Iowa State University, Ames, IA, USA.*

30 **Review of the effect of Saccharomyces cerevisiae supplementation in sows on reproduction performance under commercial conditions.**
O. Merdy[1], H. Legendre[1], T. Kiros*[1], and F. Machuron[2], *[1]Phileo by Lesaffre, Marcq-en-Baroeul, France, [2]Lesaffre Institute of Science and Technology, Marcq-en-Baroeul, France.*

31 **The impact of DDGS withdrawal in diets with and without an ionophore on gene expression and pathway activation in the ileum in late finishing pigs.**
K.L. Saddoris-Clemons*, K.J. Bolek, and B.D Humphrey, *Phibro Animal Health, Teaneck, NJ, USA.*

32 **The impact of DDGS withdrawal in diets with and without an ionophore on microbial composition and function in the intestine of late finishing pigs.**
K.L. Saddoris-Clemons*, K.J. Bolek, and B.D Humphrey, *Phibro Animal Health, Teaneck, NJ, USA.*

33 **F18 *E. coli* impacts intestinal secretion but not barrier function in a weanling pig model.**
S.C. Pearce*[1], M.J. Nisley[2], E. Due[2], E.R. Burrough[3], and N.K. Gabler[2], *[1]USDA ARS, Ames, IA, USA, [2]Department of Animal Science, Iowa State University, Ames, IA, USA, [3]Vet Diagnostic & Production Animal Medicine, Iowa State University, Ames, IA, USA.*

34 **Impact of postbiotics, probiotics and plant extract feed additives on physiological responses and microbiome of gilts exposed to heat and farrowing stressors, and their offspring microbiome.**
H Hedrick[1], A KNOELL[2], T Safranski[1], A Petry[1], M Lucy[1], C González-Vega[3], M Sardi2, A Naqvi[4], M Le Gall*[3], and E Khafipour[3], *[1]Division of Animal Science University of Missouri, Columbia, MO, USA, [2]Core R&D Cargill Inc, Minneapolis, MN, USA, [3]Animal Nutrition and Health, Cargill Inc, Minneapolis, MN, USA, [4]Data Science and Engineering Cargill Inc, Minneapolis, MN, USA.*

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35 **Maternal supplementation with Bacillus altitudinis WIT588 improves porcine offspring growth performance and carcass weight and modulates ileal and faecal microbiota composition.**
G. E. Gardiner[1], J. T. Cullen*[1,2], D. Crespo-Piazuelo[2], R. Rattigan[1], P. Cormican[3], and P. G. Lawlor[2], *[1]Eco-Innovation Research Centre, Department of Science, South East Technological University, Waterford, X91 K0EK, Ireland, [2]Pig Development Department, Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, P61 C996, Ireland, [3]Animal and Bioscience Research Department, Animal and Grassland Research and Innovation Centre, Teagasc, Grange, Dunsany, Co. Meath, C15 PW93, Ireland.*

36 **Dietary Iron Source Modulates Gut Microbiome Composition and Reduces Post-Weaning Diarrhea in Nursery Pigs Under Different Sanitary Conditions.**
Sudario Roberto Silva Junior*[1], Maria Cristina Silva[2], Victor Hugo Silva Souza[4], Mamunur Rhaman[4], Lucas Rodrigues[3], Vinicius Cantarelli[2], Isabella Condotta[4], and Andres Gomez[1], *[1]University of Minnesota, Saint Paul, MN, USA, [2]Universidade Federal de Lavras, Lavras, MG, Brazil, [3]Zinpro Corpotation, Eden Praire, MN, USA, [4]University of Illinois Urbana-Champaign, Urbana, IL, USA.*

37 **In vitro comparison of monovalent copper oxide and traditional copper sources on bacterial control and microbial function.**
Y.J.Y. Manaig*[1], W. Vahjen[2], S. Durosoy[1], and A.R. Monteiro[1], *[1]Animine, Annecy, France, [2]Freie Universität Berlin, Berlin, Germany.*

38 **Effects of dietary nitrogen on the ileal and fecal microbiome in ileal-canulated pigs.**
Q. Wang*[1], Z. Rao[1], J. Remus[1], D. Lopez[2], and C. Paulk[2], *[1]International Flavors and Fragrances Inc., New York, New York, USA, [2]Kansas State University, Manhattan, Kansas, USA.*

39 **The effect of thermal treatment of field peas on intestinal microbiota and bacterial metabolites in weaned piglets.**
J. Schulze Holthausen*, W. Vahjen, and J. Zentek, *[1]Institute of Animal Nutrition, Department of Veterinary Medicine, Freie Universität Berlin, Berlin, Berlin, Germany.*

40 **Dietary fiber fermentability and weaning age shape gut microbiota composition and activity in piglets.**
L Grzeskowiak, F Ghazisaeedi, M Fulde, J Schulze Holthausen, B Martinez Vallespin, W Vahjen, and J Zentek*, *Freie Universität Berlin, Berlin, Germany.*

41 **Assessing the intestinal diarrhea through Lactobacillus, coliforms and E. coli population isolated from stool samples.**
Tran Thi Quynh Lan*, Do Thien Thai, and Tran Thi Dan, *Faculty of Animal Science and Veterinary Medicine, Nong Lam University- Ho Chi Minh City, Ho Chi Minh city, VietNam.*

42 **Effects of Combining Garlic with Apple Pomace or Blackcurrant on the Gastrointestinal Microbiome of Organic Pigs After Weaning.**
K Jerez-Bogota*[2,1], M Jensen[1], O Højberg[2], and N Canibe[2], *[1]Department of Food Science, Aarhus University, Aarhus, Denmark, [2]Department of Animal Science, Aarhus University, Tjele, Denmark.*

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43 **Novel pathway activation mapping to characterize the physiological effects of Salmonella infection in piglets.**
M. C. Walsh*, L. Payling, and L. F. Romero, *Biofractal, Loule, Portugal.*

44 **Dietary supplementation of multi-strain probiotics alters the fecal microbial profile and improves the carcass quality in commercial pigs.**
Jai-Wei Lee*[1], Ting-Yu Lee[2], Shi-Yong Liu[1], and Jin-Seng Lin[2], *[1]Department of Tropical Agriculture and International Cooperation, National Pingtung University of Science and Technology, Neipu, Pingtung, Taiwan, [2]SYNBIO TECH INC, Kaohsiung, Taiwan.*

45 **Effect of fermented cereal liquid feed supplemented with Pediococcus acidilactici on gut microbiota, mucosal immunity, and growth in suckling an post-weaning piglets.**
J. Xu*1, A.A Schönherz[1], K.S. Jerez-Bogota[1], S.J. Noel[1], K. Skovgaard[2], P.M.H. Heegaard[3], C. Lauridsen[1], H.N. Lærke[1], and N. Canibe[1], *[1]Department of Animal and Veterinary Sciences, Aarhus University, Tjele, Denmark, [2]Department of Biotechnology and Biomedicine, Technical University of Denmark, Lyngby, Denmark, [3]Department of Health Technology, Technical University of Denmark, Lyngby, Denmark.*

