



## Table of Contents

Scientific programme Tuesday 1 December	2
Scientific programme Wednesday 2 December	14
Scientific programme Thursday 3 December	34
Scientific programme Friday 4 December	52

# Scientific programme

## Tuesday 1 December

### Session 01.

### Plenary session – responsibility of animal production on climate change

Chair: Gauyl

Theatre Session 01	Book of Abstracts page
10:00 Welcome and opening of the 2020 EAAP Virtual Annual Meeting <i>President M. Gauyl</i>	
10:30 +1.5 ° – global climate and climate politics <b>Invited</b> <i>G. Kaser</i>	99
11:00 Rethinking methane – livestock's path to climate neutrality <b>Invited</b> <i>F. Mitloehner</i>	99
11:30 Adaptation actions to reduce environmental impact (global warming) on livestock farming <b>Invited</b> <i>U. Bernabucci</i>	100
12:00 Open discussion	

### Session 02.

### Joint EAAP/ADSA/Interbull session: Breeding and genetics – ten years of genomic selection

Chair: Miglior

Theatre Session 02	Book of Abstracts page
13:45 How to implement genomic selection <b>Invited</b> <i>P.M. Vanraden and J.B. Cole</i>	100
14:15 Role of Interbull in the successful implementation of genomic selection in breeds other than Holstein <b>Invited</b> <i>E. Santus</i>	101
14:45 Exploiting homozygosity in the era of genomics: selection, inbreeding and genomic mating programs <b>Invited</b> <i>C. Maltecca, F. Tieuzzi, J.B. Cole and C. Baes</i>	101
15:15 Single-step genomic evaluations in dairy cattle <b>Invited</b> <i>E.A. Mäntysaari, M. Koivula and I. Strandén</i>	102
15:30 Coffee break	
15:45 What's next for dairy cattle breeding? <b>Invited</b> <i>G. Gorjanc</i>	102

## Session 03.

## Genetic diversity

Chair: Fernández Martín

### Theatre Session 03

### Book of Abstracts page

13:45	Genetic variability in four genetic lines of guinea pigs in Peru <i>J.I. Cedano-Castro, R. Jiménez, A. Huaman, B. Fuerst-Waltl, M. Wurzinger and G. Gutiérrez</i>	103
14:00	Effect of genomic selection on inbreeding and effective population size of Holsteins <i>B. Makajuola, F. Miglior, E.A. Abdalla, C. Maltecca, F.S. Schenkel and C.F. Baes</i>	103
14:15	The genomic inbreeding landscape of Italian heavy pig breeds over the last decades <i>G. Schiavo, S. Bovo, A. Ribani, S. Tinarelli, V.J. Utzeri, M. Cappelloni, M. Gallo and L. Fontanesi</i>	104
14:30	Whole genome re-sequencing reveals adaptation prior to the divergence of buffalo subspecies <i>M. Rafiepour, E. Ebrahimie, M.F. Vahidi, G. Hosseini Salekdeh, A. Niazi, M. Dadpasand, D. Liang, J. Si, X. Ding, J. Jianlin Han, Y. Zhang and S. Qanbari</i>	104
14:45	Inferring ancestral alleles of cattle from outgroup species <i>M.M. Naji, Y.T. Utsunomiya, B.D. Rosen, J. Sölkner and G. Mészáros</i>	105
15:00	Copy number variation analysis of the East Adriatic sheep breeds <i>M. Ferenčaković, M. Spehar, V. Brajkovic, I. Drzaic, I. Curik and V. Cubric-Curik</i>	105
15:15	Genomic analysis of indigenous Croatian sheep breeds based on a high-density SNP chip <i>I. Drzaic, V. Brajkovic, M. Gianni, B. Lukić, V. Orehovacki, M. Cacic, M. Ferenčaković, I. Curik and V. Cubric-Curik</i>	106
15:30	Coffee break	

### Poster Session 03

### Book of Abstracts page

03.09	Runs of homozygosity and inbreeding in Swiss Large White pigs <i>H. Signer-Hasler, A. Hofer and C. Flury</i>	107
03.10	Genetic characterisation by genealogical analysis of the Marinhoa breed of cattle <i>A. Vitorino, E. Guicho, M. Silveira and N. Carolino</i>	107
03.11	The breed-wise structure and genomic inbreeding in Estonian dairy cattle <i>S. Värv, E. Sild, K. Rooni, T. Kaart and H. Viinalass</i>	108
03.12	Trends of inbreeding in a population of Polish HF young bulls before and after genomic selection <i>P. Topolski and W. Jagusiak</i>	108
03.13	The CLARITY project: a combined physical-genetic map for a dairy cattle breed in Germany <i>D. Wittenburg and S. Qanbari</i>	109
03.14	Assessment of the risk status of Polish local breeds under conservation programmes <i>G.M. Polak, J. Krupinski, E. Martyniuk, J. Calik, A. Kawęcka, J. Krawczyk, A. Majewska, J. Sikora, E. Sosin-Bzducha, M. Sznydler-Nędza and I. Tomczyk-Wrona</i>	109
03.15	Serra-da-Estrela sheep breed: a Portuguese genetic resource <i>J. Oliveira, N. Carolino, M. Silveira, M. Miranda and R. Dinis</i>	110
03.16	What are the values and beliefs that drive cattle breeding in south-western Burkina Faso? <i>B. Zoma-Traoré, S. Ouédraogo-Koné, A. Soudré, D. Ouédraogo, B. Yougbaré, A. Traoré, A.M. Okeyo, P.A. Burger, G. Mészáros, J. Sölkner, M. Wurzinger and L. Probst</i>	110

## Session 04.

## PLF for saving feed

Chair: Maselene / Halachmi

Theatre Session 04		Book of Abstracts page
13:45	The need for hybrid neural network models in precision livestock farming systems <i>Invited L.O. Tedeschi</i>	111
14:15	Monitoring and evaluation of cattle individual feed efficiency in commercial farms <i>Invited I. Halachmi</i>	111
14:45	Gestating sows' feeding behaviour with precision feeding <i>C. Gaillard, R. Gauthier and J.Y. Dourmad</i>	112
15:00	Individual precision feeding and lowering crude protein might help to decrease environmental burden <i>A. Remus, L.S. Santos, C. Pomar and L. Hauschild</i>	112
15:15	A Bayesian comparison of individual growth response models for precision-feeding of growing pigs <i>M.M. Misiura, J.A.N. Filipe, L. Brossard, E.F. Knol, M.R. Bedford and I. Kyriazakis</i>	113
15:30	Coffee break	
15:45	The limitations of actual mathematical models to predict individual real-time nutrient requirements <i>C. Pomar and A. Remus</i>	113
16:00	Predicting nutritive characteristics of heterogeneous dairy pasture in-situ from hyperspectral data <i>A. Thomson, S. Karunaratne, A. Copland, D. Stayches, E. Morse-Mcnabb and J. Jacobs</i>	114
16:15	Genetic parameters of different feed efficiency traits of Charolais young bulls <i>S. Taussat, C. Fossaert, G. Cantalapiedra-Hijar, L. Griffon and G. Renand</i>	114
16:30	Environmental optimisation of diets for genetically selected pigs <i>T. Soleimani and H. Gilbert</i>	115
16:45	Raw or technologically treated proteaginous seeds as alternatives to soybean meal for dairy cows <i>S. Mendowski, P. Nozière, A. Ferlay, P. Denis, G. Chesneau and P. Chapoutot</i>	115
17:00	Standardised natural citrus extract optimise feed efficiency: a way to reduce carbon footprint <i>S. Cisse, H. Bui, R. Djezzar, A. Benarbia and D. Guillet</i>	116
Poster Session 04		Book of Abstracts page
04.12	Ingestive behaviour and feed conversion of two different Holstein genotypes grazing pasture <i>D. Talmón, M. Garcia-Roche, A. Mendoza and M. Carriquiry</i>	116
04.13	Energy efficiency of grazing Holstein dairy cows <i>D. Talmón, M. Garcia-Roche, A. Mendoza and M. Carriquiry</i>	117
04.14	Feed efficiency evaluation of grazing Hereford heifers <i>M.F. Marín, T. Devicenzi, A. Jasinsky, E. Navajas, A.C. Espasandín and M. Carriquiry</i>	117
04.15	NIRS calibrations for feed intake: a proposal for the definition of reference data <i>F. Maroto-Molina, D.C. Pérez-Marín, A. Garrido-Varo, J.E. Guerrero-Ginel and C. Riccioli</i>	118

## Session 05.

## Climate change impact on livestock health and welfare

Chair: Messori / Sossidou

Theatre Session 05	Book of Abstracts page
13:45 Welfare and production under hot environment: the case of dairy cattle <i>U. Bernabucci</i>	118
14:15 Adaptation to heat waves in dairy cows by optimisation of cooling operations <i>A. Vitali, U. Bernabucci, A. Nardone and N. Lacetera</i>	119
14:30 Technical measures to improve conditions for fattening pigs and environment during warm weather <i>A.-C. Olsson, K.-H. Jeppsson and A. Nasirahmadi</i>	119
14:45 The effect of air temperature, humidity and velocity on respiration rate in gestating sows <i>P. Brandt, B. Bjerg, P. Pedersen and G. Zhang</i>	120
15:00 A new approach to combine genetic merit for milk content and heat stress on Spanish goat using PCA <i>C. Ziadi, A. Menéndez-Buxadera, M. Sánchez, E. Muñoz-Mejías, M.D. López and A. Molina</i>	120
15:15 How does the intestinal metabolism adapt to reduced nutrient intake during heat stress in dairy cow? <i>F. Koch, S. Görs and B. Kuhla</i>	121
15:30 Coffee break	
15:45 Effect of phytopreparative feed additives on performance of dairy cows during heat stress condition <i>P. Pourazad, S. Aditya, A. Aulanniam, R.L. Balia, G.L. Utama, T. Aubert and K.R. Wendler</i>	121
16:00 Effect of heat stress and of feed provision modification on growth and thermoregulation in pigs <i>A.M. Serviento, E. Labussière, M. Castex and D. Renaudeau</i>	122
16:15 Effect of supplemental diet with vitamin c and folic acid on broiler chickens under heat stress <i>A. Gouda, S. Tolba and S.A. Amer</i>	122
Poster Session 05	Book of Abstracts page
05.10 Across-generation influence of maternal heat stress during late gestation in dairy cows <i>C. Kipp, K. Brügemann, P. Zieger, K. Mütze, S. Möcklinghoff-Wicke and S. König</i>	123
05.11 Cortisol levels and relative expression of ACTH gene in beef cattle <i>B.V. Pires, N.B. Stafizza, S.B.G.P.N.P. Lima and C.C.P. Paz</i>	123
05.12 A mixed linear model for the analysis of microbiome impact on heat stress in Chinese Holstein cows <i>J. Szyda, B. Czech, K. Wang, S. Chen and Y. Wang</i>	124
05.13 Plasma antioxidant/oxidant balance of heat stressed ewes fed <i>Ascophyllum nodosum</i> and flaxseed <i>M.G. Ciliberti, M. Soccio, D. Pastore, M. Albenzio, A. Santillo, A. Sevi and M. Caroprese</i>	124

## Session 06.

## Energy and protein efficiency in pigs, from conception to slaughter

Chair: Bee / Millet

Theatre Session 06	Book of Abstracts page
13:45 Efficient pig and poultry production: what did we learn from Feed-a-Gene? <i>Invited J. Van Milgen, K.E. Bach Knudsen, A. Jansman, V. Halas, J. Pomar, H. Gilbert and G. Garrod</i>	125
14:15 Heritability of nitrogen efficiency in Swiss Large White pigs: potential for selective breeding <i>C. Kasper, I. Ruiz-Ascacibar, P. Stoll and G. Bee</i>	125

14:30	Comparison of growth curve models for Canadian purebred pigs <i>L. Maignel and P. Gagnon</i>	126
14:45	Effect of the digestible protein reduction on growth performance in fattening pigs fed <i>ad libitum</i> <i>E. Janvier, F. Payola, F. Guillard, C. Launay, E. Schetelat and A. Samson</i>	126
15:00	Effect of a nutritional strategy on fat deposition and lipid-related gene expression in Duroc pigs <i>E. Jiménez-Moreno, P. Aymerich, D. Menoyo, J. Bonet, D. Carrión and J. Coma</i>	127
15:15	Interaction between fat and fibre level on the nutrient digestibility of pig feed <i>L. Paternostre, S. Millet and J. De Boever</i>	127
15:30	Coffee break	
15:45	Effects of carbohydrase on ileal digesta, and nutrient and fibre digestibility in growing pigs <i>G.I. Lee, T.S. Nielsen, H.N. Lærke and K.E. Bach Knudsen</i>	128
16:00	A static balance model to quantify and explore mammary nutrient metabolism in lactating sows <i>U. Krogh, H. Quesnel, N. Le Floc'h, A. Simongiovanni and J. Van Milgen</i>	128
16:15	Performance, colostrum and milk fatty acid profile in sows fed divergent ω-6:ω-3 fatty acids ratios <i>T.X. Nguyen, A. Agazzi, M. Comi, V. Bontempo, G. Invernizzi, S. Panseri, H. Sauerwein, M. Pinerio, D. Eckersall, R. Burchmore and G. Savoini</i>	129
16:30	Differences in feeding behaviour of high and low protein-efficient pigs <i>E.O. Ewaoluwagbemiga, C. Kasper and G. Bee</i>	129
16:45	Dietary interventions and oxidation and energy expenditure in newborn IUGR piglets: a pilot study <i>J.G. Madsen, M.N. Nielsen and C. Amdi</i>	130
17:00	Poster session <i>G. Bee and S. Millet</i>	130

#### Poster Session 06

#### Book of Abstracts page

06.13	Reproductive traits and VCL measurement of pigs depending on polymorphisms in the HOXA10 gene <i>A. Mucha, M. Szyndler-Nędza, R. Tuz, K. Piórkowska, M. Małopolska and T. Schwarz</i>	131
06.14	Effects of immunocastration on plasma free amino acid concentration of Iberian pigs <i>I. Fernández-Figares, L. Lara, M. Lachica, I. Seiquer, A. Haro and R. Nieto</i>	131
06.15	Meta-analysis of the effect of a nutritional strategy on fat deposition in Duroc crossbred pigs <i>E. Jiménez-Moreno, J. Aibar, J. Mesalles, R. Rabadán, C. De Blas and D. Carrión</i>	132
06.16	Do standard and luxury pig feed really differ in digestibility and growth performance? <i>L. Paternostre, J. De Boever and S. Millet</i>	132
06.17	Dietary inosine-5'-monophosphate saved metabolisable energy for finishing pigs <i>L.P. Bonagurio, C.A. Moreira, L.D. Castilha, A.E. Murakami and P.C. Pozza</i>	133
06.18	Candidate genes related with fatness traits in pigs <i>K. Ropka-Molik, K. Piórkowska, K. Żukowski, M. Tyra and G. Żak</i>	133
06.19	Effect of crossbreeds on organically grown pigs growth parameters <i>I. Jansons, V. Sterna, L. Degola and D. Jonkus</i>	134
06.20	Time-restricted feeding modifies feed intake and performance of male Mulard ducks <i>J.E. Rico, C.M. Perdomo, M. Lehmann, L. Delprat, M. Lefrançois and D.E. Rico</i>	134
06.21	Effects of short-term feeding of high-fructose, high-lipid diets on performance of Mulard ducks <i>L. Delprat, M. Lehmann, M. Lefrançois, J.E. Rico and D.E. Rico</i>	135

06.22	Effects of high energy diets and fructose supplementation in the drinking water on duck performance <i>L. Delprat, M. Lefrançois, J.E. Rico and D.E. Rico</i>	135
06.23	Probiotics in broiler chicks' diet fed with different sources of protein <i>G. Ciurescu and M. Dumitru</i>	136
06.24	Metabolic changes in three Iberian pig strains during the finishing period in two feeding systems <i>N. Garrido, F.I. Hernández-García, A. González-Bulnes, M.A. Perez and M. Izquierdo</i>	136

## Session 07.

## Responsiveness of the dairy cattle industry to social needs

Chair: Foskolos

Theatre Session 07		Book of Abstracts page
13:45	The role of milk and milk products in the diets of children, adolescents, pregnant women and adults <i>I. Givens</i>	137
14:15	Advanced monitoring of milk quality to address the demand of added-value dairy products <i>C. Bastin, F. Dehareng, N. Gengler, M. Sindic, E. Piraux, H. Soyeurt, H. Wilmot, C. Bertozi, J. Leblois and F.G. Colinet</i>	137
14:30	The MIQUALAT project: nutraceutical properties of cow milk, preliminary results <i>C. Marchitelli, F. Napolitano, M. Contò, S. Failla, G. Chillemi, F. Porcelli and A. Crisà</i>	138
14:45	Mediating role of silence on the issue of animal welfare in the Irish dairy industry <i>S.E.M. Snijders, A. Rieple and L.A. Boyle</i>	138
15:00	Working towards a socially sustainable dairy industry <i>M. Von Keyserlingk</i>	139
15:30	Coffee break	
15:45	Milk and casein nitrogen use efficiency of dairy farms in the Parmigiano Reggiano production area <i>M. Simoni, R.G. Pitino, M.A. Belaid, A. Foskolos, A. Summer, A. Quarantelli and F. Righi</i>	139
16:00	Effects of nutritional solutions for dairy cows in reducing nitrogen excretion and ammonia emission <i>S.A. Salami, H. Warren and J. Taylor-Pickard</i>	140
16:15	How many cows and how much milk production per cow when the Netherlands goes circular <i>S. Van Der Beek and C. Roozeboom</i>	140
16:30	Determinants of calf marketing from dairy production in Baden-Württemberg <i>C. Reiber, M. Wollmeister and M. Chagunda</i>	141
Poster Session 07		Book of Abstracts page
07.10	Application of random regression models on age for semen volume and concentration in Holstein bulls <i>F.I. Fujimoto, H.T. Hanamure, H.H. Hayakawa, K.J. Kawakami and H.K. Hagiya</i>	141
07.11	The role of dairy-beef production in determining the environmental efficiency of dairy farms <i>A.D. Soteriades, A. Foskolos, D. Styles and J.M. Gibbons</i>	142
07.12	The effects of Trp-Phe and acetate combination on milk protein synthesis in Holstein dairy cows <i>J.R.V. Conejos, W.S. Kim, Y.H. Jo, J.E. Kim, J.H. Jo, H.Y. Park, J.G. Nejad, J.S. Lee, E.J. Kim and H.G. Lee</i>	142
07.13	Evaluation of animal welfare through milk recording in dairy cows <i>L.M.G. Faria, A. Ferreira, J.P. Araújo and J.L. Cerqueira</i>	143
07.14	Comparison of heat stress indicators based on weather station records in Holstein cows <i>S. Ishida, K. Izumi, T. Osawa, S. Yamaguchi, T. Yamazaki and K. Hagiya</i>	143

07.15	Relationships between type traits and herd life of Holstein cows in different housing in Japan <i>Y. Nagasaka, Y. Nakahori, S. Yamaguchi, H. Abe, S. Nakagawa, T. Yamasaki, T. Baba, J. Kawakami, Y. Terawaki and K. Hagiya</i>	144
-------	--	-----

## Session 08. **Physiological basis of PLF technologies to infer on animal health, welfare and production efficiency in cattle**

Chair: Montanholi

<b>Theatre Session 08</b>		<b>Book of Abstracts page</b>
13:45	Dynamic modelling for nutritional management of ruminants in the face of climate change <i>H.C. Dougherty, M. Evered, J.W. Oltjen and V.H. Oddy</i>	144
<b>Invited</b>		
14:15	The effect of routine practices on the behaviour of beef cows according to their feeding management <i>K. Orquera, I. Ortigues-Marty, N. Thollon, I. Casasús, B. Sepchat and A. De La Torre</i>	145
14:30	Pasture feeding effects on α-tocopherol content and lipid oxidation of beef from late maturing bulls <i>S. Siphambili, A.P. Moloney, E.G. O'Riordan, M. McGee and F.J. Monahan</i>	145
14:45	Impact of animal handling on the stress status of Rubia Gallega beef cattle: study of apoptosis <i>C. Fuente-Garcia, N. Aldai, E. Sentandreu, D. Franco and M.A. Sentandreu</i>	146
15:00	PhenoBR: a model to characterise variations of body reserves in meat ewes <i>T. Macé, D. Hazard, F. Carrière, S. Dousl, D. Foulquié, E. González-García and M. Taghipoor</i>	146
15:15	HappyMoo project – assessing animal welfare towards milk composition <i>J. Leblois, C. Bastin, C. Bertozi, M. Calmels, L. Dale, C. Grelet, C. Lecomte, M.-N. Tran and A. Werner</i>	147
15:30	Coffee break	
15:45	Estimating energy balance of dairy cows with the GreenFeed system and milk mid-infrared spectroscopy <i>A. Guinguina and P. Huhtanen</i>	147
16:00	Effects of electrochemically activated drinking water on bovine milk composition <i>E. Vargas-Bello-Pérez, R. Dhakal and H.H. Hansen</i>	148
16:15	Cow activity measurements can be used to define new fertility traits for use in genetic evaluation <i>B. Heringstad, K.B. Wethal and K.I. Dragset</i>	148
16:30	Effects of reproductive management on genetic evaluations of fertility traits in dairy cattle <i>C. Lynch, G.A. Oliveira Junior, F.S. Schenkel, L.R. Schaeffer and C.F. Baes</i>	149
16:45	Relationships of NMR-metabolite profiles with performance, milk and health traits in the bovine <i>D. Rippel, W. Xu, A. Kenez and Y. Montanholi</i>	149
<b>Poster Session 8</b>		<b>Book of Abstracts page</b>
08.12	A validated ELISA method for detecting differences in feather corticosterone between turkey lines <i>E.M. Leishman, N. Freeman, A. Newman, N. Van Staaveren, B.J. Wood, A. Harlander and C.F. Baes</i>	150
08.13	Effects of feeding behaviour and physiological stage on the metabolic profile of the local goats <i>H. Harrabi, M. Abid, M. Fatnassi, S. Bessalah and M. Hammadi</i>	150
08.14	The Effect of colostrum lactose content on growth performance of piglets <i>M. Szyndler-Nędza, A. Mucha and M. Tyra</i>	151
08.15	Fatty acids profile of the reproductive rabbit female: preliminary results <i>M.L. Garcia, R. Muelas, I. Agea, E. Armero and M.J. Argente</i>	151

08.16	Assessing feed efficiency in grazing dairy cows through infrared thermography <i>T. Haak, A. Münger, K.H. Südekum and F. Schori</i>	152
08.17	Relationship between rectal and infrared thermography maximum eye temperature of Arouquesa breed <i>C. Venâncio, P. Valentim, D. Moreira and S.R. Silva</i>	152
08.18	Towards the identification of nutrition biomarkers in dairy cows <i>L. Cordeiro, H.M. Oliveira, A.R.J. Cabrita, L. Ferreira, F. Castanheira, M.R.G. Maia, A.J.M. Fonseca and I.M. Valente</i>	153
08.19	Interferon-gamma-dependent mechanisms elicited in bovine macrophages in response to <i>Neospora caninum</i> <i>A.C. Ferreira, J. Guimarães, R. Pedro, M. Silva, M. Resende, M. Vilanova and A. Correia</i>	153

## Session 09.

## Insects as feed and health effects for livestock

Chair: Gasco / Ottoboni

Theatre Session 09		Book of Abstracts page
13:45	Gut health effects of feeding insect products to livestock <i>Invited A. Józefiak</i>	154
14:15	Symbionts, probiotics and pathogens of farmed insects <i>A. Vilcinskas</i>	154
14:30	Effect of seaweed or selenium enriched substrates on live and reproductive performance in BSF <i>M. Ottoboni, F. Defilippo, P. Gigante, A. Grisendi, G. Pupillo, P. Bonilauri and L. Pinotti</i>	155
14:45	<i>Hermetia illucens</i> larvae meal: evaluation of an alternative protein source in diet for rainbow trout <i>C. Caimi, I. Biasato, G. Chemello, M. Renna, S. Bellezza Oddon, M. Prearo, A. Schiavone, F. Gai, C. Trèspeuch, C. Guidou and L. Gasco</i>	155
15:00	Effect of novel functional ingredient on the performance resistance of pacific white shrimp <i>A. Richardson, J.J. Dantas-Lima, M. Walraven and M. Lefranc</i>	156
15:15	Amine metabolism in pigs is influenced by black soldier fly larva meal inclusion in the diet <i>S.K. Kar, D. Schokker, M.A. Smits and A.J.M. Jansman</i>	156
15:30	Coffee break	
15:45	Effect of the replacement of soybean by black soldier fly larvae in pig diets – a metabolic assay <i>D. Murta, R. Antunes, A. Pestana, I. Vieira, R. Nunes, A. Sequeira, J. Almeida and O. Moreira</i>	157
16:00	Cuticle-poor black soldier fly meal show casein-matching body protein retention efficiency in mice <i>R. Gutman, M. Fialko, J. Martinez and A. Jonas-Levi</i>	157
Poster Session 09		Book of Abstracts page
09.09	Quality of the protein from black soldier fly larvae compared to soybean protein in organic broilers <i>M. Heuel, C. Sandrock, A. Mathys, M. Gold, C. Zurbrügg, I. Gangnat, M. Kreuzer and M. Terranova</i>	158
09.10	Evaluation of the suitability of a <i>Tenebrio molitor</i> L. meal as ingredient for broiler chicken diets <i>D. Murawska, W. Sobotka, T. Bakula, D. Witkowska, M. Gesek, T. Daszkiewicz and P. Matusewic̄ius</i>	158
09.11	Effect of diet on the chemical composition of <i>Tenebrio molitor</i> larvae <i>S.F.S. Cardoso, T.L. Mateus and J.C.O. Lopes</i>	159
09.12	Effect of diet on the chemical composition of <i>Zophobas morio</i> larvae <i>S.F.S. Cardoso, T.L. Mateus and J.C.O. Lopes</i>	159

09.13	Use of insect meals in ruminant nutrition: protein evaluation <i>P.G. Toral, P. Frutos, M.G. González-Rosales, A. Della Badia, M. Fondevila and G. Hervás</i>	160
09.14	The effects of replacing soybean with <i>Hermetia illucens</i> on the broiler intestinal tract <i>J. Catarino, M.A. Machado, A. Alvarado, I. Carvalho, R. Matos, O. Moreira, P. Faísca and D. Murta</i>	160

## Session 10.

## Sustainable land use for healthy humans and a healthy planet

Chair: Zehetmeier / Ripoll Bosch

Theatre Session 10		Book of Abstracts page
13:45	Animals in circular food systems and their contribution to healthy diets <i>H.H.E. Van Zanten, B. Van Selm and A. Frehner</i>	161
<b>Invited</b>		
14:15	Evaluation of the contribution of 15 European beef production systems to food safety <i>A. Jarousse, P. Veysset, P. Madrange, S. Hennart, A. Mertens, G. Pirlo, M. Lacurto, E. O'Riordan, J. Breen, C. Pahmeyer and C. Mosnier</i>	161
14:30	Assessing ruminant feed efficiency at world scale: the complex relationship between milk and meat <i>P. Faverdin, J. Agabriel, Y. Dronne, H. Guyomard, E. Marajo-Petitzon and A. Forslund</i>	162
14:45	Exploring European livestock system performance along sustainability dimensions <i>F. Accatino, M. Zehetmeier, V. Karger, A. Reindl, M. Paiva Dos Santos, R. Teixeira, T. Rodriguez-Ortega, J.P. Domingues, D. Neumeister, E. De Olde, A. Van Der Linden and G. Dorfner</i>	162
15:00	Food Futures: a reporting tool to enhance the sustainability of livestock production systems <i>A. Aubry, R. McGuire, J. Birnie, N. Scollan and S. Morrison</i>	163
15:15	Optimising the contribution of cattle productions to food supply: reconsidering farm type <i>C. Battheu-Noirfalise, A. Mertens, S. Hennart, M. Mathot and D. Stilmant</i>	163
15:30	Coffee break	
15:45	Protein quality: implications for sustainability assessments of protein-rich foods <i>G.A. McAuliffe, T. Takahashi and M.R.F. Lee</i>	164
<b>Invited</b>		
16:15	The importance of whole farm nutrient mass balance: a case study at the south of Portugal <i>L. Martin, D. Santos and F. Miguens</i>	164
16:30	Capturing multi-dimensional effects of linking production to area in dairy farming <i>V. Karger, M. Zehetmeier, A. Reindl, G. Dorfner and J. Halbe</i>	165
16:45	The role of animal production in human diets in 2050: effects on nitrogen use and climate change <i>T.G. Morais, R.F.M. Teixeira, C. Lauk, M.C. Theurl, A. Mayer, H. Haberl, T. Domingos and K.E. Erb</i>	165
17:00	Measurement of patterns of soil organic matter in the Mediterranean Montado ecosystem using NIRS <i>J. Serrano, S. Shahidian, J. Marques Da Silva, M. Carvalho and A.E. Rato</i>	166
Poster Session 10		Book of Abstracts page
10.12	Microalgae supplementation in pigs – muscle microstructure, meat quality, and fatty acid composition <i>D. Dannenberger, C. Kalbe, A. Priepeke and G. Nuernberg</i>	166
10.13	Wild boar population management and its impact on local farming, a case report from central Italy <i>M. Odintsov-Vaintrub and U. Di Nicola</i>	167
10.14	Environmental impacts of applying circularity to a food system: a case study of the Netherlands <i>B.J. Van Selm, I.J.M. De Boer, M.K. Van Ittersum, R. Hijbeek and H.H.E. Van Zanten</i>	167

