

# PROGRAM

15th International Symposium on Digestive Physiology of Pigs



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## Tuesday 17 May 2022

08.00 - 09.00 h Willem Burger Hal	<b>Registration</b>
09.00 - 12.00 h Willem Burger Zaal	<b>Satellite Symposium 1</b> <b>Metex Noovistago</b> <i>Dietary amino acids in feed intake and growth in pigs: the gut-hypothalamus and the liver-muscle axes</i>
12:00 - 13.00 h Jurriaanse Foyer	<b>Lunch</b>
13.00 - 16.00 h Willem Burger Zaal	<b>Satellite Symposium 3</b> <b>Lucta SA and Institut de Recerca i Tecnologia Agroalimentàries (IRTA)</b> <i>Stress and Gastrointestinal Function: a Challenge in Pig Production</i>
13.00 - 16.00 h Van Cappellen Zaal	<b>Satellite Symposium 4</b> <b>ANIMINE</b> <i>Zinc and copper metabolism: a holistic approach for swine nutrition and health</i>
16.15 - 17.15 h Willem Burger Zaal	<b>Discussion forum on digestibility markers</b> <i>The ban of titanium dioxide (E171) as feed additive – consequences and alternatives</i>
12.00 - 17.00 h Willem Burger Hal	<b>Registration</b>
17.30 - 19.30 h De Doelen Rotterdam	<b>Welcome Reception</b>



## Wednesday 18 May 2022

**08.30 - 08.45 h**

Willem Burger Zaal

### Opening address

**08.45 - 09.15 h**

Willem Burger Zaal

### Opening Keynote presentation: The role of foods of animal origin in the feeding of world population - Louise Fresco



Willem Burger Zaal

### SESSION 1: Optimizing resource utilization for future feeds

Session chairs: Jürgen Zentek, Freie Universität Berlin & Elijah Kiarie, University of Guelph

Abstract no.

**09.15 - 10.00 h**

### KEYNOTE PRESENTATION 1: Food for the planet - Imke de Boer

K1

**10.00 - 10.15 h**

### Protein concentrates from lucerne; effect of processing on ileal digestibility

O1

Lene Stødkilde<sup>1</sup>, Helle N. Lærke<sup>1</sup>, Morten Ambye-Jensen<sup>2</sup>, Søren Krogh Jensen<sup>1</sup>

<sup>1</sup>Department of Animal Science, Aarhus University, Tjele, Denmark, <sup>2</sup>Department of Chemical and Biological Engineering, Aarhus University, Aarhus, Denmark

**10.15 - 10.30 h**

### Cell walls properties of feeds and their impact on protein digestibility: an in vitro study

O2

Myriam Grundy<sup>1</sup>, Jaap van Milgen, David Renaudeau

<sup>1</sup>Inrae, Saint-Gilles, France

**10.30 - 11.00 h**

### Morning Break

**11.00 - 11.45 h**

### KEYNOTE PRESENTATION 2: Evaluation of agricultural resources for optimal upcycling in pigs - Pedro Urriola

K2

**11.45 - 12.00 h**

### Gastrointestinal attributes in nursery pigs fed diets supplemented with enzymatically treated yeast and pharmacological zinc oxide alone or in combination

O3

Brenda Christensen<sup>1</sup>, Cuilan Zhu<sup>1</sup>, Mohsen Mohammadighiesar<sup>1</sup>, Hagen Schulze<sup>2</sup>, Lee-Anne Huber<sup>1</sup>, Elijah Kiarie<sup>1</sup>

<sup>1</sup>University of Guelph, Cambridge, Canada, <sup>2</sup>Livalta, Peterborough, England

**12.00 - 12.15 h**

### Acidification or fermentation of barley grain using *Limosilactobacillus reuteri* or *Weissella cibaria* degrades inositol phosphate in vitro

O4

Charlotte M. E. Heyer<sup>1,2</sup>, Anna Dörper<sup>3</sup>, Vera Sommerfeld<sup>2</sup>, Michael G. Gänzle<sup>1</sup>, Ruurd T. Zijlstra<sup>1</sup>

<sup>1</sup>Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Canada, <sup>2</sup>Institute of Animal Science, University of Hohenheim, Stuttgart, Germany, <sup>3</sup>Animal Nutrition Group, Wageningen University & Research, Wageningen, The Netherlands

**12.15 - 12.30 h**

### Effects of dietary fibre sources for sows during gestation on the performance and plasma glucose kinetics

O5

Marlon Guimarães Barros Filho<sup>1</sup>, Bruno Silva<sup>2</sup>, Cábia Fernandes<sup>1</sup>, Jeferson Gomes<sup>1</sup>, João Vitor Bernardes<sup>1</sup>, Gustavo Sales<sup>1</sup>, Rennan Moreira<sup>3</sup>, Christine Potthast<sup>4</sup>

O6

<sup>1</sup>Universidade Federal de Lavras, Lavras, Brazil, <sup>2</sup>Universidade Federal de Minas Gerais, Montes Claros, Brazil, <sup>3</sup>Universidade Federal Rural do Semiárido, Mossoró, Brazil, <sup>4</sup>Agromed Austria GmbH, Kremsmünster, Austria

O7

**12.30 - 14.30 h***Jurriaanse Foyer &  
Feestzaal***Lunch break and poster session**

<i>Willem Burger Zaal</i>	<b>SESSION 2: Dynamics of digestion and absorption</b> <i>Session chair: Luciano Hauschild, Unesp &amp; Tina Skau Nielsen, Aarhus University</i>	Abstract no.
<b>14.30 - 15.15 h</b>	<b>KEYNOTE PRESENTATION 1: Carbohydrate Digestion: The importance of the proximal and distal stomach during digestion in growing pigs - Gail Bornhorst</b>	K3
<b>15.15 - 15.30 h</b>	<b>Net portal and faecal total and individual short-chain fatty acids as influenced by fermentation of cellulose and arabinoxylan rich diets</b> <i>Knud Erik Bach Knudsen<sup>1</sup>, Anne Katrine Bolvig, Mihai Victor Curtasu, Mette Skou Hedemann, Helle Nygaard Lærke <sup>1</sup>Aarhus University, Tjele, Denmark</i>	O8
<b>15.30 - 15.45 h</b>	<b>Low sanitary housing conditions reduce ileal N digestibility and enhance the production of protein-derived metabolites in piglets</b> <i>Lonneke Noorman<sup>1</sup>, Sonja de Vries<sup>2</sup>, Myrthe Gilbert<sup>2</sup>, Bart van der Hee<sup>3</sup>, Walter Gerrits<sup>2</sup> <sup>1</sup>Department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, The Netherlands, <sup>2</sup>Animal Nutrition Group, Department of Animal Sciences, Wageningen University and Research, The Netherlands, <sup>3</sup>Host-Microbe Interactomics, Department of Animal Sciences, Wageningen University and Research, The Netherlands</i>	O9
<b>15.45 - 16.15 h</b>	<b>Afternoon Break</b>	
<b>16.15 - 17.00 h</b>	<b>KEYNOTE PRESENTATION 2: Phytate degradation, P and Ca absorption and digestibility in pigs - Markus Rodehutscord</b>	K4
<b>17.00 - 17.15 h</b>	<b>Impact of fibre on transit time, viscosity, digestibility and post-prandial metabolism in growing pigs depending on meal size and frequency</b> <i>Élisabeth Chassé<sup>1</sup>, Marie-Pierre Létourneau-Montminy<sup>1</sup>, Frédéric Guay<sup>1</sup> <sup>1</sup>Université Laval, Rimouski, Canada</i>	O10
<b>17.15 - 17.30 h</b>	<b>Ceased intestinal macromolecular uptake and transfer by enteral exposure to lectin (phytohemagglutinin) in new-born piglets</b> <i>Ester Arévalo Sureda<sup>1,2</sup>, Katerina Pierzynowska<sup>2,3</sup>, Olena Prykhodko<sup>4</sup>, Jaroslaw Wolinski<sup>3</sup>, Stefan Pierzynowski<sup>2,5</sup>, Björn Weström<sup>2</sup> <sup>1</sup>Gembloux Agro-Bio Tech (GxABT), University of Liège, Gembloux, Belgium, <sup>2</sup>Department of Biology, Lund University, Lund, Sweden, <sup>3</sup>The Kielanowski Institute of Animal Nutrition and Physiology, Polish Academy of Sciences, Jabłonna, Poland, <sup>4</sup>Department of Food Technology, Engineering and Nutrition, Lund University, Lund, Sweden, <sup>5</sup>Department of Biology, Institute of Rural Medicine, Lublin, Poland</i>	O11
<b>17.30 - 17.45 h</b>	<b>Presentation PigWEB - Jaap van Milgen</b> <i>INRAe, France</i>	
<b>19.30 - 22.30 h</b>	<b>Informal dinner</b>	

## Thursday 19 May 2022

Willem Burger Zaal	SESSION 3: Models and Methodologies Session chairs: Chris van Ginneken, Universiteit Antwerpen & Martin Beaumont, Inrae	Abstract no.
08.30 - 09.15 h	<b>KEYNOTE PRESENTATION 1: Modelling of metagenomic data for understanding of the functional microbiome - Bas Dutilh</b>	K5
09.15 - 09.30 h	<b>Proteomic analysis of liver, pancreas and adipose tissue of insulin resistant pig following bariatric surgery</b>  Karolina Ferenc <sup>1</sup> , Naser Dib <sup>2</sup> , Jarosław Olszewski <sup>1</sup> , Zdzisław Gajewski <sup>1</sup> , Elżbieta Grzesiuk <sup>3</sup> , Romuald Zabielski <sup>1</sup>  <sup>1</sup> Center for Translational Medicine, Warsaw University of Life Sciences, Warsaw, Poland, <sup>2</sup> European Health Centre Otwock (ECZ Otwock), The Fryderyk Chopin Hospital, Otwock, Poland, <sup>3</sup> Institute of Biochemistry and Biophysics PAS, Warsaw, Poland	O12
09.30 - 09.45 h	<b>Gut microbiota-derived ursodeoxycholic acid alleviates low birth weight-induced colonic inflammation by enhancing M2 macrophage polarization</b>  Yu Pi <sup>1</sup> , Yujun Wu <sup>1</sup> , Dandan Han <sup>1</sup> , Xinhua Zou <sup>2</sup> , Dongjiao Ni <sup>2</sup> , Junjun Wang <sup>1</sup> <sup>1</sup> China Agricultural University, Beijing, China, <sup>2</sup> Boen Biotechnology Co. LTD, Ganzhou, China	O13
09.45 - 10.00 h	<b>Peroxisome proliferator-activated receptor gamma activation protects against deoxynivalenol-induced intestinal barrier dysfunction in jejunal IPEC-J2 cells</b>  Enkai Li <sup>1</sup> , Nathan Horn <sup>2</sup> , Kolapo Ajuwon <sup>1</sup> <sup>1</sup> Purdue University, West Lafayette, United States, <sup>2</sup> United Animal Health, Sheridan, United States	O14 O15
10.00 - 10.30 h	<b>Morning Break</b>	
10.30 - 11.15 h	<b>KEYNOTE PRESENTATION 2: Organoid models for pigs: new frontiers in the study of gastrointestinal physiology - Jerry Wells</b>	K6
11.15 - 11.30 h	<b>Characterization of an organoid model to study the intestinal epithelium in piglets</b>  Eloïse Mussard <sup>1</sup> , Corinne Lencina <sup>2</sup> , Lise Gallo <sup>2</sup> , Mickael Albin <sup>3</sup> , Laurent Cauquil <sup>2</sup> , Christelle Knudsen <sup>2</sup> , Caroline Achard <sup>4</sup> , Philippe Pinton <sup>3</sup> , Laura Soler-Vasco <sup>3</sup> , Sylvie Combes <sup>2</sup> , Martin Beaumont <sup>2</sup>  <sup>1</sup> GenPhySE, Université de Toulouse, INRAE, ENVT, Castanet-Tolosan, Lallemand Animal Nutrition, Blagnac, France, <sup>2</sup> GenPhySE, Université de Toulouse, INRAE, ENVT, Castanet-Tolosan, France, <sup>3</sup> Toxalim (Research Centre in Food Toxicology), Université de Toulouse, INRAE, ENVT, INP-Purpan, UPS, Toulouse, France, <sup>4</sup> Lallemand Animal Nutrition, Blagnac Cedex, France	O16

11.30 - 11.45 h	<b>Functional and molecular profiling of fasted piglets reveals decreased metabolic function and cell proliferation in the small intestine</b> <i>Anna Bekebrede<sup>1,2</sup>, Vincent de Boer<sup>1</sup>, Walter Gerrits<sup>2</sup>, Jaap Keijer<sup>1</sup></i> <sup>1</sup> <i>Human and Animal Physiology, Wageningen University and Research, Wageningen, The Netherlands, <sup>2</sup>Animal Nutrition Group, Wageningen University and Research, Wageningen, The Netherlands</i>	O17
11.45 - 12.00 h	<b>Sucrose inclusion in gestating and lactating diets of sows modifies the behaviour of their progeny in the post-weaning period</b> <i>Giselle Salas<sup>1</sup>, Íñigo Díaz<sup>1</sup>, Sergio Guzmán-Pino<sup>1</sup></i> <sup>1</sup> <i>Facultad de Ciencias Veterinarias y Pecuarias, Universidad de Chile, Santiago, Chile</i>	O18
12.00 - 14.00 h	<b>Jurriaanse Foyer &amp; Feestzaal</b> <b>Lunch break and poster session</b>	
Willem Burger Zaal	<b>SESSION 4: Functionality of the intestinal microbiome</b> <i>Session chairs: Paolo Trevisi, University of Bologna &amp; Jana Seifert, University of Hohenheim</i>	Abstract no.
14.00 - 14.45 h	<b>KEYNOTE PRESENTATION 1: Quantitative microbiome profiling in health and disease - Jeroen Raes</b>	K7
14.45 - 15.00 h	<b>Mother-offspring association: impact of sow's diet on Clostridioides difficile colonisation in suckling piglets and colostrum potential against toxins in IPEC-J2</b> <i>Łukasz Grześkowiak<sup>1</sup>, Eva-Maria Saliu<sup>1</sup>, Beatriz Martínez-Vallespín<sup>1</sup>, Anna Wessels<sup>1</sup>, Wilfried Vahjen<sup>1</sup>, Jürgen Zentek<sup>1</sup></i> <sup>1</sup> <i>Freie Universität Berlin</i>	O19
15.00 - 15.15 h	<b>Phytase supplementation and varying calcium level in pig feed: effects on ileal digesta and faecal microbiota</b> <i>Naomi Sarpong<sup>1,2</sup>, Nicolas klein<sup>1,2</sup>, Dieter Feuerstein<sup>3</sup>, Markus Rodehutscord<sup>1,2</sup>, Amélia Camarinha-Silva<sup>1,2</sup></i> <sup>1</sup> <i>Institute of Animal Science, University of Hohenheim, Stuttgart, Germany, <sup>2</sup>HoLMiR - Hohenheim Center for Livestock Microbiome Research, Stuttgart, Germany, <sup>3</sup>BASF SE, Lampertheim, Germany</i>	O20
15.15 - 15.30 h	<b>Effects of copper source on bile acid profiles and intestinal microbiota in finishing pigs</b> <i>Laia Blavi<sup>1</sup>, Jose Francisco Pérez<sup>1</sup>, Asal Forouzandeh<sup>1</sup>, Naiana E. Manzke<sup>2</sup>, Hans H. Stein<sup>3</sup>, I. R. Iparraguerre<sup>4</sup></i> <sup>1</sup> <i>Animal Nutrition and Welfare Service (SNIBA), Universitat Autònoma De Barcelona, Bellaterra, Spain, <sup>2</sup>Animine, Annecy, France, <sup>3</sup>Division of Nutritional Sciences, University of Illinois, Urbana, United States of America, <sup>4</sup>Institute of Human Nutrition and Food Science, University of Kiel, Kiel, Germany</i>	O21
15.30 - 16.00 h	<b>Afternoon Break</b>	