46 **Particle size of cereals shapes piglet gut microbiota during in vitro fermentation.**
V. H. Tran*[1], X. Liu[2], B. M. Flanagan[2], B. A. Williams[2], G. Feng[1], M. Navarro[1,2], E. Roura[1,2], M. J. Gidley[2], X. Wu[2], L. Omaleki[1], and C. Turni[1], *[1]Centre for Animal Science, Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, St Lucia, Queensland, Australia, [2]Centre for Nutrition and Food Sciences, Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, St Lucia, Queensland, Australia.*

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Advances in Understanding of Nutrient Digestion and Absorption

127 **Pancreatic enzyme activity and intestinal morphology in pigs with low and high feed conversion ratios fed three different levels of crude protein.**
J.M. van der Linden[1], M.E. van der Heide[2], M. Barszcz[3], A. Konopka[3], A. Tusnio4, E. Swiech[4], K Gawin[4], J.V. Nørgaard[2], and J.G. Madsen*[1], *[1]Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, 1870 Frederiksberg, Denmark, [2]Department of Animal and Veterinary Sciences, Faculty of Technical Sciences, Aarhus of University, 8830 Tjele, Denmark, [3]Laboratory of Analysis of Gastrointestinal Tract Protective Barrier, Department of Animal Nutrition, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Instytucka 3, 05-110 Jablonna, Poland, [4]Department of Animal Nutrition, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Instytucka 3, 05-110 Jablonna, Poland.*

128 **The role of alpha-amylase, in comparison to mixed pancreatic enzymes, for the maintenance of small intestinal wall structure in a model of exocrine pancreas insufficiency in pigs.**
Kamil Zaworski*[1], Dominika Szkopek[2], Jaroslaw Wolinski[2], Stefan Pierzynowski[3,4], Kateryna Pierzynowska[1,3], and Björn Weström[3], *[1]Department of Animal Physiology, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland, [2]Large Animal Models Laboratory, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland, [3]Department of Biology, Lund University, Lund, Sweden, [4]Department of Medical Biology, Lublin, Poland.*

129 **The postprandial absorption of protein as peptides (di-, tripeptides) and free amino acids in exocrine pancreas insufficient (EPI) pigs.**
Kamil Zaworski*[1], Kateryna Pierzynowska[1,2], Wieslaw Szczesny[3], Stefan Pierzynowski[2], and Piotr Wychowanski[4,5], *[1]Department of Animal Physiology, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland, [2]Department of Biology, Lund University, Lund, Sweden, [3]Institute of Information Technology, Warsaw University of Life Sciences, Warsaw, Poland, [4]Department of Head and Neck and Sensory Organs, Division of Oral Surgery and Implantology, Institute of Clinical Dentistry, Gemelli Foundation for the University Policlinic, Catholic University of the "Sacred Heart", Rome, Italy, [5]Departament of Interventional Dentistry, Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland.*

130 **Low Protein Diet Enhances Plasma Abundance of Pantothenate in Lactating Sows Under Heat Stress.**
Astrid Coba*[1], Xinle Tan[1], Maximiliano Muller[1], Elham Assadi Soumeh[2], Marta| Navarro[1], and Eugeni Roura[1], *[1]Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Brisbane, Queenslad, Australia, [2]School of Agriculture and Food Sustainability, The University of Queensland, Brisbane, Queenslad, Australia.*

131 **Lys or Thr deficiencies reduced growth rates associated with decreasing tail biting in piglets while tail-biters showed signs of disrupted amino acid metabolism in plasma.**
A. Abdallah*[1], A. Kumar[1], M. Navarro[1], M. Muller[1], X. Tan[1], A. Tilbrook[1,2], K. J. Plush[3], D. N. D'Souza[3], and E. Roura[1], *[1]Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, St Lucia, QLD 4072, Australia, [2]School of Veterinary Science, The University of Queensland, Gatton, QLD 4343, Australia, [3]SunPork Group, Eagle Farm, QLD 4009, Australia.*

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Advances in Understanding of Nutrient Digestion and Absorption

132 **Protein fermentation biomarkers do not vary between dietary protein sources differing in digestibility.**
R. Minderhoud*[1,2], E. Capuano[2], S. de Vries[3], A. Even[4,5], and G. Hooiveld[1], [1]Division of Human Nutrition and Health, Wageningen University & Research, Wageningen, The Netherlands, [2]Food Quality and Design Group, Wageningen University & Research, Wageningen, The Netherlands, [3]Animal Nutrition Group, Wageningen University & Research, Wageningen, The Netherlands, [4]OnePlanet Research Center, Wageningen, The Netherlands, [5]imec, Wageningen, The Netherlands.

133 **Peri-natal conditioning and early feed intake in piglets.**
E. Roura*, S. Taylor, and M. Navarro, *Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, St Lucia, Australia.*

134 **Identification of metabolic events responsive to oxidized soybean oil in the luminal metabolome of nursery pigs.**
Q. Mao1, J. Yuan[1], B. J. Kerr[2], and C. Chen*[1,3], *[1]Department of Food Science and Nutrition, University of Minnesota, St. Paul, MN, USA, [2]USDA-ARS National Laboratory for Agriculture and the Environment, Ames, IA, USA, [3]Department of Animal Science, University of Minnesota, St. Paul, MN, USA.*

135 **Nutrient and energy digestibilities of defatted corn germ in pigs of different ages.**
H Moreira Junior*[1], J. A. L Barbosa[1], J. L. Brito[1], C. E. M. Bertanha[1], S. S. S. Souza[1], A. Gorrosterrazú[1], A. B. S. Oliveira[2], M. L. P. Tse[3], and U. S. Ruiz[1], *[1]University of São Paulo (USP), Luiz de Queiroz College of Agriculture, Department of Animal Science, Piracicaba, SP, Brazil, 13418-900, [2]Ingredion, Mogi Guaçu, SP, Brazil, 13841-010, 3São Paulo State University (UNESP), School of Veterinary Medicine and Animal Science, Department of Animal Production, Botucatu, SP, Brazil, 18618-970.*

136 **Evaluation of Soluble Monosaccharides as a Proxy for Estimating Mucin Protein Concentration in Ileum Digesta.**
I. Kaikat[1], S. Tibble*[2], L. Blavi[2], M. A. Ton Nu[2], A. Koppenol[2], G. González-Ortiz[3], A. Acosta-Lagaxio[1], K. Englyst[4], and J. F. Pérez[1], *[1]Animal Nutrition and Welfare Service (SNiBA), Department of Animal and Food Science, Universitat Autònoma de Barcelona (UAB), 08193 Bellaterra, Spain, [2]AB Neo, PL Fraga, C/ Comunidad de Murcia, parc. LIE-1-03, 22520 Fraga (Huesca), Spain, [3]AB Vista, Marlborough SN8 4AN, United Kingdom, [4]Englyst Carbohydrates Ltd, 2 Venture Road, Southampton Science Park, Southampton SO16 7NP, UK.*

137 **Testing a new index of dietary nitrogen to study piglet performance and gut health.**
F.A. Eugenio, N. Vieco-Saiz, J. Consuegra*, T. Mahmood, and Y. Mercier, *Adisseo France S.A.S, Saint-Fons, France.*