10.15	Valorisation of effluents from poultry production <i>A.C.G. Monteiro, V. Resende and O. Moreira</i>	168
10.16	Quality of bulk milk in single- and multi-breed farms of Italian alpine area <i>T. Zanon, A. Costa, M. De Marchi, M. Penasa, S. König and M. Gault</i>	168
10.17	The potential of regenerative agriculture on Dutch soils <i>L. Schreefel, C. Timler, R.P.O. Schulte, A. Pas Schrijver, H.H.E. Van Zanten and I.J.M. De Boer</i>	169
10.18	Selecting for genetic progress in low-input dairy herds <i>H. Davis and G. Butler</i>	169
10.19	Property planning as tools for the design of agricultural integrated systems in fragile ecosystems <i>A. Conde-Pulgarin, L.C. Bernal-Bechara, R.M. Fajardo-Vergara and D.A. Torres-Chavarro</i>	170

## Session 11. Dairy sheep and goat systems: new research in genes, nutrition and management

Chair: Tzamaloukas / Keane

Theatre Session 11		Book of Abstracts page
13:45	Use of omics to evaluate the response of dairy sheep and goats to heat and cold stress <b>Invited</b> <i>A.A.K. Salama, A. Contreras-Jodar, N. Mehaba and G. Caja</i>	170
14:15	On-farm welfare assessment and its relationship with milk production in dairy sheep farms <b>Invited</b> <i>G. Caja, R. González-González, M. Rovai, A.A.K. Salama and X. Such</i>	171
14:30	Performances and plasma redox status in dairy goats fed metabolisable methionine balanced diets <i>P. Schmidely and L. Bahloul</i>	171
14:45	Lactational effects of melatonin during spring in 2 breeds of dairy ewes <i>A. Elhadi, A.A.K. Salama, X. Such and G. Caja</i>	172
15:00	Fibre, energy balance, milk production, and milk composition of sheep and goats: where is the link? <b>Invited</b> <i>A. Cannas, A. Nudda, A.S. Atzori, M.F. Lunesu, V. Giovanetti and G. Molle</i>	172
15:30	Coffee break	
15:45	Effect of condensed tannins of sainfoin on the fatty acid profile of ewe's milk and lamb's meat <i>S. Lobón, C. Baila, M. Blanco, I. Casasús, J.R. Bertolín and M. Joy</i>	173
16:00	Potentials of milk performance data as indicator for targeted selective treatment in Lacaune sheep <i>K.S. Schwarz, B.B. Bapst, M.H. Holinger, A.S. Steiner, I.S. Schleip and S.W. Werne</i>	173
Poster Session 11		Book of Abstracts page
11.08	The pattern of distribution of runs of homozygosity in the Russian local goat breeds <i>T. Deniskova, A. Dotsev, M. Selionova, H. Reyer, K. Wimmers, J. Sölkner, G. Brem and N. Zinovieva</i>	174
11.09	Short- and long-term effects of cabergoline at dry-off in 2 breeds of dairy ewes <i>A. Elhadi, A.A.K. Salama, X. Such and G. Caja</i>	174
11.10	Effect of proanthocyanidins of sainfoin on secondary compounds in milk and suckling lamb meat <i>M. Blanco, C. Baila, M. Joy, J.R. Bertolín, I. Casasús and S. Lobón</i>	175
11.11	The investigation of fatty acid profile of Chios sheep during lactation <i>Z. Basdagian, C. Karaikou, E. Kasapidou and M.A. Karatzia</i>	175

11.12	Principal component analysis of variation in milk odd- and branched-chain fatty acids in dairy ewes <i>P.G. Toral, G. Hervás, M. Plante-Dubé, E. Barrio, R. Gervais and P. Frutos</i>	176
11.13	Relationships between dietary starch and milk odd- and branched-chain fatty acids in ewes fed oils <i>P.G. Toral, P. Frutos, M. Plante-Dubé, A.G. Mendoza, R. Gervais and G. Hervás</i>	176
11.14	Comparison between rumen bacterial composition of growing and adult Romane sheep <i>F. Touitou, A. Meynadier, C. Marie-Etancelin, F. Tortereau and C. Moreno-Romieu</i>	177
11.15	Serra-da-Estrela ewe synchronisation: seasonal effects, reproductive performance and lamb production <i>M.R. Marques, A.T. Belo, J.M. Ribeiro, C.C. Belo and M. Garcia-Herreros</i>	177
11.16	Estimation of genetic parameters and genomic breeding values for AI success in French dairy goats <i>M. Chassier, A. Piacere and C. Virginie</i>	178
11.17	Assessment of inbreeding depression on milk production in the two autochthonous Czech goat breeds <i>L. Vostry, H. Vostra-Vydrova, N. Moravcikova, B. Hofmanova, R. Kasarda, M. Brzakova and J. Rychtarova</i>	178
11.18	Differential gene expression analysis between colour and white skin in the Assaf sheep breed <i>P.K. Chitneedi, J.J. Arranz, A. Suárez-Vega and B. Gutiérrez-Gil</i>	179
11.19	The effect of maize vitreousness and a starch binder on <i>in vitro</i> gas production using rumen fluid <i>C.W. Cruywagen and J.H.C. Van Zyl</i>	179
11.20	Assessment of antioxidant capacity in dairy ewes after supplementation of feed with milk thistle oil <i>C. Karaiskou, E. Kasapidou, S. Makri, D. Kouretas and Z. Basdagianni</i>	180
11.21	Pedigree and genomic inbreeding comparison in the Italian Delle Langhe dairy sheep breed <i>M. Cortellari, A. Negro, A. Bionda, A. Cesaroni, N. Macciotta, S. Grande, S. Biffani and P. Crepaldi</i>	180
11.22	Genomic inbreeding of Nicastrese: conservation of an autochthonous Italian goat breed <i>M. Cortellari, A. Negro, A. Bionda, A. Cesaroni, N. Macciotta, S. Grande, S. Biffani and P. Crepaldi</i>	181
11.23	Application of multivariate indices in traits of milk of Manchega sheep: preliminary results <i>E. Angón, A. Garzón, J. Caballero-Villalobos, A. Figueroa, R. Arias and J. Perea</i>	181

## Session 12.

## What livestock has to offer to biodiversity & healthy soils (ATF)

Chair: Peyraud

Theatre Session 12		Book of Abstracts page
13:45	What livestock has to offer to biodiversity & healthy soils: Welcome and introduction <i>J.L. Peyraud</i>	182
14:00	Assessment of livestock impacts and positive contributions to biodiversity and soil health <i>Invited F. Teillard</i>	182
14:15	Trade-offs between livestock, biodiversity and soils health & approaches towards positive impacts <i>Invited A. Arroyo Schnell (to Be Confirmed)</i>	183
14:30	Farmers best practices to mitigate or remediate biodiversity losses <i>Invited S. Finan</i>	183
14:45	Animal genetic resources and breeding goals for biodiversity-rich livestock systems <i>Invited S.J. Hiemstra</i>	184
15:00	Good practices of industry driving production <i>Invited D. Forster</i>	184

15:15 Questions & answers

185

*J.-L. Peyraud*

15:30 Coffee break

15:45 Panel discussion: Improving positive contribution of livestock to biodiversity & soil health?

185

*F. O'Mara*

# Scientific programme

## Wednesday 2 December

### Session 13.

### Governance of the genetic resources

Chair: Leroy / Baumung

Theatre Session 13	Book of Abstracts page
9:00 Introduction to the governance of the animal genetic resources challenge session <i>G. Leroy and R. Baumung</i>	186
9:15 What to preserve, and how to decide? <b>Invited</b> <i>H. Simianer</i>	186
9:45 International genetic evaluations as a technology of governance of the globalised cattle breeding <b>Invited</b> <i>L. Chavinskaia and V. Ducrocq</i>	187
10:15 Challenges and opportunities in the international governance of animal genetic resources <b>Invited</b> <i>E. Martyniuk</i>	187

### Session 14.

### Genetics free communications

Chair: Formoso-Rafferty

Theatre Session 14	Book of Abstracts page
9:00 Sequence-based GWAS for milk production, udder health and morphology traits in French dairy cattle <i>T. Tribout, P. Croiseau, R. Lefebvre, A. Barbat, M. Boussaha, S. Fritz, D. Boichard, C. Hoze and M.P. Sanchez</i>	188
9:15 Fine resolution CNV catalogue from deeply sequenced cattle genomes <i>Y.L. Lee, H. Takeda, G. Costa Monteiro Moreira, L. Karim, M. Bosse, A. Bouwman, E. Mullaart, W. Coppieters, M. Georges, T. Druet, C. Charlier and GplusE Consortium</i>	188
9:30 Genome-wide association studies for iris pigmentation and heterochromia patterns in Large White pigs <i>G. Moscatelli, S. Bovo, G. Schiavo, G. Mazzoni, F. Bertolini, S. Dall' Olio and L. Fontanesi</i>	189
9:45 Single-SNP and haplotype-based genome scans for teat number in Italian Large White and Landrace pigs <i>S. Bovo, M. Ballan, G. Schiavo, A. Ribani, S. Tinarelli, V.J. Utzeri, G. Galimberti, M. Cappelloni, M. Gallo, S. Dall'olio and L. Fontanesi</i>	189
10:00 Genome-wide association study for milking speed and temperament in Holstein-Friesian bulls <i>B. Kosińska-Selbi, M. Jakimowicz, T. Suchocki, M. Skarwecka, A. Żarnecki, W. Jagusiak and J. Szyda</i>	190
10:15 Whole-genome sequence association study on birth weaning and carcass traits in Charolais breed <i>E. Venot, S. Taussat, A. Govignon-Gion, T. Tribout, M. Boussaha and C. Hoze</i>	190
10:30 Genes affecting bovine milk mineral composition revealed from sequence-based GWAS <i>M.-P. Sanchez, P. Grospeirin, C. Hozé, M. Boussaha, A. Delacroix-Buchet, M. Brochard and D. Boichard</i>	191
10:45 Coffee break	
11:00 Optimal investment in phenotyping and genotyping in dairy breeding <i>J. Obšteter, J. Jenko, J.M. Hickey and G. Gorjanc</i>	191
11:15 Impact of culling reasons on estimated genetic parameters for longevity in North American Angus <i>H.R. Oliveira, S.P. Miller, L.F. Brito and F.S. Schenkel</i>	192

- 11:30 Genomic models considering GxE: modelling heterogeneous SNP variances  
*B. Gredler-Grandl and M.P.L. Calus*

192

#### Poster Session 14

#### Book of Abstracts page

- 14.11 Citizen attitudes towards genome editing in farm animals 193  
*G. Busch, E. Ryan, M.A.G. Von Keyserlingk and D.M. Weary*
- 14.12 SNPs selection for differentiation of wild and domestic reindeer populations 193  
*V.R. Kharzinova, A.V. Dotsev, H. Reyer, K. Wimmers, G. Brem and N.A. Zinovieva*
- 14.13 Preliminary embryo mortality analysis for birth weight homogeneity in mice 194  
*N. Formoso-Rafferty, J.P. Gutiérrez, R. Martín-Amores, K.D. Arias, M. Arias-Álvarez and I. Cervantes*
- 14.14 Genetic relationship between birth and weaning weight environmental variability in a mice population 194  
*N. Formoso-Rafferty, J.P. Gutiérrez, M.J. Chacón, L. Bodin and I. Cervantes*
- 14.15 Biological interpretability of SNP effect size classes in Bayesian genomic prediction models 195  
*F. Mollandin, A. Rau and P. Croiseau*
- 14.16 Modelling maternal effects on late measured traits in broilers 195  
*H. Romé, D. Marois, C.H. Huang and J. Jensen*
- 14.17 Predicting sow longevity using pure- and crossbred data 196  
*M.W. Iversen, Ø. Nordbø, E. Gjerlaug-Enger, E. Grindflek and T.H.E. Meuwissen*
- 14.18 EWRAB – a program to calculate economic values for rabbit breeding 196  
*Z. Krupová, E. Krupa and M. Wolfová*
- 14.19 Accounting for Manech information in Latxa genetic evaluations 197  
*C. Pineda Quiroga, A. Legarra, J.M. Astruc and E. Ugarte*
- 14.20 Identifying genes and pathways involved in direct calving ease in Holstein Friesian cattle 197  
*M.J. Jakimowicz*
- 14.21 Investigations of equine chromosome 3 to identify the causal mutation for roan in Icelandic horses 198  
*K. Voß, I. Blaj, D. Becker and G. Thaller*

### Session 15. **Fitting PLF to species and animal size, possibilities for sheep, goats, poultry, horses, pigs and**

Chair: Morgan-Davies / Druyan / Grisot

#### Theatre Session 15

#### Book of Abstracts page

- Invited** 9:00 TechCare: Integrating innovative TECHnologies along the value Chain to improve small ruminant welfARE 198  
*C. Morgan-Davies, J.M. Gautier, I. Halachmi, E. Gonzalez-Garcia, L. Grøva, G. Molle, F. Kenyon, C. Dwyer, G. Caja, A. Rosati, E. Sossidou and G. Lagriffoul*
- 9:30 Effects of nematode parasitism on activity patterns in first-season grazing lambs 199  
*N. Höglberg, L. Lidfors, A. Hessle and J. Höglund*
- 9:45 Rumen temperature of lactating dairy ewes under different ambient conditions by bolus sensors 199  
*A. Castro-Costa, J. Oliver, S. González-Luna, B. Chaalia, S. Serhan, A.A.K. Salama, C. Ferrer and G. Caja*
- 10:00 Motivations and barriers for PLF uptake on European sheep farms 200  
*J.M. Gautier, C. Morgan Davies, T. Keady, G. Lagriffoul, S. Ocack, I. Beltrán De Heredia, A. Carta and D. Francois*
- 10:15 Agroecological livestock farmers and technological innovation 200  
*M. Odintsov-Vaintrub, M. Chincarini, I. Fusaro, M. Giannarco and G. Vignola*

10:30	Tracking individual broiler activity using a passive radio frequency identification system <i>M. Van Der Sluis, B. De Klerk, Y. De Haas, T.B. Rodenburg and E.D. Ellen</i>	201
10:45	Coffee break	
11:00	Automatic broiler temperature measuring by IR camera a field trial in a commercial broiler-house <i>S. Druyan, N. Barchilon and I. Halachmi</i>	201
11:15	<i>In vivo</i> estimation of body composition: comparison of eight methods in dairy goats <i>A. De La Torre, J. Pires, C. Huau, M. Monziols, C. Xavier, L. Louis, Y. Le Cozler, P. Faverdin, P. Lamberton, I. Chery, D. Heimo, C. Lonckle, P. Schmidely and S. Lerch</i>	202
11:30	Screening for sheep at high risk of fatty liver to reduce the prevalence of pregnancy toxemia <b>Invited</b> <i>H. Dvir</i>	202

#### Poster Session 15

#### Book of Abstracts page

15.10	The use of computer tomography to estimate reticulo-rumen content in Alpine goats <i>J. Pires, M. Monziols, A. De La Torre, P. Lamberton, C. Huau and S. Lerch</i>	203
-------	---	-----

### Session 16. ‘Net zero-carbon’ - how is it possible in livestock farming systems?

Chair: M. Lee

#### Theatre Session 16

#### Book of Abstracts page

9:00	Net-zero strategy at the North Wyke Farm Platform: a backcasting analysis for transitional pathways <b>Invited</b> <i>T. Takahashi, G.A. McAuliffe, P. Harris and M.R.F. Lee</i>	203
9:30	Milk yield and greenhouse gases emission in mountain dairy cattle systems: an ambiguous relationship <i>M. Berton, S. Bovolenta, M. Corazzin, L. Gallo, M. Ramanzin, C. Spigarelli, A. Zuliani and E. Sturaro</i>	204
9:45	Result-based carbon farming schemes in livestock, a mechanism for boosting low carbon initiatives <i>J.B. Dolle, C. Brocas and A. Gac</i>	204
10:00	The environmental impacts of beef farms in Alentejo, Portugal, using multiple assessment tools <i>M.P. Dos Santos, T.G. Morais, J. Cipriano, N.R. Rodrigues, T. Domingos and R.F.M. Teixeira</i>	205
10:15	Improving the dairy farm efficiency, the first step on the way to the net zero carbon farm <i>C. Brocas, A. Lejard, R. Lasbleiz and J.B. Dolle</i>	205
10:30	Mitigation strategies and extent of greenhouse gas emissions in beef fattening farms in Italy <i>S. Carè, G. Pirlo and L. Migliorati</i>	206

#### 10:45 Coffee break

11:00	Improving the eco-efficiency of beef production through optimisation of age and weight at slaughter <i>R.F.M. Teixeira, T.G. Morais, M.P. Santos, N.R. Rodrigues, L. Barão and T. Domingos</i>	206
11:15	Effects of different CO <sub>2</sub> -eq formulations on optimal R&D strategies to realise carbon-neutral beef <i>G.A. McAuliffe, T. Takahashi, J.M. Lynch and M.R.F. Lee</i>	207
11:30	Different LFS, same agroecosystem: influence of production model in carbon balance <i>A. Horrillo, P. Gaspar and M. Escribano</i>	207
11:45	Environmental impact of dairy farms in an Alpine area including the effect on biodiversity <i>E. Sabia, S. Kühl, L. Flach, C. Lambertz and M. Gauly</i>	208
12:00	Enteric methane emission of the Dutch dairy herd <i>L. Koning and L.B. Šebek</i>	208

Poster Session 16	Book of Abstracts page
16.12 Effects of starch level and oil on intake, rumen fermentation, and methane emissions in dairy cows <i>B. Darabighane, L. Ventto, P. Kairenius, T. Stefański, I. Tapio, H. Leskinen, J. Vilkki and A.R. Bayat</i>	209
16.13 Relationship between nourishing performance, carbon footprint and nitrogen balance in Walloon dairy <i>J. Hurdebié, F. Lessire and I. Dufrasne</i>	209
16.14 Benefits of low crude protein diets in broilers: beyond CO <sub>2</sub> , the importance of N and NH <sub>3</sub> assessment <i>J. Le Cour Grandmaison, B. Média, N. Martin, W. Lambert and E. Corrent</i>	210
16.15 Impact of cooling management and anaerobic digester on cows' milk carbon footprint intensity <i>A. Vitali, G. Grossi, U. Bernabucci, A. Nardone and N. Lacetera</i>	210
16.16 Environmental impact of a dietary supplementation of clays and organic acids in the fattening pigs <i>I. Skoufos, I. Giannenas, D.K. Papanastasiou, E. Bonos, A. Tzora, T. Bartzanas and V. Anestis</i>	211
16.17 Methane yield, Ym and emission factor of beef heifers on grasslands <i>M.S. Orcasberro, C. Loza, J. Gere, P. Soca and L. Astigarraga</i>	211
16.18 <i>In vitro</i> study of a barley-corn mixture system on total gas and methane production <i>C. Barraso, S. Cobos, J. Rodríguez, M.M. López and P.L. Rodríguez</i>	212
16.19 Mitigation extent of GHG emissions in Sardinia dairy sheep farms by flock fertility improvement <i>M.F. Lunesu, M.G. Serra, P. Sau, P. Arca, S. Contini, D. Cossu, A. Franca, E. Vagnoni, M. Decandia, A.S. Atzori, G. Molle and P. Duce</i>	212
16.20 GHG emissions and animal welfare in pig production using novel feed ingredients <i>H.F. Olsen, H. Møller, S. Samsonstuen, M. Øverland, L.T. Mydland, S. Iakhno, H. Sørum and C. Press</i>	213
16.21 Effect of different factors on ammonia emission from pig manure <i>V. Juskiene, R. Matulaitis and R. Juska</i>	213

## Session 17. Early career competition: stressing innovation in pig production

Chair: Nilsson / Vigors

Theatre Session 17	Book of Abstracts page
9:00 Impact of n-3 fatty acid supplementation of sow diets on milk fatty acid and oxylipins profile <i>E. Llauradó-Calero, R. Lizardo, D. Torrallardona, E. Esteve-García and N. Tous</i>	214
9:15 <i>Nannochloropsis oceanica</i> inclusion in piglet diets increase n-3 long-chain fatty acids in tissues <i>T. Fernandes, S.P. Alves, D.M. Ribeiro, C.F. Martins, J. Silva, A.M. Almeida, R.J.B. Bessa and J.P.B. Freire</i>	214
9:30 Precision feeding optimises efficiency of protein utilisation in pigs <i>A. Remus, J. Van Milgen and C. Pomar</i>	215
9:45 Iron supplementation to piglets through a milk cup system compared to parenteral iron administration <i>N. Jakobsen, M.L.M. Pedersen and C. Amdi</i>	215
10:00 SNAPIG: predicting nutrient digestion kinetics in pigs based on diet and ingredient properties <i>M. Schop, A.J.M. Jansman, S. De Vries, J.L. Ellis and W.J.J. Gerrits</i>	216
10:15 Bi-level optimisation of feeding and shipping strategies in pig-fattening units <i>M. Davoudkhani, F. Mahé, J.Y. Dourmad, A. Gohin, E. Darrigrand and F. Garcia-Launay</i>	216
10:30 Effects of Improvac® on the testicular function of adult male Bísaro pigs <i>S. Botelho Fontela, C. Castelo, G. Paixão, M.A. Pires, R. Payan-Carreira and A. Esteves</i>	217

10:45 Coffee break

11:00	Male pig pubertal development and risk of boar taint <i>C. Dugué, S. Ferchaud, D. Grivault, M.-J. Mercat, S. Boulot, A. Prunier and C. Larzul</i>	217
11:15	Evaluation of body development of gilts during gestation and litter characteristics at birth <i>J.F. Hornstra and J. Zonderland</i>	218
11:30	Impact of straw provision on floor or in racks on tail lesions, hygiene and straw availability <i>T. Wallgren and S. Gunnarsson</i>	218
11:45	Isoquinoline alkaloids in sow diets reduce body weight loss and improve quality of colostrum <i>E. Arévalo Sureda, V. Artuso-Ponte, S.C. Wall, B. Li, W. Fang, J. Uerlings, Y. Zhang, M. Schroyen, C. Grelet, F. Dehareng, J. Wavreille and N. Everaert</i>	219
12:00	Poster presentations and discussion <i>S. Vigors and K. Nilsson</i>	219

#### Poster Session 17

#### Book of Abstracts page

17.13	Effect of the inclusion of probiotics in growing-finishing pig diets: animal performance <i>D. Villegas Estrada, L.E. Robles Jimenez, V.L. Villegas Vazquez, V. Ambriz Vilchis and M. Gonzalez Ronquillo</i>	220
17.14	The effects of <i>Nannochloropsis oceanica</i> on post-weaning pig diets <i>D.M. Ribeiro, C.F. Martins, A. Chaves, M. Pinho, R.J.B. Bessa, A.J.M. Fonseca, A.R.J. Cabrita, J.L. Silva, A.M. Almeida and J.P.B. Freire</i>	220
17.15	Suitability of different sampling methods for assessment of sows' cleanliness <i>S.M. Schmid, S. Terletzki, C. Heinemann, J.J. Hayer and J. Steinhoff-Wagner</i>	221
17.16	Can homeopathic treatment prevent mastitis-metritis-agalactia (MMA) syndrome in sows? <i>I. Czycholl, J. Oelkers, O. Burfeind and J. Krieter</i>	221

## Session 18.

## Young Train: Innovative research and extension in cattle

Chair: Lambertz

#### Theatre Session 18

#### Book of Abstracts page

9:00	Formulas to predict cheese-yield traits from Brown Swiss milk to improve dairy chain sustainability <i>E. Mariani, C. Cipolat-Gotet, A. Summer, M. Malacarne, A. Cecchinato and G. Bittante</i>	222
9:15	Improvement of genetic evaluation in small cattle populations by considering herd characteristics <i>J. Herold, K. Brügemann and S. König</i>	222
9:30	Pedigree and genomic-based inbreeding in Italian Holstein dairy cows <i>M. Abblondi, A. Sabbioni, C. Cipolat-Gotet, M. Malacarne, C. Dadousis, J.B.C.H.M. Van Kaam and A. Summer</i>	223
9:45	Using milk mid-infrared spectra to predict the SARA risk of dairy cows <i>A. Mensching, M. Zschiesche, J. Hummel, C. Grelet, N. Gengler and A.R. Sharifi</i>	223
10:00	Ceramide accumulation in bovine retroperitoneal adipose tissue revealed by sphingolipid profiling <i>Y.H. Leung, S. Baessler, C. Koch, T. Scheu, U. Meyer, S. Daenicke, Á. Kenéz and K. Huber</i>	224
10:15	Body traits and milk productivity indicators of purebred and crossbred dairy cows <i>M. Piazza, S. Saha, S. Schiavon, N. Amalfitano, G. Bittante and L. Gallo</i>	224
10:30	GxE for longevity and health in organic and conventional dairy cow herds genetically and genomically <i>T. Shabalina, T. Yin and S. König</i>	225

**10:45 Coffee break**

11:00 Exploring the colostrum microbiome in Holstein Friesian and double muscled Belgian Blue cattle <i>I. Van Hese, K. Goossens, L. Vandaele and G. Opsomer</i>	225
11:15 Differential somatic cell count as novel indicator of milk quality of individual cows <i>M. Mountricha, G. Stocco, C. Claudio, B. Stefanon, A. Zecconi, M. Franscecatti and A. Summer</i>	226
11:30 Reducing the number of critical transitions for dairy cows: effects on milk yield and health <i>E.E.A. Burgers, R.M.A. Goselink, B. Kemp and A.T.M. Van Knegsel</i>	226
11:45 On the role of CSN2, CSN3 and BLG genes on the milk protein profile of Brown Swiss cows <i>N. Amalfitano, L.F.M. Mota, G.J.M. Rosa, A. Cecchinato and G. Bittante</i>	227
12:00 Minerals affect milk coagulation, cheese yield and recovery of nutrients in the curd <i>G. Stocco, C. Cipolat-Gotet, A. Summer, M. Malacarne, A. Cecchinato and G. Bittante</i>	227
12:15 Association of mid-infrared-predicted milk & blood constituents with early-lactation adverse events <i>K.D. Bach, D.M. Barbano and J.A.A. McArt</i>	228