<b>16.00 - 16.45 h</b>	<b>KEYNOTE PRESENTATION 2: Interactive effects of the microbiome and nutrition on mucosal physiology and functions in the porcine intestinal tract - Barbara Metzler-Zebeli</b>	K8
<b>16.45 - 17.00 h</b>	<b>Early oral faecal filtrate transplantation to improve gut health in pigs before and after weaning – a pilot study</b>  Christina Larsen <sup>1</sup> , Amanda B. Andersen <sup>1</sup> , Helena Sato <sup>1</sup> , Dennis S. Nielsen <sup>2</sup> , Simone M. Offersen <sup>1</sup> , Anders Brunse <sup>1</sup> , Thomas Thymann <sup>1</sup>  <sup>1</sup> Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University Of Copenhagen, Frederiksberg, Denmark <sup>2</sup> Department of Food Science, Faculty of Science, Frederiksberg, Denmark	O22
<b>17.00 - 17.15 h</b>	<b>A blend of medium-chain fatty acids and organic acids accelerates microbial maturation in newly weaned piglets</b>  Natalie E. Diether <sup>1</sup> , Tetske G. Hulshof <sup>2</sup> , Ben P. Willing <sup>1</sup> , Theo A.T.G. van Kempen <sup>2,3</sup>  <sup>1</sup> University Of Alberta, Edmonton, Canada, <sup>2</sup> Trouw Nutrition, Boxmeer, The Netherlands, <sup>3</sup> North Carolina State University, Raleigh, United States	O23
<b>17.15 - 17.30 h</b>	<b>An exploratory analysis of the effect of Copper(I)oxide on the gut microbiota of weaned piglets</b>  Carmen Ambrosio <sup>1</sup> , Jurgen van Baal, Agathe Romeo, Hauke Smidt, Paul Bikker  <sup>1</sup> Dirección de Investigación y Desarrollo, Universidad Privada del Norte (UPN), Trujillo, Peru, <sup>2</sup> Animal Nutrition Group, Department of Animal Sciences, Wageningen University & Research, Wageningen, The Netherlands, <sup>3</sup> Animine, Annecy, France, <sup>4</sup> Laboratory of Microbiology, Wageningen University & Research, Wageningen, The Netherlands, <sup>5</sup> Wageningen Livestock Research, Wageningen University & Research, The Netherlands	O24
<b>19.00 - 23.00 h</b>	<b>Symposium Dinner</b>	

## Friday 20 May 2022

Willem Burger Zaal	SESSION 5: The role of the gut in whole-body functioning Session Chairs: Thomas Burkey, University of Nebraska-Lincoln & Vanessa Lagos, Schothorst Feed Research	Abstract no.
08.30 - 09.15 h	KEYNOTE PRESENTATION 1: Microbes, metabolites and the gut-lung axis - Ben Marsland	K9 
09.15 - 09.30 h	A blend of amino acids and polyphenols improves the pig capacity to cope with weaning and poor hygiene challenge Alicia Zem Fraga <sup>1,2</sup> , Paulo Henrique Reis Furtado Campos <sup>3</sup> , Luciano Hauschild <sup>2</sup> , Tristan Chalvon-Demersay <sup>4</sup> , Nathalie Le Floch <sup>1</sup> <sup>1</sup> PEGASE, INRAE, Institut Agro, Saint Gilles, France, <sup>2</sup> Department of Animal Science, School of Agricultural and Veterinarian Sciences, São Paulo State University, Jaboticabal, Brazil, <sup>3</sup> Department of Animal Science, Universidade Federal de Viçosa, Viçosa, Brazil, <sup>4</sup> Metex Noovistago, Paris, France	O25
09.30 - 09.45 h	Fecal nutrient digestibility and metabolite profiles in growing-finishing pigs kept under low and high sanitary conditions Soumya Karl <sup>1</sup> , Marinus te Pas <sup>1</sup> , Alfons Jansman <sup>1</sup> , Leo Kruijt <sup>1</sup> , Jacques Vervoort <sup>2</sup> , Dirkjan Schokker <sup>1</sup> , Rik Verheijen <sup>1</sup> , Gisabeth Binnendijk <sup>1</sup> , Carola van der Peet-Schwering <sup>1</sup> <sup>1</sup> Wageningen Livestock Research, Wageningen, The Netherlands, <sup>2</sup> Wageningen University, Wageningen, The Netherlands	O26 P80
09.45 - 10.00 h	Pharmaceutical zinc levels alter the fecal microbiota and the blood metabolic profile of weaning piglets Elham A. Soumeh <sup>1</sup> , Mihai Curtasu <sup>2</sup> , Tina S. Nielsen <sup>3</sup> , Sara G. Gorji <sup>4</sup> , Mette S. Hedemann <sup>3</sup> <sup>1</sup> University Of Queensland, St Lucia, Australia, <sup>2</sup> Laval University, Quebec, Canada, <sup>3</sup> Aarhus University, Tjøle, Denmark, <sup>4</sup> University of Queensland, Woolloongabba, Australia	O27 O28
10.00 - 10.30 h	Morning Break	
10.30 - 11.15 h	KEYNOTE PRESENTATION 2: Born too early or born too little, – how to adapt to postnatal life under these conditions? - Thomas Thymann	K10
11.15 - 11.30 h	Impacts of intestinal health on growth of nursery pigs: Meta-analysis based on intestinal health biomarkers and growth of 2,000 pigs Sung Woo Kim <sup>1</sup> , Marcos Elias Duarte <sup>1</sup> <sup>1</sup> North Carolina State University, Raleigh, United States	O29
11.30 - 11.45 h	Excess dietary L-Lys reduces feed intake associated with increased jejunal CCK release in young pigs Maximiliano Müller <sup>1</sup> , A. Tilbrook <sup>1</sup> , R. Van Barneveld <sup>2</sup> , Marta Navarro <sup>1</sup> , Eugeni Roura <sup>1</sup> <sup>1</sup> Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, St. Lucia, Brisbane, Australia, <sup>2</sup> SunPork Group, Eagle Farm, Brisbane, Australia	O30 O31 

11.45 - 12.00 h	<b>Plant-oriented microbiome modulates age-related alterations in gut-mucosal expression of innate immune and barrier function genes in suckling and weaned piglets</b>	O32
	<i>Julia Vötter<sup>1,2</sup>, F. Lerch<sup>1,2</sup>, H.E. Schwartz-Zimmermann<sup>2,3</sup>, D. Floros<sup>2,3</sup>, E.L. Sasso<sup>4</sup>, L. Schwarz<sup>5</sup>, R. Renzhammer<sup>5</sup>, M. Bünger<sup>5</sup>, F. Berthiller<sup>2,3</sup>, B.U. Metzler-Zebeli<sup>1,2</sup></i>	
	<sup>1</sup> University of Veterinary Medicine, Vienna, Austria, <sup>2</sup> Department for Farm Animals and Veterinary Public Health, Vienna, Austria, <sup>3</sup> University of Natural Resources and Life Sciences, Austria, <sup>4</sup> Institute of Veterinary Disease Control, Mödling, Austria, <sup>5</sup> University Clinic for Swine, Vienna, Austria	
12.00 - 12.30 h	<b>Closing session</b>	
12.30 - 14.00 h <i>Jurriaanse Foyer</i>	<b>Grab and go Lunch break</b>	

## POSTERS

All posters will be shown during the whole symposium in the poster area. For online posters please find the special instructions on the physical poster at the venue.

### SESSION 1: Optimizing resource utilization for future feeds

#### P1

**Supplementation of a low level of organic zinc in finishing pigs decreased lipid peroxidation in their meat**

Hajer Khelil-Arfa<sup>2</sup>, Antonio Natalello<sup>1</sup>, Alessandro Priolo<sup>1</sup>, Luisa Biondi<sup>1</sup>, Massimiliano Lanza<sup>1</sup>, Mieke Zoon<sup>2</sup>, Alexandra Blanchard<sup>2</sup>, Ruggeri Menci<sup>1</sup>, Giuseppe

<sup>1</sup>Department Di3A, Animal Production Science, University of Catania, Via Valdisavoia 5, 95123, Catania, Italy,

<sup>2</sup>Pancosma I ADM , Rolle, Switzerland



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#### P2

**Potential of a combination of bioactives, sweetener and organic acids to support piglets' performance in case of low zinc oxide**

Elisa Arnaud<sup>1</sup>, Catherine Ionescu<sup>1</sup>, Celia Gomes Da Silva<sup>1</sup>, Alexandra Blanchard<sup>1</sup>, In Ho Kim<sup>2</sup>

<sup>1</sup>PancosmalADM, Rolle, Switzerland, <sup>2</sup>Dankook University, Department of Animal Resources Science, Cheonan, South Korea

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#### P3

**Novel edible toys loaded with iron to prevent iron deficiency anaemia in weaned pigs**

Carolina Valenzuela<sup>1</sup>, Mauricio Anticoi<sup>1</sup>, Sergio Guzmán<sup>1</sup>, Jaime Figueroa<sup>2</sup>

<sup>1</sup>Universidad De Chile, Santiago, Chile, <sup>2</sup>Pontificie Universidad Católica de Chile, Santiago, Chile

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#### P4

**Predicting effects of process conditions on digestibility of corn DDGS for pigs using near-infrared spectroscopy (NIRS)**

Maarten Van Helvoort<sup>1</sup>, Jens-Erik Zerrahn<sup>2</sup>

<sup>1</sup>De Heus Animal Nutrition, Ede, The Netherlands, <sup>2</sup>Evonik Operations GmbH, Vejle, Denmark

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#### P5

**Improvements in digestibility and growth of growing-finishing pigs following supplementation with a combination of lysolecithins, monoglycerides and a synthetic emulsifier**

Alexandra Wealleans<sup>1</sup>, Bindhu Vasanthakumari<sup>1</sup>, Alexandra Desbruslais<sup>1</sup>

<sup>1</sup>Kemin Europa N.V., Herentals, Belgium



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#### P6

**The combination of benzoic acid and essential oils enhances growth performance of grower-finisher pigs under challenge conditions**

Wen Ren<sup>1,2</sup>, Jincheng Zhang<sup>1</sup>, Zhenzhen Wang<sup>1</sup>, Shikui Wang<sup>1</sup>, Jinlong Wu<sup>1</sup>

<sup>1</sup>DSM (China) Animal Nutrition Research Center, Bazhou, China, <sup>2</sup>Sichuan Agriculture University, Chengdu, China

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#### P7

**Effect of probiotics on intestinal functionality in weaned piglets compared to antibiotics**

Lena Raff<sup>1</sup>, Lea Hübertz Birch Hansen<sup>1</sup>

<sup>1</sup>Chr. Hansen A/S, Hørsholm, Denmark

**P8**

**Sows fed synergistic blend of short- and medium-chain organic acid has a positive carry-over effect on the post-weaning growth rate**

**De Xin Dang<sup>1</sup>, Vetrivel Sampath, Lane Pineda, Yanming Han, Raihanul Hoque, Serge Muhizi, Inho Kim<sup>1</sup>**

<sup>1</sup>Dankook University, Cheonan, South Korea

**P9**

**Spraying an anti-microbial agent in a swine farm and its slurry highly reduce the odor of substances**

**Raihanul Hoque<sup>1</sup>, Shanmugam Sureshkumar<sup>1</sup>, De Xin Dang<sup>1</sup>, Serge Muhizi<sup>1</sup>, Inho Kim<sup>1</sup>**

<sup>1</sup>Dankook University, Cheonan, South Korea

**P10**

**Inclusion of methanotrophic bacteria derived protein feed in weaner diets has no negative impacts on piglet performance and intestinal health**

**Mette Skou Hedemann<sup>1</sup>, Marie Rønn<sup>1</sup>, Ina Karlshøj Julegaard<sup>2</sup>, Mette Olaf Nielsen<sup>1</sup>**

<sup>1</sup>Aarhus University, Tjele, Denmark, <sup>2</sup>Danish Agro a.m.b.a., Karise, Denmark

**P11**

**Nitrogen balance of pigs fed dietary amino acid levels adjusted according to the circadian rhythm**

**Alini Mari Veira<sup>1,2</sup>, Luan Sousa Santos<sup>3</sup>, Cleslei Alisson Silva<sup>1</sup>, Paulo Henrique Reis Furtado Campos<sup>4</sup>, Danilo Marçal<sup>1</sup>, Luciano Hauschild<sup>1,2</sup>**

<sup>1</sup>São Paulo State University (Unesp), Jaboticabal, Brazil, <sup>2</sup>FAPESP (grant number: 2018/15559-7 and 2017/18734-1), São Paulo, Brazil, <sup>3</sup>Federal Rural University of Rio De Janeiro, Seropédica, Brazil, <sup>4</sup>Federal University of Viçosa, Viçosa, Brazil

**P12**

**Black soldier fly larvae meal can partially replace soybean meal in low-complexity nursery diets, without improving fecal scores of pigs**

**Brenda Christensen<sup>1</sup>, Cuilan Zhu<sup>1</sup>, Taylor McCullough<sup>2</sup>, Nicole Ricker<sup>2</sup>, Lee-Anne Huber<sup>1</sup>**

<sup>1</sup>Department of Animal Biosciences, University Of Guelph, Guelph, Canada, <sup>2</sup>Department of Pathobiology, University of Guelph, Guelph, Canada

**P13**

**Xylanase impact beyond performance: effects on gut structure, faecal volatile fatty acid content and ammonia emissions in weaned piglets**

**Waewaree Boontiam<sup>2</sup>, Veerle Van Hoeck<sup>1</sup>, Ingrid Somers<sup>1</sup>, Raquel Rodriguez<sup>1</sup>, Alexandra Wealleans<sup>1</sup>**

<sup>1</sup>Kemin Europa NV, Herentals, Belgium, <sup>2</sup>Khon Kaen University, , Thailand

**P14**

**Porcine in vitro digestion and fermentation characteristics of maize and wheat with or without fiber degrading enzymes**

**Knud Erik Bach Knudsen, Harriet Njeru<sup>1</sup>, Tofuko Woyengo**

<sup>1</sup>Aarhus University, Viborg, Denmark

**P15**

**In vitro digestion and solubilization of non-starch polysaccharides of cereal grains without or with a combination of xylanase and cellulase**

**Harriet Njeru<sup>1</sup>, Tofuko Woyengo, Knud Erik Bach Knudsen**

<sup>1</sup>Aarhus University, Viborg, Denmark

**P16****The supplementation of alpha-amylase to a corn soybean-meal based diet improved the growth performance of weaning piglets**

**Yanhong Luo<sup>1</sup>, Kostas Stamatopoulos<sup>2</sup>, Jinlong Wu<sup>1</sup>, Jingcheng Zhang<sup>1</sup>, Zhenzhen Wang<sup>1</sup>, Shikui Wang<sup>1</sup>**

<sup>1</sup>DSM China Animal Nutrition Research Center, Nanmeng Town, Bazhou City, China, <sup>2</sup>DSM Nutritional Products , Wurmisweg 576, Switzerland

**P17****Effects of dietary sodium diformate versus benzoic acid in sows on suckling piglets under poor sanitary conditions**

**Christian Lückstädt<sup>1</sup>, Stevan Petrovic<sup>1</sup>**

<sup>1</sup>ADDCON, Bitterfeld-Wolfen, Germany

**P18****Determination of macronutrient digestibility of yeast-based high protein products fed to growing pigs.**

**Ricardo Garavito Duarte<sup>1</sup>, Jorge Perez-Palencia<sup>1</sup>, Crystal Levesque<sup>1</sup>, Kevin Herrick<sup>2</sup>**

<sup>1</sup>South Dakota State University, Brookings, United States, <sup>2</sup>POET Nutrition, Sioux falls, United States

**P19****Relation between the hydration characteristics and fermentability of fibrous co-products and pellet manufacturing**

**Thomas Bastiaansen<sup>1</sup>, Sonja De Vries<sup>1</sup>, Bianca Martens<sup>2</sup>, Richard Benders<sup>3</sup>, Eric Vissers<sup>4</sup>, Joshua Dijksman<sup>3</sup>, Wouter Hendriks<sup>1</sup>, Menno Thomas<sup>1,5</sup>, Guido Bosch<sup>1</sup>**

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<sup>3</sup>Physical Chemistry and Soft Matter, Wageningen University, Wageningen, The Netherlands, <sup>4</sup>Feed Design Lab, Wanssum, The Netherlands, <sup>5</sup>Zetadec, Wageningen, The Netherlands

**P20****Oxidation patterns in freshly harvested and stored grains, with or without antioxidant treatment**

**Alexandra Desbruslais<sup>1</sup>, Alexandra Wealleans<sup>1</sup>, Karen Bierinckx<sup>1</sup>**

<sup>1</sup>Kemin Agrifoods Europa, Herentals, Belgium

**P21****Assessment of a novel biosynthetic bacterial 6-phytase in weaning piglets on growth efficiency, bone mineralization and phosphorus digestibility**

**Maamer Jlali<sup>1</sup>, Pierre Cozannet<sup>1</sup>, Baris Yavuz<sup>2</sup>, Aurélie Preynat<sup>1</sup>**

<sup>1</sup>Adisseo France S.A.S., Center Of Expertise In Research And Nutrition, Malicorne, France, <sup>2</sup>Adisseo France S.A.S., Antony, France