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138 **Evaluating Silicon as an Alternative Indigestible Marker for Dry Matter Digestibility in Swine.**
I. Kaikat*[1], E. Llauradó-Calero[1], A. Cerisuelo[2], D. Torrallardona[3], and D. Solà Oriol[1], *[1]Animal Nutrition and Welfare Service (SNiBA), Department of Animal and Food Science, Universitat Autònoma de Barcelona (UAB), 08193 Bellaterra, Spain, [2]Centro de Investigación y Tecnología Animal (CITA), Instituto Valenciano de Investigaciones Agrarias (IVIA), 12400 Segorbe, Spain, [3]Animal Nutrition, Institute of Agrifood Research and Technology (IRTA), 43120 Constantí, Spain.*

139 **Unveiling the impact of dietary net energy reduction on nutrients partition patterns of growing pig: A modeling approach.**
W. Ren*[1], J. C. Zhang[1], Z. Z. Wang[1], S. K. Wang[1], A. J. Cowieson[2], H. X. Zhai[1], and E. Perez Calvo[2], *[1]dsm-firmenich, Animal Nutrition and Health, R&D Center, Bazhou, China, [2]dsm firmenich, Animal Nutrition and Health, Kaiseraugst, Switzerland, [3]dsm-firmenich, Animal Nutrition and Health, R&D Center, Tulln, Austria.*

140 **Kinetics of in vitro protein solubilization of diets including various protein sources is affected by grinding and pelleting.**
S Zhang[1,2], L de Jonge[1], S de Vries[1], V Lagos[3], F Molist[3], and W.J.J. Gerrits*[1], *[1]Animal Nutrition Group, Wageningen University & Research, ,Wageningen, The Netherlands, [2]State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, [3]Schothorst Feed Research, Lelystad, The Netherlands.*

141 **In vitro starch degradation kinetics of diets containing different starch-rich ingredients is affected by ingredient particle size and energy degree input pelleting.**
S Zhang[1,2], V Lagos[3], L de Jonge[1], S de Vries[1], W.J.J. Gerrits[1], and F Molist*[3], *[1]Animal Nutrition Group, Wageningen University & Research, ,Wageningen, The Netherlands, [2]State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, [3]Schothorst Feed Research, Lelystad, The Netherlands.*

142 **Determining NDF fermentability using an in vitro fermentation model to estimate in vivo apparent total tract fermentability in growing-finishing pigs.**
Qiong Hu*, Patricia Pluk, and Sandra Paredes, *Cargill Animal Nutrition and Health, Minneapolis, MN.*

143 **Investigating the impact of deoxynivalenol on digestive physiology and intestinal function in nursery pigs.**
T. A. Crome*[1], D. J. Bloxham[2], and N. K. Gabler[1], *[1]Iowa State University, Ames, Iowa, United States, [2]Adisseo, USA, Alpharetta, GA, United States.*

144 **Effects of a multi-carbohydrase supplementation on digestive and metabolic utilization of energy in growing pigs.**
Pierre Cozannet[1], Francis Amann Eugenio*[1], Maamer Jlali[1], Mark Giesemann[2], and Jean Noblet[3], *[1]Adisseo France SAS, ELISE - European Laboratory of Innovation Science & Expertise 20 rue Prosper Monnet, 69190, Saint Fons, France., [2]Adisseo USA Inc, 4501 North Point Pkwy, Alpharetta, GA 30022, United States, [3]ex INRAe, INRAE, Rennes, France.*

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145 **Kinetics of protein digestion of weanling piglet measured in vitro for 27 feedstuffs.**
D. Guillou*, C. Pineda Vadillo, and J. D'Amedor de Mollans, *Mixscience, Bruz, Bretagne, France.*

146 **Standardized ileal amino acid digestibility of faba been, dehulled faba bean, peas, rapeseed meal, sunflower meal and three batches of soybean meal fed to growing pigs.**
K. Blaabjerg*, S. K. Boldsen, P. Tybirk, N. M. Sloth, and U. P. Krogh, *Seges Innovation, Aarhus N, Denmark.*

147 **In vitro digested ingredients as substitute for ileal digesta in assessing protein fermentation potential in growing pigs.**
H. Zhang*[1,2], J. Cone[1], A.K. Kies[3], W.H. Hendriks[1], and N. van der Wielen[4], *[1]Animal Nutrition Group, Department of Animal Sciences, Wageningen University & Research, Wageningen, The Netherlands, [2]State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, [3]ArieKiesAdvies, Druten, The Netherlands, [4]Division of Human Nutrition and Health, Department of Agrotechnology and Food Sciences, Wageningen University & Research, Wageningen, The Netherlands.*

148 **Increasing doses of a novel biosynthetic bacterial 6-phytase supplementation improves nutrient digestibility and growth performance in nursery pigs.**
M Jlali* and S Ozbek, *Adisseo France S.A.S, Department of R&I in Monogastric Animal Nutrition, European Laboratory of Innovation, Science and Expertise, 69190 Saint-Fons, France.*

149 **Difference in jejunal transcriptomic profile between low and high feed conversion ratio grower-finisher gilts fed a diet with a standard crude protein level.**
M.E. van der Heide*[1], A.R. Williams[2], J.V. Nørgaard[1], and J.G. Madsen[2], *[1]Department of Animal and Veterinary Sciences, Aarhus University, Tjele, Denmark, [2]Department of Veterinary and Animal Sciences, University of Copenhagen, Frederiksberg, Denmark.*

150 **Novel ingestible sensor methodology for continuous measurements in the gastrointestinal tract.**
R. Minderhoud*[1,3], A. Even[4,5], T. Torfs[6], F. Leonardi[4,5], A. van Heusden[4,5], R. Sijabat[4,5], D. Firfilionis[4,5], E. Capuano[2], G. Hooiveld[1], and S. de Vries[3], *[1]Division of Human Nutrition and Health, Wageningen University & Research, Wageningen, The Netherlands, [2]Food Quality and Design Group, Wageningen University & Research, Wageningen, The Netherlands, [3]Animal Nutrition Group, Wageningen University & Research, Wageningen, The Netherlands, [4]OnePlanet Research Center, Wageningen, The Netherlands, [5]imec, Wageningen, The Netherlands, [6]imec, Leuven, Belgium.*

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151 **Comparison of the dual isotope tracer approach with oro-ileal balance method for determination of amino acid digestibility in cannulated pigs.**
N van der Wielen*[1,2], S de Vries[1], N Khodorova[3], J Calvez[3], I Minussi[1], W Gerrits[1], C Gaudichon[3], D Tome[3], and M Mensink[2], *[1]Animal Nutrition group. Wageningen University & Research. The Netherlands, [2]Division of Human Nutrition. Wageningen University and Research. The Netherlands., [3]UMR PNCA, AgroParisTech, INRA, Université Paris-Saclay, 75005 Paris, France*

152 **Standardized ileal amino acid digestibility increased with body weight of growing pigs fed faba beans, dehulled faba beans and peas, while unaffected by body weight when fed soybean meal, sunflower meal and rapeseed meal.**
U. P. Krogh*, S. K. Boldsen, P. Tybirk, N. M. Sloth, and K. Blaabjerg, *Seges Innovation, Aarhus N, Denmark.*