**Poster Session 18****Book of Abstracts page**

18.14 Effects of homeopathic blend on body measurements and weight of weaned Holstein calves <i>T.H. Silva, I.C.S.B. Guimarães, R. Melotti and A. Saran Netto</i>	228
18.15 Homeopathy blend for the control of diseases in weaned Holstein calves immediately after grouping <i>T.H. Silva, I.C.S.B. Guimarães, R. Melotti and A. Saran Netto</i>	229
18.16 Mid-infrared (MIR) spectrometry for the quantitative identification of cow's milk in buffalo milk <i>A.A. Spina, N. Costanzo, P. Roncada, V. Lopreiato, F. Trimboli, C. Ceniti, C. Perri and V.M. Morittu</i>	229
18.17 Effects of A1 and A2 $\beta$ -casein variants on milk proteins and technological traits in Holstein cows <i>V. Bisutti, S. Pegolo, L.F.M. Mota, N. Amalfitano, A. Vanzin, P. Ajmone, M. Brasca, G. Bittante and A. Cecchinato</i>	230

**Session 19.****SMART NUTRITION – the role of nutrition in the circular economy:  
improving the use of feed not competitive with human nutrition**

Chair: Pinotti

**Theatre Session 19****Book of Abstracts page**

9:00 Effect of replacing soybean meal by <i>Lupinus luteus</i> on meat fatty acids composition of growing lambs <i>M. Almeida, S. Garcia-Santos, A. Nunes, S. Rito, C.M. Guedes, L.M. Ferreira, V. Santos, R. Dominguez, J.M. Lorenzo, S. Silva and J. Azevedo</i>	230
9:15 Effect of <i>Camelina sativa</i> cake and <i>Cynara cardunculus</i> supplements on goat milk functional quality <i>C. Giromini, F. Omodei Zorini, S. Sandrini, R. Rebucci, G. Savoini, A. Baldi, A. Buccioni, A.A.K. Salama and G. Invernizzi</i>	231
9:30 Effects of dietary dried food waste addition to broiler diets on growth performance <i>E. Giamouri, A.C. Pappas, G. Papadomichelakis, E. Tsiplakou, K. Sotirakoglou, K. Feggeros, T. Manios and G. Zervas</i>	231
9:45 Carbohydrase enzyme complex (CEC) and agro-industrial byproducts in broiler nutrition <i>W. Al-Izzi and Y. Beckers</i>	232
10:00 High-moisture grain meals for swine: proximal analyses, <i>in vitro</i> digestibility and estimated energy <i>C.F. Martins, M. Vasconcelos, D.M. Ribeiro, A.M. Almeida and J.P.B. Freire</i>	232

10:15	Effects of adding Sake lees in milk replacer on growth, faecal traits and blood metabolites in calves <i>S. Katsumata, Y. Hayashi, S. Yamanaka, A. Obata, H. Tsutsumi, H. Aoki, T. Tsukahara, K. Oishi, H. Hirooka and H. Kumagai</i>	233
-------	--	-----

10:30	<b>Invited</b> Salty or sweet former food based diets for piglets: effect on growth performance and digestibility <i>L. Pinotti, A. Luciano, M. Comi, F. Fumagalli, N. Rovere, M.C. Rulli and M. Ottoboni</i>	233
-------	--	-----

#### 10:45 Coffee break

11:00	Plasma amino acid profile after feeding a balanced or unbalanced sustainable protein source in pigs <i>F.A. Eugenio, J. Van Milgen, J. Duperray, R. Sergheraert and N. Le Floc'h</i>	234
-------	---	-----

11:15	Energy value of ensiled lucerne and red clover leaves and their impacts on performance in pigs <i>S.R. Habit, L. Stødkilde-Jørgensen, S. Krogh Jensen and D. Renaudeau</i>	234
-------	---	-----

11:30	Can rumen micro-organisms transformed dietary selenite into elemental selenium? <i>M.A. Hachemi, E. Pinloche, M. De Marco and M. Briens</i>	235
-------	--	-----

11:45	<i>Hermetia illucens</i> reared on seaweed or selenium enriched substrates for designing a feed specialty <i>M. Ottoboni, V. Sele, M. Silva, A. Grisendi, M. Della Porta, R. Cazzola, F. Selmin, R. Ørnsrud and L. Pinotti</i>	235
-------	---	-----

#### Poster Session 19

#### Book of Abstracts page

19.12	Turning fruit and vegetable waste from the wholesale market into feed <i>D. Tedesco, S. Scario, E. Biazzì, A. Tava and L. Baschenis Begnis</i>	236
-------	---	-----

19.13	Performance of 4 handheld NIR spectrometers to predict the dry matter, starch and NDF of corn silage <i>N. Chamberland, P.H. Vermeulen, B. Lecler, O. Minet, V. Decruyenaere, E. Froidmont and V. Baeten</i>	236
-------	---	-----

19.14	Ruminal carbohydrase enzyme complex (CEC) vs a commercial cellulolytic enzyme in broiler nutrition <i>W. Al-Izzi and Y. Beckers</i>	237
-------	--	-----

19.15	The use of banana tree as fibre source to ruminants <i>S. Teixeira, C. Maduro Dias, C. Vouzela, J. Madruga and A. Borba</i>	237
-------	--	-----

19.16	Grape pomace intake affects the fatty acids composition of rabbit fat <i>M. Rolinec, D. Bíro, B. Gálik, M. Šimko, M. Juráček, O. Hanušovský, R. Kolláthová, P. Vašeková, E. Mixtajová and M. Gluchová</i>	238
-------	--	-----

19.17	Nutrients content and microbiological quality of salad crops as feed ingredient for ruminant diets <i>M. Manoni, N. Rovere, A. Luciano, F. Fumagalli, M. Ottoboni, C.E.M. Bernardi and L. Pinotti</i>	238
-------	--	-----

19.18	The effect of urea addition on micro mineral profile of grape pomace silage <i>O. Hanušovský, D. Bíro, M. Juráček, M. Šimko, B. Gálik, M. Rolinec, P. Vašeková and R. Kolláthová</i>	239
-------	---	-----

19.19	Changes in the fatty acid profile of milk from ewes fed cauliflower for four weeks <i>J. Mateo, D.E. Carballo, I. Mateos, L.M. García-Vázquez, F.J. Giráldez and M.J. Ranilla</i>	239
-------	--	-----

19.20	Chemical composition and nutritional value of almond hulls ( <i>Prunus dulcis</i> ) <i>C. Costa, K. Paulos, J.M.S. Costa, L. Cachucho, P.V. Portugal, L.C. Roseiro, O.C. Moreira, E. Jerónimo and M.T.P. Dentinho</i>	240
-------	--	-----

19.21	Effect of <i>Cistus ladanifer</i> L. condensed tannins on lamb rumen microbiome and fatty acid composition <i>O. Guerreiro, S.P. Alves, D. Soldado, L. Cachucho, A. Francisco, J. Santos-Silva, R.J.B. Bessa and E. Jerónimo</i>	240
-------	---	-----

19.22	Influence of including broccoli in a dairy ewes diet on microbial fermentation in the Rusitec system <i>A. Martin, I. Mateos, C. Saro, T. De Evan, R. Campos, M.D. Carro and M.J. Ranilla</i>	241
-------	--	-----

19.23	Using tomato pulp in dairy sheep diets: nutrition parameters in Rusitec fermenters <i>I. Mateos, R. Campos, A. Martin, T. De Evan, C. Saro, M.D. Carro and M.J. Ranilla</i>	241
-------	--	-----

19.24	Ruminal fermentation of a diet including brussels sprouts in a Rusitec system <i>T. De Evan, A. Martin, I. Mateos, C. Saro, R. Campos, M.D. Carro and M.J. Ranilla</i>	242
19.25	Evaluation of the nutritional value of silages based on agro-industrial by-products <i>K. Paulos, C. Costa, J. Costa, L. Cachucho, P.V. Portugal, J. Santos-Silva, E. Jerónimo and M.T.P. Dentinho</i>	242
19.26	Fruit by-products in Animal Feed: Chemical composition and nutritional value <i>L. Cachucho, K. Paulos, C. Costa, D. Soldado, L. Fialho, O. Guerreiro, J. Santos-Silva, M.T. Dentinho and E. Jerónimo</i>	243
19.27	Influence of agroindustrial by-products on characteristics and fatty acid profile of lamb meat <i>T. De Evan, H. Pérez, A. Cabezas, D. Bueno, J. De La Fuente and M.D. Carro</i>	243
19.28	Antioxidant status and meat oxidative stability of lambs fed <i>Cistus ladanifer</i> plant and extract <i>D. Soldado, L. Fialho, O. Guerreiro, L. Cachucho, A. Francisco, J. Santos-Silva, R.J.B. Bessa and E. Jerónimo</i>	244
19.29	Using agroindustrial by-products in sheep diets: effects on ruminal fermentation and degradability <i>T. De Evan, D. Bueno, H. Pérez, M.J. Ranilla and M.D. Carro</i>	244
19.30	The use of NIR Spectroscopy for predicting the chemical composition of dried and undried silage <i>C. Maduro Dias and A. Borba</i>	245
19.31	Effect of introducing <i>Lupinus luteus</i> seeds to lamb diets on their eating behaviour <i>M. Almeida, A. Nunes, S. Rito, S. Garcia-Santos, C. Guedes, L. Ferreira, G. Stilwell and S. Silva</i>	245
19.32	The f4f feed production process: solar drying as a key component <i>F. Galliou, C. Bouki, N. Markakis, J. Sampathianakis, M. Sampathianakis, A. Papadaki and T. Manios</i>	246
19.33	The 'Food for Feed' project <i>M. Georgiou, P. Panteli, K. Borboudaki, I. Giakoumaki and N. Stylianidis</i>	246
19.34	Salty or sweet former food based diets for piglets: effect on serum metabolites <i>A. Luciano, M. Ottoboni, M. Comi, F. Fumagalli, N. Rovere, L. Ferrari, D.D. Chiarelli and L. Pinotti</i>	247
19.35	Effects of dietary food waste addition on growth performance and meat quality in finishing pigs <i>E. Giamouri, G. Papadomichelakis, A.C. Pappas, E. Tsiplakou, K. Fegeros, T. Manios and G. Zervas</i>	247
19.36	Growth performance, carcass and meat quality of Alentejana bulls fed high-fibre and low-starch diet <i>J. Santos-Silva, A. Francisco, S. Alves, A. Portugal, J. Almeida, L. Fialho, E. Jerónimo and R. Bessa</i>	248
19.37	Digestibility of OM during grazing period and winter feeding depending on the content of crude fibre <i>P. Kühne, H. Scholz and G. Heckenberger</i>	248
19.38	Phylogenetic silica as internal marker for the measurement of feed digestibility in rabbits <i>E. Fortatos, G. Papadomichelakis, I. Hadjigeorgiou and K. Fegeros</i>	249
19.39	Relationships between in sacco particle losses, feed granulometry and nylon bag pore profiles <i>O. Dhumez, J.C. Motte, S. Mendowski, A. Germain, G. Chesneau, P. Nozière and P. Chapoutot</i>	249
19.40	Effect of sampling time on apparent digestibility of some selected nutrients in light lambs <i>J. Pelegrin-Valls, B. Serrano-Pérez, D. Villalba, E. Molina and J. Álvarez-Rodríguez</i>	250
19.41	Effect of a tannin extract and lactic acid inoculant on silage quality and nutritive value of grass <i>J.L. De Boever, T. Van Den Bossche, K. Goossens, L. Vandaele and S. De Campeneere</i>	250
19.42	Effects of supplementation VALKALOR® on the zootechnical performances of high-producing dairy cows <i>P.H. Pomport, J.P. Ricaud, M. Pondet and D. Tristant</i>	251

## Session 20.

## Insect production: techniques, substrates and health issues

Chair: Eilenberg / Peters

Theatre Session 20	Book of Abstracts page
9:00 Diseases and preventive measures in insects produced for food and feed <i>J. Eilenberg, A. Lecocq, L. Joosten, G. Maciel Vergara, A.B. Jensen and E. Schmitt</i>	251
9:30 Microorganism-insect interactions during the rearing of insects for food and feed <i>D. Vandeweyer and L. Van Campenhout</i>	252
10:00 SUSINCHAIN (SUStainable INsect CHAIN): Introduction to the project <i>T. Veldkamp, H.J. Van Der Fels-Klerx, N.P. Meijer and M. Octavia</i>	252
10:15 Modelling approaches for sustainable insect production chains <i>S. Smetana, P. Meister and A. Tonda</i>	253
10:30 Precision insect farming: using sensors to monitor and steer the production process in real time <i>F. Wouters, P. Vanloofsveld and T. Spranghers</i>	253
10:45 Coffee break	
11:00 Physical characterisation of black soldier fly rearing diets <i>L. Frooninckx, S. Goossens, A. Wuylts and S. Van Miert</i>	254
11:15 Effect of fermentation of nursing diet on hatching, growth and survival of black soldier fly <i>M. Van Peer, A. Van Gorp, A. Lambrechts, A. Wuylts, L. Frooninckx and S. Van Miert</i>	254
11:30 Performance of black soldier fly larvae on digestate, pig manure and vegetal waste <i>T. Veldkamp, K. Van Rozen, H.J.H. Elissen and R.Y. Van Der Weide</i>	255
11:45 Pulsed electric field and sustainable modular insect technologies for food waste processing <i>S. Smetana, S. Ites, O. Parniakov, K. Aganovic, S. Toepfl and V. Heinz</i>	255
12:00 Soil dynamics and biomass production in short- and long-cycle crops by incorporation of insect frass <i>R. Menino, C. Esteves, F. Felizes, A. Castelo-Branco, P. Fareleira, M. Mota and D. Murta</i>	256
12:15 Influence of temperature on selected life-history traits of black soldier fly ( <i>Hermetia illucens</i> ) <i>M. Shumo, F.M. Khamis, C. Tanga, K.M. Fiaboe, S. Subramanian, S. Ekesi, A. Van Huis and C. Borgemeister</i>	256
Poster Session 20	Book of Abstracts page
20.12 Effect of salt availability on growth performance of house crickets ( <i>Acheta domesticus</i> ) <i>M. Vaga, F. Berthe and A. Jansson</i>	257
20.13 CO <sub>2</sub> production and O <sub>2</sub> consumption of black soldier fly larvae grown in different environments <i>M. Mielenz, G. Das, M. Derno and C.C. Metges</i>	257
20.14 Preliminary study on management risk factors for disease occurrence in <i>Apis mellifera</i> <i>N. Jesus, Y. Vaz and T. Nunes</i>	258
20.15 Red clover can be included in the diet of house crickets ( <i>Acheta domesticus</i> ) <i>M. Vaga, Å. Berggren and A. Jansson</i>	258
20.16 Effects of feed deprivation on behaviour of house crickets ( <i>Acheta domesticus</i> ) <i>E. Roman and A. Jansson</i>	259
20.17 Adaptation of the Portuguese insect industry to the restrictions of the 'novel food' <i>R. Nunes and J. Gonçalves</i>	259

## Session 21.

## Omics in animal nutrition and physiology (The European Joint Doctorate Program Molecular Animal Nutrition “MANNA”)

Chair: Eckersall / Sauerwein

Theatre Session 21	Book of Abstracts page
9:00 The MANNA project, overview and introduction <i>Invited D. Eckersall and # The MANNA Consortium</i>	260
9:15 Study of the salivary modulation of the rumen microbiome <i>J.M. Palma-Hidalgo, A. Belanche, A.I. Martín-García, C.J. Newbold, S.E. Denman and D.R. Yáñez-Ruiz</i>	261
9:30 Liver proteomics of dairy cows supplied with essential fatty acids and conjugated linoleic acids <i>A. Veshkini, M. Bonnet, L. Vogel, A. Tröscher, M. Delosière, A. Delavaud, D. Viala, F. Ceciliani, H. Hammon and H. Sauerwein</i>	261
9:45 Faecal proteomes of cattle fed on barley treated with propionate or ammonia <i>Y. Huang, P.D. Eckersall and N.N. Jonsson</i>	262
10:00 Intensity of body condition loss peripartum: implications at the metabolome level <i>R. Riosa, M.H. Ghaffari, G. Blackburn, R. Burchmore, D. Suess, M. Hoelker, M. Drillich, H. Sauerwein and M. Iwersen</i>	262
10:15 Lipidomic profile of milk from dairy cows with subclinical non-aureus staphylococcal mastitis <i>F. Ceciliani, M. Audano, M.F. Addis, N. Mitro, D. Caruso, C. Lecchi, M.H. Ghaffari, M. Albertini, F. Tangorra, R. Piccinini and V. Bronzo</i>	263
10:30 Isolation, characterisation and proteomics profiling of porcine milk exosomes <i>R. Furioso Ferreira, T. Blees, A. Horvatić, V. Mrljak and H. Sauerwein</i>	263
10:45 Coffee break	
11:00 Performance, oxidative status and serum proteome in piglets from sows fed at divergent ω6:ω3 ratios <i>T.X. Nguyen, A. Agazzi, M. Comi, V. Bontempo, G. Invernizzi, H. Sauerwein, M. Pinerio, D. Eckersall, R. Burchmore and G. Savoini</i>	264
11:15 Identifying miRNA-mRNA regulatory relationship on ω-6/ω-3 FA ratio expression profiles in pigs <i>Y.J.Y. Manaig, L. Criado-Mesas, A. Esteve-Codina, E. Mármol-Sánchez, A. Castelló, J.M. Folch and A. Sánchez</i>	264
11:30 Untargeted metabolomics: effects of novel plant extracts in broilers pre and post LPS challenge <i>F. Riva, R. Burchmore, D. McKeegan, J. Peinado Izquierri, G. Bruggeman, D. Hermans, M. McLaughlin, D. Eckersall and M. Bain</i>	265
11:45 <i>In vitro</i> impact of citrus pectin (CP) on chicken monocytes' immune response <i>G. Ávila, G. Grilli, S. Di Mauro, D. De Leonardi, C. Lecchi and F. Ceciliani</i>	265
12:00 MitoCow – interrelationship of milk and plasma metabolite profiles in dairy cows after LPS challenge <i>W. Xu, Á. Kenéz and Mitocow Consortium</i>	266
12:15 Liver mRNA abundance of metabolically relevant genes related to inflammation and dietary carnitine <i>M.H. Ghaffari and Mitocow Consortium</i>	266
12:30 MitoCow – effects of systemic inflammation on telomere length and mitochondrial DNA copy numbers <i>K.D. Seibt, and Mitocow Consortium</i>	267

Poster Session 21	Book of Abstracts page
21.15 Statistical analysis of microbiome data <i>S. Costa-Roura, G. De La Fuente, J. Balcells and D. Villalba</i>	267
21.16 Serum proteomics of dairy cows infused with essential fatty acids and conjugated linoleic acids <i>A. Veshkini, H. Hammon, L. Vogel, A. Tröscher, M. Delosière, A. Delavaud, D. Viala, F. Ceciliani, H. Sauerwein and M. Bonnet</i>	268
21.17 Seasonal variation in fatty acid composition of organic milk from cows fed with green fodder <i>R. Primi, A. Cappucci, S. Failla, M. Contò, P.P. Danieli, F. Frezza, M. Mele and B. Ronchi</i>	268
21.18 Effect of herbage allowances in winter gestation on hepatic gene expression in beef heifers <i>M. Anzolabehere, A. Casal, M. Claramunt, P. Soca, M. Carriquiry and A.L. Astessiano</i>	269
21.19 MicroRNA expression in mammary gland secretory tissue infected by coagulase-positive staphylococci <i>E. Bagnicka, E. Kawecka-Grochocka, K. Pawlina-Tyszko, M. Zalewska, A. Kapusta, S. Marczak and T. Zqbek</i>	269
21.20 Feeding lambs with <i>Nannochloropsis oceanica</i> induces changes on muscle lipidome <i>S.P. Alves, D. Dannenberger, C. Galuska, A.C. Vitor, A. Godinho, A. Francisco, J. Santos-Silva, R.J.B. Bessa and B. Fuchs</i>	270
21.21 Gene expression and muscle type in cattle: bond to beef quality <i>O. Urrutia, A. Arana, J.A. Mendizabal, L. Alfonso and B. Soret</i>	270
21.22 Evaluation of different microRNA expression of porcine milk and plasma exosomes influenced by diet <i>R. Furioso Ferreira, R. Calogero, M. Arigoni, V. Mrljak, H. Sauerwein and F. Ceciliani</i>	271
21.23 Metabolic fingerprinting of calves' faeces in response to lipopolysaccharide challenge <i>S. Kamel Oroumieh, A.A. Naserian, R. Valizadeh, L. Van Meulebroek and L. Vanhaecke</i>	271
21.24 <i>In vitro</i> uptake of bovine milk-derived exosomes by monocytes <i>G. Avila, R. Ferreira, D. Pravettoni, G. Sala, S. Di Mauro, D. De Leonardi, S. Arcuri, T.A.L. Brevini, V. Mrljak, H. Sauerwein, C. Lecchi and F. Ceciliani</i>	272
21.25 The effects sub-acute ruminal acidosis on plasma and milk sphingolipids of dairy cows <i>J.E. Rico, E. Sandri, J. Levesque, A. Kenez and D.E. Rico</i>	272
21.26 <i>In vitro</i> impact of conjugated linoleic acid (CLA) on bovine monocytes' immune response <i>G. Ávila, C. Catozzi, D. Pravettoni, G. Sala, G. Meroni, P. Martino, C. Lecchi and F. Ceciliani</i>	273
21.27 Hepatic oxidative status of mature beef cows grazing different herbage allowances of native pastures <i>A. Casal, M. Garcia-Roche, A. Cassina, P. Soca and M. Carriquiry</i>	273
21.28 The effect of anticoagulant and time and temperature of storage of sheep blood on energy metabolites <i>F.R. Dunshea</i>	274
21.29 Biomarkers of inflammation and gut permeability in dairy cows with or without dietary resin acids <i>N. Qin, M. Niku, S. Junnikkala, J. Vuorenmaa and H. Kettunen</i>	274
21.30 Effect of a new mitochondriotropic antioxidant on oocyte maturation and embryo production <i>C. Teixeira, C.C. Marques, M.C. Baptista, J. Pimenta, J. Teixeira, F. Cagide, F. Borges, L. Montezinho, P. Oliveira and R.M.L.N. Pereira</i>	275
21.31 MitoCow – effects of systemic inflammation on the ratio of leukocytes & mitochondrial DNA copy number <i>K.D. Seibt and Mitocow Consortium</i>	275
21.32 Effect of over-conditioning on hepatic expression of genes involved in fatty acid metabolism of cows <i>M. Hosseini Ghaffari, M.T. Alaedin, I. Hofs, H. Sadri, K. Schuh, C. Koch and H. Sauerwein</i>	276

21.33	Effect of Ruemanol ML supplementation on carcass and meat quality of White New Zealand rabbits <i>N. Ivanov</i>	276
21.34	Quinoa and Linseed supplementation in lambs' diet: immunological profile and meat tenderisation <i>R. Marino, M. Di Corcia, G. Annicchiarico, A. Della Malva, M. Caroprese, A. Santillo, A. Sevi and M. Albenzio</i>	277
21.35	Chlorella vulgaris in piglet feeding: effect of an enzyme mixture on the intestinal mucosa proteome <i>C. Martins, A. Dittmann, D. Ribeiro, W. Wolski, M. Pinho, J.A.M. Prates, J.B. Freire and A.M. Almeida</i>	277

## Session 22. **Can you have your cake and eat it too – tools to get the most out of animal resilience and efficiency**

Chair: Friggens

<b>Theatre Session 22</b>		<b>Book of Abstracts page</b>
13:45	Decision support tools in cattle – from the cradle to the grave <i>Invited D.P. Berry</i>	278
14:15	Quantifying resilience of dairy cows from on-farm time-series measures <i>Invited Y. De Haas and the GenTORE-WP3-consortium</i>	278
14:30	A new method to estimate RFI in dairy cattle using time-series data <i>Invited P. Martin, V. Ducrocq, D.G.M. Gordo, P. Faverdin and N.C. Friggens</i>	279
14:45	Genomic prediction using data from multiple pure breeds and crossbreds <i>Invited E. Karaman, G. Su, I. Croue and M.S. Lund</i>	279
15:00	Natural 15N abundance of animal proteins: a promising biomarker of feed efficiency in beef cattle <i>Invited G. Cantalapiedra-Hijar, I. Ortigues-Marty, C. Martin, I. Morel and R.J. Dewhurst</i>	280
15:30 Coffee break		
15:45	Managing genetic diversity to ensure resilience using the IMAGE multi-species SNP arrays <i>Invited R.P.M.A. Crooijmans, R. Gonzalez Prendes, M. Tixier-Boichard and H. 2020 Image-Consortium</i>	280
16:00	Increasing duration of feed restriction: performance ranking and variability of beef cows' response <i>A. De La Torre, L. Barreto, J. Pires, B. Sepchat, I. Cassar-Malek, I. Ortigues-Marty and F. Blanc</i>	281
16:15	Identification of longevity predictors in French dairy cattle <i>R. Rostellato, J. Promp, H. Leclerc, S. Mattalia, N.C. Friggens, D. Boichard and V. Ducrocq</i>	281
16:30	Between-herd variation in cow resilience and relations to management <i>M. Poppe, H.A. Mulder, C. Kamphuis and R.F. Veerkamp</i>	282
16:45	Simulation of genotype-environment interactions on short and long-term feed efficiency in dairy cows <i>L. Puillet, N.C. Friggens, V. Ducrocq and P.R. Amer</i>	282
17:00	Selection for environmental variance in rabbits could modify genomic regions affecting resilience <i>C. Casto-Rebolledo, M.J. Argente, M.L. García and N. Ibáñez-Escríche</i>	283
17:15	Genetic evaluation for maintenance in dairy cattle – inclusion of carcass weight information <i>T. Mehtiö, A.-M. Leino and M.H. Lidauer</i>	283

## Session 23.

## Breeding for improved animal health and welfare

Chair: Minozzi / Ammer / Cecchinato

### Theatre Session 23

### Book of Abstracts page

- |       |  |     |
|-------|--|-----|
| 13:45 | The analysis of livestock behaviour to concomitantly improve health and performance<br><i>L. Canario</i>   | 284 |
| 14:15 | Selection for social genetic effects in purebreds affects behavioural traits in crossbred progeny<br><i>B. Nielsen, S.P. Turner, L.V. Pedersen and B. Ask</i>  | 284 |
| 14:30 | Genetic parameters of antibiotics consumption in pigs<br><i>W. Gorssen, R. Meyermans, N. Buys, J. Depuydt and S. Janssens</i>  | 285 |
| 14:45 | Genetic correlations between commercial longevity and two stayability traits in pigs<br><i>B. Poulsen, B. Nielsen, T. Ostersen and O.F. Christensen</i>  | 285 |
| 15:00 | The Ala610Val substitution in the glucocorticoid receptor enhances endotoxin-triggered immune stress<br><i>Z.W. Li, E. Kanitz, M. Tuchscherer, A. Tuchscherer, N. Trakooljul, K. Wimmers and E. Murani</i> | 286 |
| 15:15 | Imputation-based detection of variants affecting the porcine immunocompetence<br><i>C.M. Dauben, C. Große-Brinkhaus, E.M. Heuß, M.J. Pröll-Cornelissen, H. Henne, A.K. Appel and E. Tholen</i>             | 286 |

15:30 Coffee break

- |       |  |     |
|-------|--|-----|
| 15:45 | More natural calvings in double muscled beef cattle through selection for a larger pelvic area<br><i>L.C.M. De Haer, G. De Jong, I. Kolkman and S. Scheer</i>                              | 287 |
| 16:00 | Genetic analysis of multiple birth events in cattle<br><i>S. Widmer, P. Von Rohr, C. Drögemüller and F.R. Seefried</i>   | 287 |
| 16:15 | Superiority in reproductive longevity linked to homogeneity analysed by survival model in mice<br><i>N. Formoso-Rafferty, J.P. Gutiérrez, A. García-Álvarez, T. Pérez and I. Cervantes</i> | 288 |
| 16:30 | Potential of DNA pooling to include crossbred slaughterhouse data in genomic prediction of purebreds<br><i>J. Marjanovic, B. De Klerk, Y. De Haas, B.W. Dibbits and M.N. Aldridge</i>      | 288 |