**P22****The effect of dietary *Laminaria digitata* and CAZyme supplementation on the digestive physiology of the post-weaning piglet: a multi-disciplinary approach**

**David Miguel Ribeiro<sup>1</sup>, Daniela Filipa Pires Carvalho<sup>1</sup>, Cátia Falcão Martins<sup>1,2</sup>, Céline Leclercq<sup>3</sup>, Mário Pinho<sup>2</sup>, Jenny Renaut<sup>3</sup>, André Martinho de Almeida<sup>1</sup>, João Pedro Bengala Freire<sup>1</sup>, José António Mestre Prates<sup>2</sup>**

<sup>1</sup>LEAF - Linking Landscape, Environment, Agriculture and Food, Lisbon, Portugal, <sup>2</sup>CIISA - Centro de Investigação Interdisciplinar em Sanidade Animal, Lisbon, Portugal, <sup>3</sup>LIST - Luxembourg Institute of Science and Technology Green Tech Platform, Environmental Research and Innovation Department, Belvaux, Luxembourg

**P23****Effect of feed additives affecting feed intake and digestibility on sow and litter performance during lactation period: palatant and carbohydrolase**

Hysla Milena Cunha Cunha Cardoso<sup>2</sup>, Iara Queiroz Ataíde<sup>2</sup>, Larissa Alves Cardoso<sup>2</sup>, Wagner Azis Garcia de Araújo<sup>5</sup>, Marcio Ceccantini<sup>1</sup>, Pierre Cozannet<sup>1</sup>, Simon Eskinazi<sup>4</sup>, David Vanni Jacob<sup>5</sup>, Bruno Alexander Nunes Silva<sup>2</sup>

<sup>1</sup>Adisseo, Commentry, France, <sup>2</sup>Institute of Agricultural Sciences, Universidade Federal de Minas Gerais, Montes Claros, Brazil, <sup>3</sup>Animal Science Unit, Federal Institute of Education, Science and Technology Northern Minas Gerais, Januária, Brazil,

<sup>4</sup>Adisseo Nutriad Ltd, Telford Court, Chester Gates, England, <sup>5</sup>Adisseo Brasil Nutrição Animal Ltda, Av. Maria Coelho Aguiar, Brazil

**P24****Diet co-fermentation with bacteria and enzymes improves growth performance in weaned piglets**

Ping Zheng<sup>2</sup>, Zhou Xia<sup>2</sup>, Pierre Cozannet<sup>1</sup>, Huailu Xin<sup>2</sup>

<sup>1</sup>Adisseo, Commentry, France, <sup>2</sup>Animal Nutrition Institute, Sichuan Agricultural University, Huimin Road, Wenjiang District, Chengdu, People's Republic of China

**P25****Increasing the dietary methionine-to-lysine ratio in early gestation of sows did not affect piglet birth weight and within-litter variation**

Anja Varmløse Strathe<sup>1</sup>, Thomas Sønderby Bruun<sup>2</sup>

<sup>1</sup>Department of Veterinary and Animal Sciences, University Of Copenhagen, Frederiksberg C, Denmark, <sup>2</sup>Nutrition & Feeding, SEGES Danish Pig Research Centre, Aarhus, Denmark

**P26****Effect of vitamin C and organic zinc and selenium for early gestating sows on antioxidant capacity and piglet birth weight**

Anja Varmløse Strathe<sup>1</sup>, Thomas Sønderby Bruun<sup>2</sup>

<sup>1</sup>Department of Veterinary and Animal Sciences, University Of Copenhagen, Frederiksberg C, Denmark, <sup>2</sup>Nutrition & Feeding, SEGES Danish Pig Research Centre, Aarhus, Denmark

**P27****Effects of adding guanidinoacetic acid to sow feed during gestation and lactation on sow and litter performance**

Laura Schneider<sup>1</sup>, Katharina Schuh<sup>1,2</sup>, Georg Dusel<sup>1</sup>, Lukas Bauer<sup>3</sup>, Susann Richert<sup>3</sup>, John Khun Kyaw Htoo<sup>3</sup>

<sup>1</sup>University of Applied Sciences Bingen, Bingen, Germany, <sup>2</sup>Institut Feed Research Bingen GmbH, Weiler bei Bingen, Germany, <sup>3</sup>Evonik Operations GmbH, Hanau-Wolfgang, Germany

**P28****Reduced occurrence of gastric ulcer in silage fed pigs**

Johanna Friman<sup>1</sup>, Emy Vu<sup>1</sup>, Axel Sannö<sup>1</sup>, Torbjörn Lundh<sup>1</sup>, Magdalena Åkerfeldt<sup>1</sup>

<sup>1</sup>Swedish University Of Agricultural Sciences, Uppsala, Sweden

**P29****Quantifying the effects of dietary fibres on protein digestibility in pigs - a meta-analysis**

Shiyi Zhang<sup>1</sup>, Sonja de Vries<sup>1</sup>, Walter Gerrits<sup>1</sup>, Junjun Wang<sup>2</sup>

<sup>1</sup>Wageningen University&Research, Wageningen, Netherlands, <sup>2</sup>China Agricultural University, Beijing, China

**P30****Supplementing lysolecithin with emulsifier and monoglycerides to diets reformulated to lower energy on performance and lean-fat deposition in fattening pigs**

David Gonzalez Sanchez<sup>1</sup>, Szabolcs Toth, Alexandra Desbruslais

<sup>1</sup>Kemin Europa NV



**P31****Determination of digestibility of Precipitated Calcium Phosphate and Monocalcium Phosphate in broiler chickens and growing pigs****Magdalena Presto Åkerfeldt<sup>1</sup>, Sara Stiernström<sup>2</sup>, Emma Ivarsson<sup>1</sup>**<sup>1</sup>Swedish University of Agricultural Science, Dept. of Animal Nutrition and Management, Uppsala, Sweden, <sup>2</sup>EasyMining Sweden AB, Uppsala, Sweden**P32****Daily gain and feed intake of organic piglets fed either biorefined grass protein or soy-bean-meal five weeks prior to weaning****Maria Eskildsen<sup>1</sup>, Maria Pape Andersen, Jakob Christoffer Johannsen, Peter Kappel Theil**<sup>1</sup>Aarhus University, Tjele, Denmark**P33****Novel whey protein concentrate improves nursery pig growth and intestinal morphology****Nathan Horn<sup>1</sup>, Kolapo Ajuwon<sup>2</sup>, Enkai Li<sup>2</sup>, Aaron Gaines<sup>3</sup>, Jeff Goodwin<sup>4</sup>**<sup>1</sup>United Animal Health, Sheridan, United States, <sup>2</sup>Purdue University, West Lafayette, United States, <sup>3</sup>Ani-tek, Social Circle, United States, <sup>4</sup>Pivotal Ingredients, Sheridan, United States**P34****Carbohydrase supplementation improves nitrogen and energy utilization of Corn Soybean-based diets with or without DDGS in growing pigs****Stephane Motta<sup>1</sup>, Bruno Silva<sup>1</sup>, Dalton Araujo<sup>1</sup>, Wagner Araújo<sup>3</sup>, Hysla Cardoso<sup>2</sup>, Naiara Fagundes<sup>4</sup>, Adriana Toscan<sup>4</sup>**<sup>1</sup>Universidade Federal de Minas Gerais - ICA, Montes Claros, Brazil, <sup>2</sup>Universidade Federal de Lavras , Lavras, Brazil, <sup>3</sup>Federal Institute of Education, Science and Technology Northern Minas Gerais, Januária, Brazil, <sup>4</sup>Adisseo Latin America, São Paulo , Brazil**P35****Dietary addition of a blend of macroalgae improves feed efficiency and changes the fecal microbiome profile of post-wean pigs****Jason Sands<sup>1</sup>, Augustine Owusu-Aseidu<sup>1</sup>, Leah Kellesvig<sup>2</sup>**<sup>1</sup>Ocean Harvest Technology Ltd, Fareham, United Kingdom, <sup>2</sup>Vita Plus Corporation, Madison, United States**P36****Effect of probiotics yeast and bacillus on the in-vivo digestibility and in-vitro fermentation of high fiber swine feed ingredients****Tadele Kiros, Jonna Koper, Geraldine Khun, R Joske Millecam, Jean Philippe Marden**<sup>1</sup>Phileo by Lesaffre, Milwaukee, USA, <sup>2</sup>Lesaffre International, In-vitro platform, Loos, France, <sup>3</sup>Phileo by Lesaffre, Lille, France,<sup>4</sup>PoulPharm Research Station, Prins, Belgium, <sup>5</sup>The Farm, Phileo by Lesaffre, Toulouse, France**P37****Multi-carbohydrases improve in vitro degradation of rapeseed meal fibres in pigs****Corentin Lannuzel<sup>1</sup>, Adam Smith<sup>2</sup>, Mads Brøgger Pedersen<sup>3</sup>, Sonja de Vries<sup>1</sup>**<sup>1</sup>Wageningen University & Research, Animal Nutrition Group, Wageningen, Netherlands, <sup>2</sup>DSM Nutritional Products Europe AG, Kaiseraugst, Switzerland, <sup>3</sup>Novozymes A/S, Kgs. Lyngby, Denmark**P38****Effect of moderate dietary inclusion of fibrous by-products on performance, intestinal physiology and microbiota of weaned piglets****Beatriz Martínez Vallespín<sup>1</sup>, Jonathan Riedmüller<sup>1</sup>, Merle Kochan<sup>1</sup>, Laura Pahnke<sup>1</sup>, Alvaro Taibo<sup>1</sup>, Wilfried Vahjen<sup>1</sup>, Jürgen Zentek<sup>1</sup>**<sup>1</sup>Freie Universität Berlin, Berlin, Germany

**P39****Development and validation of a precision feeding program using automated intelligent precision feeders (AIPF) on performance of high-prolific gestating sows**

**Rodrigo Domingos<sup>1</sup>, Franciso Rueda<sup>3</sup>, Márvio Abreu<sup>1</sup>, Antonio Luna<sup>3</sup>, John Htoo, Caroline González-Veja<sup>4</sup>, Maria Luspa<sup>5</sup>, Henrique Brand<sup>5</sup>, Flávio Rebordões<sup>1</sup>, Bruno Silva<sup>2</sup>**

<sup>1</sup>Federal University of Lavras, Lavras, Brazil, <sup>2</sup>Federal University of Minas Gerais, Montes Claros, Brazil, <sup>3</sup>FARM Faes Nutrición y Salud Animal, Álava, Spain, <sup>4</sup>Evonik Operations GmbH, Hanau-Wolfgang, Germany, <sup>5</sup>Evonik Brasil Ltda, São Paulo, Brazil

**P40****Compensatory growth after low protein diet for weaner**

**Hanne Maribo<sup>1</sup>**

<sup>1</sup>SEGES Innovation P/S, Copenhagen, Denmark

**P41****Effects of dietary lysozyme supplementation on growth performance and nitrogen balance in growing pigs**

**Bruna Schroeder<sup>1</sup>, Cândido Pomar<sup>2</sup>, Inês Andretta<sup>1</sup>, Renée Petri<sup>2</sup>, Jennifer Ronholm<sup>4</sup>, Jeffery Escobar<sup>3</sup>, Aline Remus<sup>2</sup>**

<sup>1</sup>Universidade Federal Do Rio Grande Do Sul - Brazil, Porto Alegre, Brazil, <sup>2</sup>Agriculture and Agri-Food Canada, Sherbrooke, Canada, <sup>3</sup>Elanco Animal Health, Greenfield, USA, <sup>4</sup>McGill University, Montreal, Canada

**P42****Estimating the digestibility of phosphorus sources of mineral and animal origin for phosphorus supplementation of growing pigs**

**Anne Boudon<sup>1</sup>, Agnès Narcy<sup>2</sup>, Etienne Labussière<sup>1</sup>, Carine A. Van Vuure<sup>3</sup>, Jean-Yves Dourmad<sup>3</sup>**

<sup>1</sup>PEGASE, INRAE, Institut Agro, Saint-gilles, France, <sup>2</sup>BOA, INRAE, Université de Tours, Nouzilly, France, <sup>3</sup>Darling Ingredients, SONAC, Son, France

**P43****Optimizing phosphorus absorption and utilization by growing pigs with a no phosphate strategy**

**Marion Lautrou<sup>1</sup>, Cândido Pomar, Philippe Schmidely, Marie-Pierre Létourneau-Montminy**

<sup>1</sup>Laval University,

**P44****In vitro fermentation of ileal digesta from different protein ingredients**

**Hanlu Zhang<sup>1</sup>, John Cone<sup>1</sup>, Arie Kies<sup>1</sup>, Nikkie Wielen<sup>1</sup>, Junjun Wang<sup>2</sup>, Wouter Hendriks<sup>1</sup>**

<sup>1</sup>Animal Nutrition Group, Wageningen University and Research, Wageningen, Netherlands, <sup>2</sup>State Key Laboratory of Animal Nutrition, Alltech-MAFIC Research Alliance, College of Animal Science and Technology, China Agricultural University, Beijing, China

**P45****The effect of processing on in vitro starch digestion rate of cereal grains depends on species**

**Helle Nygaard Lærke<sup>1</sup>, Laura Rasmussen<sup>1</sup>, Nuria Canibe<sup>1</sup>, Mette Skou Hedemann<sup>1</sup>**

<sup>1</sup>Aarhus University, Tjele, Denmark

**P46****The effect of alfalfa inclusion in piglet diets on growth performance and faecal consistency**

**Sam Millet<sup>1</sup>, Laia Blavi Jos<sup>1</sup>**

<sup>1</sup>ILVO, Melle, Belgium

**P47****Feeding low resistant protein content in starter diets reduced microbial protein fermentation and antibiotic treatment in weaned piglets****Mai Anh Ton Nu<sup>1</sup>, Sadie Douglas<sup>2</sup>, Phil Boyd<sup>2</sup>, Jorn Madsen<sup>1</sup>, Laia Blavi Josa<sup>3</sup>, Simon Tibble<sup>3</sup>**<sup>1</sup>AB Neo a/s, Videbaek, Denmark, <sup>2</sup>Primary Diet, Melmerby, United Kingdom, <sup>3</sup>Alternative Swine Nutrition, Fraga, Spain**P48****Organic acid and salt blend treatment of cereals at harvest reduces need for zinc oxide in post weaned pig diets.****Shane Maher<sup>1</sup>, Ruth Connolly<sup>1</sup>, Torres Sweeney<sup>1</sup>, John Ryan<sup>2</sup>, John V. O'Doherty<sup>1</sup>**<sup>1</sup>University College Dublin, Dublin, Ireland, <sup>2</sup>Adesco Nutricines, Waterford, Ireland**P49****Effects of toasted or extruded soybean meal, associated with reductions in dried blood plasma in diets for newly weaned piglets****Natália Cristina Milani<sup>1</sup>, Vinícius Ricardo Cambito Paula<sup>1</sup>, Cândida Pollyanna Francisco Azevedo<sup>1</sup>, Anderson Aparecido Sedano<sup>1</sup>, Lucas Bassi Scarpim<sup>2</sup>, Hélio Moreira Júnior<sup>1</sup>, Dave Hanneman Alves Duarte<sup>1</sup>, Aulus Cavalieri Carciofi<sup>2</sup>, Urbano Santos Ruiz<sup>1</sup>**<sup>1</sup>ESALQ - USP, Piracicaba, Brazil, <sup>2</sup>FCAV - UNESP, Jaboticabal, Brazil**P50****Effects of inclusion of extruded or deactivated soybean in newly weaned piglets feeding****Natália Cristina Milani<sup>1</sup>, Vinicius Ricardo Cambito Paula<sup>1</sup>, Cândida Pollyanna Francisco Azevedo<sup>1</sup>, Anderson Aparecido Sedano<sup>1</sup>, Lucas Bassi Scarpim<sup>2</sup>, Hélio Moreira Júnior<sup>1</sup>, Dave Hanneman Alves Duarte<sup>1</sup>, Aulus Cavalieri Carciofi<sup>2</sup>, Urbano Santos Ruiz<sup>1</sup>**<sup>1</sup>ESALQ - USP, Piracicaba, Brazil, <sup>2</sup>FCAV - UNESP, Jaboticabal, Brazil**P51****The effects of reducing dietary crude protein levels at two SID lysine levels on the growth performance of weaned piglets****Xiaonan Guan<sup>2</sup>, Anne Huting<sup>2</sup>, Aude Simongiovanni<sup>1</sup>, William Lambert<sup>1</sup>, Francesc Molist<sup>2</sup>**<sup>1</sup>METEX NOOVISTAGO, Paris, France, <sup>2</sup>Schothorst Feed Research, Lelystad, The Netherlands**P52****Lysozyme supplementation improves protein deposition in growing pigs****Bruna Schroeder<sup>1,2</sup>, Candido Pomar<sup>1</sup>, Renee Petri<sup>1</sup>, Ines Andretta<sup>2</sup>, Jennifer Ronholm<sup>4</sup>, Jeffery Escobar<sup>3</sup>, Aline Remus<sup>1</sup>**<sup>1</sup>AAFC, Sherbrooke, Canada, <sup>2</sup>UFRGS, Porto Alegre, Brazil, <sup>3</sup>Elanco North America, USA, <sup>4</sup>McGill University, Sainte-Anne-de-Bellevue, Canada**P53****Serum zinc level is linked to the risk of diarrhoea in newly weaned pigs****Sally V. Hansen<sup>1</sup>, Natalja P. Nørskov<sup>1</sup>, Jan V. Nørgaard<sup>1</sup>, Tofuko A. Woyengo<sup>1</sup>, Hanne D. Poulsen<sup>1</sup>, Tina S. Nielsen<sup>1</sup>**<sup>1</sup>Department of Animal Science, Aarhus University, Tjele, Denmark**P54****A 30% extra dose crystalline lysine, methionine, threonine, tryptophan and valine in relation to the "Ideal-protein-concept" halves piglet diarrhoea outbreaks****Niels-Morten Sloth<sup>1</sup>, Julie Krogsdahl Bache<sup>1</sup>, Emmy Rønving<sup>1</sup>**<sup>1</sup>SEGES Innovation, Danish Pig Research Centre, Aarhus N, Denmark