153 **Fat digestibility is reduced and may be overestimated in by-product based diets used for circular food production.**
P. Bikker*[1], R. Gerritsen[2], M. van Helvoort[3], P. Pluk[4], M. Schop[5], and E. Royer[1], *[1]Wageningen University & Research, Wageningen Livestock Research, Wageningen, the Netherlands, [2]ForFarmers, Lochem, the Netherlands, [3]De Heus Animal Nutrition, Ede, the Netherlands, [4]Cargill Animal Nutrition, Velddriel, the Netherlands, [5]Agrifirm, the Netherlands.*

154 **The chalk limestone provides more digestible Ca and enables phytase to release more P than marble limestone in pigs.**
H X Zhai[1], S K Wang*[1], J C Zhang[1], Z Z Wang[1], and J B Liu[2], *[1]dsm-firmenich, Animal Nutrition and Health, R&D Center, Bazhou, China, [2]School of Life Science and Engineering, Southwest University of Science and Technology, Mianyang, China.*

155 **Comparison of recommendations for standardized total tract digestible Ca and total Ca requirments in growing-finishing pigs fed diets with or without phytase.**
H X Zhai*[1], S K Wang[1], J C Zhang[1], Z Z Wang[1], and J B Liu[2], *[1]dsm-firmenich, Animal Nutrition and Health, R&D Center, Bazhou, China, [2]School of Life Science and Engineering, Southwest University of Science and Technology, Mianyang, China.*

156 **Effects of Bacillus-based probiotic application to sows on sow and suckling pig performance under heat stress.**
K.P. Kinsley*[1] and L. Hübertz Birch Hansen[2], *[1]Novonesis, West Allis, WI, United States, [2]Novonesis, Lyngby, Denmark.*

157 **Variable dietary calcium to phosphorous ratios and microbial phytase did not alter portal vein profiles of blood acid-base balance, blood gases, and electrolyte concentrations in pigs during a 10-hour post-absorption phase.**
A.P.U. García[1,2], T.D. Crenshaw[3], A. Narcy[4], P. Schlegel[5], M-P. Létourneau Montminy[2], and D.B. Dalto*[1], *[1]Agriculture and Agri-Food Canada, Sherbrooke R&D Centre, Sherbrooke, Quebec, Canada, [2]Université Laval, Department of Animal Science, Quebec, Quebec, Canada, [3]University of Wisconsin, Department of Animal and Dairy Sciences, Madison, Wisconsin, United States, [4]INRAE, Université de Tours, Nouzilly, Centre-Val de Loire, France, [5]Agroscope, Swine Research Unit, Posieux, Hauterive, Switzerland.*

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158 **Comparison of P digestibility among magnesium phosphate, monocalcium phosphate, and monosodium phosphate at different Mg levels fed to piglets.**
N. Aubertin*[1], B. Ribeiro[1], M. Poujol[1], and V. Lagos[2], *[1]Phosphea, Dinard, France, [2]Schothorst Feed Research, Lelystad, The Netherlands.*

159 **Phytase appeared to counterbalance the inimical effect on N balance of acidosis associated with displacing calcium carbonate with calcium chlorid in grower pigs.**
H Zhai*[1], E Perez-Calvo[2], S K Wang[1], J C Zhang[1], Z Z Wang1, and J B Liu[3], *[1]dsm-firmenich, Animal Nutrition and Health, R&D Center, Bazhou, China, [2]dsm-firmenich, Animal Nutrition and Health, Kaiseraugst, Switzerland, [3]School of Life Science and Engineering, Southwest University of Science and Technology, Mianyang, China.*

160 **Metabolic interactions in weaned piglets: effects of dietary zinc source and level.**
Jonathan Riedmüller[1], Wilfried Vahjen[1], Jamil Faccin[2], Alessandra Rigo Monteiro*[3], Joel DeRouchey[2], Jordan Gebhardt[2], Robert Goodband[2], Jason Woodwort[2], Mike Tokach[2], and Jürgen Zentek[2], *[1]Freie Universität Berlin, Berlin, Germany, [2]Kansas State University, Manhattan, USA, [3]Animine Precision Minerals, Annecy, France.*

161 **Extruded Corn and β-Mannanase addition reveal comparable growth rate, nutrient utilization, and reduced fecal score in growing pigs.**
K.J. Lee*[1,2], V. Sampath[1,2], and I.H. Kim[1,2], *[1]Department of Animal Biotechnology, Dankook University, Cheonan, South Korea, [2]Smart Animal Bio Institute, Cheonan, SouthKorea.*

162 **Enhanced bioavailability and stress resilience of a combined phosphorus and magnesium source in an in vitro pig model.**
A. Juanchich[1], E. Dupuis[1], B. Ribeiro[2], N. Aubertin[2], T. Chalvon-Demersay1, and E. Coudert*[1], *[1]Centre Mondial de l'Innovation Roullier, Saint-Malo, Bretagne, FRANCE, [2]PHOSPHEA, Dinard, Bretagne, FRANCE.*

163 **Empowering Hyper-Prolific Sows: Can Enhanced Pen Design with Simulated Udders Improve Piglet Growth in their Early Life?**
Christina Larsen*[1], Vivi Aaresturp Moustsen[2], Kimmie Kyed Lyderik1, and Johannes Guldmann Madsen[1], *[1]University of Copenhagen, Copenhagen, Denmark, [2]SEGES Innovation, Aarhus N, Denmark.*

164 **Tracing emptying of fibres differing in physicochemical properties using the Human Gastric Simulator: comparison with in vivo gastric retention times in pigs.**
Corentin Lannuzel[1], Sonja de Vries*[1], Walter J.J. Gerrits[1], and Gail M. Bornhorst[2,3], *[1]Wageningen University & Research, Animal Nutrition, Wageningen, the Netherlands, [2]Department of Biological and Agricultural Engineering, University of California, Davis, CA, USA, [3]Riddet Institute, Massey University, Palmerston North, New Zealand.*

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165 **Meta-analysis shows absence of a relation between digesta mean retention time and apparent ileal digestibility in growing pigs.**
S. Dorado Montenegro*[1,2], W.J.J. Gerrits[1], and S. de Vries[1], [1]*Wageningen University & Research, Wageningen, Gelderland, The Netherlands,* [2]*University of Costa Rica, Montes de Oca, San José, Costa Rica.*

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186 **Gut health in piglets in antibiotic-free diets.**
J.R. Pluske*, Faculty of Science, *The University of Melbourne, Parkville , Australia.*

187 **The nucleoside inosine exerts anti-inflammatory effects and increases cellular energy abundance in porcine intestinal epithelial cells.**
Abiola. S Lawal and Kolapo. M Ajuwon*, *Purdue University, West Lafayette, IN, USA.*

188 **The supplementation of glycerides of lauric acid in sow feed enhances piglet performances at weaning.**
A Mellouk[1], V Michel[1], N Vieco[1], O Lemâle[2], T Goossens[3], and J Consuegra*[1], [1]*European Laboratory of Innovation, Science & Expertise (ELISE). Adisseo France S.A.S. R&I in Monogastric Animal Nutrition, Saint Fons, France,* [2]*Adisseo NL B.V., Raamsdonksveer, The Netherlands,* [3]*Adisseo Belgium, Dendermonde, Belgium.*