### Poster Session 23

### Book of Abstracts page

- |       |   |     |
|-------|---|-----|
| 23.11 | Genomic scans of selection signatures in a divergent mice population for birth weight variability<br><i>M. More, J.P. Gutiérrez, N. Formoso-Rafferty, C. Ojeda, F. Goyache and I. Cervantes</i> | 289 |
| 23.12 | Implementation of a litter vitality index into Austrian maternal pig breeding program<br><i>C. Pfeiffer, B. Fuerst-Waltl, P. Knapp and A. Willam</i>  | 289 |
| 23.13 | Evaluation of inbreeding depression for metritis and ovarian cysts in HF cow's based on ROH analysis<br><i>P. Topolski, K. Żukowski and A. Żarnecki</i>   | 290 |

## Session 24.

## Data-based PLF solutions for the cattle sector: opportunities, challenges and pitfalls

Chair: Adriaens / Pastell / Fürst-Waltl

### Theatre Session 24

### Book of Abstracts page

- |       |   |     |
|-------|---|-----|
| 13:45 | From herd to individual decision-making on dairy farms: When and how do we evaluate a decision?<br><i>J.O. Lehmann, L. Mogensen and T. Kristensen</i> | 290 |
|-------|---|-----|

14:00	Indoor cow localisation using Bluetooth Low Energy tags <i>V. Bloch and M. Pastell</i>	291
14:15	Using particle filters for online disease detection in dairy cows <i>M. Pastell, L. Frondelius and H. Lindeberg</i>	291
14:30	Data science algorithms for livestock management based on individual feed efficiency <i>H. Levit, I. Halachmi and I. Shimshoni</i>	292
14:45	Ranking cows for methane emission measured with sniffer and GreenFeed systems <i>A.E. Van Breukelen, M.N. Aldridge, L. Koning, L.B. Sebek and Y. De Haas</i>	292
15:00	Potential auxiliary traits for ketosis based on MIR spectra <i>B. Fuerst-Waltl, A. Koeck, A. Werner, L.M. Dale, J. Sölkner and C. Egger-Danner</i>	293
15:15	PLF poster pitches <i>I. Adriaens</i>	293

#### Poster Session 24

#### Book of Abstracts page

24.08	Dynamic cooling strategy based on individual animal's responses mitigated heat stress in dairy cows <i>H. Levit, S. Pinto, T. Amon, E. Gershon, A.K. Elazary, V. Bloch, Y.B. Meir, A. Arnin, J. Miron and I. Halachmi</i>	294
24.09	The use of precision livestock farming (PLF) technology to monitor and improve welfare of dairy cows <i>G.V. Berteselli, E. Dalla Costa, P. Llonch, X. Manteca, A.H. Stygar, J.K. Niemi, M. Pastell, R. Wijma, S.P. Van Gosliga, A. Baxter, I. Arbel and E. Canali</i>	294
24.10	Genetic analysis on infrared predicted minerals for two Danish dairy cattle breeds <i>R.M. Zaalberg, H. Bovenhuis, N. Aargaard Poulsen, L.B. Bach Larsen, J. Sehested and A.J.B. Buitenhuis</i>	295
24.11	The effect of pipelines and databases on the analysis of the faecal microbiota of dairy cattle <i>B. Czech, J. Szyda, K. Wang, S. Chen and Y. Wang</i>	295
24.12	Economic evaluation of reproductive performance based on differences in pregnancy rate <i>L. Krpalkova, N. O'Mahony, A. Carvalho, S. Campbell, J. Walsh, J. Daly and E. Harty</i>	296

## Session 25. Feed production facing climate change (new feeds, alternative fibre sources)

Chair: De Campeneere

#### Theatre Session 25

#### Book of Abstracts page

13:45	Local sourcing in perspective of the European protein balance <i>G. Van Duinkerken and T.V. Vellinga</i>	296
14:15	Effects of microalgae species and inclusion levels on <i>in vitro</i> rumen fermentation parameters <i>D.J. Meehan, M.R.G. Maia, J. Silva, A.R.J. Cabrita and A.J.M. Fonseca</i>	297
14:30	Can the use of fresh mixed forage in dairy cows' diet improve milk production and CH <sub>4</sub> emissions? <i>D. Enriquez-Hidalgo, F.C. Pereira, D.L. Teixeira, L.C.P. Machado Filho and S.R.O. Williams</i>	297
14:45	A feed additive package and proteolytic extract mitigate heat-induced productivity losses in pigs <i>M. Fornos, E. Jiménez-Moreno, Y. Lechevestrier, G. Álvaro-Minguito, M. Le Gall, G. Mantovani and D. Carrión</i>	298
15:00	Evaluation of guar meal as alternative to current protein sources for pigs, broilers and rabbits <i>D. Outor-Monteiro, S. Ferreira, S. Botelho, C. Guedes, M.J. Gomes and V. Pinheiro</i>	298

Poster Session 25	Book of Abstracts page
25.06 Life cycle assessment of dairy farming with the uses of biogas plant and low-protein diet <i>A. Setoguchi, K. Oishi, K. Kato, H. Kumagai, Y. Kimura, A. Ogino and H. Hirooka</i>	299
25.07 Effect of feeding Birdsfoot trefoil on the faecal appearance of condensed tannins in growing lambs <i>E. Seoni, M. Rothacher, Y. Arrigo, S. Ampuero Kragten, G. Bee and F. Dohme-Meier</i>	299
25.08 Effect of dietary seaweed supplementation on bovine milk yield, basic composition and iodine content <i>E.E. Newton, Á.H. Pétursdóttir, G. Ríkharðsson, C. Beaumal, K. Giannakopoulou and S. Stergiadis</i>	300
25.09 Feeding value potential of sweetpotato plant in livestock diet: a review <i>I.F. Olaleru, O.A. Abu and C.O. Okereke</i>	300
25.10 Opportunities of reducing environmental pollution by locally grown soybean meal pig diets <i>I. Jansons, V. Sterns and L. Degola</i>	301
25.11 A blend of cinnamaldehyde, eugenol and capsicum oleoresin improves rumen fermentation <i>in vitro</i> <i>A. Belanche, E. Jimenez, P. Romero, J.M. Palma-Hidalgo, A.I. Martin-Garcia, A. Blanchart, S. Constantin, H. Khelil and D.R. Yáñez-Ruiz</i>	301
25.12 Lupine grain and sorghum distillers' gains improve performance of weaned calves grazing oat pastures <i>V. Beretta, A. Simeone, A.I. Bergós, J. Errandonea and J. García Pintos</i>	302
25.13 Oat grain as a fibre source in high-grain diets for beef cattle: rumen fermentation and digestion <i>V. Beretta, A. Simeone, O. Bentancur, M.N. Banchero and V. Martínez</i>	302
25.14 The effects of replacing soybean meal from dairy sheep diets on their milk yield and quality <i>A.I. Kalogianni, M. Moschovas, F. Chrysanthakopoulou, G. Katsaganis, G. Manessis, I. Vastardis, I. Bossis and A.I. Gelasakis</i>	303
25.15 Effect of yeast ( <i>Cyberlindnera jadinii</i> ) as an alternative protein source on nitrogen balance in mink <i>M. Kjærulf, C. Marcussen, A.-H. Tauson, A.Ø. Pedersen and C.F. Matthiesen</i>	303
25.16 Meta-analysis and eco-sustainability of feeding slow-release urea in dairy and beef production <i>S.A. Salami, H. Warren and J. Taylor-Pickard</i>	304
25.17 Effect of chitosan on ruminal fermentation, milk production and quality on dairy cattle <i>J. Rey, E. Ugarte, A. Garcia-Rodriguez, I. Goiri, R. Ruiz, N. Mandaluniz and R. Atxaerandio</i>	304
25.18 Effects of incorporation of grape stalks in diets for growing rabbits <i>V.R. Costa-Silva, E. Andrade, G. Marques, V. Pinheiro, L. Mendes and M. Rodrigues</i>	305
25.19 Impact of red osier dogwood extract on <i>in vitro</i> digestibility and fermentation characteristics <i>W.Z. Yang, W.M.S. Gomaa, A.M. Saleema, E. McGeough, K. Ominski and L.Y. Chen</i>	305
25.20 Lysine and methionine supplementation influence on antler growth of yearling fallow deer ( <i>Dama dama</i> ) <i>V. Ny, R. Kotrba, J. Cappelli, D. Bureš, M.A. Clar, A.J. García, T. Landete-Castillejos, L. Bartoň and F. Ceacero</i>	306
25.21 Field pea included up to 45% in bull fattening concentrates does not impair <i>in vivo</i> digestibility <i>S. Lobón, I. Casasús, M. Joy and M. Blanco</i>	306
25.22 Assessing the effects of dietary inclusion of <i>Cistus ladanifer</i> L. in rumen ciliate protozoa of lambs <i>A. Francisco, O. Guerreiro, E. Jerónimo, M. Dentinho, J. Santos-Silva and R. Bessa</i>	307
25.23 Proteaginous extrusion modifies rumen vs duodenum digestion of N, lysine and Maillard compounds <i>P. Chapoutot, O. Dhumez, S. Mendowski, A. Germain, G. Chesneau and P. Nozière</i>	307
25.24 Evaluation of guar meal and yellow lupine seeds as alternatives to soybean meal for ruminants <i>C. Guedes, M. Almeida, S. Garcia-Santos, A. Silveira, L. Ferreira, S. Silva, V. Pinheiro, D. Monteiro and M. Gomes</i>	308

25.25 Treatment of soybean meal to improve protein utilisation by dairy cows <i>A. Klop, M. Aoun, J.P. Ricaud and G. Van Duinkerken</i>	308
25.26 Oat grown with vetch improves forage production, chemical composition and degradability rate <i>F.C. Pereira, L.C.P. Machado Filho, D.C.S. Kazama, R. Guimarães Júnior and D. Enriquez-Hidalgo</i>	309
25.27 Influence of maize grain drilling on the water release rate and its nutritional value <i>M. Grubor, S. Zjalic, A. Matin and T. Kricka</i>	309
25.28 Mushroom polysaccharides as inhibitors of mycotoxin production <i>J. Loncar, A. Parroni, A. Motola, M. Reverberi and S. Zjalic</i>	310
25.29 Effect of the live yeast <i>Saccharomyces cerevisiae</i> on feed intake and milk production of dairy cows <i>K. Goossens, L. Vandaele, B. Ampe, V. Demey and S. De Campeneere</i>	310
25.30 Effect of rumen protected lysine on slaughter performance of German Fleckvieh bulls <i>F. Riepl, S. Kuenz, D. Brugger, V. Inhuber, W. Windisch, H. Spiekert and T. Ettele</i>	311
25.31 Growth performance and health status of veal calves supplemented with hemp meal <i>L. Bailoni, E. Bacchin, A.P. Berno and N. Guzzo</i>	311
25.32 Effect of dietary plant phytobiotics and butyrates on broiler blood parameters <i>I. Skoufos, E. Bonos, K. Fotou, A. Karamoutsios, I. Karakousis, E. Barka, I. Giannenas, E. Christaki and A. Tzora</i>	312
25.33 Looking for the feed autonomy of farms: the case of high density and perennial mulberry forage banks <i>E. González-García</i>	312

## Session 26.

## Early career competition: stressing innovation in pig production

Chair: Vigors / Nilsson

Theatre Session 26	Book of Abstracts page
13:45 Genetic relationships between feed efficiency and faecal microbiome in pig lines <i>A. Aliakbari, O. Zemb, Y. Billon, C. Barilly, I. Ahn, J. Riquet and H. Gilbert</i>	313
14:00 Microbiability of feed efficiency related traits in pigs <i>L.M.G. Verschuren, A.J.M. Jansman, O. Zemb, R. Bergsma and M.P.L. Calus</i>	313
14:15 'Optimum vs maximum': litter size and weight in pigs <i>E. Sell-Kubiak and E.F. Knol</i>	314
14:30 Genome-wide association study on maternal behaviour and reproductive traits in two maternal sow lines <i>K. Schodl, B. Fuerst-Waltl, N. Khayatzadeh, P. Knapp, C. Winckler and C. Pfeiffer</i>	314
14:45 Characterisation of autozygosity in pigs from a three-way crossbreeding <i>A. Ganteil, S.T. Rodriguez-Ramilo, B. Ligonesche and C. Larzul</i>	315
15:00 Towards a pig breeding program aimed at improving animal welfare in Austria <i>C. Pfeiffer, K. Schodl, B. Fuerst-Waltl, C. Winckler, A. Willam, C. Leeb and P. Knapp</i>	315
15:15 Evaluation of the hygiene measure 'sow shower' based on microbial investigations <i>S.M. Schmid, S. Terletzki, C. Heinemann, J.J. Hayer and J. Steinhoff-Wagner</i>	316
15:30 Coffee break	
15:45 Diverging effects of vital or dead probiotics on primary cultured porcine immune cells <i>S. Kreuzer-Redmer, F. Larsberg, D. Arends and G.A. Brockmann</i>	316

## Session 27.

## Integration of beef and dairy production

Chair: Keatinge

Theatre Session 27		Book of Abstracts page
13:45	Utilising beef x dairy crossbreds for beef production – Danish experiences <i>M. Vestergaard, P. Spleth, R. Stephansen, A. Fogh, M. Kargo and J. Ettema</i>	317
Invited		
14:15	In France, a new dairy calf to beef production for the out of home consumers <i>C. Fossaert, D. Le Pichon, G. Milet, M. Douguet, J.J. Bertron and S. Brouard</i>	317
14:30	Using genetics to improve dairy-bred & dairy-beef carcasses <i>A. Brown, F. Pearston, A. Wells, K. Matthews, M. Winters and M. Coffey</i>	318
14:45	Performance of dairy x beef bulls and dairy bulls <i>E. Nadeau, K. Wallin, F. Dahlström, E. Stenberg, M. Johansson and A. Hesse</i>	318
15:00	Antimicrobial drug use and clinical health score of udder-reared dairy calves on Swiss organic farms <i>R.C. Eppenstein, C. Schneider, A. Spengler, E. Lantinga, F. Leiber and M. Walkenhorst</i>	319
15:15	Dam-reared calves: lessons from pioneer farmers for Danish dairy producers <i>J.O. Lehmann, L. Mogensen and M. Vaarst</i>	319
Poster Session 27		Book of Abstracts page
27.07	Transition to domestic beef and milk production from dual purposed cattle – effect on climate change <i>S. Samsonstuen, H. Møller and H.F. Olsen</i>	320
27.08	Association between morphological classification and productivity of Holstein Friesian cows <i>J.L. Cerqueira, J.M.C.T. Sousa, L.M.G. Cruz, J. Cantalapiedra, I. Blanco-Penedo and J.P. Araújo</i>	320
27.09	An evaluation of sward age and clover inclusion on the performance of growing steers <i>L. Chesney, N. Scollan and F.O. Lively</i>	321
27.10	Feeding sorghum dry distiller's grains to early-weaned beef calves fed high grain rations <i>A. Simeone, V. Beretta, M. Anzolabehere and N. Cortazzo</i>	321
27.11	Sorghum dry distillers' grains as a supplement for early-weaned calves grazing temperate pastures <i>A. Simeone, V. Beretta, E. Arduin, S. Purtscher and C.H. Rebollo</i>	322
27.12	Influence of paddock occupation time on the grazing activity of dairy cows in rotational systems <i>E. Castro Muñoz, G.F. Da Silva Neto, A.L.H. Andriamandroso, L. Ron, C. Montufar, O. Debauche, F. Lebeau and J. Bindelle</i>	322
27.13	DGAT1 genotype affects the response of dairy cows to customised dry period management <i>A. Van Knegsel, A. Kok, B. Kemp, M. Visser and H. Bovenhuis</i>	323
27.14	Consequences of extending the voluntary waiting period on ovarian cyclicity in dairy cows <i>J. Ma, E. Burgers, T. Lam, B. Kemp and A. Van Knegsel</i>	323
27.15	GWAS and pathway analysis on <i>in vivo</i> performance test traits in a local dual purpose cattle breed <i>C. Sartori, E. Mancin, S. Pegolo, N. Guzzo and R. Mantovani</i>	324
27.16	Effect of castration on fattening and meat quality characteristics of Holstein-Friesian cull cows <i>T. Teresa Moreno</i>	324

## Session 28.

## Aquaculture Working Group

Chair: Zupan

### Theatre Session 28

### Book of Abstracts page

13:45	Genetic parameters for uniformity of harvest weight in white shrimp ( <i>Litopenaeus vannamei</i> ) <i>S. García-Ballesteros, B. Villanueva, J. Fernández, J.P. Gutiérrez and I. Cervantes</i>	325
14:00	Defatted <i>Tenebrio molitor</i> as protein source for European seabass aquafeeds <i>A. Basto, L. Petit, J. Pérez-Sánchez, J. Calduch, E. Matos and L.M.P. Valente</i>	325
14:15	Algae blend: effects on performance of European seabass ( <i>Dicentrarchus labrax</i> ) juveniles <i>C.S.C. Mota, O. Pinto, T. Sá, C. Delerue-Matos, A.R.J. Cabrita, H. Abreu, J. Silva, A.J.M. Fonseca, L.M.P. Valente and M.R.G. Maia</i>	326
14:30	Ectoparasites of fish farmed in Croatian part of Adriatic Sea <b>Invited</b> <i>T. Šarić, B. Mustać, B. Petani and S. Čolak</i>	326
14:45	Review on the potential of integrated multi-trophic aquaculture (IMTA) in the Adriatic Sea <i>I. Zupan, T. Saric and M. Peharda Uljevic</i>	327

### Poster Session 28

### Book of Abstracts page

28.06	<i>Saccharomyces cerevisiae</i> -hydrolysate improved performance of Asian sea bass <i>E. Valkonen, H. Kettunen, S. Hasan, J. Vuorenmaa, S. Chumkam and O. Jintasataporn</i>	327
28.07	Effects of chitosan supplementation on gene expression in external mucosal barriers of common carp <i>E. Pietrzak, A. Dunislawska, A. Sławińska, J. Mazurkiewicz and M. Siwek</i>	328

## Session 29.

## Understanding and combatting antimicrobials and anthelmintics resistance

Chair: Das / Espeisse

### Theatre Session 29

### Book of Abstracts page

13:45	Non-antibiotic interventions: do they work, and can we do more to build our evidence base? <i>J.M. Sargeant</i>	328
14:15	Combining genetic and other approaches to improve disease resilience in animal populations <i>A. Doeschl-Wilson, C. Pooley, M. Chase-Topping, J. Xie, I. Trus, C. Bonckaert, K. Rediger, S. Gueguen, R. Bailey, V. Bitsouni, T. Oppriesnig, S. Lycett, V. Gerds, S. Walker, J. Harding, Y. Fang, J. Dekkers, H. Nauwynck and G. Plastow</i>	329
14:30	Dairy cattle ruminal resistome: characterisation and association with productive traits <i>A. López-Catalina, R. Atxaerandio, A. García-Rodríguez, I. Goiri, M. Gutiérrez-Rivas, J. Rey, J.A. Jiménez and O. González-Recio</i>	329
14:45	Improving welfare and biosecurity practices increases performance and efficiency of beef farms <i>F. Righi, A. Goi, A. Costa, E. Pellattiero, M. Penasa, M. Simoni, R.G. Pitino and M. De Marchi</i>	330
15:00	Use of antimicrobials in beef cattle in Italy <i>A. Diana, M. Santinello, M. Penasa, F. Scali, E. Magni, G.L. Alborali, L. Bertocchi and M. De Marchi</i>	330
15:15	Presence of antibiotic-resistant bacteria in pig slurry after storage <i>M.T. Kleefisch, C. Heinemann, C.D. Leubner and J. Steinhoff-Wagner</i>	331

15:30 Coffee break

15:45	Exploring Brazilian pig farmers' attitudes about antimicrobial use <i>R. Albernaz-Gonçalves, G. Olmos, M.W. Kowalski, R.E. Woodroffe and M.J. Hötzzel</i>	331
16:00	Anthelmintic resistance in gastrointestinal nematodes of sheep raised in mountain farming conditions <i>I. Poulopoulou, C. Lambertz, K. Wuthijaree and M. Gauly</i>	332
16:15	Performance and health of young calves supplemented with a yeast containing probiotic product <i>M. Thorsteinsson and M. Vestergaard</i>	332
16:30	Standardised natural essential oils and their repellent effects on poultry red mites <i>S. Suor-Cherer, H. Bui, M.A. Benarbia and P. Chicoteau</i>	333

<b>Poster Session 29</b>		<b>Book of Abstracts page</b>
29.11	Entry, persistence and dissemination ways of antibiotic resistant bacteria in a chicken farm <i>C. Heinemann, C.D. Leubner, E. Sib, R.M. Schmithausen and J. Steinhoff-Wagner</i>	333
29.12	Young steers do not benefit from short term sequential grazing with lambs <i>S. Werne, J. Bam, M. Holinger, A. Steiner, S. Thüer, M. Leubin and F. Leiber</i>	334
29.13	Impact of earthworm or vermicompost supplementation under a challenging condition for broilers <i>G. Das, S.M.M. Seyedalmossavi, Z. Li, A. Troescher and C.C. Metges</i>	334
29.14	Farmers attitudes towards biosecurity in outdoor pig farms in Spain: results from a questionnaire <i>P. Obregón, A. Horrillo, P. Gaspar, M. Escribano and F.J. Mesías</i>	335
29.15	Anthelmintic efficacy in gastrointestinal nematodes of goats raised in South Tyrol <i>I. Poulopoulou, C. Lambertz, K. Wuthijaree and M. Gauly</i>	335
29.16	The effect of dietary eubiotics on the performance of broilers challenged with <i>Campylobacter jejuni</i> <i>A. Basanta, A. Ortiz, J.I. Ferrero, B. Saldaña, C. Millán and J. Peinado</i>	336
29.17	The effect of dietary phytobiotics on the performance of broilers challenged with <i>Eimeria</i> oocysts <i>A. Basanta, A. Ortiz, J.I. Ferrero, B. Saldaña, I. Ramirez and J. Peinado</i>	336
29.18	A novel approach for development, standardisation, and safety testing of enriched alum-precipitated <i>M. Farooq</i>	337
29.19	Prevalence of MRSA and ESBL producing bacteria in unweaned dairy calves in western Germany <i>J.J. Hayer, C. Heinemann, C. Leubner, E. Sib and J. Steinhoff-Wagner</i>	337
29.20	Study and application of ultrafine traditional Chinese veterinary medicine in animal production <i>S.J. Yu, L.L. Chen, J.L. Yan, K.J. Guo and G.Z. Zhang</i>	338
29.21	Effect of maternal dietary condensed tannins on coccidiosis and gut immunity in suckling lambs <i>J. Pelegrin-Valls, J. Álvarez-Rodríguez, B. Aquilue, M.J. Martín-Alonso, C. Baila, S. Lobón, M. Joy and B. Serrano-Pérez</i>	338

## Session 30. **Genetic evaluations and breeding programs in horses and their development**

Chair: Cervantes / Vicente

<b>Theatre Session 30</b>		<b>Book of Abstracts page</b>
13:45	Simulation study for the integration of health traits in horse breeding programs <i>L. Büttgen, J. Geibel, H. Simianer and T. Pook</i>	339
14:00	Genetic evaluation of the Lusitano horse breed in morphology competitions <i>A. Vicente, R. Serpa, J. Ralão, L.M. Brito and N. Carolino</i>	339

14:15	Genetic correlations between gaits of young horse measured by accelerometry and functional longevity <i>M. Dugué, B. Dumont Saint Priest, S. Danvy and A. Ricard</i>	340
14:30	Implications of genetic correlations between linear gait and jumping traits in the sport horse <i>K.F. Stock, I. Workel, A. Hahn and W. Schulze-Schleppinghoff</i>	340
14:45	Suitability of linear profiling data of Swedish Warmblood foals for genetic evaluation <i>K. Karlsson and Å. Viklund</i>	341
15:00	Linear scoring in Belgian Warmblood foals: its potential for genetic selection <i>S. Janssens, I. Meurrens, M.-A. Van Damme, N. Gengler and N. Buys</i>	341
15:15	Investigations of maternal lineages of the Holstein warmblood horse based on mtDNA sequencing <i>L. Engel, D. Becker, I. Russ, G. Thaller and N. Krattenmacher</i>	342
15:30 Coffee break		
15:45	Towards Genomic Selection in German Warmblood Horses <i>S. Vosgerau, N. Krattenmacher, C. Falker-Gieske, I. Blaj, A. Seidel, M. Wobbe, K.F. Stock, M. Von Depka Prondzinski, R. Reents, E. Kalm, W. Nolte, C. Kühn, J. Tetens and G. Thaller</i>	342
16:00	GWAS and pathway investigation on linear type traits in Italian Heavy Draught Horse breed <i>E. Mancin, C. Sartori, G. Pigozzi and R. Mantovani</i>	343
16:15	Genomic evaluation for competition results and gaits measured by accelerometry of jumping horses <i>H. Crichan, B. Dumont Saint Priest, S. Danvy and A. Ricard</i>	343
<b>Poster Session 30</b>		<b>Book of Abstracts page</b>
30.11	Modelling the race effect in genetic evaluations for ranking trait in horses <i>K.D. Arias, I. Cervantes and J.P. Gutiérrez</i>	344
30.12	Genetic parameters of Quarter Horse racing performance traits in Brazil <i>R.A.S. Faria, A.T. Ospina, M.H.V. Oliveira, L.Y. Rodrigues and J.A.I.I. Silva</i>	344
30.13	Estimation of genetic parameters for fertility criteria in Pura Raza Española mares <i>D.I. Perdomo-González, M.J. Sánchez-Guerrero, A. Molina, F. Arrebola and M. Valera</i>	345
30.14	Mitochondrial D-loop sequence variation in Slovak Warmblood horse <i>N. Moravčíková, M. Gábor, M. Miluchová, J. Candrák, M. Halo and R. Kasarda</i>	345
30.15	Mitochondrial DNA present in the current population of the Lusitano horse breed in Brazil <i>R.A.S. Faria, A.T. Ospina, A.A. Vicente, R. Santos and J.A.I.I. Silva</i>	346
30.16	Genetic differentiation of the Sztumski and Sokolski coldblooded horses in Poland <i>A. Gurgul, I. Jasieczuk, E. Semik-Gurgul, K. Pawlina-Tyszko, T. Szamotała, G.M. Polak and M. Bugno-Poniewierska</i>	346
30.17	Long-term changes and age variations for G-matrix detected in linear type traits scored in horses <i>E. Mancin, R. Mantovani, F. Fabio and C.R. Sartori</i>	347
30.18	Partial inbreeding coefficient analysis in Pura Raza Español horse population <i>D.I. Perdomo-González, M.J. Sánchez-Guerrero, A. Molina and M. Valera</i>	347
30.19	Inbreeding depression of the occurrence of insect bite hypersensitivity in horse <i>L. Vostry, H. Vostra-Vydrova, B. Hofmanova, J. Citek and I. Curik</i>	348