## SESSION 2: Dynamics of digestion and absorption

P55

### A nutritional emulsifier improves growing-finishing pig performance

Brecht Bruneel<sup>1</sup>, L. Go, Jr<sup>2</sup>, B. Bruneel<sup>3</sup>, M.J. Serrano<sup>3</sup>, L. Segers<sup>3</sup>

<sup>1</sup>1st Ten Consulting Asia Pacific, Manila, Philippines, <sup>2</sup>Leidebril Farm, Inc., Bukidnon, Philippines, <sup>3</sup>Orffa Additives BV, Werkendam, The Netherlands

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P56

### The digestibility of energy and nutrients and the efficiency of phytase to degrade phytate is influenced by pig body weight

Vanessa Lagos<sup>1</sup>, Mike Bedford<sup>2</sup>, Hans Stein<sup>3</sup>

<sup>1</sup>Schothorst Feed Research, Lelystad, The Netherlands, <sup>2</sup>AB Vista, Marlborough, United Kingdom, <sup>3</sup>University of Illinois,

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P57

### Phytate breakdown, nutrient digestibility, plasma metabolites, and bone ash of pigs fed increasing phytase levels for a long adaptation period

Vanessa Lagos<sup>1</sup>, Mike Bedford<sup>2</sup>, Hans Stein<sup>3</sup>

<sup>1</sup>Schothorst Feed Research, Lelystad, The Netherlands, <sup>2</sup>AB Vista, Marlborough, United Kingdom, <sup>3</sup>University of Illinois, Urbana-Champaign, USA

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P58

### Assessment of the consequences of anemia in sows on their reproductive performance and the long-term pigs' growth and haematological status

Arnaud SAMSON<sup>1</sup>, Fabien Guillard<sup>2</sup>, Jérôme Martrenchar<sup>2</sup>, Jordi Pique<sup>3</sup>, Magali Quemere<sup>2</sup>

<sup>1</sup>ADM, Chateau Thierry, France, <sup>2</sup>Wisium, Saint-Nolff, France, <sup>3</sup>SETNA, Terrassa, Spain

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P59

### Effect of dry vs liquid creep-feed on pre-weaning carbohydrase activities in piglets weaned at 4 or 5 weeks of age

Kimmie Kyed Lyderik<sup>1</sup>, Johannes Gulmann Madsen<sup>1</sup>, Niels Jørgen Kjeldsen<sup>2</sup>, Mette Skou Hedemann<sup>3</sup>, Charlotte Amdi<sup>1</sup>

<sup>1</sup>University Of Copenhagen, Frederiksberg C, Denmark, <sup>2</sup>SEGES, Copenhagen, Denmark, <sup>3</sup>Aarhus University, Foulum, Denmark

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P60

### The effect of weaning age and feed type on disaccharidase activity in early post weaned piglets

Johannes Gulmann Madsen<sup>1</sup>, Xuwen Zhang<sup>1</sup>, Niels Jørgen Kjeldsen<sup>2</sup>, Mette Skou Hedemann<sup>3</sup>, Charlotte Amdi<sup>1</sup>

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P61

### Impact of feeding level on nutrient digestibility and concentrations of plasma metabolites in transition sows

Takele Feyera<sup>1</sup>, Natalja Nørskov, Professor Knud Erik Knudsen, Thomas Bruun<sup>2</sup>, Peter Theil<sup>1</sup>

<sup>1</sup>Aarhus University, Tjele, Denmark, <sup>2</sup>SEGES Danish Pig Research Centre, Copenhagen, Denmark

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P63

### The (long-term) effects of providing creep feed to suckling piglets

Ard Van Enckevort<sup>1</sup>, Peter van 't Veld<sup>1</sup>, Ashley Sijmonsbergen<sup>1</sup>

<sup>1</sup>Denkavit B.V., Voorthuizen, The Netherlands

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**P64**

**Lowering dietary Ca level increased digestible Ca and P released by phytase and bone P content in weaner pigs**

**Hengxiao Zhai<sup>1</sup>, Pauline Jenn<sup>2</sup>, Anaelle Tschambser<sup>2</sup>, Ivan Gaytan-Perez<sup>2</sup>**

<sup>1</sup>DSM (China) Animal Nutrition Research Center, Bazhou, P. R. China, <sup>2</sup>Research Center for Animal Nutrition and Health, Village-Neuf, France

**P65**

**The source of betaine, hydrochloride or natural, did not affect its dynamics of absorption**

**Lien Vande Maele<sup>1</sup>, Robin Temmerman<sup>2</sup>, Giseli Heim<sup>1</sup>, Arno van der Aa<sup>1</sup>**

<sup>1</sup>Orffa Additives BV, Breda, The Netherlands, <sup>2</sup>Department of Pharmacology, Toxicology and Biochemistry, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

**P66**

**Determining parameters for an improved protein efficiency in pigs: protease activities, amino acid transporters and proteome analyses along the gastrointestinal tract**

**Alina Kurz<sup>1</sup>, Naomi Sarpong<sup>1</sup>, Daniel Berghaus<sup>1</sup>, Ramona Weishaar<sup>1</sup>, Eva Haese<sup>1</sup>, Jörn Bennewitz<sup>1</sup>, Markus Rodehutscord<sup>1</sup>, Amélia Camarinha-Silva<sup>1</sup>, Jana Seifert<sup>1</sup>**

<sup>1</sup>University of Hohenheim, Animal Science, Stuttgart, Germany

**P67**

**Comparison of an oral iron supplement with intramuscular iron injection in newborn piglets**

**Arnaud SAMSON<sup>1</sup>, Fabien Guillard<sup>2</sup>, Emmanuel Janvier<sup>1</sup>, Jérôme Martrenchar<sup>2</sup>, Jordi Piqué<sup>3</sup>**

<sup>1</sup>ADM, Chateau Thierry, France, <sup>2</sup>Wisium, Saint-Nolff, France, <sup>3</sup>SETNA, Terrassa, Spain

**P68**

**Can production modifications of a soy protein concentrate alter digesta kinetics and nutrient digestibility in weaned piglets?**

**Anne Huting<sup>1</sup>, Marianne Madsen<sup>2</sup>, Francesc Molist<sup>1</sup>**

<sup>1</sup>Schothorst Feed Research, Lelystad, The Netherlands, <sup>2</sup>Triple A A/S, Hornsyld, Denmark

**P69**

**Determination of the net energy in soybean meal fed to group-housed pigs**

**Su A Lee, Diego Rodriguez, Hans Stein**

<sup>1</sup>University of Illinois, Urbana, United States of America

**P70**

**Apparent and standardized ileal amino acid digestibilities in heat stressed pigs fed wheat-soybean meal diets supplemented with L-arginine and DL-methionine**

**Estela Montoya<sup>1</sup>, Adriana Morales<sup>1</sup>, Alan Valle<sup>1</sup>, Fernanda González<sup>1</sup>, Lucero Camacho<sup>1</sup>, Néstor Arce<sup>1</sup>, Jolie-Caroline González-Vega<sup>2</sup>, Ernesto Avelar<sup>1</sup>, John Htoo<sup>2</sup>, Miguel Cervantes<sup>1</sup>**

<sup>1</sup>Universidad Autónoma de Baja California, Mexicali, México, <sup>2</sup>Evonik Operations GmbH, Hanau, Germany

**P71**

**Digestibility of amino acids is not affected by increasing calcium from deficient to over-sufficient concentration in diets fed to pigs**

**Su A Lee, Hans Stein**

<sup>1</sup>University of Illinois, Urbana, United States of America

**P72**

**First-pass extraction of amino acids by the small intestine in pig – how important is it?**

**Clément Garçon<sup>1</sup>, Nathalie Le Floc'h<sup>1</sup>, Jaap van Milgen<sup>1</sup>**

<sup>1</sup>PEGASE, INRAE, Institut Agro, St-Gilles, France

**P73**

**Expression of intestinal amino acid transporters, gut morphology, and amino acid digestibility in pigs fed proteins or free amino acids**

**Francis Amann Eugenio<sup>1,2</sup>, Jacob van Milgen<sup>1</sup>, Joël Duperray<sup>2</sup>, Renaud Sergheraert<sup>2</sup>, Nathalie Le-Floc'h<sup>1</sup>**

<sup>1</sup>INRAE PEGASE, Institut Agro, 35590, Saint-Gilles, France, <sup>2</sup>BCF Life Sciences, 56140, Pleucadeuc, France

**P74**

**Modelling improvements in phosphorus, calcium and sodium digestibility by a novel consensus bacterial 6-phytase variant in pigs: meta-analysis**

**Yueming Dersjant-Li<sup>1</sup>, Deepak Velayudhan<sup>1</sup>, Tinke Stormink<sup>1</sup>, Leon Marchal<sup>1,2</sup>**

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**P75**

**Effect of a novel consensus bacterial 6-phytase variant on inositol hexa-phosphate degradation profile in growing pigs**

**Deepak Velayudhan<sup>1</sup>, Trine Christensen<sup>2</sup>, Solvej Knudsen<sup>2</sup>, Leon Marchal<sup>1,3</sup>, Yueming Dersjant-Li<sup>1</sup>, Hans Stein<sup>4</sup>**

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<sup>4</sup>Department of Animal Sciences, University of Illinois, Illinois, US

**P76**

**Meta-analysis: the effect a novel consensus bacterial 6-phytase variant on inositol hexa-phosphate degradation and phosphorus digestibility in young pigs**

**Deepak Velayudhan<sup>1</sup>, Hans Stein<sup>4</sup>, Arun Kumar<sup>5</sup>, Trine Christensen<sup>2</sup>, Solvej Knudsen<sup>2</sup>, Tinke Stormink<sup>1</sup>, Leon Marchal<sup>1,3</sup>, Yueming Dersjant-Li<sup>1</sup>**

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<sup>4</sup>Department of Animal Sciences, University of Illinois, Illinois, US, <sup>5</sup>School of Agriculture and Food Science, The University of Queensland, Gatton, Australia

**P77**

**Dietary variables affecting efficacy of a combination of *Bacillus* spp. direct-fed-microbial and a protease on growth performance in pigs: meta-analysis**

**Ester Vinyeta<sup>1</sup>, Deepak Velayudhan<sup>1</sup>, Ceinwen Evans<sup>2</sup>, Leon Marchal<sup>1,3</sup>**

<sup>1</sup>Danisco Animal Nutrition (IFF), Oegstgeest, The Netherlands, <sup>2</sup>Danisco Animal Nutrition (IFF), Marlborough, Wiltshire, United Kingdom, <sup>3</sup>Animal Nutrition Group, Wageningen University & Research, Wageningen, The Netherlands

**P78**

**Isoquinoline alkaloids influence intestinal health and function in weanling pigs fed diets formulated below amino acid requirements**

**Carly Rundle, Valeria Artuso, Hans Stein**

<sup>1</sup>Phytobiotics, Eltville, Germany

**P79**

**Impact of enzyme supplementation, sampling period, meal size and frequency on the digestibility amino acids and minerals in growing pigs**

**Élisabeth Chassé<sup>1</sup>, Marie-Pierre Létourneau-Montminy<sup>1</sup>, Frédéric Guay<sup>1</sup>**

<sup>1</sup>Université Laval, Rimouski, Canada

**P80 + O26****Fecal nutrient digestibility in growing-finishing pigs kept under low and high sanitary conditions**

**Alfons Jansman<sup>1</sup>, Rik Verheijen<sup>1</sup>, Gisabeth Binnendijk<sup>1</sup>, Carola van der Peet-Schowering<sup>1</sup>, Soumya Kar<sup>1</sup>, Marinus te Pas<sup>1</sup>, Leo Kruijt<sup>1</sup>, Jacques Vervoort<sup>2</sup>, Dirkjan Schokker<sup>1</sup>**

<sup>1</sup>Wageningen Livestock Research, Wageningen, The Netherlands, <sup>2</sup>Wageningen University, The Netherlands

**P81****Simulating Nutrient digestion and Absorption kinetics in PIGs based on diet and ingredient properties: SNAPIG**

**Alfons Jansman<sup>1</sup>, Marijke Schop<sup>2</sup>, Sonja de Vries<sup>2</sup>, Jennifer Ellis<sup>3</sup>, Hieu Nguyen-Ba<sup>1</sup>, Walter Gerrits<sup>2</sup>**

<sup>1</sup>Wageningen Livestock Research, Wageningen, The Netherlands, <sup>2</sup>Wageningen University, The Netherlands, <sup>3</sup>University of Guelph, Guelph, Canada

**P82****Phytase supplementation and varying calcium level in pig feed: Effects on precaecal inositol hexakisphosphate degradation**

**Nicolas Klein<sup>1</sup>, Naomi Sarpong<sup>1</sup>, Dieter Feuerstein<sup>2</sup>, Amélia Camarinha-Silva<sup>1</sup>, Markus Rodehutscord<sup>1</sup>**

<sup>1</sup>Institute of Animal Science, University of Hohenheim, Stuttgart, Germany, <sup>2</sup>BASF SE, Lampertheim, Germany

**P83****Dietary particle size and gelling affect digesta transit through the stomach of pigs**

**Corentin Lannuzel<sup>1</sup>, Romy J. Veersma<sup>2</sup>, Mirjam A. Kabel<sup>2</sup>, Walter J.J. Gerrits<sup>1</sup>, Sonja de Vries<sup>1</sup>**

<sup>1</sup>Wageningen University & Research, Animal Nutrition Group, Wageningen, The Netherlands, <sup>2</sup>Wageningen University & Research, Laboratory of Food Chemistry, Wageningen, The Netherlands

**P84****Effect of short-term Cu supplementation on biochemical parameters of liver and growth performance in pigs**

**Asal Forouzandeh<sup>1</sup>, David Solà-Oriol<sup>1</sup>, Alessandra Monteiro<sup>2</sup>, Hans H. Stein<sup>3</sup>, JF Pérez<sup>1</sup>, Dr Laia Blavi<sup>1</sup>**

<sup>1</sup>Animal Nutrition and Welfare Service (SNIBA), Universitat Autònoma De Barcelona, Bellaterra, Spain, <sup>2</sup>Animine, Annecy, France, <sup>3</sup>Division of Nutritional Sciences, University of Illinois, Urbana, United States of America

**P85****Xylanase supplementation improves performance and alters the microbiome of lactating sows fed low or high fibre diets**

**Karen Vermeulen<sup>1</sup>, Georgios Papadopoulos<sup>2</sup>, Alexandra Wealleans<sup>1</sup>, Veerle Van Hoeck<sup>1</sup>, Ilias Giannenas<sup>2</sup>, S. Lioliopoulou<sup>2</sup>, P. Tassis<sup>2</sup>, K Papageorgiou<sup>2</sup>, P. Fotomaris<sup>2</sup>**

<sup>1</sup>Kemin, Herentals, Belgium, <sup>2</sup>Aristotle University of Thessaloniki, Thessaloniki, Greece