189 **Influence of Reduced Dietary Crude Protein and Propionic Acid Preservation on Intestinal Health and Growth in Post-Weaned Pigs.**
K.R. Connolly*[1], T. Sweeney[2], and J.V. O'Doherty[1], [1]*School of Agriculture and Food Science, University College Dublin, Dublin, Ireland,* [2]*School of Veterinary Medicine, University College Dublin, Dublin, Ireland.*

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190 **Effects of intestinal carnitine transporter expression on carnitine status and fatty acid oxidation in suckling piglets.**
T Boston*, F Wang, M Knauer, J Odle, and X Lin, *North Carolina State University.*

191 **Exploring the Combined Benefits of Butyric Acid and Resistant Potato Starch for Gut Health and Metabolism.**
K.R. Connolly*[1], T. Sweeney[2], and J.V. O'Doherty[1], [1]*School of Agriculture and Food Science, University College Dublin, Dublin, Ireland,* [2]*School of Veterinary Medicine, University College Dublin, Dublin, Ireland.*

192 **Evaluating the relationship between weaning weight and early post-weaning feeding behavior.**
S Laird*, L Sobrevia, L Blavi, MA Ton Nu, A Koppenol, and S Tibble, *AB Neo, Fraga, Huesca, Spain.*

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193 **Thermomechanical and enzyme-facilitated processing of soybean meal enhanced in vitro crude protein digestion kinetics in weaned piglets.**
F Njeri*[1], M Anh Ton Nu[2], H Schulze[3], and E. G Kiarie[1], *[1]University of Guelph, Guelph, Ontario, Canada, [2]AB Neo, Videbaek, Denmark, [3]Livalta, Peterborough, UK.*

194 **The supplementation of glycerides of lauric acid in sows' feed enhances piglet performances at weaning.**
A Mellouk[1], V Michel[1], N Vieco[1], O Lemâle[3], T Goossens[2], and J Consuegra*[1], *[1]European Laboratory of Innovation, Science & Expertise (ELISE). Adisseo France S.A.S. R&I in Monogastric Animal Nutrition, Saint Fons, France, [2]Adisseo Belgium, Dendermonde, Belgium, [3]Adisseo NL B.V., Raamsdonksveer, The Netherlands.*

195 **Impact of sensory flavors and creep feed intake on post-weaning gut barrier function in piglets.**
Z.W. Ng'ang'a*[1,2], N. Tous1, J. Tarradas1, R. Beltrán-Debón[2], S. López-Vergé[3], J.J. Pastor[3], G. Tedo[3], and D. Torrallardona1, *[1]IRTA, Animal Nutrition, Constantí, Catalonia, Spain, [2]MobioFood Research Group, Universitat Rovira i Virgili, Tarragona, Catalonia, Spain, [3]Lucta S.A., Cerdanyola del Vallès, Barcelona, Spain.*

196 **Effects of indigestible dietary protein content on growth performance, immune status, and gut health of nursery pigs.**
T. J. Erinle*[1,2], M. J. K. de Oliveira[1], J. K. Htoo[3], S. M. Mendoza[4], and D. A. Columbus[1,2], *[1]Prairie Swine Centre, Inc., Saskatoon, Saskatchewan, Canada, [2]Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [3]Evonik Operations GmbH, Rodenbacher Chaussee 4, Hanau-Wolfgang, Germany, [4]Evonik Corporation, Kennesaw, Georgia, United States.*

197 **Impact of therapeutical zinc oxide dietary supplementation on growth performance, fecal score and gene expression of intestinal biomarkers in Postweaning Piglets.**
Alberto Torres-Pitarch*[1], Aitor Balfagón[1], Edgar G. Manzanilla[2,3], Juan M. Ortiz Sanjuan[2], Lorcan O'Neilll[2,3], David Solà-Oriol[4], Julia Suppi[4], Encarnación Jimenez-Moreno[1], Richard Faris[1], and Graziano Manotvani[1], *[1]Cargill Animal Nutrition and Health, Schiphol, Netherlands, [2]Pig Development Department, The Irish Food and Agriculture Authority, Teagasc, Cork, Ireland, [3]School of Veterinary Medicine, University College Dublin, Dublin, Ireland, [4]Animal \ Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra, Spain.*

198 **Bridging maternal and weaned diets with a continuity in feed plant volatiles has the potential to boost postweaning piglet growth.**
Marta Navarro*[1], Gemma Tedo[3], Sergi Lopez[3], Oriol Anglada[3], Viet Hai Tran[1], Sally Taylor[1], Max Muller[1], Amelia Dixon[5], Ryan Clarkson[4], Marion Magnan[4], Katie McDermott[4], Frank R. Dunshea[2,4], and Eugeni Roura[1], *[1]The University of Queensland, Brisbane, Qld, Australia, [2]The University of Melbourne, Melbourne, Victorial, Australia, [3]Lucta, Sant Cugat, Barcelona, Spain, [4]University of Leeds, Leeds, United Kingdom, [5]William Thompson, York, United Kingdom.*

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199 **Effects of indigestible dietary protein content on growth performance, immune status, and gut health of nursery pigs challenged with enterotoxigenic Escherichia coli F4 or Salmonella Typhimurium.**
T. J. Erinle*[1,2], M. J. K. de Oliveira[1], K. S. Ng[2], R. D. Kim[2], J. C. Panisson[1], J. K. Htoo[3], S. M. Mendoza[4], J. L. Thomassin[5], and D. A. Columbus[1,2], *[1]Prairie Swine Centre, Inc.,, Saskatoon, Saskatchewan, Canada, [2]Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [3]Evonik Operations GmbH, Rodenbacher Chaussee 4, Hanau-Wolfgang, Germany, [4]Evonik Corporation, Kennesaw, Georgia, United States, [5]Department of Biochemistry, Microbiology and Immunology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.*

200 **Comparing the effects of a high dose of acidifiers to those of a double encapsulation of bioactives on growth and gut microbiota of post-weaning piglets.**
S. Ladirat*[1], V. Bernad[2], M. Mallen[2], and S. Nadal[2], *[1]NUQO S.A.S, Annecy, France, [2]Test & Trials, Monzón, Spain.*

201 **The degree of intrauterine growth restriction influences intestinal gene expression and histomorphology in newborn piglets.**
P. Salgado-López*[1], C. Soldevila[2], J. Gasa[1], and D. Solà-Oriol[1], *[1]Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Science, Autonomous University of Barcelona, Bellaterra 08193, Spain, [2]Vall Companys Group, 25191 Lleida, Spain.*

202 **Born to battle: analyzing sex differences in early survival of intra-uterine growth restricted and normal birth weight piglets.**
M. Loyens*, L. Van Bockstal, S. Prims, S. Van Cruchten, and C. Van Ginneken, *Comparative Perinatal Development, Department of Veterinary Sciences, Faculty of Biomedical, Pharmaceutical and Veterinary Sciences, University of Antwerp, Wilrijk, Antwerpen, Belgium.*

203 **Coarsely ground oat hulls affect gastrointestinal tract development in weanling pigs.**
TG Hulshof, HMJ van Hees*, and MO Wellington, *Trouw Nutrition R&D, Boxmeer, The Netherlands.*