# Scientific programme

## Thursday 3 December

### Session 31.

### Recent advances in livestock physiology: cellular, organoid and whole-organism studies

Chair: Louveau / Stadnicka

Theatre Session 31	Book of Abstracts page
9:00 Intestinal organoids: innovative <i>in vitro</i> tools to study host-microbiota interactions in livestock <b>Invited</b> <i>M. Beaumont, E. Mussard and S. Combes</i>	348
9:30 Transcriptomic analysis of pig intestinal organoids divergent for FE and their response to <i>E. coli</i> <i>R.S.C. Rikkers, O. Madsen, J.M. Wells, N. Taverne, A.J. Taverne-Thiele, H. Woelders, S. Kar, R. Bergsma and E.D. Ellen</i>	349
9:45 Near complete reduction of rumen methane emission <i>in vitro</i> by supplementing high doses of choline <i>Y. Li, M. Kreuzer, C. Kunz and M. Terranova</i>	349
10:00 <i>In vitro</i> models of oviduct functions, a key for improvement of reproductive biotechnologies <b>Invited</b> <i>P. Mermilliod, K. Reynaud, Y. Locatelli, S. Alves, L. Cordeiro, O. Bernardi and M. Saint Dizier</i>	350
10:30 Effect of <i>in vitro</i> culture on the stem and migratory properties of primordial germ cells <i>M. Paradowska, A. Szczera, A. Dunisławska, K. Stadnicka and M. Bednarczyk</i>	350
10:45 Coffee break	
11:00 Bovine monocyte activation by yeast-derived β-glucans correlates with bovine Dectin-1 expression <i>A.R.V. Pedro, T. Lima, I. Ramos, E. Martins, A.R.J. Cabrita, A.J.M. Fonseca, M. Vilanova, M.R.G. Maia and A. Correia</i>	351
11:15 Effects of serums derived from Wagyu calves fed different nutrition on adipocyte differentiation <i>R. Saneshima, S. Shimamoto, D. Ijiri, A. Ohtsuka, Y. Okamura and T. Gotoh</i>	351
11:30 Dietary restriction of dairy cows: a lever to study the lipolytic system in milk and mammary gland <i>C. Hurtaud, L. Bernard, M. Boutinaud and C. Cebo</i>	352
Poster Session 31	Book of Abstracts page
31.09 Effect of omega-3 fatty acids on porcine intestinal <i>ex vivo</i> model exposed to stress conditions <i>R. Rebucci, C. Giromini, T.S. Sundaram, M. Comi, A. Baldi, L. Pinotti and F. Cheli</i>	352
31.10 A complex porcine gut model to assess effects of phytogenics on gut barrier integrity <i>in vitro</i> <i>D. Wendner, T. Schott, V. Rainer, K. Teichmann, E. Mayer and N. Reisinger</i>	353
31.11 Comparison of rumen protected lysine products using two <i>in vitro</i> procedures <i>M.M. Mireaux, T.P. Pinard, F.C. Czernikarz and C.F. Faure</i>	353
31.12 Adiponectin in the mandibular glands of cows fed a diet supplemented with essential fatty acids <i>C. Dall'aglio, F. Mercati, P. Scocco, E. De Felice, A. Tröscher, H.M. Hammon and M. Mielenz</i>	354
31.13 Autophagy is required for <i>in vitro</i> myogenesis in piglets <i>A. Vincent, M.H. Perruchot, I. Louveau and F. Dessauge</i>	354

## Session 32.

## Breeding for improved animal health and welfare

Chair: Minozzi / Wall

### Theatre Session 32

### Book of Abstracts page

9:00	Identification of the HH2 causal variant and functional validation using CRISPR-Cas9 knockouts <i>J.B. Cole, D.M. Bickhart, J.L. Hutchison, D.J. Null, M.S. Ortega and K. Clark</i>	355
9:15	Genetic parameters for psoroptic mange sensitivity in Belgian Blue cattle <i>R. Meyermans, W. Gorssen, E. Heyrman, S. Janssens, X. Hubin, P. Mayeres, W. Veulemans, S. Van Der Beek, E. Claerebout, M. Georges, C. Charlier and N. Buys</i>	355
9:30	Identification of novel lncRNA associated with mastitis disease in Holstein dairy cattle <i>V. Asselstine, J.F. Medrano, S. Germani, F. Ceciliani, A. Suárez-Vega, B. Mallard, N. Karrow, A. Islas-Trejo and A. Cánovas</i>	356
9:45	Disease susceptibility and resistance in Italian dual-purpose cows: the case of the Valdostana breed <i>E. De Monte, S. Kühl, M. Vevey and M. Gault</i>	356
10:00	Changes in lactose content of milk as indicators of longevity and udder health in Holstein cows <i>A. Costa, H. Bovenhuis and M. Penasa</i>	357
10:15	Strategy to infer candidate genes, allele substitutions and dominance for endoparasite resistance <i>K. May, C. Schepers, C. Weimann, C. Strube and S. König</i>	357
10:30	Genetic analysis of reproduction and metabolic disorders in dairy cattle <i>E.C. Wiesenecker-Verduijn, J.J. Bouwmeester-Vosman and G. De Jong</i>	358

10:45 Coffee break

11:00	Genetic relationships between udder health indicators and milk technological traits in Holstein cows <i>S. Pegolo, V. Bisutti, L.F.M. Mota, R. Tessari, P. Ajmone Marsan, G. Bittante and A. Cecchinato</i>	358
11:15	Genetic and non-genetic influences associated with health and vitality traits in beef calves <i>T. Condon, C.P. Murphy, R.D. Sleator, M.M. Judge, S. Ring and D.P. Berry</i>	359
11:30	Infectious disease heritability is a poor predictor of response to selection in disease prevalence <i>A.D. Hulst, P. Bijma and M.C.M. De Jong</i>	359
11:45	Genetic analysis of resilience indicators based on different lactations and lactation stages <i>M. Poppe, G. Bonekamp, M.L. Van Pelt and H.A. Mulder</i>	360
12:00	A genetic study of udder health traits with sensor data from automatic milking systems <i>K.B. Wethal, M. Svendsen and B. Heringstad</i>	360
12:15	Results of a five years Holstein × Simmental crossbreeding experimentation at CREA <i>A. Crisà, D. Meo Zilio, R. Steri, C. Marchitelli, G. Catillo and L. Buttazzoni</i>	361

### Poster Session 32

### Book of Abstracts page

32.14	Genome-wide association study of trypanosome prevalence in cattle of Burkina Faso <i>B. Yougbaré, D. Ouédraogo, A. Soudré, B. Zoma-Traoré, A.S.R. Tapsoba, M. Sanou, S. Ouédraogo-Koné, P. Burger, M. Wurzinger, N. Khayatzadeh, H.H. Tamboura, A. Traoré, J. Sölkner and G. Mészáros</i>	361
32.15	Variation of somatic cell count-derived phenotypes for udder health monitoring in Italian buffalo <i>A. Costa, G. Neglia, M. De Marchi, G. Campanile and M. Penasa</i>	362
32.16	Polymorphisms of genes related to resistance of cows to mastitis: identification of genetic markers <i>E. Bagnicka, P. Brodowska, K. Żukowski and T. Sakowski</i>	362

32.17	Selection on mastitis resistance in Holstein and Normande breeds: genetic and immune responses <i>R. Lefebvre, S. Barbey, P. Germon, P. Rainard, G. Foucras and D. Boichard</i>	363
32.18	Effects of udder conformation on milk yield and quality traits in Chios and Frizarta ewes <i>A.I. Kalogianni, M. Moschovas, G. Manessis, I. Vastardis, I. Bossis and A.I. Gelasakis</i>	363

## Session 33. Opportunities and risks in animal management applying AI, big data, data science tools, API economy and digital agriculture

Chair: Pastell / Adriaens

Theatre Session 33		Book of Abstracts page
9:00	The use of artificial neural networks with radial basis function to predict subclinical ketosis <i>E.A. Bauer, E. Ptak and W. Jagusiak</i>	364
9:15	Classification of cattle behaviour using convolutional neural networks <i>D. Pavlovic, C. Tachtatzis, A.W. Hamilton, O. Marko, R.C. Atkinson, C. Davison, C. Michie, V. Crnojevic and I. Andonovic</i>	364
9:30	Machine learning algorithms to predict litter weight gain from birth to weaning in swine <i>R. Gauthier, C. Largouët and J.Y. Dourmad</i>	365
9:45	Combining machine learning and remote sensing to characterise Portuguese sown biodiverse pastures <i>T.G. Morais, R.F.M. Teixeira, M. Jongen, N.R. Rodrigues, I. Gama, M. Reis and T. Domingos</i>	365
10:00	Real-time collection and visualisation of methane emission on dairy farms: new challenges <i>D. Schokker, E.M.M. Van Der Heide, G. Seigers, Y. De Haas, R.F. Veerkamp and C. Kamphuis</i>	366
10:15	A systematic approach to quantify the impact of feeding and farm management on bovine health <i>C. Matzhold, J. Lasser, C. Egger-Danner, F. Steininger, B. Fuerst-Waltl, S. Thurner and P. Klimek</i>	366
10:30	Internet of Things and sensor integration to make herd location affordable <i>F. Maroto-Molina, J. Navarro-García, K. Príncipe-Aguirre, I. Gómez-Maqueda, J.E. Guerrero-Ginel, A. Garrido-Varo and D.C. Pérez-Marín</i>	367
10:45	Coffee break	
11:00	Machine learning using transcriptomic data reveals biomarkers to predict pregnancy status in cattle <i>M.B. Rabaglino and H.N. Kadarmideen</i>	367

## Poster Session 33

## Book of Abstracts page

33.09	A preliminary stock and flow model to support dairy herd management <i>A.S. Atzori and A. Gallo</i>	368
-------	--	-----

## Session 34.

## Genetics poster session

Chair: Strandberg

Poster Session 34		Book of Abstracts page
34.01	Indicators of body fat mobilisation of lactating beef cows under short nutritional challenges <i>K. Orquera, G. Ripoll, M. Blanco, J. Ferrer, J.R. Bertolín and I. Casasús</i>	368
34.02	The paradox of using residual feed intake or conversion ratios to study feed efficiency in dairy ewe <i>A. Della Badia, G. Hervás, P.G. Toral, J. Amor, A. Belenguer, C. Fernández-Díez and P. Frutos</i>	369
34.03	Ruminal biohydrogenation of dietary lipids in dairy sheep that differ in feed efficiency <i>C. Fernández-Díez, G. Hervás, P.G. Toral, A. Belenguer, D.R. Yáñez-Ruiz and P. Frutos</i>	369

34.04 Performance and energy requirements for Nellore bulls divergent in residual feed intake <i>C.D.A. Batalha, F.L. De Araújo, R.H. Branco, L.O. Tedeschi and S.F.M. Bonilha</i>	370
34.05 Variations in milk fatty acid profile in lactating sheep that differ in feed efficiency <i>C. Fernández-Díez, G. Hervás, A. Belenguer, J. Amor, D.R. Yáñez-Ruiz, P. Frutos and P.G. Toral</i>	370
34.06 Functional data analysis on MY and NEFA responses of beef cows exposed to feed restrictions <i>L.B. Mendes, A. De La Torre, J. Pires, I. Cassar-Malek, I. Ortigues-Marty and F. Blanc</i>	371
34.07 Predicting longevity based on lactation curve, cell count and calving interval in organic cows <i>F. Moser, A. Bieber, A. Maeschli, A. Spengler Neff and F. Leiber</i>	371
34.08 Assessment of perturbations in lactation to take stock of the existing resilience of dairy cows <i>A. Ben Abdelkrim, T. Tribout, V. Ducrocq, N.C. Friggens, D. Boichard and O. Martin</i>	372
34.09 Linkage disequilibrium as a signature of positive selection in beef cattle <i>A. Trakovická, N. Moravčíková, R. Nádaský, P. Polák and R. Kasarda</i>	372
34.10 Long-term effects of selection for prolificacy and kit growth on rabbit performance and behaviour <i>O. Girardie, R. Robert, M. Maupin, J. Hurtaud, P. Joly, J. Ruesche, I. David, H. Garreau and L. Canario</i>	373
34.11 Signatures of selection in three indigenous Croatian cattle breeds <i>V. Brajković, B. Lukić, M. Ferenčaković, V. Cubric-Curik and I. Curik</i>	373
34.12 Genomic signatures on differential adaptation in West African livestock <i>G. Forcina, L. Pérez-Pardal, I. Fernández, I. Álvarez, A. Traoré, N.A. Menéndez-Arias and F. Goyache</i>	374
34.13 Investigation of Genotype by Environment interactions in Lacaune dairy sheep in France <i>D. Buisson, J.M. Astruc, A. Combasteix, C. Gava, D. Hazard, G. Lagriffoul and H. Larroque</i>	374
34.14 Distribution models unravel drivers of local adaptation in chickens <i>F. Kebede, H. Komen, S. Alemu, O. Hanotte, T. Dessie and J. Bastiaansen</i>	375
34.15 Putative genes associated with adaptation in the Afrikaner and Brahman breeds from South Africa <i>S. Mdyogolo, F.W.C. Neser, M.D. Macneil, M.M. Scholtz and M.L. Makgahlela</i>	375
34.16 Effect of changes in complex breeding traits on environmental sustainability in the Norwegian Red <i>T.A. Skjerve, S. Samsonstuen and H.F. Olsen</i>	376
34.17 Improved protein efficiency for a sustainable pig production for the future <i>K.H. Martinsen, E.J. Gjerlaug-Enger and E. Grindflek</i>	376
34.18 Is rumination time a predictor of methane emission of dairy cows? <i>M. Pszczola, R. Mikula, K. Rzewuska, S. Mucha, W. Nowak and T. Strabel</i>	377
34.19 A genome-wide recombination map of cattle <i>S. Qanbari and D. Wittenburg</i>	377
34.20 Genomic evaluation in multi-generation family <i>T. Okamura, M. Nishio, K. Ishii and O. Sasaki</i>	378
34.21 Generalised gametic relationships for the analysis of imprinting effects in Canadian Holstein cattle <i>I. Blunk, G.A. Oliveira, C.F. Baes and N. Reinsch</i>	378
34.22 Genomic prediction for crossbred cows by combining marker effects estimated in purebreds <i>J.H. Eiriksson, E. Karaman, G. Su and O.F. Christensen</i>	379
34.23 Comparison of conventional and genomic estimated breeding values in Holstein bulls from Serbia <i>S. Trivunović, D. Glamočić, L.J. Šrbac, M. Šaran, N. Veličković and M. Stefanović</i>	379
34.24 Influence of rare SNP variants on the accuracy of genomic selection in dairy cattle <i>T. Suchocki, A. Zarnecki, M. Skarwecka and J. Szyda</i>	380

34.25 Comparison of imputation methods in Czech Holstein population <i>A. Kranjcevicova, E. Kasna, L. Vostry and M. Brzakova</i>	380
34.26 National genomic predictions in relation to international genomic predictions for small dairy breeds <i>B. Luštrek, M. Štepec, J. Krsnik and K. Potočnik</i>	381
34.27 Don't play too much – deep learning to classify true and false positive SNPs in whole genome sequence <i>K. Kotlarz, J. Szyda, B. Czech, M. Mielczarek, T. Suchocki and B. Guldbrandtsen</i>	381
34.28 Single-step genomic evaluation for milk and fat yield in buffaloes using random regression models <i>S.F. Lazaro, H.R. Oliveira, D.F. Cardoso, A.V. Nascimento, H. Tonhati and L.F. Brito</i>	382
34.29 New perspective on intergenerational transmission of characters <i>I. David, A. Aliakbari, L. Canario, S. Combes, J. Demars, V. Déru, H. Garreau, H. Gilbert and A. Ricard</i>	382
34.30 Plasma biomarkers of feed efficiency differ across two contrasting diets in growing beef cattle <i>G. Cantalapiedra-Hijar, P. Guarnido, S. Taussat, G. Renand and I. Ortigues-Marty</i>	383
34.31 Economic importance of the number of functional teats in the Czech pig breeds <i>Z. Krupová, M. Wolfová, E. Krupa and E. Žáková</i>	383
34.32 Evaluation of analytical protocols utilising HTS data aligned tools <i>A. Bąk, D. Bodziony, G. Migdałek and K. Żukowski</i>	384
34.33 Genetic background of sex determination in Herman's turtle ( <i>Testudo hermanni</i> Gmelin, 1789) <i>M. Zorc, M. Stvarník, A. Dovc and P. Dovc</i>	384
34.34 Versatile robust low cost genomic DNA extraction solution for use across multiple sample types <i>Q. Hoang, L. Manley, C. Gunter, M.A. Patil, S. Chadaram, R. Conrad and T. Lei</i>	385
34.35 Employing trio information to assess CNV detection performance in array data of Göttingen Minipigs <i>C. Reimer, J. Geibel, T. Pook, S. Weigend and H. Simianer</i>	385
34.36 Genetic and genomic features for Russian Simmental cattle different ancestry derived by SNP data <i>A.A. Sermyagin, L.P. Ignatjeva, A.V. Dotsev, A.A. Zimina, G. Mészáros, J. Soelkner, G. Brem and N.A. Zinovieva</i>	386
34.37 Gene flow in farmed Red deer populations <i>R. Kasarda, N. Moravčíková and R. Žídek</i>	386
34.38 LESSy – a modern and flexible tool for genetic evaluation <i>J. Heise</i>	387
34.39 Combining dairy cattle feed intake data from multiple sources <i>T. Seleguim Chud, C. Baes, F. Miglior, K. Houlahan, P. Stothard, J. Jamrozik, G. Kistemaker and F. Schenkel</i>	387
34.40 Accordance between measured and predicted dry matter intake in Italian Holstein Friesian cattle <i>R. Finocchiaro, F. Galluzzo, F. Omodei Zorini, G. Savoini, G. Invernizzi, P. Ajmone Marsan, P. Bani, E. Trevisi and M. Cassandro</i>	388
34.41 Development of targeted GBS panels for breeding and parentage applications in cattle and swine <i>A. Burrell, P. Siddavatam, M. Swimley, C. Willis, M. De Groot, G. Carvalho and R. Conrad</i>	388
34.42 A flexible automation solution for genotyping by sequencing to maximise sample throughput <i>M. Swimley, R.C. Willis, A. Burrell, R. Conrad, G. Carvalho and S. Chadaram</i>	389

## Session 35.

## Modulating gut function and microbiome for resilient livestock production

Chair: Trevisi / Ammer

Theatre Session 35		Book of Abstracts page
9:00	<i>In ovo</i> strategies to improve resilience through gut health in chickens <i>Invited</i> A. Dunislawska, M. Siwek, A. Slawinska, K. Stadnicka and M. Bednarczyk	389
9:45	The influence of genetics and diet on the microbiome of pigs <i>Invited</i> S. Vigors, J.V. O'Doherty and T. Sweeney	390
10:30	Improving the robustness of piglets by early neonatal probiotic supplementation D. Luise, P. Bosi, F. Correa, E. Spinelli, C. Salvarani and P. Trevisi	390
10:45	Coffee break	
11:00	Feeding milk replacer with added starch promotes changes in gut maturation in piglets at weaning C. Amdi, M.L.M. Pedersen, A.R. Williams and T. Thymann	391
11:15	Supplementation of exogenous enzymes in pig diets to improve growth performance and digestibility E. Aranda, L.E. Robles-Jimenez, J. Osorio Avalos, E. Vargas-Bello-Pérez and M. Gonzalez Ronquillo	391
11:30	Effect of nucleotide supplementation on growth performance and microbiota profile of piglets F. Correa, D. Luise, C. Salvarani, P. Bosi and P. Trevisi	392
11:45	Identification of intestinal and faecal microbiome as biomarkers for social stress in pigs T. Nguyen, K. Rutherford, M. Auffret, G. Simm, R. Dewhurst, E. Baima and R. Roehe	392
12:00	Effects of enriched housing on gut microbiome in piglets D. Schokker, C. Wen, H. Woelders, H. Smidt and I. Van Dixhoorn	393
12:15	Supplementation of SCFA and MCFA to the diet of growing pigs stimulates growth performance M.M.J. Van Riet, P. Bikker, S. Vermaut and I. Peeters	393
12:30	Poster presentations and discussion S. Vigors and P. Trevisi	394
Poster Session 35		Book of Abstracts page
35.11	<i>In vitro</i> large intestinal fermentation of growing Iberian pigs under heat stress A. Francisco, I. Fernández-Figares, R. Campos, Z. Pardo, A. Martín, A. Costas, M. Lachica, I. Mateos, F.J. Giraldéz and M.J. Ranilla	394
35.12	Omics techniques for the analysis of the gut-liver axis after <i>in ovo</i> delivery of synbiotic A. Dunislawska, A. Herosimczyk, A. Lepczynski, M. Ozgo and M. Siwek	395
35.13	Effect of cowpea and probiotic on broiler performance and caecal microflora populations M. Dumitru and G. Ciurescu	395
35.14	N-glycan profiling of chicken intestine as a tool for designing improved feed supplements H. Kettunen, A. Heiskanen, A. Olonen, T. Satomaa, J. Saarinen and J. Vuorenmaa	396
35.15	Replacement of long straw in fattening lambs L. Sarramia, F. Touitou, P. Lamy, A. Vermeil, F. Enjalbert and A. Meynadier	396
35.16	Effects of gallic acid on nutrient uptake and intestinal epithelial cell integrity in IPEC-J2 M. Tretola, G. Bee and P. Silacci	397

- 35.17 Gallic acid affects glutamate and arginine uptake and intestinal epithelial cell integrity *ex vivo*  
*M. Tretola, P. Silacci and G. Bee*

397

## Session 36.

## Housing of cattle

Chair: Kuipers

Theatre Session 36	Book of Abstracts page
9:00 A randomised control trial of housed dairy cows to explore the effect of overall space allowance <i>J.S. Thompson, R. Robinson, C. Hudson, N. Bolland, K. Woad, J. Huxley, J. Kaler and M.J. Green</i>	398
9:15 Automated detection of social behaviour at the feed bunk in dairy cows – the influence of regrouping <i>N. Melzer, J. Langbein and B. Foris</i>	398
9:30 Assessing the thermal comfort of dairy cows housed indoor during high heat periods <i>B. Fagoo and J. Capdeville</i>	399
9:45 The effect of age and housing on assessment of animal welfare for unweaned dairy calves <i>J.J. Hayer, D. Nysar, C. Leubner, C. Heinemann and J. Steinhoff-Wagner</i>	399
10:00 Dairy cattle management and housing for warm environments <i>A. De Vries and I.M.M. Toledo</i>	400
10:15 Farmer and consumer attitudes towards utilising composting bedding materials from cattle barns <i>M. Klopčič, M.E. Waldrop, A. Kuipers and J. Roosen</i>	400

## Poster Session 36

## Book of Abstracts page

- 36.07 Algorithms for dairy barn layout – the base of calculation models for labour requirement estimation  
*J. Mačuhová and S. Thurner*

## Session 37. Combining the diversity of resources and farming practices to ensure resilience at different scales

Chair: Thenard

Theatre Session 37	Book of Abstracts page
9:00 Livestock integration improves resilience of crop systems <b>Invited</b> <i>P. Carvalho, P. Nunes, C. Peterson, G. Farias, F. Moojen, L. Szymczak, W. Filho, T. Kunrath, A. Martins, J. Trindade, E. De Souza, A. De Moraes, C. Bremin, G. Lemaire and J. Ryschawy</i>	401
9:15 What internal mechanisms make sheep farms more resilient to technical and economic hazards? <b>Invited</b> <i>M. Benoit, F. Joly, F. Blanc, B. Dumont, R. Sabatier and C. Mosnier</i>	402
9:30 A thirty-year analysis of trajectories of evolution of cattle farming systems in Central Pyrenees <i>E. Muñoz-Ulecia, A. Bernués, I. Casasús, S. Lobón, A. Olaizola and D. Martín-Collado</i>	402
9:45 Learning from traditional societies for the agroecological transition of Western livestock systems <i>F. Joly and G. Brunschwig</i>	403
10:00 Territorial resources mobilisation shapes agroecological transitions in crop-livestock systems <i>G. Martel, V. Thenard, J.P. Choisid and M. Moraine</i>	403
10:15 Assessing sustainability and resilience of a French extensive beef-cattle system <i>F. Accatino, D. Neumeister, C. Pinsard and C. Pineau</i>	404

10:30	Economic perspectives of small beef cattle farms in mountain regions <i>V. Angerer, S. Kühl, U. König Von Borstel and M. Gauß</i>	404
-------	--	-----

#### 10:45 Coffee break

11:00	Balance between dairy cows' production and supporting ecosystem services in highlands pastures <i>S. Raniolo, M. Ramanzin, A. Squartini, G. Concheri and E. Sturaro</i>	405
11:15	Using animal diversity to build resilient trajectories: a viability approach <i>F. Joly, R. Sabatier, M. Benoit and C. Mosnier</i>	405
11:30	Added value of local sheep breeds in alpine agroecosystems <i>M. Orsi, G. Bittante, L. Gallo, M. Ramanzin, S. Raniolo and E. Sturaro</i>	406
11:45	Complementary approaches for local breed adaptation: the cases of several French Mediterranean sheep <i>A. Lauvlie, M.O. Nozières-Petit, L. Perucho and C.H. Moulin</i>	406

#### Poster Session 37

#### Book of Abstracts page

37.12	The environment and the biometry in the Northwest Portuguese sheep breeds <i>N.V. Brito, J.C. Lopes, V. Ribeiro, R. Dantas and J.V. Leite</i>	407
37.13	Camel herd management under pastoral system in southern of Tunisia <i>N. Letaief and S. Bedhiaf</i>	407
37.14	Global warming: reconciling biodiversity maintenance with mountain farming economic sustainability <i>P. Scocco, C. Dall'aglio, F.M. Tardella, E. De Felice, F. Mercati and A. Catorci</i>	408
37.15	Revitalising the sheep and goat sector in Greece: the strategy of workforce development <i>G. Papadomichelakis, G. Zervas, K. Tsiboukas, D. Voloudakis and E. Lazaridou</i>	408
37.16	Effect of maize silage replacement on the health status of two beef cattle breed categories <i>G. Riuzzi, S. Segato, B. Contiero and F. Gottardo</i>	409

### Session 38.

### Standardization of methods, parameters and terminology in insect research and socio-economic impact

Chair: Deruytter / Shumo

#### Theatre Session 38

#### Book of Abstracts page

9:00	Standardisation of BSF feed experiments: the EAAP working group actions and Ring test protocol <i>Invited L. Gasco, G. Vandenberg and D. Deruytter</i>	409
9:30	Insects as an international feed ingredient – the standardisation challenge <i>Invited D. Murta</i>	410
10:00	The science-policy interface and its role in the development of the European insect sector <i>C. Muraru, C. Derrien and J. Mathew</i>	410
10:15	The research priorities of the European insect sector <i>A. Paul</i>	411

## Session 39.

## New perspectives and approaches in equidae production

Chair: Evans / Auclair

Theatre Session 39		Book of Abstracts page
9:00	Equidae production: roundtrip in the era of globalisation <i>Invited N. Miraglia and E. Salimei</i>	411
9:30	Green assets of equines in Europe <i>A. Rzekęć, C. Vial and G. Bigot</i>	412
9:45	Ecosystem function of semi-feral horses with specific focus on orthopteran density <i>C.-G. Thulin and A. Jansson</i>	412
10:00	How do grazing horses shape biodiversity – stressing the lack of evidence in mesophile grasslands <i>G. Fleurance and B. Dumont</i>	413
10:15	Distances walked in an open stable system by long established and newcomer horses <i>F. Hildebrandt, J. Krieter, K. Büttner, J. Salau and I. Czycholl</i>	413
10:30	Effect of ageing time on consumer preference, sensory in-mouth description and texture of horse meat <i>L.R. Beldarrain, I. Etaio, L. Moran, M.A. Sentandreu, K. Insausti, L.J.R. Barron and N. Aldai</i>	414
10:45	Coffee break	
11:00	How training can reduce stress in loading procedure in meat donkeys? <i>F. Dai, E. Dalla Costa, E.U.L. Heinzl, S. Cannas and M. Minero</i>	414
11:15	Oxidative profile in fattening horses fed with different feeding strategies <i>F. Raspa, F.R. Dinardo, I. Vervuert, D. Bergero, E. Valvassori, P. De Palo and E. Valle</i>	415
11:30	The effect of mare's milk on the viability of Caco-2 cells <i>J. Založník, M. Narat and K. Potočník</i>	415
Poster Session 39		Book of Abstracts page
39.10	A method to assess the valorisation of grass by horses in grassland <i>M. Valleix, T. Jousset, E. Keller and L. Wimel</i>	416
39.11	The potential role of horses in territory sustainability <i>A.S. Santos and L.F. Lopes</i>	416
39.12	Macro minerals distribution in different fractions of donkey milk <i>F. Fantuz, S. Ferraro, L. Todini, L. Cimarelli, A. Fatica, F. Marcantoni and E. Salimei</i>	417
39.13	Brakes and levers for horsemeat consumption in France in 2019 <i>A. Lamy, C. Vial and S. Costa</i>	417
39.14	Effect of breed and finishing diet on foal growth parameters and foal meat quality <i>M.V. Sarriés, A. Cittadini, J.M. Lorenzo, B. Adrian, J.L. Saéz, K. Insausti, M.J. Beriain and R.M. Canals</i>	418
39.15	Partition of essential trace elements in donkey milk fractions <i>F. Fantuz, S. Ferraro, L. Todini, L. Cimarelli, A. Fatica, F. Marcantoni and E. Salimei</i>	418
39.16	Effect of the finishing diet on carcass characteristics of Jaca Navarra foal using image analysis <i>A. Cittadini, M.V. Sarriés, J.M. Lorenzo, A. Gamboa, J.L. Saéz, K. Insausti, M.J. Beriain and R.M. Canals</i>	419
39.17	Extensive equid milk as an alternative and sustainable dairy product <i>A. Blanco-Doval, M. Díez-Ramos, L. Moran, L.J.R. Barron and N. Aldai</i>	419