**P86 - Zinc oxide augments early nursery pig feed intake**

**Carson De Mille<sup>1</sup>, Eric Burrough<sup>2</sup>, Nicholas Gabler<sup>1</sup>**

<sup>1</sup>Department of Animal Science, Iowa State University, Ames, United States, <sup>2</sup>Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, United States

**P87****Effects of graded dietary copper concentrations on performance, copper levels in blood, faeces and bristles, and on red blood count**

**Angelika Grümpel-Schlüter<sup>1</sup>, Sven Dänicke<sup>1</sup>, Liane Hüther<sup>1</sup>, Susanne Kersten<sup>1</sup>, Jeannette Klüss<sup>1</sup>**

<sup>1</sup>Friedrich-Loeffler-Institut, Braunschweig, Germany

**P88****Effects of dietary zinc/copper ratios on the metabolism of zinc, copper, and iron in weaned pigs**

*Danyel Bueno Dalto<sup>1</sup>, Frédéric Guay<sup>2</sup>, Yan Martel-Kennes<sup>2,3</sup>, Guylaine Talbot<sup>1</sup>, J. Jacques Matte<sup>1</sup>, Jérôme Lapointe<sup>1</sup>*

*<sup>1</sup>Agriculture And Agri-food Canada, Sherbrooke, Canada, <sup>2</sup>Université Laval, Quebec, Canada, <sup>3</sup>Centre de recherche en sciences animales de Deschambault, Deschambault, Canada*

**P89****The bioflavonoid luteolin regulates intestinal epithelial cell development and gut morphology in weanling pigs**

*Tobi Ogunribido, Kola Ajuwon*

*<sup>1</sup>Purdue University, West Lafayette, United States of America*

**P90****Feeding direct-fed microbial or organic acid blend alone or in combination to sows and weaned pigs impacts post-weaning gut physiology**

*Morgan Thayer<sup>2</sup>, Jacob Richert<sup>1</sup>, Brian Richert<sup>1</sup>, Scott Radcliffe<sup>1</sup>, Dan Jones<sup>2</sup>, Matt Asmus<sup>2</sup>*

*<sup>1</sup>Purdue University, West Lafayette, United States, <sup>2</sup>ADM, Decatur, United States*

**P91****Dietary carbohydrase and fibre levels on apparent total tract digestibility of energy and fibre in gestating sows and growing pigs**

*Garrin Shipman<sup>1</sup>, Jorge Perez-Palencia<sup>1</sup>, Rob Patterson<sup>2</sup>, Crystal Levesque<sup>1</sup>*

*<sup>1</sup>South Dakota State University, Brookings, United States, <sup>2</sup>CBS Bio-Platforms Inc., Calgary, Canada*

**P92****Effect of increasing level of calcium on basal ileal endogenous amino acid losses in cannulated pigs fed nitrogen-free diets**

*Sunday Adedokun<sup>1</sup>, Andrew Dunaway<sup>1</sup>, David Harmon<sup>1</sup>, Merlin Lindemann<sup>1</sup>*

*<sup>1</sup>University of Kentucky, Lexington, United States*

**P93****Growth, digestibility, and digestive enzyme activity are affected by dietary protein and starch quality in newly weaned pigs**

*Mette Skou Hedemann<sup>1</sup>, Nuria Canibe<sup>1</sup>, Helle Nygaard Lærke<sup>1</sup>*

*<sup>1</sup>Aarhus University, Tjele, Denmark*

**P94****Ileal nutrient digestibility and digesta transit behaviour of diets varying in fibre level and particle size**

*Sebastián Dorado Montenegro<sup>1</sup>, Kim Lammers-Jannink<sup>1</sup>, Sonja de Vries<sup>1</sup>, Walter Gerrits<sup>1</sup>*

*<sup>1</sup>Wageningen University, Wageningen, The Netherlands*

**P95****The impact of dietary crude protein and non-starch polysaccharidase inclusion on nursery pig performance and nitrogen retention**

*Mitchell Nisley<sup>1</sup>, Nicholas Gabler<sup>1</sup>, Chris Sparks<sup>2</sup>, Erik Vanderbeke<sup>2</sup>, Kirsten De Keyser<sup>2</sup>*

*<sup>1</sup>Iowa State University, Ames, United States, <sup>2</sup>Huvepharma, United States*

**P96**

**Nutritional effects of bovine or vegetable oils on plasma IGF-1 levels of intrauterine growth restricted piglets compared to normal piglets**

**Charlotte Amdi<sup>1</sup>, Nikoline Johansson<sup>1</sup>, Karina Skadborg Asmussen<sup>1</sup>, Thomas Thymann<sup>1</sup>**

<sup>1</sup>University of Copenhagen, Frederiksberg C

**P97**

**Differences in faecal parameters from sows fed dried hemp plants or apple pomace intact or ground**

**Eva-Maria Saliu<sup>1</sup>, Johannes Schulze Holthausen<sup>1</sup>, Jürgen Zentek<sup>1</sup>**

<sup>1</sup>Freie Universität Berlin

**P98**

**Differential expression of genes in the corpus, fundus and antrum regions of the stomach in grower pigs**

**Dillon Kiernan<sup>1</sup>, John V. O'Doherty<sup>1</sup>, Shane Maher<sup>1</sup>, Marion Ryan<sup>1</sup>, Torres Sweeney<sup>1</sup>**

<sup>1</sup>University College Dublin, Dublin, Ireland

**P99**

**The net portal absorption of short-chain fatty acids as influenced by barley- and pea fibre with different physicochemical properties**

**Knud Erik Bach Knudsen<sup>1</sup>, Nuria Canibe**

<sup>1</sup>Aarhus University, Tjele, Denmark

**P100**

**Influence of organic acid addition to the diets of grower pigs on gene expression in the gastric mucosa**

**Dillon Kiernan<sup>1</sup>, John V. O'Doherty<sup>1</sup>, Shane Maher<sup>1</sup>, Marion Ryan<sup>1</sup>, Torres Sweeney<sup>1</sup>**

<sup>1</sup>University College Dublin, Dublin, Ireland

**P101**

**Pharmacokinetics of vitamin E and A in the serum after a meal**

**Sarah Elefson<sup>1</sup>, Laura Greiner<sup>1</sup>**

<sup>1</sup>Iowa State University, Ames, United States

**P102**

**Dietary calcium supplementation reduces phosphorous absorption and causes a shift from transcellular to paracellular Ca absorption in pigs**

**Yixin Hu<sup>1</sup>, Jurgen van Baal<sup>1</sup>, Jan Willem Resink<sup>2</sup>, Paul Bikker<sup>1</sup>**

<sup>1</sup>Wageningen University & Research, Wageningen, The Netherlands, <sup>2</sup>Trouw Nutrition, Amersfoort, The Netherlands

**P103**

**Synchronisation of calcium and phosphorous supply influences phosphorous digestion and post-absorptive utilisation in growing pigs**

**Paul Bikker<sup>1</sup>, Annemarie Mens<sup>1</sup>, Yixin Hu<sup>1</sup>**

<sup>1</sup>Wageningen University & Research, Wageningen, The Neth

**P104**

**Basal endogenous amino acid losses in the digestive tract are determined by experimental conditions, a meta-analysis**

**Machiel Blok<sup>1</sup>, Wouter Spek, Paul Bikker**

<sup>1</sup>Wageningen University & Research, Wageningen Livestock Research, Department Animal Nutrition, Wageningen, The Netherlands

**P105****Meta-analysis of the interrelationships between Amino Acids in Basal Endogenous Losses of pigs: Proline shows deviating behavior****Machiel Blok<sup>1</sup>, Wouter Spek, Paul Bikker**<sup>1</sup>Wageningen University & Research, Wageningen Livestock Research, Department Animal Nutrition, Wageningen, The Netherlands

## SESSION 3: Models and methodologies

P106

**In search of an animal model for IUGR to study differences in morbidity and mortality between male and female neonates**

**Lieselotte Van Bockstal<sup>1</sup>, Miriam Ayuso Hernando<sup>1</sup>, Steven Van Cruchten<sup>1</sup>, Chris Van Ginneken<sup>1</sup>**

<sup>1</sup>Comparative Perinatal Development Group, Faculty of Pharmaceutical, Biomedical and Veterinary Sciences, University of Antwerp, Wilrijk, Belgium

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P107

**Olive bioactives support intestinal homeostasis in social stressed weaned piglets**

**Jose J. Pastor<sup>1</sup>, Sergi López-Vergé<sup>1</sup>, Gemma Tedo<sup>1</sup>**

<sup>1</sup>Lucta S.A., Cerdanyola del Vallés, España

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P108

**Lignin as intrinsic tracer: Quantification of lignin in pig faeces by <sup>13</sup>C-IS pyrolysis-GC-MS**

**Romy Veersma<sup>1</sup>, Corentin Lannuzel<sup>2</sup>, Gijs van Erven<sup>1</sup>, Sonja de Vries<sup>2</sup>, Walter Gerrits<sup>2</sup>, Mirjam Kabel<sup>1</sup>**

<sup>1</sup>Laboratory of Food Chemistry - Wageningen University & Research, Wageningen, The Netherlands, <sup>2</sup>Animal Nutrition Group - Wageningen University & Research, Wageningen, The Netherlands

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P109

**A novel 3 step in vitro and ex vivo model to evaluate digestibility, microbial and environmental effects of swine diets**

**Estefania Perez Calvo<sup>1</sup>, Pauline Jenn<sup>1</sup>, Cathleen Lemasson<sup>1</sup>, Jérôme Schmeisser<sup>1</sup>, Ursula M McCormack<sup>1</sup>, Aaron J. Cowieson<sup>2</sup>**

<sup>1</sup>DSM Nutritional Products, Saint Louis, France, <sup>2</sup>DSM Nutritional Products, Kaiseraugst, Switzerland

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P110

**Improving survival of low birth weight piglets - what is more important: farrowing care or drenching a milk replacer?**

**Kevin Van Tichelen<sup>1</sup>, Sara Prims<sup>1</sup>, Miriam Ayuso<sup>1</sup>, Céline Van Kerschaver<sup>2</sup>, Mario Vandaele<sup>2</sup>, Jeroen Degroote<sup>2</sup>, Steven Van Cruchten<sup>1</sup>, Joris Michiels<sup>2</sup>, Chris Van Ginneken<sup>1</sup>**

<sup>1</sup>University of Antwerp, Antwerp, Belgium, <sup>2</sup>Ghent University, Ghent, Belgium

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P111

**A simple laboratory method for estimating the standardised precaecal digestibility of crude protein and amino acids in pigs**

**Valérie Schumacher<sup>1</sup>, Saskia Kehraus<sup>1</sup>, Karl-Heinz Südekum<sup>1</sup>**

<sup>1</sup>University of Bonn, Bonn, Germany

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P112

**Influence of removing serosal and outer muscle layers on estimates of intestinal permeability in everted sac segments**

**Lonneke Noorman<sup>1</sup>, Sonja de Vries<sup>2</sup>, Bart van der Hee<sup>3</sup>, Myrthe Gilbert<sup>2</sup>, Walter Gerrits<sup>2</sup>**

<sup>1</sup>Department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, The Netherlands,

<sup>2</sup>Animal Nutrition Group, Department of Animal Sciences, Wageningen University and Research, Wageningen, The Netherlands,

<sup>3</sup>Host-Microbe Interactomics, Department of Animal Sciences, Wageningen University and Research, Wageningen, The Netherlands

**P113****Can the texture variety in feed influence the diet acceptability and pig's emotional states?**

**Jaime Figueroa<sup>1</sup>, Savka Aldunate<sup>2</sup>, Elizabeth Huenul<sup>1</sup>, Rocío Palomo<sup>3</sup>, Daniela Luna<sup>2</sup>**

<sup>1</sup>Universidad de O'higgins, San Fernando, Chile, <sup>2</sup>Pontificia Universidad Católica, Santiago, Chile, <sup>3</sup>Universidad de Chile, Santiago, Chile

**P114****Towards a paradigm shift in the swine industry: Texture variety increases feed preference in nursery pigs**

**Jaime Figueroa<sup>1</sup>, Tagliaferro Gabriela<sup>2</sup>, Elizabeth Huenul<sup>1</sup>, Rocío Palomo<sup>3</sup>, Daniela Luna<sup>4</sup>**

<sup>1</sup>Universidad de O'higgins, San Fernando, Chile, <sup>2</sup>Universidad Andrés Bello, Santiago, Chile, <sup>3</sup>Universidad de Chile, Santiago, Chile, <sup>4</sup>Pontificia Universidad Católica, Santiago, Chile

**P115****Pig intestinal organoids as a model to study feed efficiency**

**Dirkjan Schokker<sup>1</sup>, Agnes de Wit<sup>1</sup>, Leo Kruijt<sup>1</sup>, Esther Ellen<sup>1</sup>, Soumya Kar<sup>2</sup>**

<sup>1</sup>Animal Breeding & Genomics, Wageningen Livestock Research, Wageningen, The Netherlands, <sup>2</sup>Animal Nutrition, Wageningen Livestock Research, Wageningen, The Netherlands

**P116****Lipopolysaccharide dephosphorylated with microbial-derived alkaline phosphatase alters sickness behavior and inflammatory response in weaned pigs**

**Jalisa Zimmerman, Stephanie Matt, Megan Corbett, Courtni Bolt, Jeffery Escobar<sup>1</sup>, Rodney Johnson**

<sup>1</sup>Elanco Animal Health, Greenfield, United States, <sup>2</sup>University of Illinois at Urbana-Champaign, Urbana, United States

**P117****Development of an in vitro model to study intestinal integrity during an E. coli K88 challenge**

**Andrea Bonetti<sup>1</sup>, Barbara Rossi<sup>2</sup>, Benedetta Tugnoli<sup>2</sup>, Andrea Piva<sup>1,2</sup>, Ester Grilli<sup>1,3</sup>**

<sup>1</sup>DIMEVET, Department of Veterinary Medical Sciences, University of Bologna, Via Tolara di Sopra, 50, 40064, Ozzano dell'Emilia (BO), Italy, <sup>2</sup>Vetagro S.p.A., via Porro 2, 42124, Reggio Emilia, Italy, <sup>3</sup>Vetagro Inc., 17 East Monroe Street, Suite #179, 60603, Chicago, USA

**P118****Use of diets' rheological parameters to predict digesta retention time throughout the gastrointestinal tract of growing pigs**

**Sebastián Dorado Montenegro<sup>1</sup>, Joshua A. Dijksman<sup>2</sup>, Ruizhi Peng<sup>1</sup>, Walter Gerrits<sup>1</sup>, Sonja de Vries<sup>1</sup>**

<sup>1</sup>Animal Nutrition Group, Wageningen University, Wageningen, Netherlands, <sup>2</sup>Physical Chemistry and Soft Matter, Wageningen University, Wageningen, The Netherlands

**P119****Feed choice behaviour of piglets post weaning exposed to phytogenic feed additives**

**Tobias Aumiller<sup>1</sup>, Karola R. Wendler<sup>1</sup>, Anja Keiner<sup>1</sup>**

<sup>1</sup>Delacon Biotechnik GmbH, Engerwitzdorf, Austria

**P120****Generating piglet intestinal organoids to study the effects of luminal fermentation metabolites**

**Bart van der Hee<sup>1,2</sup>, Myrthe Gilbert<sup>3</sup>, Miranda van Triest<sup>4</sup>, Boudewijn Burgering<sup>4</sup>, Nico Taverne<sup>1</sup>, Anja Taverne-Thiele<sup>1</sup>, Hauke Smidt<sup>2</sup>, Walter Gerrits<sup>3</sup>, Jerry Wells<sup>1</sup>**

<sup>1</sup>Host-Microbe Interactomics, Department of Animal Sciences, Wageningen University and Research, Wageningen, The Netherlands, <sup>2</sup>Laboratory of Microbiology, Wageningen University and Research, Wageningen, The Netherlands, <sup>3</sup>Animal Nutrition, Department of Animal Sciences, Wageningen University and Research, Wageningen, The Netherlands, <sup>4</sup>Center for Molecular Medicine, Molecular Cancer Research Section, University Medical Center, Utrecht, The Netherlands

**P121****Validation of in vitro protein fermentation with faecal inoculum from pigs using the gas production technique**

Hanlu Zhang<sup>1</sup>, John Cone<sup>1</sup>, Arie Kies<sup>1</sup>, Nikkie Wielen<sup>1</sup>, Wouter Hendriks<sup>1</sup>

<sup>1</sup>Animal Nutrition Group, Wageningen University, Wageningen, The Netherlands