204 **The power of dairy: the effect of milk protein and different lactose levels in creep feed on the pre- and post-weaning performance of piglets.**
I.M. Van As*, P.T. van 't Veld, and L.C.M. van Enckevort, *Denkavit Nederland BV, Voorthuizen, The Netherlands.*

205 **Slow- compared to fast-growing piglets have reduced feed intake and poorer feed conversion in the first 14 days after weaning.**
P. Bogere*[1], M. Navarro1, J. Pluske[2], and E. Roura[1], *[1]Centre for Animal Science, Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Brisbane, Queensland, Australia, [2]Faculty of Science, The University of Melbourne, Melbourne, Victoria, Australia.*

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206 **The ratio between SID Thr and total dietary fiber in the weanling pig diet impacts intestinal morphology and mucin secretion.**
M.O. Wellington*, T.G. Hulshof, and H.M.J. van Hees, *Swine Research Centre, Trouw Nutrition R&D, Veerstraat 38, 5831 JN, Boxmeer, Netherlands.*

207 **Effects of piglet weaning weight on growth performance, hematological parameters, plasma antioxidant status and gut permeability in early nursery period.**
C. H. Kwon*, E. Safaie, J. Torres, and Y. D. Jang, *University of Georgia, Athens, GA, USA.*

208 **How does protein level in the maternal diet affect colonic metabolite profile and microbiota in the offspring?**
Y. Li1, K. Kroeske[2,3], M. Schroyen[3], S. Millet[2], C. Van Poucke[2], N. Everaert*[1], and M. Heyndrickx[2], *[1]KU Leuven, Heverlee, Belgium, [2]ILVO, Melle, Belgium, [3]Liège University, Gembloux, Belgium.*

209 **From preterm piglets to preterm newborns: Investigating the role of postconceptional and postnatal age on hepatic CYP3A and UGT enzyme activity.**
L. Buyssens*[1], A. Valenzuela[1], S. Prims[1], M. Ayuso[1], T. Thymann[2], C. Van Ginneken[1], and S. Van Cruchten[1], *[1]Comparative Perinatal Development, Department of Veterinary Sciences, Faculty of Pharmaceutical, Biomedical and Veterinary Sciences, University of Antwerp, Wilrijk, Belgium, [2]Comparative Pediatrics and Nutrition, Department of Veterinary and Animal Sciences, University of Copenhagen, Frederiksberg, Denmark.*

210 **Effects of tributyrin supplementation alone or combined with a Bacillus subtilis probiotic on performance and gut health of nursery pigs.**
B Jayaraman[1], L.V Kinh[2], N.V.T.H Loan[2], L Bauer[3], and J.K. Htoo*[3], *[1]Evonik Methionine (SEA) Pte. Ltd., Singapore, Singapore, Singapore, [2]Faculty of Veterinary and Animal Sciences, HUTECH University, Ho Chi Minh city, Vietnam, [3]Evonik Operations GmbH, Hanau-Wolfgang, Germany.*

211 **Evaluation of different feeding strategies for underweight weaning piglets: Effect of feed program, feed form and diet composition.**
L Blavi, L Sobrevia, S Laird, S Tibble, and A Koppenol*, *AB Neo, Fraga, Huesca, Spain.*

212 **Evaluation of the fecal inflammatory biomarkers' calprotectin and lipocalin evolution through the nursery period in piglets.**
J. Suppi*[1], E. Llauradó-Calero[1], C. Soldevila[2], A. Pelegrí-Pineda[3], Y. Saco[3], A. Bassols[3], and D. Solà-Oriol[1], *[1]Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, 08193 Bellaterra, Barcelona, Spain, [2]Vall Companys Group, 25191 Lleida, Spain, [3]Veterinary Clinical Biochemistry Service (SBCV), Department of Biochemistry and Molecular Biology, School of Veterinary, Universitat Autònoma de Barcelona, 08193 Bellaterra, Barcelona, Spain.*

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Functional Ingredients and Utilization of Feed Resources for Improved Digestive Function and Nutrient Efficiency

213 **Analysis of specific fecal biomarkers for intestinal inflammation in piglets based on their feeding behavior patterns during the peri-weaning period**.
J. Suppi*[1], P. Salgado-López[1], E. Llauradó-Calero[1], C. Soldevila[2], A. Pelegrí Pineda[3], Y. Saco[3], A. Bassols[3], and D. Solà-Oriol[1], *[1]Animal Nutrition and Welfare Service (SNIBA), Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, 08193 Bellaterra, Barcelona, Spain, [2]Vall Companys Group, 25191 Lleida, Spain, [3]Veterinary Clinical Biochemistry Service (SBCV), Department of Biochemistry and Molecular Biology, School of Veterinary, Universitat Autònoma de Barcelona, 08193 Bellaterra, Barcelona, Spain.*

166 **Acute enhanced liquid aspirin administration improves performance and intestinal function in nursery pigs.**
S.C. Pearce* and B.J. Kerr, *USDA-ARS, Ames, IA, USA.*

167 **Targeted dietary supplementation enhances growth in IUGR piglets: A study on probiotics, medium-chain triglycerides, and antioxidants.**
R Ruggeri[1], G. Bee*[1], and B. Eichenberger[2], *[1]Agroscope, Posieux, Switzerland, [2]UFA, Herzogenbuchsee, Switzerland.*

168 **Evaluation of the complex additive in weaning challenged with Escherichia coli.**
H Kim*, S Chang, D Song, K Jeon, J Yang, and J Cho, *Chungbuk national university, Cheong ju, Chungcheongbuk-do, Korea.*

169 **Supplementing sows during lactation with fiber or a stimbiotic modulates fecal volatile fatty acid profile and calprotectin.**
R. Self*[1], A. Waller[1], A.L. Petry[1], L. Merriman[2], P. Wilcock[2], S. Becker[2], R. Schmitt[3], H. Williams[3], J. Flohr[3], and R. Moreno[3], *[1]University of Missouri, Columbia, MO, USA, [2]AB Vista, Marlborough, Wiltshire, United Kingdom, [3]Seaboard Foods, Guymon, OK, USA.*

170 **Nutritional value of processed black soldier fly larvae for pigs.**
A.J.M. Jansman* and P.G. van Wikselaar, *Wageningen Livestock Research, Wageningen University and Research, P.O. Box 338, 6700 AH Wageningen The Netherlands.*

171 **Assessment of dietary Spirulina supplementation on growth, jejunal morphology, nutrient digestibility, and intestinal health-related genes in LPS challenged weanling pigs.**
E.O. Alagbe*[1], K.M. Ajuwon[1], H. Schulze[2], and O. Adeola[1], *[1]Department of Animal Sciences, Purdue University, West Lafayette, IN, USA, [2]Livalta, Peterborough, United Kingdom.*

172 **Hydrolyzed yeast a valuable component in ZnO replacement strategies for pigs post-weaning.**
H Schulze*[1] and S Kaczmarek[2], *[1]Livalta, Peterborough, UK, [2]University of Life Sciences, Poznan, Poland.*

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173 **Nutrient and energy digestibility of sorghum protein concentrate in growing pigs.**
J. A. L. Barbosa1, H. Moreira Júnior[1], A. Gorrosterrazú1, J. L. Brito[1], C. E. M. Bertanha[1], S. S. S. Sousa[1], M. L. P. Tse[2], and U. S. Ruiz*[1], *[1]University of São Paulo, Piracicaba, São Paulo, Brazil, [2]São Paulo State University, Botucatu, São Paulo, Brazil.*