39.18	Proteome analysis of sarcoplasmic protein fraction associated with meat organoleptic characteristics <i>A. Della Malva, M. Albenzio, M. Caroprese, P. De Palo, A. Maggiolino, A. Santillo, A. Sevi and R. Marino</i>	420
-------	---	-----

## Session 40.

## Dairy sheep and goat systems: new research in genes, nutrition and management

Chair: Tzamaloukas / Keane

Theatre Session 40		Book of Abstracts page
9:00	Updating dietary strategies for high yielding dairy sheep according to the INRA2018 feeding system <i>G. Caja</i>	420
<b>Invited</b>		
9:30	Divergent selection on residual feed intake in Romane meat sheep breed to dissect biological process <i>F. Touitou, C. Marie-Etancelin, J.-L. Weisbecker, D. Marcon, D. François, R. Bessa, A. Meynadier and F. Tortereau</i>	421
9:45	Milk traits as predictors of the milk coagulability in Assaf sheep <i>H. Marina, B. Gutiérrez-Gil, R. Pelayo, A. Suárez-Vega, C. Esteban-Blanco, A. Reverter and J.J. Arranz</i>	421
10:00	Effects of condensed tannins from sainfoin in ewe milk production and suckling lamb growth <i>C. Baila, S. Lobón, M. Blanco, I. Casasús, J.R. Bertolín and M. Joy</i>	422
10:15	Quantifying and genotyping protein fractions in milk of different goat breeds by RP-HPLC <i>G. Secchi, N. Amalfitano, S. Pegolo, A. Cecchinato, M.L. Dettori, M. Pazzola, G.M. Vacca and G. Bittante</i>	422
10:30	Monitoring metabolic parameters in dairy sheep at the beginning of lactation <i>A.T. Belo, M.R. Marques, J.M.B.F. Ribeiro and C.C. Belo</i>	423
10:45	Coffee break	
11:00	A crosstalk between small ruminant's nutrition and quality of dairy products <i>E. Vargas-Bello-Pérez and M. González-Ronquillo</i>	423
<b>Invited</b>		
11:30	Methionine balanced diet improves performances and biosynthetic traffic in mammary epithelial cell <i>E. Chanat, S. Lemosquet, A. Leduc, L. Bahloul and M. Boutinaud</i>	424
11:45	Responses of dairy ewes to heat stress according to their phenotypical heat tolerance <i>B. Chaalia, S. Serhan, S. Gonzalez-Luna, X. Such, A.A.K. Salama and G. Caja</i>	424
12:00	Singular versus composite trait: what difference for maternal traits selection in meat sheep? <i>E. Cobo, J. Raoul and L. Bodin</i>	425

## Session 41.

## Breeding programmes

Chair: Y.L. Lee

Theatre Session 41		Book of Abstracts page
13:45	The purebred-crossbred correlation in broilers and layers: a review <i>M.P.L. Calus, J.A. Bos, P. Duenk and Y.C.J. Wientjes</i>	425
14:00	Predicting the purebred-crossbred genetic correlation from variance components in parental lines <i>P. Duenk, P. Bijma, Y.C.J. Wientjes and M.P.L. Calus</i>	426
14:15	Swedish dairy farmers' preferences for different breeding tools <i>J.B. Clasen, C. Bengtsson, H.N. Källström, E. Strandberg, W.F. Fikse, S. Østergaard, M. Kargo and L. Rydhmer</i>	426
14:30	Exploration of production conditions: a step towards the development of a community breeding program <i>E.A.M. Omer, S. Addo and D. Hinrichs</i>	427

14:45	Breeding programs in the South American Creole cattle <i>G. Mészáros, R. Martínez, C. Lucero, W.O. Burgoz Paz, M. Naves, H. Doekes, J. Windig, T. Pook and H. Simianer</i>	427
15:00	Breeding strategies for resilience of dairy production to weather changes in small ruminants <i>M. Ramon, V. Kapsona, M.J. Carabaño, C. Díaz, G. Banos and E. Sánchez-Molano</i>	428
15:15	Stochastic simulation of breeding schemes for Red dairy cattle breeds across Europe <i>C. Schmidtmann, M. Kargo, A.C. Sørensen and G. Thaller</i>	428
15:30	Coffee break	
15:45	Prediction of gametic variance and its use in breeding programs <i>C. Hoze, A. Baur, S. Fritz and D. Boichard</i>	429
16:00	Using SNP genotypes for automatic ploidy screening of cattle embryos to improve pregnancy rates <i>A.C. Bouwman, E. Mullaart, J.M. Henshall, R. Hawken, I. Hulsege, D. Schokker, C. Kamphuis and R.F. Veerkamp</i>	429
16:15	The breeder's equation in the era of genomic selection <i>H.H. Swalve and M. Wensch-Dorendorf</i>	430

#### Poster Session 41

#### Book of Abstracts page

41.11	Genotyping strategies in Latxa dairy sheep breed <i>I. Granado-Tajada, L. Varona and E. Ugarte</i>	430
41.12	Design of community-based breeding strategies for llamas in the Central Andes of Peru <i>G. Gutiérrez, J. Mendoza, M.J. Arias Coronel and M. Wurzinger</i>	431
41.13	Genomic analysis of the inbreeding depression for litter size in two varieties of Iberian pig <i>C. Hervás-Rivero, J. Caselllas, J.L. Noguera, N. Ibañez-Escríche, M. Martín De Hijas-Villalba, M. Vázquez-Gómez, S. Negro, J.P. Rosas and L. Varona</i>	431
41.14	Evaluation of the breeding value of workability traits in Polish Holstein-Friesian cattle population <i>B. Szymik, W. Jagusiak, P. Topolski and K. Żukowski</i>	432

## Session 42.

### New technological challenges (including nanotechnology) facing future feeding industry – how to value?

Chair: Bruggeman

#### Theatre Session 42

#### Book of Abstracts page

13:45 <b>Invited</b>	Nanotechnology as a key approach to improve animal feed science and production <i>S. Reis, J. Albuquerque, I. Van Dorpe, A.J.M. Fonseca and A.R.J. Cabrita</i>	432
14:15	Effects of grain processing and undegradable fibre on rumen pH and fermentation of high grain diets <i>W.Z. Yang, T. Ran, A.M. Saleem, K.A. Beauchemin and G. Penne</i>	433
14:30	Requirement-oriented supply of organic broilers with riboflavin from fermentation of <i>Ashbya gossypii</i> <i>C. Lambertz, J. Leopold, S. Ammer, B. Thesing, C. Wild, K. Damme and F. Leiber</i>	433
14:45	Effect of feeding press cake silage as replacement for high quality grass silage on milk production <i>E. Serra, M.B. Lynch, M.H. Bock, J. Gaffey, J.P.M. Sanders, B. Koompans and K.M. Pierce</i>	434
15:00	Physiological adaption of broiler chickens challenged with varying qualities of soybean cake <i>S. Kuenz, D. Hoffmann, S. Thurner, K. Damme, W. Windisch and D. Brugger</i>	434
15:15	Effects of increasing levels of insect fat supplementation on growth performance of nursery pigs <i>G. Hosotani, J. De Laat, J. De Oliveira, P. Ringard and D. Melchior</i>	435

Poster Session 42	Book of Abstracts page
42.07 Effects of fresh forage species on <i>in vitro</i> total gas and methane production: preliminary results <i>S. Contini, G. Molle, G. Scanu, M. Decandia, P. Bani, V. Giovanetti, M. Acciaro, G. Serra and A. Cabiddu</i>	435
42.08 Ketosis and energy balance milk MIR spectral predictions – practical use <i>L.M. Dale, F. Onken, H. Spiekers, P. Hertel-Böhnke, E. Stamer, F.J. Auer, A. Köck, C. Egger-Danner, K. Drössler, F. Gollé-Leidreiter and A. Werner</i>	436
42.09 Evaluation of replacing Dacron bags with ANKOM bags for indigestible NDF determination <i>M. Rønn and M.R. Weisbjerg</i>	436

  

Session 43. Impact of PLF and sensors on phenotyping, animal breeding, animal selection and animal genetics	
Chair: Kasarda / Druyan	
Theatre Session 43	Book of Abstracts page
13:45 SESAM sensor technology for milk producers <i>Z. Vassilev, M. Hoenen, K. Drössler, A. Werner and F. Gollé-Leidreiter</i>	437
14:00 From an open-access computer image analysis method to a smartphone app for beef marbling evaluation <i>M. Bonnet, B. Albouy-Kissi, B. Meunier, P. Tisseur, D. Huguel, M. El Jabri and J. Normand</i>	437
14:15 CO <sub>2</sub> tracer method disrupts the ranking of cows according to methane emissions <i>P. Huhtanen, P. Lund, M.R. Weisbjerg and A.R. Bayat</i>	438
14:30 Residual CO <sub>2</sub> production as a trait of feed efficiency in dairy cows <i>P. Huhtanen, A. Guinguina, P. Lund and A.R. Baya</i>	438
14:45 Expert locomotion score prediction based on IMU data with machine learning in turkeys <i>J.E. Doornweerd, A. Savchuk, B. Visser and A.C. Bouwman</i>	439
15:00 Development of image analysis pipeline to predict body weight in pigs <i>H. Yu, K. Lee and G. Morota</i>	439

  

Poster Session 43	Book of Abstracts page
43.07 ATP1A1 and NPY genes expression associated with heat stress and residual feed intake in beef cattle <i>B.V. Pires, N.B. Stafuzza and C.C.P. Paz</i>	440
43.08 Polymorphism in β-casein and κ-casein genes and milk performance of Polish Holstein-Friesian cows <i>B. Sitkowska, M. Kolenda, D. Kamola, Z. Lach and Ł. Lewicz</i>	440
43.09 Frequency of selected genes associated with functional traits in Polish Holstein-Friesian cows <i>M. Kolenda, B. Sitkowska, D. Kamola, D. Piwczyński, Z. Lach and Ł. Lewicz</i>	441
43.10 Polymorphism in β-lactoglobulin gene and milk performance of Polish Holstein-Friesian cows <i>M. Kolenda, B. Sitkowska, D. Kamola, Z. Lach and Ł. Lewicz</i>	441
43.11 Frequency of milk protein genes in Polish Holstein-Friesian cows <i>B. Sitkowska, M. Kolenda, D. Kamola, D. Piwczyński, Z. Lach and Ł. Lewicz</i>	442
43.12 Digital claw analysis as part of precision health management at dairy farm <i>R. Kasarda, N. Moravčíková and J. Tomka</i>	442

## Session 44.

## Dairy4Future project

Chair: Le Gall

Theatre Session 44		Book of Abstracts page
13:45	Dairy-4-Future: propagating innovations for more resilient dairy farming in the Atlantic area <i>Invited S. Foray and A. Le Gall</i>	443
14:00	SWOT analysis of the North Portugal dairy sector <i>J. Almeida, M. Gomes, S. Silva and H. Trindade</i>	443
14:15	Industry stakeholder assessment of the Scottish dairy sector and its future growth <i>H.J. Ferguson, P.R. Hargreaves and M.D. March</i>	444
14:30	Rendered services and dysservices of dairy farming to the territories – a bottom-up approach <i>C. Perrot</i>	444
14:45	Financial effects of innovative dairy farming practices in the Atlantic Area <i>M.D. March, P.R. Hargreaves and M. Topliff</i>	445
15:00	Development and test of a new platform for sustainability assessment of pasture-based animal systems <i>R.F.M. Teixeira, N.R. Rodrigues, I. Gama, M. Reis, J. Palma, T. Valada, T.G. Morais and T. Domingos</i>	445
15:15	Birth weight and early nutrition affect performance of Holstein heifers only until 15 months of age <i>J. Jurquet, A. Philibert, D. Plouzin and Y. Le Cozler</i>	446
15:30	Coffee break	
15:45	Agricultural knowledge and innovation systems (AKIS) in the Atlantic area: a focus on dairy farmers <i>M. Dorigo and S. Foray</i>	446

Poster Session 44		Book of Abstracts page
44.09	Fatty acids profile in milk of different species after <i>in vitro</i> digestion: effect on adipocyte <i>A. Santillo, L. Figliola, M.G. Ciliberti, M. Caroprese, R. Marino, M. D'apolito, I. Giardino and M. Albenzio</i>	447
44.10	Ammonia production from chitosan fed diet derived slurry <i>J. Lizarrande, E. Rosa, A. Doblas, H. Arriaga, A. Garcia and P. Merino</i>	447

## Session 45.

## Modulating gut function and microbiome for resilient livestock production

Chair: Ammer / Vigors

Theatre Session 45		Book of Abstracts page
13:45	Genetics of gut microbiota of growing pigs in three contrasted environments <i>H. Gilbert, Y. Labrune, M. Le Scielour, Y. Billon, M. Giorgi, I. Hochu, J.L. Gourdine, O. Zemb, D. Renaudeau and J. Riquet</i>	448
14:00	Directional selection of Large White pigs for gut microbiota enterotypes <i>C. Rogel-Gaillard, J. Estellé, Y. Billon, J.J. Leplat, G. Lemonnier, J. Lecardonnel and C. Larzul</i>	448
14:15	Modelling the impact of the macroalgae <i>Asparagopsis taxiformis</i> on rumen microbial fermentation <i>R. Muñoz-Tamayo, J.C. Chagas, M. Ramin and S.J. Krizsan</i>	449
14:30	Effects of Lacaune ewes selection for somatic cells score and milk persistency on rumen bacteria <i>G. Martinez Boggio, A. Meynadier, R. Rupp, H. Larroque, C. Allain and C. Marie-Etancelin</i>	449

14:45	Non-invasive method to evaluate the occurrence of trans-10 shifted rumen biohydrogenation in lambs <i>S.P. Alves, A. Francisco, A.P.V. Portugal, E. Jerónimo, J. Santos-Silva and R.J.B. Bessa</i>	450
15:00	Characterising the microbiota of traditional cattle breeds in the Netherlands and Finland <i>R.P.M.A. Crooijmans, R. Gomez Exposito, R. Gonzalez-Prendes, T. Reilas, M. Makgahlela, J. Kantanen, C. Ginja, D.R. Kugonza, N. Ghanem and H. Smidt</i>	450
15:15	Effect of rearing system on the microbial communities in rumen of Maremmana and Aubrac steers <i>M. Daglio, F. Ciucci, G. Conte, A. Serra, B. McAmmond, C. Viti, J.D. Van Hamme, A. Buccioni and M. Mele</i>	451
15:30	Coffee break	
16:30	Poster presentations and discussion <i>S. Vigors and P. Trevisi</i>	451
<b>Poster Session 45</b>		<b>Book of Abstracts page</b>
45.09	Effect of weaning and antioxidant compound supplementation on oxidative status in piglets <i>Y. Martel-Kennes, A. Caldwell, C. Robert, J.P. Laforest and J. Lapointe</i>	452
45.10	Organic acid based product supplementation in pigs challenged with the enterotoxin <i>E. coli</i> <i>V. OcElova, M.J. Jiménez, R. Berrios, S. Stelzhammer and A.P.F.R.L. Bracarense</i>	452
45.11	Yeast hydrolysate prevented <i>E. coli</i> -induced increases in piglet gut tissue conductance <i>ex vivo</i> <i>E. Valkonen, H. Kettunen, S. Hasan, J. Vuorenmaa and G. Breves</i>	453
45.12	A dose of symbiotics and vitamins at birth has lasting effects on piglet microbiota and performance <i>M. Girard, M. Tretola and G. Bee</i>	453
45.13	Effect of betaine on <i>in vitro</i> large intestinal fermentation of Iberian pigs under heat stress <i>Z. Pardo, M.J. Ranilla, A. Francisco, R. Campos, A. Martín, I. Mateos, M. Lachica and I. Fernández-Figares</i>	454
45.14	Rumen microbiome of ruminants from extreme environments <i>G. Forcina, A. Dos Santos, L. Pérez-Pardal, J.G.V. Carvalheira and A. Beja-Pereira</i>	454
45.15	Dehydrated olive oil wastewater alleviates the incidence of post weaning diarrhoea <i>M.R. Mellino, C. Ollagnier, G. Bee, N. Pradervand and G. Battaccone</i>	455

## Session 47. Combining the diversity of resources and farming practices to ensure resilience at different scales

Chair: Hadjipavlou

<b>Theatre Session 47</b>		<b>Book of Abstracts page</b>
13:45	Climate resilience in dairy sheep production in Europe <i>M.J. Carabaño, G. Arsenos, D. Buisson, C. Díaz, D. Hazard, H. Larroque, C. Pineda-Quiroga, M. Serrano, A. Tryantafyllidis, V. Tsartsianidou, E. Ugarte and M. Ramón</i>	455
14:00	The Karagouniko Sheep: response of the breed to heat stress <i>M.A. Karatzia, E.N. Sossidou, D. Tsikokos and C. Ligda</i>	456
14:15	Assessing the ancestry of American Creole cattle using genetic markers <i>C. Ginja, L.T. Gama, O. Cortés, P. Zaragoza, I. Martín-Burriel, J.L. Vega-Pla, M.C.T. Penedo, P. Sponenberg, J. Cañón, A. Sanz, A.A. Egito, L.A. Alvarez, G. Giovambattista, S. Agha, A. Rogberg-Muñoz, M.A. Lara, J.V. Delgado and A. Martínez</i>	456
14:30	Combining categories of crossbred females to improve the overall performance of a dairy cattle herd <i>J. Quénon, M.-A. Magne and S. Ingrand</i>	457

14:45	Characterisation of traditional Dutch cattle breed specific copy number variations <i>R. Gonzalez-Prendes, M. Makgahlela, J. Kantanen, C. Ginja, D.R. Kugonza, N. Ghanem and R.P.M.A. Crooijmans</i>	457
15:00	Gene banking strategies to ensure resilience of farming systems in less favoured areas <i>M. Tixier-Boichard and Image Consortium</i>	458
15:15	Benefits from recent and on-going projects on adaptation & resilience in French dairy sheep & goats <i>J.M. Astruc, D. Buisson, V. Clement, G. Lagriffoul, H. Larroque, A. Legarra, I. Palhiere and C. Moreno-Romieu</i>	458
15:30	Coffee break	
15:45	Documenting animal genetic resources in the Mediterranean: interaction and cooperation in the region <i>C. Ligda, G. Hadjipavlou, M. Djemali, M. Fadili, E. Charvolin-Lemaire and E. Sturaro</i>	459

#### Poster Session 47

#### Book of Abstracts page

47.09	The AGRICYGEN project: genomic studies of animals, plants and microbes under Cyprus conditions <i>G. Hadjipavlou, D. Fasoula, M. Omirou and I.M. Ioannides</i>	459
47.10	Whole-genome scan of sequence data for selective sweeps in South African indigenous cattle breeds <i>M.L. Makgahlela, A.A. Zwane, K.S. Nxumalo, J. Kantanen, C. Ginja, D.R. Kugonza, N. Ghanem and R.P.M.A. Crooijmans</i>	460
47.11	Imputation accuracy of crossbred dairy cows <i>L.H. Maugan, I. Croué, S. Fritz, R. Lefebvre, P. Croiseau and C. Hoze</i>	460
47.12	A SNP-BLUP genomic evaluation with breed-specific SNP effects for three-way dairy crossbreds <i>I. Croué, D. Boichard and P. Croiseau</i>	461
47.13	OPTIBOV-PT: genomic characterisation of Portuguese native cattle for optimal performance <i>C. Ginja, S. Guimarães, L. Blaschikoff, C. Bruno De Sousa, R. Fonseca, D. Gaspar, A.E. Pires, M. Makgahlela, J. Kantanen, D.R. Kugonza, N. Ghanem and R. Crooijmans</i>	461

## Session 48.

## Insect genetics: opportunities and challenges

Chair: Lefebvre / Bouwman

#### Theatre Session 48

#### Book of Abstracts page

<b>Invited</b>	13:45 Genomics and epigenetics of farmed insects <i>A. Vilcinskas</i>	462
	14:15 Exploiting genetic variation in insect populations <i>E.D. Ellen, T. Veldkamp, P. Bijma and A.C. Bouwman</i>	462
	14:30 Genome of the yellow mealworm <i>Tenebrio molitor</i> : high throughput sequencing and possible applications <i>K. Labadie, E. Eleftheriou, B. Vacherie, J.-M. Aury, F. Berro, A. Rios, T. Lefebvre and M.-A. Madoui</i>	463
	14:45 Use of the Affymetrix microarray in a cross-species approach to determine <i>T. molitor</i> gene expression <i>C. Lopez-Viso, M. Castellanos-Uribe, S.T. May, T. Parr and A. Salter</i>	463
	15:00 Developing genotyping-by-sequencing method for black soldier fly ( <i>Hermetia illucens</i> ) genome studies <i>M. Tapio, D. Fischer, O. Bitz, T. Iso-Touru and I. Tapio</i>	464
	15:15 Breeding programme design for black soldier fly and practical implementation <i>L.A.C. Lara, I. Pocnic, T. Farrugia and G. Gorjanc</i>	464
15:30	Coffee break	

15:45	Group specific CNVs in scouts and recruits of honeybee <i>M. Mielczarek, S.L. Rodriguez-Zas, J. Szyda and B. Southey</i>	465
16:00	Whole genome sequence analysis of buckfast honeybees <i>G. Minozzi, B. Lazzari, M.G. De Iorio, A. Talenti, P. Crepaldi, R. Rizzi, E. Facchini, A. Stella, G. Gandini and G. Pagnacco</i>	465
16:15	Simulation of a breeding scheme accounting for inbreeding and maternal lines in <i>Apis mellifera</i> <i>F. Phocas, T. Kistler and B. Basso</i>	466

## Session 49.

## New perspectives and approaches in equidae production

Chair: Vial / Fradinho

Theatre Session 49		Book of Abstracts page
13:45	Historical changes of the Swedish horse population, its use and breeding methods <i>J. Philipsson</i>	466
<b>Invited</b>		
14:15	Evaluation of economic effects of the equine industry in two French rural areas <i>D. Vollet and G. Bigot</i>	467
14:30	Social network analysis for a better understanding of the location of horses in France <i>J. Tapprest, R. Di Biagio, H. Farchat, A. Merlin, J.P. Amat, M. Saussac and C. Sala</i>	467
14:45	Brakes and levers of draught horses farming in France <i>G. Bigot, M. Valleix, G. Brétière and J. Veslot</i>	468
15:00	Growth and development of the Lusitano horse: application of non-linear growth functions <i>M.J. Fradinho, D. Assunção, A.L. Costa, C. Maerten, V. Gonçalves, P. Abreu, M. Bliebernick and A. Vicente</i>	468
15:15	Biometric and ponderal evaluation of neonate foals: influence of maternal factors <i>A.R. Teixeira, M.T. Leão, A.L. Costa, C. Maerten, P. Abreu, M. Bliebernick, A.S. Santos and M.J. Fradinho</i>	469
15:30	Coffee break	
15:45	Individual coat traits in a native horse breed kept under semi-wild Nordic conditions <i>S. Ringmark, K. Dahlborn and A. Jansson</i>	469
16:00	Genetic diversity of Connemara pony populations in New Zealand, Australia, and Canada <i>A.K. Michler, S. Ramsay, C. Castaneda, E.G. Cothran and M.L. Cox</i>	470
Poster Session 49		Book of Abstracts page
49.09	Foal suckling bouts frequency and duration from 3 days to 3 months old <i>L. Wimel, C. Chardon, P. Wehbe and J. Auclair-Ronzaud</i>	470
49.10	Live weight prediction of Miranda donkey from body measurements using image analysis <i>S.R. Silva, C. Guedes, D. Bacellar, B. Leiva and M. Quaresma</i>	471
49.11	Neonate foal viability evaluation: Apgar index application <i>A.R. Teixeira, M.T. Leão, A.L. Costa, C. Maerten, M. Bliebernick, A.S. Santos and M.J. Fradinho</i>	471
49.12	Portuguese Equidae native breeds: main characteristics, census and demographic parameters <i>A. Vicente, N. Carolino and M.J. Fradinho</i>	472

## Session 50.

## Sheep and goat free communications

Chair: Cadavez / Keane

### Theatre Session 50

### Book of Abstracts page

- |       |   |     |
|-------|---|-----|
| 13:45 | The use of estimated breeding values (EBVs) to improve lamb performance and carcase composition<br><i>N. Rutherford, B. Waters, J. Rankin and A. Aubry</i>  | 472 |
| 14:00 | Microbial deterioration of lamb meat of Portuguese origin as affected by its intrinsic properties<br><i>U. Gonzales-Barron, S.C. Coelho-Fernandes, G. Santos-Rodrigues, J.M. Lorenzo, R. Bermúdez-Piedra and V.A.P. Cadavez</i> | 473 |
| 14:15 | Meat quality attributes from two Portuguese autochthonous lamb breeds<br><i>G. Santos-Rodrigues, U. Gonzales-Barron, S.C. Coelho-Fernandes, J.M. Lorenzo, R. Bermúdez-Piedra and V.A.P. Cadavez</i>                             | 473 |
| 14:30 | Interaction between age and live weight at mating of ewe lambs on their reproductive success<br><i>A.N. Thompson, E. Bowen, J. Keiller, D. Pegler, G.A. Kearney and C.A. Rosales Nieto</i>                                      | 474 |
| 14:45 | Birth difficulty affects the quality of maternal care given by a ewe immediately after birth<br><i>A. Redfearn, E. Janodet, J. McNally, H. Brewer, E. Doyle, R. Doyle and S. Schmoelzl</i>                                      | 474 |
| 15:00 | Merino ewes selected for carcase traits are more energy efficient than ewes selected for wool traits<br><i>S. Blumer, J. Young and A. Thompson</i>  | 475 |
| 15:15 | Impacts of the lifetime ewe management training program for farmers on the Australian sheep industry<br><i>A.N. Thompson, D. Gordon, E. King, M. Scott and J. Trompf</i>  | 475 |

15:30 Coffee break

- |       |   |     |
|-------|---|-----|
| 15:45 | Phytoestrogen profile of retail goat and cow milk in the UK<br><i>S. Stergiadis, N.P. Nørskov, S. Purup, D.I. Givens and M.R.F. Lee</i>   | 476 |
| 16:00 | Meta-analysis on the effect of biopreservatives on <i>Staphylococcus aureus</i> inactivation in cheese<br><i>B.N. Silva, V.A.P. Cadavez, J.A. Teixeira and U. Gonzales-Barron</i>                             | 476 |
| 16:15 | New selection criteria for female fertility in Florida dairy goat using random regression models<br><i>C. Ziadi, E. Muñoz-Mejías, M. Sánchez, M.D. López, F. Arrebola, A. Menéndez-Buxadera and A. Molina</i> | 477 |