**P122****Use of the Dual Marker Technique to Estimate Individual Feed Intake of Young Pigs**

Tianyue Tang<sup>1,2</sup>, Carola van der Peet-Schwingen<sup>3</sup>, Nicoline Soede<sup>2</sup>, Bjorge Laurensen<sup>2</sup>, Erik Bruininx<sup>1</sup>, Emilie-Julie Bos<sup>4</sup>, Walter Gerrits<sup>1</sup>

<sup>1</sup>Animal Nutrition Group, Wageningen University & Research, Wageningen, The Netherlands, <sup>2</sup>Adaptation Physiology Group, Wageningen University & Research, Wageningen, The Netherlands, <sup>3</sup>Wageningen Livestock Research, Wageningen University & Research, Wageningen, The Netherlands, <sup>4</sup>Agrifirm Innovation Center, Apeldoorn, The Netherlands

**P123****Expression of DNA-repairing AlkBh proteins in the tissues of intrauterine growth retarded pig**

Karolina Ferenc<sup>1</sup>, Tomasz Pilzys<sup>2</sup>, Damian Garbicz<sup>2</sup>, Michał Marcinkowski<sup>2</sup>, Jarosław Olszewski<sup>1</sup>, Zdzisław Gajewski<sup>1</sup>, Elżbieta Grzesiuk<sup>2</sup>, Romuald Zabielski<sup>1</sup>

<sup>1</sup>Center for Translational Medicine, Warsaw University of Life Sciences, Warsaw, Poland, <sup>2</sup>Institute of Biochemistry and Biophysics PAS, Warsaw, Poland

**P124****An association of Curcuma and Scutellaria plant extracts protects against inflammation induced by LPS in intestinal porcine epithelial cells**

Delphine Gardan-Salmon<sup>1</sup>, Stéphanie Molez<sup>2</sup>, Vincent Bégos<sup>3</sup>, Marisela Arturo-Schaan<sup>1</sup>, Arnaud Bruyère<sup>2</sup>

<sup>1</sup>Deltavit, CCPA Group, Janzé, France, <sup>2</sup>Irset - Inserm UMR 1085, Université de Rennes 1, Rennes, France, <sup>3</sup>CCPA Group, Janzé, France

**P125****Association of faecal consistency with myeloperoxidase as biomarker in weaned piglets**

Noémie Van Noten<sup>1</sup>, Eveline Matthys<sup>1</sup>, Luc Goethals<sup>1</sup>

<sup>1</sup>Sanluc International, Gent, Belgium

**P126****Simulation of naturally occurring diurnal heat stress damages gut integrity and alters plasma biomarkers in grower pigs**

Julie Mahoney<sup>1</sup>, Nathan Horn<sup>1</sup>, Katherine McCormick<sup>1</sup>, Adrienne Woodward<sup>1</sup>

<sup>1</sup>United Animal Health, Sheridan, United States

## SESSION 4: Functionality of the intestinal microbiome

### P127

#### A probiotic reduces inflammation in intestinal cells coupled with an in vitro model of the piglet colon challenged by ETEC

Raphaële Gresse<sup>1,2</sup>, Frédérique Chaucheyras Durand<sup>1,2</sup>, Sylvain Denis<sup>1</sup>, Martin Beaumont<sup>3</sup>, Caroline Achard<sup>2</sup>, Tom Van de Wiele<sup>4</sup>, Evelyne Forano<sup>1</sup>, Stéphanie Blanquet-Diot<sup>1</sup>

<sup>1</sup>Université Clermont Auvergne, INRAE, UMR 454 MEDIS, Clermont-Ferrand, France, <sup>2</sup>Lallemand SAS, Blagnac Cedex, France, <sup>3</sup>GenPhySE, Université de Toulouse, INRAE, ENVT, Castanet-Tolosan, France, <sup>4</sup>Ghent University, Center for Microbial Ecology and Technology, Ghent, Belgium

### P128

#### Development and validation of a novel mucin-containing in vitro model of the piglet colon: effect of associated feed deprivation

Raphaële Gresse<sup>1,2</sup>, Frédérique Chaucheyras Durand<sup>1,2</sup>, Sylvain Denis<sup>1</sup>, Juan J. Garrido<sup>3</sup>, Angeles Jimenez<sup>3</sup>, Martin Beaumont<sup>4</sup>, Caroline Achard<sup>2</sup>, Tom Van de Wiele<sup>5</sup>, Evelyne Forano<sup>1</sup>, Stéphanie Blanquet-Diot<sup>1</sup>

<sup>1</sup>Université Clermont Auvergne, INRAE, UMR 454 MEDIS, Clermont-Ferrand, France, <sup>2</sup>Lallemand SAS, Blagnac Cedex, France, <sup>3</sup>Grupo de Genómica y Mejora Animal, Departamento de Genética, Facultad de Veterinaria, Universidad de Córdoba, Córdoba, Spain, <sup>4</sup>Université de Toulouse, INRAE, INPT, ENVT, UMR GenPhySE, Toulouse, France, <sup>5</sup>Ghent University, Center for Microbial Ecology and Technology, Ghent, Belgium

### P129

#### Modification of the neonatal microbiota alters epithelial homeostasis and imprints stem cells in the colon of piglets

Martin Beaumont<sup>1</sup>, Lise Gallo<sup>1</sup>, Laure Gress<sup>1</sup>, Laurence Le-Normand<sup>2</sup>, Ellouan Perrot<sup>2</sup>, Samia Laraqui<sup>2</sup>, Gaëlle Boudry<sup>2</sup>

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### P130

#### Bacterial metabolites in stomach and jejunum of neonatal piglets and the influence of oral glutamine supplementation on them

Johannes Schulze Holthausen<sup>1</sup>, Quentin Leon Sciascia<sup>2</sup>, Johannes Schregel<sup>2</sup>, Cornelia Christiane Metges<sup>2</sup>, Jürgen Zentek<sup>1</sup>

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### P131

#### Lower Bacteroides and metabolic dysfunction are associated with diarrhea of post-weaning piglets



Wen Ren<sup>1</sup>, Bing Yu, Jinlong Wu, Yuheng Luo, Daiwen Chen

<sup>1</sup>Sichuan Agriculture University, Chengdu, China

### P132

#### Use of *Bacillus subtilis* strains to alleviate effects of feeds experimentally contaminated with deoxynivalenol in piglets

David Torrallardona<sup>1</sup>, Boris Villca<sup>1</sup>, Clarisse Techer<sup>2</sup>, Typhaine Morisset<sup>2</sup>, Alexandre Brame<sup>2</sup>, David Guillou<sup>2</sup>

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**P133****Evaluation of *Bacillus subtilis* on performance and microbiota of weaned pigs**Anthony Brassea<sup>1</sup>, Miguel Cervantes<sup>1</sup>, Lucero Camacho<sup>1</sup>, Ernesto Avelar<sup>1</sup>, Adriana Morales<sup>1</sup><sup>1</sup>Universidad Autónoma de Baja California, Mexicali, Mexico**P134****An in-feed postbiotic with inactivated Lactobacilli and spent culture medium increases resilience of piglets against enterotoxigenic Escherichia coli**Philippe Tacon<sup>1</sup>, Sergio Della Zassa<sup>1</sup>, Catherine Laravoire<sup>1</sup>, Erik Eckhardt<sup>1</sup><sup>1</sup>Adare Biome, Houdan, France**P135****Effect of a feed additive combination on the enteric microbiome and on chemical characteristics and ammonia emissions of stored manure**Estefania Perez Calvo<sup>1</sup>, Ursula M. McCormack<sup>1</sup>, Pauline Jenn<sup>1</sup>, Ali Ebrahimi<sup>2</sup>, Stephane Etheve<sup>3</sup>, Aaron J. Cowieson<sup>3</sup><sup>1</sup>DSM Nutritional Products, Saint Louis, France, <sup>2</sup>DSM Nutritional Products, Lexington, US, <sup>3</sup>DSM Nutritional Products, Kaiseraugst, Switzerland**P136****Feeding multi-strain probiotics improved carcass traits and meat quality in pigs**Ting-Yu Lee<sup>1</sup>, Yi-Chu Liao<sup>1</sup>, Hsiao-Tung Chang<sup>1</sup>, Hsiao-Ching Lin<sup>1</sup>, Hsiu-Ming Weng<sup>1</sup>, I-Ju Chang<sup>1</sup>, Fang Chi<sup>1</sup>, San-Land Young<sup>1</sup>, Jin-Seng Lin<sup>1</sup><sup>1</sup>Synbio Tech Inc., Kaohsiung, Taiwan**P137****Effects of probiotics on sow welfare and piglets' vitality at birth**Melody Pereira<sup>1</sup>, Ines Andretta<sup>1</sup>, Carolina Franceschi<sup>1</sup>, Marcos Kipper<sup>2</sup>, Alexandre Mariani<sup>1</sup>, Thais Stefanello<sup>1</sup>, Andrea Ribeiro<sup>1</sup><sup>1</sup>Federal University Of Rio Grande Do Sul, Porto Alegre, Brazil, <sup>2</sup>Elanco animal health, Porto Alegre, Brazil**P138****Alterations in digesta- and mucosa-associated bacteria of growing pigs with and without diarrhea**Farhad M. Panah<sup>1</sup>, Charlotte Lauridsen<sup>1</sup>, Ole Højberg<sup>1</sup>, Tina Skau Nielsen<sup>1</sup><sup>1</sup>Aarhus University, Foulum, Denmark**P139****Effects of dietary rye and rapeseed on microbiota and histomorphology of the colon in weaner pigs**Carola Ellner<sup>1</sup>, Ilgen Röhe<sup>1</sup>, Jürgen Zentek<sup>1</sup><sup>1</sup>Freie Universität Berlin, Berlin, Germany**P140****The impact of different levels of enzyme-treated soy fibre in weaners' diets on performance and SCFA production in the hindgut**Eva-Maria Saliu<sup>1</sup>, Simone Husballe Rasmussen<sup>2</sup>, Jessika van Leeuwen<sup>2</sup>, Jürgen Zentek<sup>1</sup><sup>1</sup>Institute of Animal Nutrition, Freie Universität Berlin, Berlin, Germany, <sup>2</sup>Hamlet Protein A/S, Horsens, Denmark

**P141****Effect of on-top supplementation of branched-chain amino acids and arginine on the faecal microbiota and haematological parameters in lactating sows**

**Federico Correa<sup>1</sup>, Luise Diana<sup>1</sup>, Tristan Chalvon-Demersay<sup>2</sup>, Aude Simongiovanni<sup>2</sup>, Paolo Bosi<sup>1</sup>, Paolo Trevisi<sup>1</sup>**

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**P142****Protipig: Influence of digesta and mucosal microbiota in nitrogen utilization efficiency of pigs**

**Naomi Sarpong<sup>1,2</sup>, Alina Kurz<sup>1,2</sup>, Daniel Berghaus<sup>1</sup>, Ramona Weishaar<sup>1</sup>, Eva Haese<sup>1</sup>, Jörn Bennewitz<sup>1,2</sup>, Markus Rodehutscord<sup>1,2</sup>, Jana Seifert<sup>1,2</sup>, Amélia Camarinha-Silva<sup>1,2</sup>**

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**P143****Effect of *Saccharomyces cerevisiae boulardii* CNCM I-1079 on bile acid signaling in post-weaning piglets**

**Fernando Bravo de Laguna<sup>1</sup>, Aleix Gavaldá-Navarro<sup>2</sup>, Inma Alvarez-Acero<sup>3</sup>, Francesc Villarroya<sup>2</sup>, Sonia de Pascual-Teresa<sup>3</sup>, Emmanuelle Apper<sup>1</sup>, Eric Chevaux<sup>1</sup>, Mathieu Castex<sup>1</sup>, Ignacio R. Ipharraguerre<sup>4</sup>**

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**P144****Feeding pregnant sows and their offspring Bacillus-based probiotic is an efficient way to improve gut function in piglets at weaning**

**Romuald Zabielski<sup>1</sup>, Paweł Konieczka<sup>2,3</sup>, Jens Noesgaard Jørgensen<sup>4</sup>, Jarosław Olszewski<sup>1</sup>, Magdalena Mazur-Kuśnerek<sup>5</sup>, Dominika Szkopek<sup>2</sup>, Natalia Szyryńska<sup>6</sup>, Krzysztof Lipiński<sup>5</sup>, Zdzisław Gajewski<sup>1</sup>, Karolina Ferenc<sup>1</sup>**

<sup>1</sup>Center of Translational Medicine Warsaw University of Life Sciences, Warszawa, Poland, <sup>2</sup>Department of Poultry Science, University of Warmia and Mazury in Olsztyn, Olsztyn, Poland, <sup>3</sup>Department of Animal Nutrition, The Kielanowski Institute of Animal Physiology and Nutrition Polish Academy of Sciences, Jabłonna, Poland, <sup>4</sup>Chr. Hansen A/S, Hoersholm, Denmark,

<sup>5</sup>Department of Animal Nutrition and Feed Science, University of Warmia and Mazury in Olsztyn, Olsztyn, Poland,

<sup>6</sup>Department of Histology and Embryology, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn, Olsztyn, Poland

**P145****Growth performance and gut microbiome of weanling pigs fed dietary enzyme complex and fibrous feed ingredients**

**Chan Sol Park<sup>1</sup>, Ayodeji Aderibigbe<sup>1</sup>, Deepak Velayudhan<sup>2</sup>, Wenting Li<sup>2</sup>, Leon Marchal<sup>2,3</sup>, Timothy Johnson<sup>1</sup>, Olayiwola Adeola<sup>1</sup>**

<sup>1</sup>Purdue University, West Lafayette, United States, <sup>2</sup>Danisco Animal Nutrition, Oegstgeest, The Netherlands, <sup>3</sup>Wageningen University & Research, Wageningen, The Netherlands

**P146****Feed efficiency in grower-finisher pigs in relation to faecal microbiota functionality**

**Lisanne Verschuren<sup>1</sup>, Jette Wennekes<sup>1</sup>, Olivier Zemb<sup>2</sup>, Mario Calus<sup>3</sup>**

<sup>1</sup>Topigs Norsvin Research Center B.V., Beuningen, Netherlands, <sup>2</sup>GenPhySE, INRAE - INPT - ENSAT - Université de Toulouse, Castanet-Tolosan, France, <sup>3</sup>Wageningen UR, Wageningen, The Netherlands

**P147****Apple pomace supplementation modulates colonic microbiota promoting health benefits in post-weaning piglets**

**Ester Arévalo Sureda<sup>1</sup>, Martine Schroyen<sup>1</sup>, Sandrine Dufourny<sup>2</sup>, Julie Uerlings<sup>1</sup>, Pierre Rondia<sup>2</sup>, Véronique Delcenserie<sup>3</sup>, José Wavreille<sup>2</sup>, Nadia Everaert<sup>1,4</sup>**

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**P148****Increased protein fermentation metabolites and pathogenic bacteria are linked to piglet post-weaning diarrhoea under practical conditions**

**Bart van der Hee<sup>1,2</sup>, Myrthe Gilbert<sup>3</sup>, Ineke Heikamp-de Jong<sup>2</sup>, Merlijn van Gaal<sup>2</sup>, Boudewijn Burgering<sup>4</sup>, Walter Gerrits<sup>3</sup>, Jerry Wells<sup>1</sup>, Hauke Smidt<sup>2</sup>**

<sup>1</sup>Host-Microbe Interactomics, Department of Animal Sciences, Wageningen University and Research, Wageningen, The Netherlands, <sup>2</sup>Laboratory of Microbiology, Wageningen University and Research, Wageningen, The Netherlands, <sup>3</sup>Animal Nutrition, Department of Animal Sciences, Wageningen University and Research, Wageningen, The Netherlands, <sup>4</sup>Center for Molecular Medicine, Molecular Cancer Research Section, University Medical Center, Utrecht, The Netherlands

**P149****The influence of dietary ingredient quality and protein level on gut microbiota composition and microbial metabolites in weanling pigs**

**Nuria Canibe<sup>1</sup>, Anna Schönherz<sup>1</sup>, Helle Nygaard Lærke<sup>1</sup>, Mette S Hedemann<sup>1</sup>**

<sup>1</sup>Aarhus University, Tjele, Denmark

**P150****Supplementation of xylo-oligosaccharides to suckling piglets modulates their hindgut microbial populations during the lactation and nursery periods**

**Francesc González-Sole<sup>1</sup>, David Solà-Oriol<sup>1</sup>, Yuliamis Ramayo-Caldas<sup>2</sup>, Gemma González-Ortiz<sup>3</sup>, Michael R. Bedford<sup>3</sup>, José Francisco Pérez<sup>1</sup>**