174 **Meta-analysis of Exogenous Fibre Enzymes in Modulating the Apparent and True Total Tract Crude Fat Digestibility and the Fecal Endogenous Losses of Crude Fat in Weanling Pigs.**
Laurence Cheng*, Jiali Chen, Min Wang, and Ming Fan, *Department of Animal Biosciences, University of Guelph, Guelph, ON Canada N1G 2W1.*

175 **Evaluation of the Impact of Flavoring Compounds on the Performance of Sows and their Progenies.**
H Tran*[1], M Puyalto[2], L Pandolfini[2], J José Mallo[2], and B de Rodas[1], *[1]Purina Animal Nutrition, Gray Summit, MO, USA, [2]Norel Animal Nutrition, Pasadena, TX, USA.*

176 **Meta-analysis of the Digestive Utilization of Dietary Copper as affected by Exogenous Phytase Supplementation in Weanling Pigs.**
Mingli Xu, Jiali Chen, Laurence Cheng, Min Wang, and Ming Fan*, *Department of Animal Biosciences, University of Guelph, Guelph, ON N1G 2W1.*

177 **Technical impact of a synergistic blend of organic acids and phytogenic compounds fed in late finishing diets: Meta-analysis using global data.**
M. De Vos[1], S. Crowder*[2], R. Van Erp[3], D. Vergaelen[1], B. De Rodas[4], and R. D'Inca[1], *[1]Agrifirm, Drongen, Belgium, [2]Fortiva, Arden Hills, MN, USA, [3]Agrifirm, Apeldoorn, The Netherlands, [4]Purina Animal Nutrition, Arden Hills, MN, USA*

178 **Metabolomic profiling of plasma responses to vitamin D and C supplementation in a postweaning pig disease model.**
M. V. Curtasu*[1,2], D. Bueno Dalto[3], C. A. Gagnon[4], L. Cloutier5, F. Guay[2], and M. P. Létourneau-Montminy[2], *[1]Aarhus University, Faculty of Technical Sciences, Department of Animal and Veterinary Sciences Campus Viborg, Blichers Alle 20, 8830 Tjele, Denmark, [2]Laval University, Faculty of Agriculture and Food Sciences, Department of Animal Sciences, 2425 rue de l'Agriculture, Québec, G1V 0A6, Canada, [3]Sherbrooke Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, Québec J1M 0C8, Canada, [4]Swine and Poultry Infectious Diseases Research Center, Faculté de Médecine Vétérinaire, Montreal University, 3200 rue Sicotte, Saint-Hyacinthe, Québec, J2S 2M2, Canada, [5]Centre de développement du porc du Québec (CDPQ), 815 Rte Marie-Victorin, Lévis, Québec G7A 3S6, Canada.*

179 **Olive bioactives increase the resilience of immune challenged weaned piglets similarly to high doses of ZnO.**
S López-Vergé*[1], J J. Pastor[1], E Otto-Tice[2], and G Tedo[1], *[1]Innovation division, Lucta S.A., UAB Research Park, Campus UAB, Cerdanyola del Vallès, Barcelona, Spain, [2]Lucta US, Industrial Avenue Mahwah, New Jersey.*

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180 **The glucose and nitrogen release characteristics of multiple feed ingredients for pigs.**
M. Huang*, Y. Xu, J. Li, Y. Cao, W. Huo, Z. Zhang, J. Zhao, D. Han, D. Li, and J. Wang, *College of Animal Science and Technology, China Agricultural University, Beijing, China.*

181 **Effects of a sulfonating feed additive on the absorption and metabolism of deoxynivalenol in growing pigs.**
M. L. McGhee*[1], R. J. Faris[1], D. W. Giesting[1], P. Pillai[1], C. M. Crincoli[1], W. Mosher[2], and C. Chen[2], [1]*Cargill, Inc., Wayzata, Minnesota, USA,* [2]*University of Minnesota, St. Paul, Minnesota, USA.*

182 **Feeding a synergistic blend of organic acids and phytogenic compounds improves growth performance of finishing pigs.**
M. De Vos*, S. Tanghe, M. Intven, K. Lannoo, and R. D'Inca, *Agrifirm, Drongen, Belgium.*

183 **Effects of dietary supplementation with olive oil wastewater extract on growth performance and fecal microbiota of weaning pigs.**
G. Battacone*[1], F Correa[2], M. R. Mellino[1], D. Luise[2], G. Bee[3], and P. Trevisi[2], [1]Department of Agricultural Sciences, University of Sassari, 07100 Sassari, Italy, [2]Department of Agricultural and Food Sciences, University of Bologna, 40127, Bologna, Italy, [3]Agroscope, 1725 Posieux, Switzerland.

184 **The effect of a *Bacillus amyloquefaciens* multi-strain probiotics on growth performance in weaned pigs: a meta-analysis of 4 trials.**
Deepak E. Velayudhan*[1], Chong Shen[2], and Ester Vinyeta[1], [1]*Danisco Animal Nutrition & Health (IFF), Oegstgeest, The Netherlands,* [2]*IFF Nutrition & Biosciences, Brabrand, Denmark.*

185 **Comparison of alternative indicators to assess nutrient digestibility in pigs.**
R. G. Lizardo*, J. G. Vazquez, and J. L. N. Ramos, *IRTA, Constanti, Tarragona, Spain.*

214 **Gastrointestinal health and growth response to fiber supplementation and feeding regimens in grow-finish pigs.**
N. A. Erker*, T. K. Everding, D. B. Paczosa, L. Meier, S. C. Fernando, P. S. Miller, and T. E. Burkey, *University of Nebraska - Lincoln, Lincoln, NE, USA.*

215 **Oxidative stress and inflammation in pigs after challenge with *E. coli* lipopolysaccharide.**
P. A. Madsen[1], D. Vodolazs'ka1, M. S. Hedemann1, A. R. Williams[2], and C. Lauridsen*[1], [1]*Aarhus University, AU Viborg, Denmark,* [2]*University of Copenhagen, Copenhagen, Denmark.*

216 **Evaluating Jerusalem Artichoke tubers as a prebiotic fiber source in weaned pigs: effects on growth performance and intestinal health.**
N. A. Erker*, T. K. Everding, A. C. Neujahr, D. B. Paczosa, L. Meier, S. C. Fernando, P. S. Miller, and T. E. Burkey, *University of Nebraska - Lincoln, Lincoln, NE, USA.*

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217 **Efficacy of 2, 4-dinitrobenzene sulfonic acid in the maintenance of a model of colitis in piglets.**
Dominika Szkopek*[1], Jaroslaw Wolinski[1], Lukasz Kopiasz[2], Kamil Zaworski[1], Katarzyna Dziendzikowska[2], and Joanna Gromadzka-Ostrowska[2], *[1]Laboratory of Large Animal Models, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Instytucka3, Jablonna, Poland, [2]Department of Dietetics, Institute of Human Nutrition Sciences, Warsaw University of Life Sciences, Nowoursynowska Str. 159C, 02-776 Warsaw, Poland.*