### Poster Session 50

### Book of Abstracts page

- |       |  |     |
|-------|--|-----|
| 50.11 | Crude protein level in post-weaned lambs diet did not affect productive and meat quality parameters<br><i>C. Baila, M. Blanco, G. Ripoll, J. Pelegrín-Valls, J. Álvarez-Rodríguez and M. Joy</i>                             | 477 |
| 50.12 | Genome-wide association studies for growth traits and body size in backcross sheep family<br><i>T. Deniskova, S. Petrov, A. Sermyagin, A. Dotsev, M. Fornara, H. Reyer, K. Wimmers, V. Bagirov, G. Brem and N. Zinovieva</i> | 478 |
| 50.13 | LR-validation of genomic selection in Norwegian White sheep<br><i>J.H. Jakobsen, X. Yu, T. Blichfelct, J.C. McEwan, H. Baird and T.H.E. Meuwissen</i>  | 478 |
| 50.14 | A variant in intron 11 of RXFP2 gene is associated with the polled phenotype in North Aegean sheep<br><i>A. Kominakis, A. Hager, E. Tarsani and I. Hadjigeorgiou</i>   | 479 |
| 50.15 | Effects of cryopreservation on CASA parameters: preliminary study in Portuguese sheep breeds semen<br><i>P. Cordeiro, J.P. Barbas, M.C. Baptista, C.C. Marques, R.M.L.N. Pereira and J. Pimenta</i>                          | 479 |
| 50.16 | Effects of dietary inclusion of an EPA-rich microalgae on lamb meat quality and fatty acid profile<br><i>A.C.M. Vitor, A.M. Godinho, A. Francisco, J. Silva, J. Santos-Silva, R.J.B. Bessa and S.P. Alves</i>                | 480 |

50.17	Pregnant ewe activity increases perinatally with a diet including fodder beet ( <i>Beta vulgaris</i> ) <i>A. Redfearn, S. McCoard, C. Erichsen, C. Dwyer and S. Schmoelzl</i>	480
50.18	Influence of maternal GH2-Z genotypes and feeding regime on Serra da Estrela lambs' body weight <i>M.R. Marques, J.R. Ribeiro, A.T. Belo and C.C. Belo</i>	481
50.19	PRNP genetic variability in Portuguese Merino da Beira Baixa sheep breed <i>M.F. Santos-Silva, C. Oliveira E Sousa, I. Carolino, P. Jacob, P. Cardoso and N. Carolino</i>	481
50.20	Factors associated to failure of passive immunity transfer in Latxa dairy sheep <i>R. Atxaerandio, X. Averós, I. Beltrán De Heredia, J. Arranz, N. Elguezabal, M.A. Haro, A. García-Rodríguez and R. Ruiz</i>	482

## Session 51.

## Young Scientist session: jobs of the future

Chair: Lambertz

### Theatre Session 51

### Book of Abstracts page

13:45	Young EAAP: jobs of the future <i>C. Lambertz</i>	482
-------	--	-----

# Scientific programme

## Friday 4 December

### Session 52.

### Long-term selection and limits

Chair: Wientjes

Theatre Session 52		Book of Abstracts page
9:00	Long term response to selection in the genomic era <i>P. Bijma</i>	483
9:30	Long-term selection of layers in the presence of dominance <i>I. Pocrnic, L.A. De C. Lara, C. Gaynor, J.M. Hickey, A. Wolc, J. Arango, D. Lubritz and G. Gorjanc</i>	483
9:45	Evolution of genetic variance due to selection in Manech Tête Rousse dairy sheep <i>F.L. Macedo, O. Christensen and A. Legarra</i>	484
10:00	Similarities between Mendelian sampling distributions and their possible application in breeding <i>A.A. Musa and N. Reinsch</i>	484
10:15	The long-term effects of selection on the genetic architecture of traits <i>Y.C.J. Wientjes, P. Bijma, M.P.L. Calus, B.J. Zwaan, Z.G. Vitezica and J. Van Den Heuvel</i>	485
10:30	Genomic and temporal analysis of genetic covariation between traits <i>M. Spehar, C. Edel, R. Emmerling, K.U. Götz, J. Hickey, I. Curik and G. Gorjanc</i>	485
10:45	Coffee break	
11:00	Signatures of selection and environmental adaptation across East Adriatic sheep breeds <i>B. Lukic, V. Brajkovic, I. Drzaic, M. Ferenčaković, V. Cubric-Curik and I. Curik</i>	486
11:15	Genetic diversity and signature of selection for temperature stress in Chinese cattle breeds and yak <i>P.H.F. Freitas, Q. Xu, Y. Wang, Y. Zhang, P. Yan, H.R. Oliveira, F.S. Schenkel and L.F. Brito</i>	486
11:30	Selection signatures in sheep breeds of Middle East and European origin <i>S. Eydavandi, M. Amiri Roudbar, S. Salek Ardestani and G. Sahana</i>	487

### Session 53.

### Free communications – cattle

Chair: Hocquette

Theatre Session 53		Book of Abstracts page
9:00	Danish dairy breeds are economically similar <i>M. Kargo, L. Hein, A. Fogh, J.B. Clasen and R.B. Davis</i>	487
9:15	Genetic parameters and genetic trends for female fertility in Icelandic dairy cattle <i>T. Thorarinsdottir, E. Albertsdóttir and S. Eriksson</i>	488
9:30	Single step GWAS study of classical and endocrine fertility traits in Swedish Red and Holstein cows <i>G.M. Tarekegn, E. Strandberg, R. Båge, P. Gullstrand, E. Rius-Vilarrasa, S. Andonov, J.M. Christensen and B. Berglund</i>	488
9:45	Genotype by environment interaction in South African Holsteins under two production systems <i>M. Van Niekerk, F.W.C. Neser, J.B. Van Wyk and V. Ducrocq</i>	489

10:00	Estimation of genetic parameters and GWAS for semen production traits in Belgian Blue cattle <i>J.L. Gualdrón, M. Solé, J. Zhang, A.S. Gori, X. Hubin, E. Henrotte and T. Druet</i>	489
10:15	Inbreeding and pedigree analysis of the European red dairy Cattle <i>S. Nyman, A.M. Johansson, V. Palucci, A. Schönherz, B. Guldbrandtsen, A. Roozen, D. Hinrich and D.J. De Koning</i>	490
10:30	Life cycle assessment of cattle production in the South West of Spain <i>C. Reyes-Palomo, E. Aguilera, M. Llorente, C. Díaz-Gaona, G. Moreno and V. Rodríguez-Estévez</i>	490
10:45	Coffee break	
11:00	Effects of milk PTA and supplementary CP on milk quality in late lactation grazing dairy cows <i>M.J. Doran, F.J. Mulligan, M.B. Lynch, A.G. Fahey, M. O'Sullivan, H. Ryan and K.M. Pierce</i>	491
<b>Poster Session 53</b>		<b>Book of Abstracts page</b>
53.09	Heritability coefficients of the main fatty acids of bovine milk <i>T. Sakowski, P. Brodowska and E. Bagnicka</i>	491
53.10	Heritability of pregnancy losses estimated from in-line milk progesterone profiles in Swedish dairy <i>P. Ask-Gullstrand, E. Strandberg, R. Båge, J.M. Christensen and B. Berglund</i>	492
53.11	Feeding high-grain diets to cattle: effect on further grazing intake, rumen kinetics and digestion <i>M.V. Burjel, A. Simeone, O. Bentancur, N. Zabalveytia and V. Beretta</i>	492
53.12	Estimation of genetic parameters for reproduction traits in South African Brahman cattle <i>E.D. Cason, F.W.C. Neser, P.D. Vermeulen and J.B. Van Wyk</i>	493
53.13	Estimation of breeding values for milk yield in Iranian Holstein using random regression models <i>Y. Salimiyefta, J. Jensen and N. Emam Jomeh Kashan</i>	493
53.14	Effect of age, weight and score condition in the ovarian cyclicity of native heifers <i>R.M.L.N. Pereira, R. Romão, J. Pimenta, C.C. Marques, E. Bettencourt, L. Capela, M.C. D'abreu, J. Pais, P. Espadinha, N. Carolino and C. Bovmais</i>	494
53.15	On-farm mortality of Mertolenga progeny in Alentejo beef cattle farms <i>R. Santos, L.A. Conceição, M.C. Caetano, M. Minas, L. Pereira, M.G. Carvalho and L. Costa</i>	494
53.16	Coconut oil and peppermint oil as phytotherapeutic treatments of sub-clinical mastitis in dairy cows <i>T.W. Furness and A. Westland</i>	495
53.17	Available and missing information on production factors in Parmigiano Reggiano area dairy farms <i>R.G. Pitino, M. Simoni, A. Foskolos, E. Tsiplakou, M. Ablondi, A. Quarantelli and F. Righi</i>	495
53.18	Effect of early lactation feeding treatment on the milk performance of dairy cows of divergent EBI <i>O. Quigley, L. Delaby, K.M. Pierce and F. Buckley</i>	496
53.19	Farmer's application of the breeding value predictions in the Pirenaica beef cattle population <i>D. López-Carbonell, J. Altarriba, C.M. Then-Rodríguez, C. Hervás-Rivero, C. Moreno and L. Varona</i>	496
53.20	The effect of dietary Hydroxy-selenomethionine on selenium bioavailability in milk and plasma <i>M.A. Hachemi, N.L. Whitehouse, J.R. Sexton, S.M. Hollister, L.H.P. Silva and M. Briens</i>	497
53.21	Effects of a combination of rumen-protected amino acids prototypes on performance of Holstein cows <i>G. Kim, T.D. Marbun, J. Park, H.G. Lee, J.O. Moon, J.S. Park and E.J. Kim</i>	497
53.22	GWAS for growth and carcass traits in the Rubia Gallega beef cattle population <i>C. Then-Rodríguez, J. Altarriba, C. Hervás-Rivero, C. Moreno, M. Martínez-Castillero, D. López-Carbonell and L. Varona</i>	498

53.23	Bull ejaculates got on the field: storing temperature and extender vs raw semen on semen quality <i>A. Fernandez-Novo, S. Santos-Lopez, C. Barrajon-Masa, P. Mozas, E. Caceres, M. Gomez, A. Garrafa, J.V. Gonzalez-Martin, A. Oliet, S. Astiz and S.S. Perez-Garnelo</i>	498
53.24	Bull ejaculates got on the field: effect of time lapse, storing temperature and extender used on pH <i>A. Fernandez-Novo, S. Santos-Lopez, C. Barrajon-Masa, P. Mozas, E. Caceres, M. Gomez, A. Garrafa, J.V. Gonzalez-Martin, A. Oliet, S. Astiz and S.S. Perez-Garnelo</i>	499
53.25	Growth and reproduction traits in Portuguese Preta cattle carrying the nt821 myostatin-gene mutation <i>M.C. Feliciano, E. Bettencourt, A. Amaral, F. Ferreira and L.T. Gama</i>	499
53.26	Dietary trace mineral supply vs recommendations: cross-sectional study in Canadian dairy herds <i>M. Duplessis, D. Pellerin and C.L. Girard</i>	500
53.27	Estimation of economical values for Polish Holstein, Polish Red and Scandinavian Red <i>B. Kosińska-Selbi, C. Schmidtmann, M. Kargo, J.F. Ettema and J. Szyda</i>	500
53.28	Mapping of genomic features related to mastitis resistance in dairy cattle <i>T. Iso-Touru, D. Fischer and J. Vilkki</i>	501
53.29	Effects of milk PTA and supplementary CP on milk production in late lactation grazing dairy cows <i>M.J. Doran, M.B. Lynch, F.J. Mulligan, A.G. Fahey and K.M. Pierce</i>	501
53.30	Histidine dose effects on lactational performance and plasma amino acid concentrations in dairy cows <i>S.E. Räisänen and A.N. Hristov</i>	502
53.31	Dairy cow response to lysine and methionine when reducing metabolisable protein through soybean meal <i>S. Lemosquet, C. Cirot, L. Bahloul and P. Lamberton</i>	502
53.32	Can xylanase addition increase <i>in vitro</i> enzyme solubility of organic matter from maize stem? <i>M. Rønn, K.E.B. Knudsen, N.B. Kristensen and M.R. Weisbjerg</i>	503
53.33	Wide-scale associations for workability traits in the Polish HF dairy cattle <i>K. Żukowski, W. Jagusiać, P. Topolski and B. Szymik</i>	503
53.34	Semen production and quality from bulls of seven Portuguese cattle breeds <i>A. Priester, P. Martins, R. Dantas, R. Valentim and V.A.P. Cadavez</i>	504

## Session 54.

## PLF as a tailor-made way to care for individuals within groups

Chair: Maselnye

Theatre Session 54	Book of Abstracts page
9:00 High-throughput phenotyping of intakes in small ruminants <i>J.L. Weisbecker, C. Huau, J.F. Bompa, D. Marcon, L. Estivalet, C. Marie-Etancelin, F. Tortereau, T. Heirman, F. Laperrue, D. Francois and E. Ricard</i>	504
9:15 The concept and perspectives of precision mineral supplementation <i>H.L. Foged</i>	505
9:30 Precision mineral supplementation and its impacts on dairy cow performance <i>H.L. Foged</i>	505
9:45 Influence of the social hierarchy within the herd on the individual drinking behaviour of dairy cows <i>A. Boudon, C. Gérard, M.-C. Meunier-Salaün, V. Lollivier and J. Lassalas</i>	506
10:00 Blood parameters predictions based on milk MIR spectral data <i>L.M. Dale, K. Drössler, F. Gollé-Leidreiter, H. Spiekert, P. Hertel-Böhneke, E. Stamer, F. Onken and A. Werner</i>	506

10:15	Methane, energy balance and feed efficiency MIR predictions evaluation on dairy cows population <i>L.M. Dale, A. Werner, K. Drössler, F. Gollé-Leidreiter, H. Spiekers, P. Hertel-Böhnke, E. Stamer, B. Khula, F. Onken and A. Vanlierde</i>	507
-------	---	-----

#### Poster Session 54

#### Book of Abstracts page

54.07	Use of precision livestock farming tools to evaluate the performance of growing-finishing pigs <i>V.F.C. Cruz, R. Charneca, F. Baptista, T. Morgado and J. Rico</i>	507
54.08	Faecal-NIRS for predicting animal-to-animal variation in feed organic matter digestibility in cattle <i>D. Andueza, F. Picard, J. Pourrat, A. De La Torre, M. Devant, C.K. Reynolds, E. Froidmont, L. Bernard, C. Martin, P. Nozière and G. Cantalapiedra-Hijar</i>	508

### Session 55.

### PLF and sensing animal health, welfare, physiological measures and behaviour of animals

Chair: Ingrand

#### Theatre Session 55

#### Book of Abstracts page

9:00	Better control of the sow health using a novel sensor embedded in an ear tag <i>A. Herlin, S. Dasen, P. Liechti, A. Peñaranda, I. Cuevas Martinez, A. Jara, A. Bugueiro, I. Gomez, C. Ollagnier, P. Renevey and C. Verjus</i>	508
9:15	Thermal imaging cameras vs mobility scoring for early detection of digital dermatitis in dairy cows <i>T. Gerrard, J. Dodgson and A. Westland</i>	509
9:30	Using a pecking detection system to test for correlations between pecking and injuries in turkeys <i>J.J. Gonzalez, A. Nasirahmadi and U. Knierim</i>	509
9:45	PLF to better understand the behaviour of young beef cattle at fattening <i>A. Philibert, B. Mounaix, E. Vanbergue and A. Aupiais</i>	510
10:00	Long-term BCS monitoring by 3D camera assistant system <b>Invited</b> <i>V. Bloch, M. Lidauer, P. Mäntysaari, T. Mehtiö, A. Kemppainen and M. Pastell</i>	510
10:15	Mask R-CNN based detection of group housed cows and automated definition of social contacts <i>J. Salau and J. Krieter</i>	511
10:30	Cattle activity recognition using Recurrent Neural Networks and TensorFlow on Android Smartphones <i>J.F. Ramirez-Agudelo, S. Bedoya-Mazo, R. Muñoz-Tamayo, S.L. Posada-Ochoa and J.R. Rosero-Noguera</i>	511

#### Poster Session 55

#### Book of Abstracts page

55.08	Air sample as a welfare friendly method to detect swine influenza A virus in pigs? <i>C. Fablet, S. Herve, V. Dorenlor, F. Eono, E. Eveno, N. Barbier, S. Gorin, A. Keita, G. Simon and N. Rose</i>	512
55.09	Automatic body position and behaviour detection of sows based on video images <i>S. Küster, P. Nolte, B. Stock and I. Traulsen</i>	512

### Session 56.

### Pig, poultry and rabbit husbandry for improved product quality

Chair: Stadnicka / Millet

#### Theatre Session 56

#### Book of Abstracts page

9:00	Impact of immunocastration of gilts on instrumental and chemical traits of Teruel dry-cured hams <i>L. Pérez-Ciria, G. Ripoll, D. Allueva, F.J. Miana-Mena, M. Blanco and M.A. Latorre</i>	513
------	---	-----

9:15	Sensory differences of Vinhais (Portugal) meat sausages with 3 ripening times <i>S.S.Q. Rodrigues, L. Vasconcelos, E. Pereira, A. Teixeira and F. Sousa</i>	513
9:30	Dietary net energy affects pork quality of finishing pigs <i>C.A. Moreira, L.P. Bonagúrio, N.Y. Sitanaka, L.A.C. Esteves and P.C. Pozza</i>	514
9:45	Post-mortem meat inspection using live-video transmission with remote guidance <i>V. Almqvist, C. Berg, A.H. Kautto and J. Hultgren</i>	514
10:00	Growth modulation of Sasso C44 roosters in the 'Galo de Barcelos' production system <i>P.S. Vaz, J.P. Araújo, J.L. Cerqueira and J. Oliveira</i>	515
10:15	Poster discussion Part 1: Pig, poultry and rabbit husbandry for improved product quality <i>S. Millet and K. Stadnicka</i>	515
10:45	Coffee break	
11:00	Poster discussion Part 2: Pig, poultry and rabbit husbandry for improved product quality <i>S. Millet and K. Stadnicka</i>	516
<b>Poster Session 56</b>		<b>Book of Abstracts page</b>
56.08	Oleuropein extract supplementation in pig diet improves drip loss and stability of meat <i>A.I. Rey, A. De-Cara, L. Calvo, P. Puig and T. Hechavarria</i>	516
56.09	Effect of dried rose petals on performance, meat quality and boar taint of non-castrated male pigs <i>S. Ivanova, T. Stoyanchev, T. Nikolova and I. Penchev</i>	517
56.10	Preliminary evaluation of local pig breed Sarda and its Duroc crossbred for carcass and meat quality <i>A. Di Gianvito, G. Spanu, A. Fenu, M. Acciaro, S. Ampuero Kragten and G. Battaccone</i>	517
56.11	Red wine in cured Bísaro pig ham to minimise salt content and improve physico-chemical attributes <i>J.P. Araújo, J.L. Cerqueira, M. Barros, E. Fernandes, R. Rodrigues, B. Lebret and P. Preciosa</i>	518
56.12	Effect of NaCl replacement by KCl and SubSalt4 on the mineral content of pork meat sausages <i>A. Teixeira, I. Ferreira, E. Pereira, R. Dominguez, J.M. Lorenzo and S.S.Q. Rodrigues</i>	518
56.13	Effect of immunocastration of male pigs on instrumental and chemical traits of Teruel dry-cured hams <i>L. Pérez-Ciria, G. Ripoll, D. Allueva, M. Blanco, F.J. Miana-Mena and M.A. Latorre</i>	519
56.14	Scrotal morphometry of Bísaro pig males treated with two or three administrations of Improvac® <i>G. Paixão, J. Marques, S. Botelho, A. Esteves, R. Charneca and R. Payan-Carreira</i>	519
56.15	Non-destructive technologies to evaluate hams' characteristics from immunocastrated Iberian pigs <i>J. García-Gudiño, M. Gispert, A. Brun, I. Blanco-Penedo, F.I. Hernández-García, M. Izquierdo and M. Font-I-Furnols</i>	520
56.16	Performance of immunocastrated or surgical castrated Bísaro pig breed males <i>R. Charneca, J. Marques, G. Paixão and R. Payan-Carreira</i>	520
56.17	Distinctive natural solutions to finishing heavier male pigs without castration and low boar taint <i>L. Martin, R.P.R. Da Costa, M.A.P. Conceição and A. Ramos</i>	521
56.18	Herd structure and production efficiency in Iberian pig farms <i>S. Sanz-Fernández, C. Díaz-Gaona, P. López Romero, R. Quintanilla, N. Alós Saiz and V. Rodríguez-Estévez</i>	521
56.19	Alternative pig farms: a diversity of housing types and health statuses <i>C. Fablet, E. Dubarry, N. Rose and F. Pol</i>	522
56.20	Body weight evolution, from birth to adult weight, in pigs of Sarda breed and its Duroc crossbred <i>A. Cesarani, M. Acciaro, M.R. Mellino, A. Fenu, G. Spanu, A. Di Gianvito and G. Battaccone</i>	522

56.21	Growth performance in Bísaro pigs under different feeding regimes <i>S. Botelho Fontela, C. Castelo, G. Paixão, R. Payan-Carreira and A. Esteves</i>	523
56.22	Managing the herdbook of an endangered Portuguese swine population: the Malhado de Alcobaça pig <i>A. Vicente, A. Roque, J. Bastos and N. Carolino</i>	523
56.23	Consumers' willingness-to-pay for information on PLF technology and welfare in pork <i>E. Maes, T. Van De Gucht, C. Vandenbussche, J. Maselyne and S. Van Weyenberg</i>	524
56.24	Association between FTO gene polymorphisms with growth, carcass and meat quality traits <i>D. Polasik, M. Tyra, G. Žak and A. Terman</i>	524
56.25	Organic acids in plasma at early rabbit gestation <i>M.L. Garcia, R. Muelas, I. Agea, E. Armero and M.J. Argente</i>	525
56.26	Effect of wheat malting on slaughter performance of slow growing broiler chickens <i>S. Kuenz, K. Damme, W. Windisch and D. Brugger</i>	525
56.27	Effect of supplementation with organic selenium on the microbiological status of broilers meat <i>D. Konkol, E. Popiela, M. Korzeniowska, M. Korczyński, H. Iwański and H. Różański</i>	526
56.28	Dietary protected versus non-protected essential oils on chickens' performance and meat quality <i>E. Bonos, I. Giannenas, A. Tzora, E. Gouva, I. Anastasiou, E. Barka, L. Chatzizisis, E. Christaki and I. Skoufos</i>	526
56.29	Muscle amino acids of poultry genetic lines with distinct growth (and moving) rate <i>S. Failla, D. Meo Zilio, M. Contò, F. Cenci and M. Guarino Amato</i>	527
56.30	Layer HACCP – critical control points to prevent untrimmed hens from feather pecking and cannibalism <i>A. Riedel, A. Nording, P. Hiller, N. Kemper and B. Spindler</i>	527
56.31	Selected growth parameters of farm-raised mallard ( <i>Anas platyrhynchos</i> L.) <i>D. Murawska, V. Hanzal, P. Janiszewski, P. Matusevičius and D. Witkowska</i>	528
56.32	Morphological characterisation of Portuguese autochthonous chicken breeds <i>V. Ribeiro, P.S. Vaz, R. Dantas, J.V. Leite, J.C. Lopes and N.V. Brito</i>	528

## Session 57.

## Lameness and metabolic aspects in cattle

Chair: Fürst-Waltl

Theatre Session 57	Book of Abstracts page
9:00 Interdigital hyperplasia in Holstein cows: a highly underestimated and strongly hereditary disease <i>H.H. Swale, X. Zhang, R. Pijl, F. Rosner, M. Wensch-Dorendorf, I. Gauggel and B. Brenig</i>	529
9:15 Recording lameness in dairy cattle <i>A.M. Christen, C. Egger-Danner, N. Capion, N. Charfeddine, J. Cole, G. Cramer, A. Fiedler, T. Fjeldås, N. Gengler, M. Haskell, M. Holzhauer, G. De Jong, A. Koeck, J. Kofler, K. Müller, J. Pryce, A.A.M. Sogstad, K.F. Stock, G. Thomas, E. Vasseur and B. Heringstad</i>	529
9:30 Routine claw trimming and cow behavioural variations as tools for early detection of claw disorders <i>L. Magrin, G. Cozzi, I. Lora, P. Prevedello and F. Gottardo</i>	530
9:45 Reliability of lameness scoring and related welfare measures during test-day recording visits <i>M. Suntinger, B. Ruthner, L. Maurer, C. Egger-Danner and C. Winckler</i>	530
10:00 Interpretation of data on claw health and from repeated locomotion scoring of Holstein dairy cattle <i>K.F. Stock, A.M. Choucair and K.E. Müller</i>	531
10:15 Risk factors associated with milk fever in Austrian Fleckvieh <i>J. Hintringer, C. Fuerst, C. Egger-Danner and B. Fuerst-Waltl</i>	531

10:30	Genetic relationship between body reserves mobilisation and feed intake in Holstein cows? <i>R. Lefebvre, P. Faverdin, S. Barbey, T. Tribout, P. Martin and D. Boichard</i>	532
-------	--	-----

10:45	Effects of dietary CLA or a milk fat depressing diet on energy balance of early lactating cows <i>A.R. Bayat, A. Razzaghi, M. Sari, P. Kairenus and J. Vilkki</i>	532
-------	--	-----

### **Poster Session 57**

### **Book of Abstracts page**

57.09	Use of mid-infrared spectroscopy to predict lameness related traits for dairy cows <i>M.-N. Tran, C. Bertozi, L. Dale, N. Gengler, C. Lecomte, A. Werner and J. Leblois</i>	533
57.10	Relationships between the energy balance and fertility or health disorders in Holsteins in Japan <i>A. Nishiura, O. Sasaki, T. Tanigawa and H. Takeda</i>	533
57.11	Metabolites in blood serum of suckler cows during the grazing period <i>H. Scholz, P. Kühne and G. Heckenberger</i>	534
57.12	DCAB of feed and NSBA in urine of suckler cows during the grazing period <i>H. Scholz, P. Kühne and G. Heckenberger</i>	534
57.13	Genetic relationship between foot and claw health traits and lameness in Czech Holstein cattle <i>L. Zavadilová, E. Kašná and Z. Krupová</i>	535
57.14	Metabolites in blood serum of suckler cows during winter feeding period in varied feeding situations <i>P. Kühne, H. Scholz and G. Heckenberger</i>	535

## **Session 58.**

## **Neonatal nutrition/ early life programming**

Chair: Kreuzer-Redmer

### **Theatre Session 58**

### **Book of Abstracts page**

9:00	Colostrum: The magic potion to ensure newborn survival in ungulates <i>Invited R.M. Bruckmaier and J.J. Gross</i>	536
9:30	Effect of early life rumen microbial programming on feed utilisation and gut microbiome in goats <i>A. Belanche, J.M. Palma-Hidalgo, A.I. Martín-García and D.R. Yáñez-Ruiz</i>	536
9:45	Calcium and P absorption and feed efficiency in weaned pigs is reduced by low P intake of the sows <i>P. Bikker, A. Liesegang and J. Van Baal</i>	537
10:00	Neonatal glutamine supplementation effects on jejunal development in low birth weight piglets <i>J. Schregel, Q. Sciascia, Z. Li, A. Tuchscherer and C.C. Metges</i>	537
10:15	Effect of dietary energy source replacement in milk replacer for calves <i>J.N.R. Wilms, M.A. Steele, J. Martín-Tereso and L.N. Leal</i>	538
10:30	Gestational undernutrition in extensive grazing conditions affects muscle traits in newborn lambs <i>J. Ithurralde, R. Perez-Clariget, A.L. Astessiano, M.J. Abud, A. Casal and A. Bielli</i>	538

### **Poster Session 58**

### **Book of Abstracts page**

58.07	Calf metabolic profiles and performance until weaning from beef heifers on grasslands <i>M.S. Orcasberro and A. Alvarez-Oxiley</i>	539
58.08	Effect of poor maternal nutrition on skeletal muscle microRNA expression of foetal calves <i>S. Muroya, Y. Zhang, A. Kinoshita, K. Oshima, Y. Gotoh, I. Oshima, K. Otomaru, M. Sano, S. Roh, M. Futohashi, M. Oe, K. Ojima and T. Gotoh</i>	539
58.09	Supplemental liquid feeding of suckling piglets on growth, sow condition and milk composition <i>Z. Li, A. Winkler, Q. Sciascia, S. Goers, A. Tuchscherer, J. Schregel, G. Dusel and C.C. Metges</i>	540