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**P151****Effects of structural carbohydrates, SID Thr/Lys and fermentable protein on gut microbiome composition and relationship with performance in nursery pigs**

**Sandra Paredes<sup>1</sup>, Ali Naqvi<sup>2</sup>, Maria Sardi<sup>3</sup>, Qiong Hu<sup>4</sup>, Mark Newcomb<sup>4</sup>, Briana Kozlowicz<sup>5</sup>, Ehsan Khafipour<sup>5</sup>**

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<sup>3</sup>Cargill Biotechnology R&D, Minneapolis, United States, <sup>4</sup>Cargill Animal Nutrition, Elk River, United States, <sup>5</sup>Cargill Health Technologies, Minneapolis, United States

**P152****Organic acid and salt blend treatment of cereal at harvest improves growth performance in the post weaned pig**

**Ruth Connolly<sup>1</sup>, Torres Sweeney<sup>1</sup>, Shane Maher<sup>1</sup>, John V. O' Doherty<sup>1</sup>**

<sup>1</sup>University College Dublin, Dublin, Ireland

**P153****Effects of early postnatal faecal transplantation on health and growth of pigs**

*Christina Larsen<sup>1</sup>, Simone M. Offersen<sup>1</sup>, Anders Brunse<sup>1</sup>, Carmen Espinosa-Gongora<sup>1</sup>, Luca Guadabassi<sup>1</sup>, Thomas Thymann<sup>1</sup>*

<sup>1</sup>Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg, Denmark

**P154****Associations between exploratory behaviour and the composition of the gut microbiota in pigs**

*Johan Dicksved<sup>1</sup>, Lidija Arapovic<sup>1</sup>, Jan Erik Lindberg<sup>1</sup>, Linda Keeling<sup>2</sup>, Else Verbeek<sup>2</sup>*

<sup>1</sup>Department of Animal Nutrition and Management, Swedish University of Agricultural Sciences, Uppsala, Sweden,

<sup>2</sup>Department of Animal Environment and Health, Swedish University of Agricultural Sciences, Uppsala, Sweden

**P155****Using probiotics and enzymes to improve liquid fermented feed for piglets**

*Nuria Canibe<sup>1</sup>, Samantha Joan Noel<sup>1</sup>, Helle Nygaard Lærke<sup>1</sup>*

<sup>1</sup>Aarhus University, Tjele, Denmark

**P156****Effect of graded doses of zinc from different sources on growth performance of weaned piglets**

*Agathe Romeo<sup>1</sup>, Jonathan Riedmüller<sup>1</sup>, Klaus Männer<sup>1</sup>, Wilfried Vahjen<sup>1</sup>, Naiana Manzke<sup>1</sup>, Jürgen Zentek<sup>1</sup>*

<sup>1</sup>Animine, Meythet, France, <sup>2</sup>Freie Universität Berlin, Berlin, Germany

**P157****Role of the cecum on fecal microbial community structure in finisher pigs using a cecectomized pig model**

*J.P. Knapp<sup>1</sup>, A.C. Neujahr<sup>1</sup>, M.D. Trenhaile-Grannemann<sup>1</sup>, K.A. Nguyen<sup>1</sup>, J. Wittler<sup>1</sup>, G. Sullivan<sup>1</sup>, S.C. Fernando<sup>1</sup>, P.S. Miller<sup>1</sup>, Thomas Burkey<sup>1</sup>*

<sup>1</sup>University Of Nebraska-Lincoln, Lincoln, United States

**P158****The evaluation of cecal and fecal microbial community structure in cecum-cannulated grower pigs fed a high fiber diet**

*J Knapp<sup>1</sup>, A Neujahr<sup>1</sup>, M Trenhaile-Grannemann<sup>1</sup>, K Nguyen<sup>1</sup>, J Wittler<sup>1</sup>, S.C. Fernando<sup>1</sup>, P.S. Miller<sup>1</sup>, Thomas Burkey<sup>1</sup>*

<sup>1</sup>University of Nebraska-Lincoln, Lincoln, United States

**P159****Standardization of the C:N ratio in ileal digesta of pigs alters relationships among fermentation end-products during in vitro hindgut fermentation**

*Kim Lammers-Jannink<sup>1</sup>, Wilbert Pellikaan<sup>1</sup>, Walter Gerrits<sup>1</sup>*

<sup>1</sup>Animal Nutrition Group, Wageningen University and Research, Wageningen, The Netherlands

**P160****Particle size of commonly consumed grains and brans: an important functional property affecting fermentability by gut microbiota**

*Hong Yao<sup>1</sup>, Bernadine M. Flanagan<sup>1</sup>, Barbara Williams<sup>1</sup>, Deirdre Mikkelsen<sup>1</sup>*

<sup>1</sup>Centre for Nutrition and Food Sciences, Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, St. Lucia, Brisbane, Australia, <sup>2</sup>School of Agriculture and Food Sciences, The University of Queensland, St. Lucia, Brisbane, Australia

**P161****Impact of supplementing lactating sows' diets with an Aspergillus oryzae-derived prebiotic****Cesar Ocasio Vega<sup>1</sup>, Cesare Tartarini<sup>2</sup>, Raffaella Rossi<sup>3</sup>, Prof. Carlo Corino<sup>3</sup>**<sup>1</sup>BioZyme Inc., St. Joseph, United States, <sup>2</sup>Prodotti A.I. Chem S.r.l., Peschiera Borromeo, Italy, <sup>3</sup>Department of Veterinary Medicine and Animal Science, University of Milan, Italy

## SESSION 5: Role of the gut in whole body functioning and health

### P162

#### Combination of functional amino acids can promote performance and gut morphology in piglets

Orasin Phornlaphat<sup>2</sup>, Tristan Chalvon-Demersay<sup>1</sup>

<sup>1</sup>METEX NOOVISTAGO, Paris, France, <sup>2</sup>Bangkok Animal Research Center, Bangkok, Thailand

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### P163

#### Interaction between a potentiated formulation of ZnO and a mixture of tannins to reduce post-weaning-diarrhea in an ETEC infection model

Catherine Ollagnier<sup>1</sup>, Maria-Rita Mellino<sup>2</sup>, Nicolas Pradervand<sup>1</sup>, Agathe Romeo<sup>3</sup>, Olivier Desrues<sup>4</sup>, Giuseppe Bee<sup>1</sup>

<sup>1</sup>Agroscope, Posieux, Switzerland, <sup>2</sup>University of Sassari, Sassari, Italy, <sup>3</sup>Animine, Annecy, France, <sup>4</sup>Silvateam, San Michele Mondovì, Italy

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### P164

#### Dietary fumonisins potentially modulate some health indicators in weaned piglets

Yasmin Yunus Zeebone<sup>1,2</sup>, Melinda Kovács<sup>1,2</sup>, Brigitta Bota<sup>2</sup>, Krisztián Balogh<sup>3</sup>, Veronika Halász<sup>1</sup>

<sup>1</sup>Hungarian University of Agriculture and Life Sciences- Kaposvár Campus, Kaposvár, Hungary, <sup>2</sup>Mycotoxins in the Food Chain Research Group, Kaposvár, Hungary, <sup>3</sup>Hungarian University of Agriculture and Life Sciences- Gödöllő Campus, Gödöllő, Hungary

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### P165

#### Effect of the maternal diet and growth rate in the suckling period on nutrient uptake in the jejunum of piglets

Marion Girard<sup>1</sup>, Marco Tretola<sup>1,2</sup>, Francesco Palumbo<sup>1,3</sup>, Federico Correa<sup>3</sup>, Paolo Silacci<sup>1</sup>, Giuseppe Bee<sup>1</sup>

<sup>1</sup>Agroscope, Posieux, Switzerland, <sup>2</sup>University of Milano, Department of Health, Animal Science and Food Safety, Milano, Italy, <sup>3</sup>University of Bologna, Department of Agricultural and Food Sciences, Bologna, Italy

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### P166

#### Dietary supplementation with Pichia guilliermondii yeast product during gestation and lactation improves sows' body condition and litter performance

Emmanuel Janvier<sup>1</sup>, Clementine Oguey<sup>2</sup>, Arnaud Samson<sup>3</sup>

<sup>1</sup>ADM, Saint-Nolff, France, <sup>2</sup>ADM, Rolle, Switzerland, <sup>3</sup>ADM, Chierry, France

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### P167

#### Exploring the dietary effects of a medium chain fatty acids and monoglycerides premixture in weaned piglets challenged with *Streptococcus suis*

David Guillou<sup>1</sup>, Xiaonan Guan<sup>2</sup>, Anoushka Middelkoop<sup>2</sup>, Noémie Lemoine<sup>1</sup>, Francesc Molist<sup>2</sup>

<sup>1</sup>Mixscience, Bruz, France, <sup>2</sup>Schothorst Feed Research, Lelystad, The Netherlands

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### P168

#### Effect of coarse indigestible fiber in piglet diet at weaning on digestive health status indicators and growth performance

Noémie Lemoine<sup>1</sup>, David Brillouet<sup>1</sup>, David Guillou<sup>1</sup>

<sup>1</sup>Mixscience, Bruz, France

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**P169**

**Meta-analysis of the effects of inactivated *Pichia guilliermondii* yeast fed to sows on progeny performance before and after weaning**

**Clementine Oguey<sup>1</sup>, Morgan Thayer<sup>2</sup>, Dan Jones<sup>2</sup>, Arnaud Samson<sup>3</sup>**

<sup>1</sup>ADM Animal Nutrition, Rolle, Switzerland, <sup>2</sup>ADM Animal Nutrition, Quincy, USA, <sup>3</sup>ADM Animal Nutrition, Chierry, France

**P170**

**Effect of inert carbohydrates on performance and microbiota of sows and their piglets**

**Xandra Benthem de Grave<sup>1</sup>, Francesc Molist<sup>1</sup>**

<sup>1</sup>Schothorst Feed Research, Lelystad, The Netherlands

**P171**

**Age rather than creep feeding modified jejunal and caecal gene expression for fatty acid-signalling and immune response in neonatal piglets**

**Frederike Lerch<sup>1,2</sup>, Julia Vötterl<sup>1,2</sup>, Simone Koger<sup>2,3</sup>, Juliane Ehmig<sup>1</sup>, Doris Verhovsek<sup>4</sup>, Barbara Metzler-Zebel<sup>1,2</sup>**

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**P172**

**Effects of dietary crude protein content and resistant starch supplementation on growth performance, histomorphology, and microbial metabolites in weaned pigs**

**Jinyoung Lee<sup>1</sup>, Jolie Caroline González-Vega<sup>2</sup>, John Khun Htoo<sup>2</sup>, Martin Nyachoti<sup>1</sup>**

<sup>1</sup>University of Manitoba, Winnipeg, Canada, <sup>2</sup>Evonik Operations GmbH, Hanau-Wolfgang, Germany

**P173**

**Ileum transcriptomic profiling post-weaning pinpoints differences in intestinal physiological status and maturity between light and heavy weight weaned piglets**

**Sofia Morais<sup>1</sup>, Gemma Tedó<sup>1</sup>, Sergi López-Vergé<sup>1</sup>, Rita María Benítez<sup>2</sup>, Cristina Óvilo<sup>2</sup>**

<sup>1</sup>Lucta SA, Bellaterra, Spain, <sup>2</sup>INIA-CSIC, Madrid, Spain

**P174**

**The level of hemicellulose in lactating sow diet affects the faecal volatile fatty acid profile and microbiota**

**Francesco Palumbo<sup>1,2</sup>, Giuseppe Bee<sup>1</sup>, Paolo Trevisi<sup>2</sup>, Federico Correa<sup>2</sup>, Catherine Ducrest<sup>1</sup>, Marion Girard<sup>1</sup>**

<sup>1</sup>Agroscope, Posieux, Switzerland, <sup>2</sup>University of Bologna, Department of Agricultural and Food Sciences, Bologna, Italy

**P175**

**Feeding a Bacillus-based probiotic to lactating sows and their offspring - Impact on fecal microbiota and performance of piglets**

**Lea Hübertz Birch Hansen, Lena Raff**

<sup>1</sup>Chr. Hansen A/S, Hørsholm, Denmark

**P176**

**Evaluation of dietary supplementation with formic acid and zinc oxide in weaning piglets**

**David Torrallardona<sup>1</sup>, Gerald Wischer<sup>2</sup>, Peter Ader<sup>2</sup>**

**P177****Short and medium chain fatty acids monoglycerides as antimicrobials alternative in diets for weaning piglets challenged with *E. coli* K88**

David Torraldona<sup>1</sup>, Joan Tarradas<sup>1</sup>, Ignacio Badiola<sup>1</sup>, Ana Pérez de Rozas<sup>1</sup>, Adriana Barri<sup>2</sup>, Peter Ader<sup>2</sup>

<sup>1</sup>IRTA, Constantí, Spain, <sup>2</sup>BASF SE, Lampertheim, Germany

**P178****Functional milk formula with pre-hydrolyzed fat ameliorates gut maturation and LCPUFA absorption in a porcine model of premature infants**

Jarosław Woliński<sup>1,2</sup>, Anna Socha-Banasiak<sup>3</sup>, Kamil Zaworski<sup>2</sup>, Kateryna Pierzynowska<sup>2,4,6</sup>, Stefan Grzegorz Pierzynowski<sup>4,5,6</sup>

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**P179****Attempt to restore backfat efficiently in gestating sows using four different fiber supplements**

Sigrid Jost Wisbech<sup>1</sup>, Knud Erik Bach Knudsen<sup>1</sup>, Thomas Sønderby Bruun<sup>2</sup>, Per Tybirk<sup>2</sup>, Tina Skau Nielsen<sup>1</sup>, Peter Kappel Theil<sup>1</sup>

<sup>1</sup>Aarhus University, Tjele, Denmark, <sup>2</sup>SEGES Danish Pig Research Centre, Copenhagen, Denmark

**P180****Optimising immune response in vaccine challenged piglets through micro nutrients**

Ursula M. McCormack<sup>1</sup>, Elodie Bacou<sup>1</sup>, Yanhong Luo<sup>2</sup>, Raffaella Aureli<sup>1</sup>, Ivan Gaytan Perez<sup>3</sup>, Pauline Jenn<sup>1</sup>, Anaelle Tschambser<sup>1</sup>, Jerome Schmeisser<sup>1</sup>, Maria C. Walsh<sup>3</sup>

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**P181****Does supplementation with threonine and tryptophan above nutrient requirement to weaned piglets improve gut health parameters?**

Maiken Næstholt Engelsmann, Tina Skau Nielsen, Jan Værum Nørgaard, Mette Skou Hedemann, Uffe Krogh

<sup>1</sup>Aarhus Universitet, Tjele, Denmark

**P182****The combination of spray dried plasma and reduced crude protein in diets decreases circulating cytokines of weanling pigs**

Hannah Bailey<sup>1</sup>, Joy Campbell<sup>2</sup>, Hans Stein<sup>1</sup>

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**P183****Mixed doses of glutamate and glutamine contribute to improving the gut health and immunity of post-weaning piglets**

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**P184****Stimulation of the gut functionality of post-weaning pigs with the administration of ETEC F4/F18 bivalent vaccine**

**Paolo Trevisi<sup>1</sup>, Diana Luise<sup>1</sup>, Federico Correa<sup>1</sup>, Laura Amatucci<sup>1</sup>, Sara Virdis<sup>1</sup>, Clara Negrini<sup>1</sup>, Francesco Palumbo<sup>1,2</sup>, Mario Vecchi<sup>3</sup>, Maurizio Mazzoni<sup>4</sup>, Pedro Jose Sanchez<sup>3</sup>, Paolo Bosi<sup>1</sup>**

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**P185****A synergistic blend of organic acids in drinking water of piglets supports post-weaning growth performance – a meta-analysis**

**Lane Pineda<sup>1</sup>, Mandy Lingbeek<sup>1</sup>, Yanming Han<sup>1</sup>**

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**P186****Effects of maize naturally contaminated with deoxynivalenol and of dietary anti-oxidants on oxidative stress in fattening pigs**

**Eric Royer<sup>1</sup>, Philippe Pinton<sup>2</sup>, Florence Barbé<sup>3</sup>, Manon Neves<sup>2</sup>, Laurent Alibert<sup>1</sup>, Mathieu Castex<sup>3</sup>**

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**P187****A Multi-Component Approach to Optimize Nursery Piglet Immunity Starting with the Sow**