218 **Time-course analysis of iron metabolism in the piglet model of iron deficiency and repletion after oral supplementation with Sucrosomial® Iron.**
R.R. Starzynski[1], M. Lenartowicz[2], M. Ogluszka[1], G. Tarantino[3], E. Brilli[3], R. Mazgaj[1], Z. Kopec[1], X. Wang[1], B. Zelazowska[1], J. Wolinski*[4,5], D. Szkopek[4], and P. Lipinski[1], *[1]Department of Molecular Biology, Institute of Genetics and Animal Biotechnology, Polish Academy of Sciences, Jastrzebiec, Poland, [2]Department of Genetics and Evolutionism, Institute of Zoology and Biomedical Research, Jagiellonian University, Kraków, Poland, [3]Scientific Department, Pharmanutra S.p.A., Pisa, Italy, [4]Laboratory of Large Animal Models, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland, [5]Department of Animal Physiology, The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland.*

219 **Polyherbal mixture for sows associated or not to conventional anticoccidial treatment in the farrowing house: carry-over effects on the nursery piglets.**
E. R. Oliveira*[1,6], A. P. P. Pavaneli[2,6], P. R. Gonçalves[3,6], F. Horta[2,4], C. Sol[4], and P. A. S. Rosa[5,6], *[1]Universidade Estadual de Londrina, Londrina, PR, Brazil, [2]Universidade de São Paulo, São Paulo, SP, Brazil, [3]Faculdade de Ciências Sociais e Agrárias de Itapeva, Itapeva, SP, Brazil, [4]Nuproxa, Ettoy, IA, Switzerland, [5]Centro Universitário do Cerrado Patrocínio, Patrocínio, MG, Brazil, [6]InsideSui, Patrocínio, MG, Brazil.*

220 **Feeding diets containing Β-mannanase modulates immune response in growing-finishing pigs.**
Y. H. de Paula*[1,2], G. M. Galli[3], C. J. Kippert[3], C. R. Oliveira[3], V. S. Cantarelli[1], L. Hauschild[4], M. Kipper[5], and I. Andretta[3], *[1]Federal University of Lavras, Lavras, Minas Gerais, Brazil, [2]University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [3]Federal University of Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil, [4]São Paulo State University, Jaboticabal, São Paulo, Brazil, 5Elanco Animal Health, São Paulo, São Paulo, Brazil.*

221 **Management of coccidial risk in sows: effects on the litters when natural polyherbal mixture is associated or not with conventional anticoccidial treatment in the farrowing house.**
E. R. Oliveira*[1,4], A. P. P. Pavaneli[2,6], R. S. Oliveira[3,6], F. Horta[2,4], C. Sol[4], and F. G. D. Silva[5,6], *[1]Universidade Estadual de Londrina, Londrina, PR, Brazil, [2]Universidade de São Paulo, São Paulo, SP, Brazil, [3]Centro Universitário do Cerrado Patrocínio, Patrocínio, MG, Brazil, [4]Nuproxa, Ettoy, IA, Switzerland, [5]Universidade Federal de Viçosa, Viçosa, MG, Brazil, [6]InsideSui, Patrocínio, MG, Brazil.*

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222 **Influence of soybean-derived dietary trypsin inhibitor proteins on intestinal attachment of F18 enterotoxigenic Escherichia coli in weanling pigs subjected to experimental challenge.**
MJ Nisley*[1], ER Burrough[1], HB Krishnan[2], JD Spencer[3], OF Mendoza[4], and NK Gabler[1], *[1]Iowa State University, Ames, IA, USA, [2]University of Missouri, Columbia, MO, USA, [3]United Animal Health, Sheridan, IN, USA, [4]The Maschhoffs, Carlyle, IL, USA.*

223 **Supporting health of newly weaned pigs: the role of a microencapsulated blend of botanicals during an F18+ Escherichia coli challenge.**
Andrea Bonetti*[1], Yesid Garavito-Duarte[2], Benedetta Tugnoli[1], Hyunjun Choi[2], Andrea Piva[1,3], Ester Grilli[3,4], and Sung Woo Kim[2], *[1]Vetagro S.p.A., Reggio Emilia, 42124, Italy, [2]Department of Animal Science, North Carolina State University, Raleigh, NC 27695, USA, [3]Department of Veterinary Medical Sciences, University of Bologna, Ozzano dell'Emilia, 40064, Italy, [4]Vetagro Inc., Chicago, IL 60603, USA.*

224 **Galacto-oligosaccharides can prevent enterotoxigenic Escherichia coli adhesion and intestinal injury in vitro.**
S. Tanghe*[1], B. Guantario[2], A. Finamore[2], C. Devirgiliis[2], S. Verstringe[1], M. De Vos[1], J. Vande Ginste[1], and M. Roselli[2], *[1]Agrifirm, Drongen, Belgium, [2]CREA Research Centre for Food and Nutrition, Rome, Italy.*

225 **Effects of fecal microbiota transplantation from domestic pigs on oxidative stress and immunity in weaned piglets challenged with lipopolysaccharides.**
M. A. K. Azad*[1,2], G. Gao[1], Q. Zhu[1,2], B. Qin[1,2], and X. Kong[1,2], *[1]Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, China, [2]College of Advanced Agricultural Sciences, University of Chinese Academy of Sciences, Beijing, China.*

226 **Lactobacillus postbiotics improved postweaning piglets' growth performance and diarrhea situation under E.coli challenge conditions.**
Yanhong Luo*[1,2], Stephane Duval[2], Maria Walsh[2], and Philippe Tacon[3], *[1]dsm firmenich Nutritional Products, Animal Nutrition Research Center, Bazhou, Hebei, China, [2]dsm firmenich Nutritional Products, Kaiseraugst, Aargau, Switzerland, [3]dsm-firmenich Houdan, Route de Bû, Houdan, France.*

227 **Maternal hydroxy-selenomethionine supplementation during pregnancy and lactation enhances offspring performance by improving intestinal morphology and redox status.**
J. Wang[1,2], H. Hua[1,2], Z. Peng[1,2], S.Q. Wang[1,2], M.A. Hachemi[3], D. Bloxham[3], D. Cardoso*[3], B. Mallmann[3], and L.H. Sun[1,2], *[1]Department of Animal Nutrition and Feed Science, HZAU, Wuhan, Hubei, China, [2]Hubei Hongshan Laboratory, Wuhan, Hubei, China, [3]Adisseo France S.A.S., Antony, France.*

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228 **Impact of a phytogenic feed additive on diarrhea incidence, intestinal histomorphology and fecal excretion of F4-fimbriated Enterotoxigenic Escherichia coli in postweaning piglets.**

Alberto Torres-Pitarch*[1], Anja Keiner[1], Maud Le Gall[1], Francesc Molist[2], Guan Xiaonan[2], Anouschka Middelkoop[2], Encarnacion Jimenez-Moreno[1], Aitor Balfagon[1], Graziano Mantovani[1], Miquel Nofrarias[3], and Tobias Aumiller[1], *[1]Cargill Animal Nutrition and Health, Schiphol, Netherlands, [2]Schothorst Feed Research, Lelystad, Netherlands, [3]IRTA. Animal Health Program. Centre de Recerca en Sanitat Animal (CReSA), Bellaterra, Spain.*