**Yanhong Luo<sup>1</sup>, Ursula M. McCormack<sup>2</sup>, Elodie Bacou<sup>2</sup>, Jingcheng Zhang<sup>1</sup>, Shikui Wang<sup>1</sup>, Zhenzhen Wang<sup>1</sup>, Jinlong Wu<sup>1</sup>, Maria C. Walsh<sup>3</sup>**

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**P188****Supplementation of fibre and *Bacillus subtilis* DSM 32540 alone or in combination on performance and gut health of weaned pigs**

**Gloria Casas<sup>1</sup>, Caroline González-Vega<sup>2</sup>, Martina Kluenemann<sup>2</sup>, John Htoo<sup>2</sup>**

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**P189****Effect of dietary fiber source and probiotic supplementation on performance and diarrhea incidence of nursery pigs**

**Dante Teixeira Valente Junior<sup>1</sup>, Gustavo Amorim Rodrigues<sup>1</sup>, Elisa Oliveira Frank<sup>1</sup>, Vinícius Scalabrini Brito<sup>1</sup>, Caroline Jolie González-Veja<sup>3</sup>, John Kyaw Htoo<sup>3</sup>, Henrique Gastmann Brand<sup>4</sup>, Bruno Alexander Nunes Silva<sup>2</sup>, Alysson Saraiva<sup>1</sup>**

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**P190****Effect of dietary fiber source and probiotic supplementation on intestinal morphology and permeability of nursery pigs**

**Dante Teixeira Valente Junior<sup>1</sup>, Gustavo Amorim Rodrigues<sup>1</sup>, Maykelly da Silva Gomes<sup>1</sup>, Elisa Oliveira Frank<sup>1</sup>, Caroline Jolie González-Veja<sup>3</sup>, John Kyaw Htoo<sup>3</sup>, Henrique Gastmann Brand<sup>4</sup>, Bruno Alexander Nunes Silva<sup>2</sup>, Alysson Saraiva<sup>1</sup>**

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**P191**

**Feeding hydrolyzed copra meal and fermented rye blend on gut health of weaned piglets challenged with *E. coli* K88**

**Mandy Lingbeek<sup>1</sup>, Yanli Zhang<sup>2</sup>, Xianren Jiang<sup>2</sup>, Xilong Li<sup>2</sup>, Yuan Yuan Wu<sup>1</sup>, Sandra van Kuijk<sup>1</sup>, Yanming Han<sup>1</sup>**

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**P192**

**Dietary uptake of a wood-based feed supplement improves antioxidative status and gut integrity of piglets challenged with *Brachyspira hyodysenteriae***

**Paula Angélica Correia<sup>2</sup>, Roberto Mauricio Carvalho Guedes<sup>2</sup>, Christine Potthast<sup>1</sup>, Stefan Hirtenlehner<sup>1</sup>**

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**P193**

**Impact of zearalenone-contaminated sugar beet pulp on modern sow reproduction**

**Jeannette Kluess<sup>1</sup>, Angelika Grümpel-Schlüter<sup>1</sup>, Susanne Kersten<sup>1</sup>, Janine Saltzmann<sup>1</sup>, Antje Schubbert<sup>1</sup>, Sally Rauterberg<sup>1</sup>, Stefan Büngener-Schröder<sup>1</sup>, Sven Dänicke<sup>1</sup>**

<sup>1</sup>Institute of Animal Nutrition (FLI), Braunschweig, Germany

**P194**

**Dietary indigestible protein increases post-weaning diarrhoea in piglets irrespective of sanitary housing conditions**

**Myrthe Gilbert<sup>1</sup>, Lonneke Noorman<sup>2</sup>, Bart van der Hee<sup>1</sup>, Walter Gerrits<sup>1</sup>**

<sup>1</sup>Wageningen University & Research, Wageningen, The Netherlands, <sup>2</sup>Utrecht University, Wageningen, The Netherlands

**P195**

**Feeding antibacterial plant combinations to mitigate post-weaning diarrhoea in organic piglets challenged with enterotoxigenic *Escherichia coli* F18**

**Kevin Jerez-Bogota<sup>1</sup>, Ole Højberg<sup>2</sup>, Martin Jensen<sup>1</sup>, Nuria Canibe<sup>2</sup>**

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**P196**

**Maternal and/or direct supplementation with a casein hydrolysate and yeast  $\beta$ -glucan on post-weaning performance and intestinal health in the pig**

**Eadaoin Conway<sup>1</sup>, John V. O'Doherty<sup>1</sup>, Anindya Mukhopadhy<sup>2</sup>, Alison Dowley<sup>1</sup>, Stafford Vigors<sup>1</sup>, Marion Ryan<sup>2</sup>, Torres Sweeney<sup>2</sup>**

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**P197**

**Maternal supplementation with casein hydrolysate and yeast beta-glucan from late gestation through lactation improves gastrointestinal health of piglets at weaning**

**Alison Dowley<sup>1</sup>, John V. O'Doherty<sup>1</sup>, Anindya Mukhopadhy<sup>1</sup>, Eadaoin Conway<sup>1</sup>, Stafford Vigors<sup>1</sup>, Shane Maher<sup>1</sup>, Marion Ryan<sup>1</sup>, Torres Sweeney<sup>1</sup>**

<sup>1</sup>University College Dublin, Dublin, Ireland

**P198****Effects of dietary supplementation with mushroom or vitamin D2-enriched mushroom powders on gastrointestinal health parameters in the weaned pig**

**Alison Dowley<sup>1</sup>, Torres Sweeney<sup>1</sup>, Eadaoin Conway<sup>1</sup>, Stafford Vigors<sup>1</sup>, Supriya Yadav<sup>2</sup>, Jude Wilson<sup>2</sup>, William Gabrielli<sup>2</sup>, John V. O'Doherty<sup>1</sup>**

<sup>1</sup>University College Dublin, Dublin, Ireland, <sup>2</sup>MBio, Tyholland, Ireland

**P199****The effect of a marine mineral complex on growth performance of weaned piglets**

**Meike Bouwhuis<sup>1</sup>, Arturo Frio<sup>2</sup>, Shane O'Connell<sup>1,3</sup>**

<sup>1</sup>Celtic Sea Minerals, Cork, Ireland, <sup>2</sup>1st Ten Consulting Asia Pacific, Santa Domingo Bay, Philippines, <sup>3</sup>Plant Biostimulant Group, Shannon Applied Biotechnology Centre, Munster Technological University-Tralee, Tralee, Ireland

**P200****Application of different butyric acid derivatives in weaning piglets**

**Elke von Heimendahl<sup>1</sup>, Georg Duse<sup>2</sup>, Katharina Schuh<sup>3</sup>**

<sup>1</sup>Eastman Chemical Company, Langenfeld, Germany, <sup>2</sup>University of Applied Sciences, Bingen, Germany, <sup>3</sup>Institute of Feed Research, Bingen, Germany

**P201****Impact of oral administration of single-domain antibodies on post-weaning diarrhea – a challenge study with E. coli F4**

**Jiajia Xu<sup>1</sup>, Michael Pichler<sup>2</sup>, Tiia Kittilä<sup>2</sup>, Emma Wenzel Horsted<sup>3</sup>, Andreas Hougaard Laustsen<sup>2,3</sup>, Susanne Brix<sup>2</sup>, Sandra Wingaard Thrane<sup>3</sup>, Nuria Canibe<sup>1</sup>**

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**P202****Effect of post-weaning acute feed and water deprivation and high DON diet on growth performance and intestinal health in piglets**

**Yemi Burden<sup>1</sup>, Nathan Horn<sup>1</sup>, Adrienne Woodward<sup>1</sup>**

<sup>1</sup>United Animal Health, Sheridan, United States

**P203****Early life fibre-enriched diets affect gut functionality of piglets challenged with enterotoxigenic Escherichia coli after weaning**

**Soumya Kar<sup>1</sup>, Anouschka Middelkoop<sup>2</sup>, Alfons Jansman<sup>1</sup>, Francesc Molist<sup>2</sup>**

<sup>1</sup>Wageningen Livestock Research, Wageningen, The Netherlands, <sup>2</sup>Schothorst Feed Research, Lelystad, The Netherlands

**P204****Effects of dietary protein level on intestinal function and inflammation in growing pigs**

**Sarah Pearce<sup>1</sup>, Mitchell Nisley<sup>2</sup>, Chris Sparks<sup>3</sup>, Nicholas Gabler<sup>2</sup>**

<sup>1</sup>USDA-ARS National Laboratory for Agriculture and the Environment, Ames, USA, <sup>2</sup>Iowa State University, Ames, USA,

<sup>3</sup>Huvepharma, Peachtree City, USA

**P205****Dietary intervention with microbial-derived alkaline phosphatase exerts protective effects against post-weaning syndrome in pigs**

**Jalisa Zimmerman<sup>2</sup>, Stephanie Matt<sup>2</sup>, Megan Corbett<sup>2</sup>, Courtney Bolt<sup>2</sup>, Jeffery Escobar<sup>1</sup>, Rodney Johnson<sup>2</sup>**

<sup>1</sup>Elanco Animal Health, Greenfield, United States, <sup>2</sup>Department of Animal Sciences, University of Illinois at Urbana-Champaign, Urbana, United States

**P206****Effect of raw potato starch to newly weaned piglets on post-weaning diarrhoea and SCFA production****Maiken Engelsmann<sup>1</sup>, Tina Skau Nielsen<sup>1</sup>, Mette Skou Hedemann<sup>1</sup>, Uffe Krogh<sup>1</sup>, Jan Værum Nørgaard<sup>1</sup>**<sup>1</sup>*Department of Animal Science, Aarhus University, Aarhus, Denmark***P207****The influence of nutritional supplementation and weaning age on health, intestinal morphology and performance of piglets pre- and post-weaning****Darya Vodolazska<sup>1</sup>, Peter Kappel Theil<sup>1</sup>, Takele Feyera<sup>1</sup>, Charlotte Lauridsen<sup>1</sup>**<sup>1</sup>*Department of Animal Science, Aarhus University, Blichers Allé 20, 8830 Tjele, Denmark***P208****The effects of particle size and reduced feeding patterns on gastric ulceration in growing pigs****Kayla Miller<sup>1</sup>, Omarh Mendoza<sup>2</sup>, Wesley Schweer<sup>3</sup>, Eric Burrough<sup>4</sup>, Carson De Mille<sup>1</sup>, Mitchell Nisley<sup>1</sup>, Nicholas Gabler<sup>1</sup>**<sup>1</sup>*Iowa State University, Ames, United States, <sup>2</sup>The Maschhoffs, LLC, Carlyle, United States, <sup>3</sup>Zinpro Corporation, Eden Prairie, United States, <sup>4</sup>Iowa State University Veterinary Diagnostic Laboratory, Ames, United States***P209****The effect of feeding a low-protein diet for a short period on weaning diarrhea and antibiotic treatments****Tina Sørensen<sup>1</sup>**<sup>1</sup>*Seges Danish pig research centre, Copenhagen, Denmark***P210****Effects of dietary arginine supplementation on pig growth performance and health status following weaning stress****Jorge Perez Palencia<sup>1</sup>, Noah Reiman<sup>1</sup>, Keith Haydon<sup>2</sup>, Crystal Levesque<sup>1</sup>**<sup>1</sup>*South Dakota State University, Brookings, United States, <sup>2</sup>CJ Bio America INC, Downers Grove, United States***P211****Novel probiotic feed additive based on *Bacillus coagulans DSM32016* improves growth performance and faecal consistency in weaned piglets****Birgit Keimer<sup>1</sup>, Alexandra Schlagheck<sup>1</sup>, Klaus Männer<sup>2</sup>, Jürgen Zentek<sup>2</sup>**<sup>1</sup>*Biochem Zusatzstoffe GmbH, Lohne, Germany, <sup>2</sup>Freie Universität Berlin, Berlin, Germany***P212 - Intestinal barriers in intrauterine growth restricted piglets****Jarosław Olszewski<sup>1</sup>, Romuald Zabielski<sup>1</sup>, Tomasz Skrzypek<sup>2</sup>, Piotr Matyba<sup>1</sup>, Elżbieta Grzesiuk<sup>3</sup>, Maria Sady<sup>1</sup>, Zdzisław Gajewski<sup>1</sup>, Karolina Ferenc<sup>1</sup>**<sup>1</sup>*Center of Translationel Medicine Sggw, Warsaw, Poland, <sup>2</sup>Interdisciplinary Research Center, The John Paul II Catholic University of Lublin, Lublin, Poland, <sup>3</sup>Department of Molecular Biology, Institute of Biochemistry and Biophysics PAS, Warsaw, Poland***P213****Specific fibre fractions can decrease E.coli adhesion and intestinal inflammation in weaned piglets****Sofie Tanghe<sup>1</sup>, Maartje De Vos<sup>1</sup>, Kobe Lannoo<sup>1</sup>, Jan Vande Ginste<sup>1</sup>, Romain D'Inca<sup>1</sup>**<sup>1</sup>*Nutrition Sciences N.V., Drongen, Belgium*

**P214****Enzymatically treated yeast in diets of weanling pigs****Emmanuel Alagbe<sup>1</sup>, Hagen Schulze<sup>2</sup>, Kolapo Ajuwon<sup>1</sup>, Olayiwola Adeola<sup>1</sup>**<sup>1</sup>Purdue University, West Lafayette, United States, <sup>2</sup>Livalta, Peterborough, United Kingdom**P215****Higher amino acid demand in portal drained viscera of post-wean piglets****Jan Willem Resink<sup>1</sup>, Walter Gerrits<sup>2</sup>, Tetske Hulshof<sup>1</sup>, Nicolaas Deutz<sup>3</sup>, Gabriella Ten Have<sup>3</sup>**<sup>1</sup>Trouw Nutrition, R&D, Boxmeer, The Netherlands, <sup>2</sup>Wageningen University, Animal Nutrition Group, Wageningen, The Netherlands, <sup>3</sup>Texas A&M University, Center for Translational Research in Aging & Longevity, Dep. Health and Kinesiology, College Station, United States of America**P216****Transcriptomic and DNA methylation response to feed intake in the duodenum in high- and low-feed efficiency pig lines****Guillaume Devailly<sup>1</sup>, Katia Fêve<sup>1</sup>, Safia Saci<sup>1</sup>, Julien Sarry<sup>1</sup>, Sophie Valière<sup>2</sup>, Olivier Bouchez<sup>2</sup>, Laure Ravon<sup>3</sup>, Yvon Billon<sup>3</sup>, Martin Beaumont<sup>1</sup>, Hélène Gilbert<sup>1</sup>**<sup>1</sup>GenPhySE, Université de Toulouse, INRAE, ENVT, 31326, Castanet Tolosan , France, <sup>2</sup>INRAE, US 1426, GeT-PlaGe, Genotoul, Castanet-Tolosan, France, <sup>3</sup>Pig phenotyping and Innovative breeding facility, GenESI, UE1372, INRAE, F-17700, Surgères, France**P217****Influence of n-3 fatty acids in sow and piglet diets on ileal transcriptome of piglets 28 days post-weaning****Eudald Llauradó-Calero<sup>1</sup>, Maria Ballester<sup>2</sup>, Rosil Lizardo<sup>1</sup>, David Torrallardona<sup>1</sup>, Enric Esteve-Garcia<sup>1</sup>, Núria Tous<sup>1</sup>**<sup>1</sup>Animal Nutrition, Institute for Food and Agricultural Research and Technology (IRTA), Constantí, Spain, <sup>2</sup>Animal Breeding and Genetics, Institute for Food and Agricultural Research and Technology (IRTA), Caldes de Montbui, Spain**P218****Dietary protein sources affect uremic toxin excretion in pigs****Kim Lammers-Jannink<sup>1</sup>, Wilbert Pellikaan<sup>1</sup>, Margriet Riphagen<sup>2</sup>, Rebecca Heiner-Fokkema<sup>2</sup>, Walter Gerrits<sup>1</sup>**<sup>1</sup>Animal Nutrition Group, Wageningen University and Research, Wageningen, The Netherlands, <sup>2</sup>Laboratory of Metabolic Diseases, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands**P219****Effects of dacitic tuff breccia and poultry by-products on jejunal morphology and gene expression of nursery pigs****Jacob Richert<sup>1</sup>, Morgan Thayer<sup>3</sup>, Karissa Rulon<sup>1</sup>, Jon Ferrel<sup>2</sup>, Allan Schinckel<sup>1</sup>, John Scott Radcliffe<sup>1</sup>, Brian Richert<sup>1</sup>**<sup>1</sup>Purdue University, West Lafayette, United States, <sup>2</sup>Azomite, Nephi, United States, <sup>3</sup>ADM, Decatur, United States**Conference Secretariat DPP2022**

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