58.10	Glutamine supplementation stimulates cell proliferation in the muscle of low birth weight piglets <i>Y. Zhao, E. Albrecht, Z. Li, J. Schregel, S. Görs, Q. Sciascia, C.C. Metges and S. Maak</i>	540
58.11	Perilipins and the intramuscular lipid deposition in glutamine supplemented, low birth weight piglet <i>Y. Zhao, E. Albrecht, Z. Li, J. Schregel, Q. Sciascia, C.C. Metges and S. Maak</i>	541
58.12	Maternal and direct dietary polyphenols affect meat and carcass quality in lambs and goat kids <i>K. Giller, S. Sinz, M. Kreuzer and S. Marquardt</i>	541
58.13	Early feed restriction of ewe lambs and effects on male offspring during the fattening period <i>S. Andrés, A. Santos, C. Valdés and F.J. Giráldez</i>	542
58.14	Responses of chicken ( <i>Gallus gallus domesticus</i> ) embryos to pre-hatch bromide exposure <i>H.L. Lucht, N.H. Casey and R.J. Coertze</i>	542
58.15	Effect of early life rumen microbial programming on productivity in dairy goats <i>A. Belanche, J.M. Palma-Hidalgo, A.I. Martín-García, E. Jimenez and D.R. Yáñez-Ruiz</i>	543
58.16	DNA methylation of metabolic genes in the liver induced by <i>in ovo</i> stimulation of the chicken embryo <i>A. Dunislawska, A. Slawinska and M. Siwek</i>	543
58.17	Effect of nanocurcumin in response to a lipopolysaccharide-induced inflammation in Holstein calves <i>S. Kamel Oroumieh, L. Van Meulebroek, R. Valizadeh, L. Vanhaecke and A.A. Naserian</i>	544
58.18	Gestational undernutrition in extensive grazing conditions: effects on muscle traits in heavy lambs <i>R. Perez-Clariget, J. Ithurralde, P. Genovese, A. Saadoun, C. Cabrera and A. Bielli</i>	544
58.19	A novel functional protein effectively replaces fishmeal in creep feed and starter diets for piglets <i>M.A. Ton Nu, I. Lupatsch and H. Schulze</i>	545
58.20	Core-microbiome development in calves is affected by the oral inoculation with mature rumen liquid <i>H. Huuki, S. Ahvenjärvi, P. Lidauer, J. Vilkki, A. Vanhatalo and I. Tapio</i>	545
58.21	Early feed restriction of ewe lambs and effects on DNA methylation of the filial generation 1 (F1) <i>S. Andrés, O. Madsen, A. Santos and F.J. Giráldez</i>	546
58.22	Effect of yeast supplementation in sow diet on sow and piglet microbiota, health and performance <i>N. Le Floch, F.A. Eugenio, C. Achard, E. Apper, S. Combes and H. Quesnel</i>	546
58.23	Epigenetic regulation of the gene expression by early chicken microbiome reprogramming <i>A. Dunislawska, A. Slawinska and M. Siwek</i>	547

## Session 59. Impact of different farming practices on animal health and welfare

Chair: Sossidou / Messori

Theatre Session 59		Book of Abstracts page
9:00	Measuring the impact of transport on livestock welfare <i>T. Collins, E. Dunston-Clarke, R. Willis, D. Miller, A. Barnes and T. Fleming</i>	547
9:45	Prevalence and causes of skin, tail lesions and ham defects assessed at slaughter <i>M. Vitali, E. Santacroce and P. Trevisi</i>	548
10:00	Effect of gilts' breed and social experience on skin lesions at mixing into sow groups <i>L.M. Hannius, L. Keeling, C. Anderson, D. De Oliveira and A. Wallenbeck</i>	548
10:15	Artificial vs conventional rearing of pigs: tail lesions and losses, skin lesions and performance <i>M. Gentz, A. Lange, S. Ammer, O. Burfeind and I. Traulsen</i>	549

10:30	The HealthyLivestock approach: welfare and behaviour of broilers hatching in different systems <i>M.F. Giersberg, R. Molenaar, I.C. De Jong, C. Souza Da Silva, H. Van Den Brand, B. Kemp and T.B. Rodenburg</i>	549
-------	---	-----

**10:45 Coffee break**

11:00	Animal health and welfare in alpine dairy cattle farms <i>K. Katzenberger, E. Rauch, M. Erhard, S. Reese and M. Gauly</i>	550
-------	--	-----

11:15	Attitudes and barriers towards footrot in sheep flocks of south-central France: a qualitative study <i>M. Doucet, E. Souil, F. Corbière and E. Royer</i>	550
-------	---	-----

11:30	Alternative dairy production systems with higher ethical attributes as perceived by veterinarians <i>M. Brscic</i>	551
-------	---	-----

**Poster Session 59**

**Book of Abstracts page**

59.09	Extent of transport of cattle and pigs between EU-member states 2014-2018 <i>K. Dahl-Pedersen and M.S. Herskin</i>	551
-------	---	-----

59.10	Improvement of calf behaviour and veal quality using rearing at foster cows <i>G. Grodkowski, M. Stachelek, K. Puppel, P. Solarczyk, K. Cypko and T. Sakowski</i>	552
-------	--	-----

59.11	Cleaning of pipes in pig liquid feeding system for improved animal health and performance <i>A. Lind, C. Lindahl and M. Åkerfeldt</i>	552
-------	--	-----

59.12	A survey on hygienic challenges and animal welfare in mobile houses for laying hens <i>L. Rieke, M. Corbach, F. Kaufmann, H. Pieper, J. Van Der Linde and N. Kemper</i>	553
-------	--	-----

59.13	Prevalence of pecking injuries and footpad dermatitis in turkey flocks <i>N. Van Staaveren, E.M. Leishman, S. Adams, B.J. Wood, A. Harlander and C.F. Baes</i>	553
-------	---	-----

59.14	Using infrared thermography as a tool to assess acute stress of donkeys during weighing procedure <i>S.R. Silva, M. Almeida, D. Bacellar, B. Leiva and M. Quaresma</i>	554
-------	---	-----

**Session 60.**

**Horse registration, legal status of horses and its consequences**

Chair: Potocnik

**Theatre Session 60**

**Book of Abstracts page**

9:00	The use of euthanasia in French equines in the context of the strengthening of the legislation <i>A. Merlin, N. Foucher, M. Linster, G. Cazeau, M. Delerue, M. Marsot, C. Sala, J. Schneider, B. Ferry, J.P. Amat and J. Tapprest</i>	554
------	--	-----

9:15	Evaluation of the quality of the equine information system (SIRE) database for equine traceability <i>H. Farchati, A. Merlin, M. Saussac, X. Dornier, M. Dhollande, D. Garon, J. Tapprest and C. Sala</i>	555
------	--	-----

**Session 61.**

**SMARTER: small ruminants breeding for efficiency and resilience**

Chair: Conington / Moreno

**Theatre Session 61**

**Book of Abstracts page**

9:00	Genetic resistance to a gastro-intestinal parasite in young sheep weakly effective during peripartum <i>F. Douhard, S. Aguerre, A. Corbishley, T.N. McNeilly, D. Marcon, J.-L. Weisbecker, L. Bordes, P. Jacquiet and C. Moreno-Romieux</i>	555
------	--	-----

9:15	Genetic evaluation systems and breeding programs in sheep and goats: an international perspective <i>L.F. Brito, D. Berry, H. Larroque, F.S. Schenkel, G. Ciappesoni, A. O'Brien, F. Tortereau, E. Ugarte, I. Palhiere, B. Bapst, J. Jakobsen, G. Antonakos, A. Kominakis, V. Clement, G. Bruni, V. Loywyck, E. Massender, H.R. Oliveira, J. Posta and J.M. Astruc</i>	556
9:30	Milk transcriptome analysis identifies genes and pathways affecting feed efficiency in dairy ewes <i>M. Franco, P.G. Toral, C. Esteban, B. Gutiérrez-Gil, G. Hervás, J.J. Arranz, P. Frutos and A. Suárez-Vega</i>	556
9:45	Identification of homozygous haplotype compromising fertility traits in dairy sheep <i>M. Ben Braiek, S. Fabre, C. Hozé, J.M. Astruc and C. Moreno-Romieux</i>	557
10:00	Identification of QTL for body reserves in meat sheep <i>T. Macé, E. González-García, J. Pradel, C. Durand, S. Doulis, S. Parisot and D. Hazard</i>	557
10:15	On the accuracy of estimating resilience <i>M. Ghaderi-Zefreh, V. Riggio, O. Matika, A. Doeschl-Wilson and R. Pong-Wong</i>	558
10:30	Development of a genomic test-day model and correlations with robustness traits in French goats <i>M. Arnal, V. Ducrocq, C. Robert-Granié and H. Larroque</i>	558
10:45	Coffee break	
11:00	Meta-analysis of genetic parameters for resilience and efficiency traits in goats and sheep <i>F. Tortereau, S. Mucha, R. Rupp and J. Conington</i>	559
11:15	Potential exists to improve ewe mothering ability and lamb vigour through breeding <i>A.C. O'Brien, N. McHugh, T. Pabiou and D.P. Berry</i>	559
11:30	Genetic parameters for VIA-derived muscle, bone and fat weights in Texel-sired crossbred lambs <i>A. Tolkaamp, J. Conington, J. Yates, E. Smith, J. Draper, N. Clelland and N. Lambe</i>	560
11:45	Association between feed efficiency and methane emissions, performance and health in Merino sheep <i>I. De Barbieri, E.A. Navajas, D. Giorello, J.I. Velazco, G. Banchero, B. Rodríguez, F. Rovira and G. Ciappesoni</i>	560
12:00	Detection of unrecorded environmental challenges and genetic determinism of resilience in lambs <i>C.A. Garcia-Baccino, C. Marie-Etancelin, F. Tortereau, D. Marcon, J.L. Weisbecker and A. Legarra</i>	561

## Poster Session 61

## Book of Abstracts page

61.13	SMARTER EU project: SMAIl RuminanTs breeding for efficiency and resilience <i>C. Moreno-Romieux, J.J. Arranz, J.M. Astruc, D. Berry, T. Byrne, J. Conington, A. Doeschl-Wilson, P. Frutos, A. Legarra, A. Meynadier, C. Mosconi, C. Paul-Victor, R. Pong-Wong, A. Rosati, R. Rupp, B. Servin, C. Soulas, A. Stella, V. Thenard and The Smarter Consortium</i>	561
61.14	Benefits of genomic selection for meat sheep according to the available pedigree and the level of AI <i>J. Raoul and J.M. Elsen</i>	562
61.15	What is the energetic cost of resistance to gastro-intestinal parasite? A modelling approach <i>F. Douhard, C. Moreno-Romieux and A.B. Doeschl-Wilson</i>	562
61.16	Divergent selection for functional longevity in Alpine goats as a model to assess animal resilience <i>C. Huau, J.A. Torres-Penna, T. Fassier, J. Pires, M. Tourret, I. Palhière, N.C. Friggens and R. Rupp</i>	563
61.17	Can a domestic sheep industry make genetic benefits from using foreign sires? <i>N. Fetherstone, F.S. Hely, N. McHugh and P.R. Amer</i>	563
61.18	Comparison of sheep genotype metrics across breeds and countries <i>A.C. O'Brien, J.M. Astruc, A. Tolkaamp and D.P. Berry</i>	564
61.19	Study of rumen microbiota in dairy sheep with different feed efficiency using nanopore sequencing <i>C. Esteban-Blanco, P.G. Toral, C. Fernández-Díez, A. Suárez Vega, B. Gutiérrez-Gil, O. González-Recio, G. Hervás, P. Frutos and J.J. Arranz</i>	564

61.20 Genomic solutions for improved gastrointestinal parasite resistance in Scottish Blackface sheep <i>A. Pacheco, T.N. McNeilly, G. Banos and J. Conington</i>	565
--	-----

## Session 62.

## Livestock farming systems free communications

Chair: M. Lee

Theatre Session 62	Book of Abstracts page
9:00 A novel method to minimise labour costs of herbage monitoring based on spatial heterogeneity <i>A.G. Jones, T. Takahashi, P. Harris and M.R.F. Lee</i>	565
9:15 Trade-offs between economic performance and environmental impact of dairy farming in Central Norway <i>H. Steinshamn, M. Koesling, F. Walland and O. Flaten</i>	566
9:30 Adaptation to climate change of extensive livestock farming in the Iberian Peninsula: LIFE LiveAdapt <i>S. Sanz-Fernández, J.A. Salatti, C. Díaz-Gaona, A. Madrid, P.M. Herrera and V. Rodríguez-Estévez</i>	566
9:45 Analysis of workload and livestock monitoring on alpine pastures <i>J. Maxa and S. Thurner</i>	567
10:00 Meat production potential of impala ( <i>Aepyceros melampus</i> ) under intensified systems <i>T. Needham, R. Engels, D. Bureš, R. Kotrba and L. Hoffman</i>	567
10:15 Milk authentication according to the main dietary roughage source by using DART-HRMS <i>G. Riuzzi, I. Lanza, M. Bragolusi, B. Contiero, R. Piro, A. Massaro, V. Bisutti, S. Segato and F. Gottardo</i>	568
Poster Session 62	Book of Abstracts page
62.07 Peer community in animal science: a free publication model for transparent and open science <i>R. Muñoz-Tamayo, M. Hess, S.A. Huws, B.L. Nielsen, E. Norberg, M. Pastell, L.O. Tedeschi, P. Trevisi and M. Vayssier-Taussat</i>	568
62.08 Reproductive and economic results after 5dCosynch with or without P4-device in Holstein heifers <i>P. Pallares, J. Heras, J.L. Pesaantez-Pacheco and S. Astiz</i>	569
62.09 Measure to manage forage crops by remote sensing <i>L.A. Conceição, R. Santos, B. Maças and J.R. Da Silva</i>	569
62.10 Multivariate indices in technical-economic and structural traits of Iberian pig: preliminary results <i>J. García-Gudiño, I. Blanco-Penedo, E. Angón and J. Perea</i>	570
62.11 Milk fatty acid composition and lipid quality nutritional indices in different sheep farming systems <i>E. Kasapidou, Z. Basdagianni, C. Karaïskou, V. Papadopoulos, A. Kesidis and A. Tsoutsias</i>	570
62.12 Biometric characterisation of Sasso C44 roosters in the 'Galo de Barcelos' production system <i>P.S. Vaz, J.L. Cerqueira, J. Oliveira and J.P. Araújo</i>	571

## Session 63.

## Breeding, climate and sustainability

Chair: Pszczola

Theatre Session 63	Book of Abstracts page
13:45 Breeding strategies for sustainable beef cattle production in the tropics <i>Invited R. Carvalheiro and L.G. Albuquerque</i>	571
14:15 Phenotypic and genetic characterisation of dairy sheep production resilience to climate fluctuations <i>V. Tsartsianidou, G. Banos, Z. Basdagianni, D. Chatziplis, V. Kapsona, E. Sánchez-Molano, K. Gkagkavouzis, N. Karaïskou, G. Arsenos and A. Triantafyllidis</i>	572

14:30	Genome-wide association of heat tolerance in dairy sheep <i>M. Ramon, M.J. Carabaño, C. Diaz and M. Serrano</i>	572
14:45	Effects of heat stress on prolificacy in Iberian pigs <i>M. Muñoz, C. Caraballo, P. Palma-Granados, G. Gómez, G. Matos, F. Sánchez-Esquiliche and J.M. García-Casco</i>	573
15:00	Identification of genomic regions in Large White pigs associated with climatic conditions <i>L. Getmantseva, S. Bakoev, O. Kostyunina, A. Traspov, N. Bakoev and Y. Prytkov</i>	573
15:15	The environmental impact of breeding for resilient laying hens <i>M. Schop, I.J.M. De Boer and H.A. Mulder</i>	574
15:30	Coffee break	
15:45	Estimation of genetic parameters for milk urea content <i>R.E. Jahnel, I. Blunk, D. Wittenburg, M. Mayer, H. Täubert and N. Reinsch</i>	574
16:00	Long term recording of breath methane concentration as a potential trait for dairy cattle breeding <i>M.N. Aldridge, H.J.C. Van Dooren, I. Hulsegege and Y. De Haas</i>	575
16:15	The impact of crossbreeding and feed efficiency on methane emission <i>R.B. Davis, J.B. Clasen, M. Kargo, J.F. Ettema and S. Østergaard</i>	575
16:30	Mitigation of greenhouse gas emissions beef cattle production systems <i>S. Samsonstuen, L. Aass and B.A. Åby</i>	576
16:45	Ruminal microbial gene abundances as a selection criteria to reduce methane emissions in beef cattle <i>M. Martínez-Álvaro, M. Auffret, R. Stewart, J. Lima, R.J. Dewhurst, C.A. Duthie, M.A. Cleveland, M. Watson and R. Roehe</i>	576

## Session 64.

## Genomic evaluation

Chair: Cecchinato

Theatre Session 64		Book of Abstracts page
13:45	The correlation of substitution effects across populations and across generations <i>A. Legarra, Y. Wientjes, C.A. Garcia-Baccino and Z.G. Vitezica</i>	577
14:00	Understanding impact of causative SNP on genomic predictions <i>I. Misztal, I. Pocrnic, M. Perez-Enciso and D.A.L. Lourenco</i>	577
14:15	When is sequence data going to help increasing accuracy of genomic predictions in livestock? <i>D. Lourenco, S. Tsuruta, S. Jang, B. Fragomeni and I. Misztal</i>	578
14:30	Genetic evaluation including an intermediate omics trait <i>O.F. Christensen, A. Legarra, L. Varona and V. Boerner</i>	578
14:45	Genomic prediction with single-step genomic BLUP using a subset of genotypes in US Holstein <i>Y. Masuda, S. Tsuruta and I. Misztal</i>	579
15:00	International single-step genomic evaluations in beef cattle <i>R. Bonifazi, J. Vandenplas, J. Ten Napel, A. Michenet, A. Cromie, R.F. Veerkamp and M.P.L. Calus</i>	579
15:15	Benefits from cow genotyping in the genomic evaluation for conformation in Fleckvieh <i>E.C.G. Pimentel, C. Edel, M. Erbe, D. Krogmeier, R. Emmerling and K.-U. Götz</i>	580
15:30	Coffee break	
15:45	Potential of multi-breed genomic prediction based on effective number of chromosome segments <i>J. Marjanovic, X. Yu, S.E. Wallen, T.H.E. Meuwissen, D. Hinrichs and M.P.L. Calus</i>	580

16:00	Easy implementation of QP transformation in ssGTBLUP <i>M. Koivula, I. Strandén, G.P. Aamand and E.A. Mäntysaari</i>	581
16:15	Compatibility of pedigree and genomic relationships in single-step evaluations for crossbreeding <i>J. Vandenplas, R. Bergsma, C.A. Sevillano and M.P.L. Calus</i>	581
16:30	What information does ssGBLUP need to give correct evaluations in the presence of preselection? <i>I. Jibrila, J. Vandenplas, J. Ten Napel, R.F. Veerkamp and M.P.L. Calus</i>	582
16:45	Integration of MACE breeding values into domestic multi-trait test-day model evaluations <i>T.J. Pitkänen, M. Koivula, I. Strandén, G.P. Aamand and E.A. Mäntysaari</i>	582
17:00	Approximate individual animal reliabilities in single-step genomic model <i>H. Ben Zaabza, M. Taskinen, T. Pitkänen, G.P. Aamand, E.A. Mäntysaari and I. Strandén</i>	583

## Session 65. PLF and sensing animal health, welfare, physiological measures and behaviour of animals

Chair: Ingrand

Theatre Session 65		Book of Abstracts page
13:45	MastiMIR-Mastitis detection with the help of veterinary diagnosis and MIR spectral data <i>L.M. Dale, A. Werner, K. Drössler, F. Gollé-Leidreiter, F.J. Auer, C. Egger-Danner, A. Köck, J. Sölkner and L.M. Rienesl</i>	583
14:00	Classification of sickness behaviour using XGBoost with sensor data and on-farm health recordings <i>M. Gertz, K. Große-Butenuth, W. Junge, B. Maassen-Francke and J. Krieter</i>	584
14:15	Early disease detection based on feeding behaviour traits using machine learning methods in pigs <i>A.T. Kavlak, M. Pastell and P. Uimari</i>	584
14:30	Automated sickness detection in dairy cattle using multivariate cumulative sum control charts <i>I. Dittrich, M. Gertz, B. Maassen-Francke, K. Große-Butenuth, W. Junge and J. Krieter</i>	585
14:45	Indicating resilience or reflecting disease? Relating milk fluctuations and mastitis in dairy cows <i>A. Kok, G. Tsousis, G. Niozas, M. Kaske, B. Kemp and A. Van Knegsel</i>	585
15:00	Classification of cow behaviour with deep neural networks using accelerometer and tracking data <i>L.P.J.J. Noldus, S. Van Bruggen, H. Heuer, E.A. Van Dam, B.J. Loke, A. Van Gijssel and E.K. Visser</i>	586
15:15	Automated recognition of postures and drinking behaviour for the detection of compromised health pig <i>A. Alameer, I. Kyriazakis and J. Bacardit</i>	586
15:30	Coffee break	
15:45	Millimetre-wave radars for the automatic recording of sow postural activity <i>A. Dore, M. Lihoreau, Y. Billon, L. Ravon, J. Bailly, J.F. Bompa, E. Ricard, H. Aubert, D. Henry and L. Canario</i>	587
Poster Session 65		Book of Abstracts page
65.09	Relationship between reproductive cycle and body temperature in the mare <i>J. Auclair-Ronzaud, K. Varona, C. Julé, T. Jousset and L. Wimel</i>	587
65.10	Assessment of two shearing practices on animal welfare in alpaca using infrared thermography <i>A. Cruz, S. Quispe-Potosino, I. Cervantes, A. Burgos and J.P. Gutiérrez</i>	588
65.11	Which feeding behaviours of dairy calves are associated with BRD bouts? <i>M.C. Cantor, M.M. Woodrum Sester and J.H.C. Costa</i>	588

## Session 67.

## Mineral and vitamin nutrition in pigs and poultry

Chair: Millet / Bee

Theatre Session 67	Book of Abstracts page
13:45 Kinetics of calcium and phosphorus absorption and utilisation in pigs and poultry <i>P. Bikker, Y. Hu, J. Van Baal, A. Mens, J.W. Resink, M. Rodehutscord and M.M. Van Krimpen</i>	589
<b>Invited</b>	
14:30 Assessing the responses of growing pigs to deficient dietary phosphorous <i>M.M. Misiura, J.A.N. Filipe, C.L. Walk and I. Kyriazakis</i>	590
14:45 Liquid and soaked feed improve Ca and P digestibility of fattening pigs <i>R. Lizardo, B. Villca and D. Torraldonna</i>	590
15:00 Kinetics of bone mineralisation in replacement gilts determined by a non-invasive method <i>P. Schlegel, P. Floradin, C. Pomar and M.P. Létourneau-Montminy</i>	591
<b>Invited</b>	
15:30 Coffee break	
15:45 Effect of dietary phytase inclusion on phosphorus digestibility and bone strength of pigs fed diets <i>R. Lizardo, B. Villca, P. Wilcock and G. Cordero</i>	591
16:00 Does mineral supplementation reduce the negative effects of heat stress on pig's performance? <i>M. Rodríguez, A. Monteiro, G. Montalvo, A. Piñon and J. Morales</i>	592
16:15 Effect of different sources of zinc on productive performance and ileal microbiota in broilers <i>A. Forouzandeh, L. Blavi, M. Rodríguez, A. Monteiro, J.F. Pérez and D. Solà-Oriol</i>	592
16:30 Riboflavin requirements in organic poultry: graded supplementation to layers and parent hens <i>F. Leiber, Z. Amsler, M. Leubin, C. Baki, R. Eppenstein, C. Lambertz, V. Maurer and H. Ayrle</i>	593
16:45 Modulation of zinc, copper and iron transporters in weaned pigs fed dietary zinc oxide <i>D.B. Dalto, A.K. Novais, F. Guay, Y. Martel-Kennes, G. Talbot, M. Lessard, J.J. Matte and J. Lapointe</i>	593
17:00 Poster discussion 'Mineral and vitamin nutrition in pigs and poultry' <i>S. Millet and G. Bee</i>	594

## Poster Session 67

## Book of Abstracts page

67.11 Reduced dietary P and Zn supply to laying hens affects egg weight and egg Zn <i>D. Brugger, P. Urban, J. Pokorny, R. Puntigam, J. Slama, K. Schedle, M. Schlattl and W. Windisch</i>	594
67.12 Effect of zinc-methionine supplementation on the intestinal morphology of pigs <i>J.M. Romo, R. Barajas, I. Enríquez-Verdugo, G. Silva-Hidalgo, J.A. Romo, H.R. Guemez and J.M. Uriarte</i>	595
67.13 Vitamin D3 in drinking water of fasted pigs increases α-tocopherol concentration and meat stability <i>A.I. Rey, J. Segura, R. Escudero, A.I. Rodriguez and L. Calvo</i>	595

## Session 68.

## Collaborative international research related to beef quality

Chair: Hocquette

Theatre Session 68	Book of Abstracts page
13:45 The relationship between plasma biomarkers and dark cutting in beef <i>K.M.W.L. Loudon, G.E. Gardner, D.W. Pethick, P. McGilchrist, F.R. Dunshea, R. Polkinghorne, G. Tarr and I.J. Lean</i>	596

14:00	DEXA prediction of beef retail cut weights <i>H.B. Calnan and G.E. Gardner</i>	596
14:15	<b>Beef eating quality categorisation in Poland based on Meat Standards Australia</b> <b>Invited</b> <i>G. Pogorzelski, J. Wierzbicki, A. Onopiuk and A. Wierzbicka</i>	597
14:45	Automated grading of eye muscle area and intramuscular fat in Australian beef <i>S.M. Stewart, T. Lauridsen, H. Toft, D.W. Pethick, G.E. Gardner, P. McGilchrist and M. Christensen</i>	597
15:00	Global collaboration to encourage a consumer focused beef industry: the Meat Research 3G Foundation <b>Invited</b> <i>R. Polkinghorne, L. Farmer, D. Troy, M. Miller, J.F. Hocquette, J. Wierzbicki and A. Wierzbicka</i>	598
15:30	Coffee break	
15:45	BeeQ – building capacity for beef eating quality assessment in Wales <i>P.K. Nicholas-Davies, N.D. Scollan, T. Rowe, E. Thomas, E. Williams and R. Polkinghorne</i>	598
16:00	Welsh beef carcase survey – exploring proxies for predicting eating quality <i>S. Siphambili, P.K. Nicholas-Davies and R. Polkinghorne</i>	599
16:15	Contributions of tenderness, juiciness and flavour liking to overall liking of beef <i>J.J. Liu, M.P. Ellies-Oury, S. Chriki, I. Legrand, G. Pogorzelski, J. Wierzbicki, L. Farmer, D. Troy, R. Polkinghorne and J.F. Hocquette</i>	599
16:30	The French Meat Dictionary (collective work of the French Meat Academy) <i>F. Landrieu, M. Kombolo-Ngah and J.F. Hocquette</i>	600
16:45	European conformation and fat scores of bovine carcasses are not good indicators of marbling <i>J.J. Liu, S. Chriki, M.P. Ellies-Oury, I. Legrand, G. Pogorzelski, J. Wierzbicki, L. Farmer, D. Troy, R. Polkinghorne and J.F. Hocquette</i>	600
17:00	Factors influencing conformation and fatness of bovine carcasses in Italy and France <i>N. Rampado, E. Hocquette, D. Roux, C. Montanari, K. De Roest and J.F. Hocquette</i>	601

## Poster Session 68

## Book of Abstracts page

68.12	Feasibility of visible-near infrared spectroscopy to discriminate between steer and bull beef <i>L. Moran, L.J.R. Barron, N. Aldai and A.P. Moloney</i>	601
68.13	Using real-time ultrasonography to identify the optimum subcutaneous fat depth in Arouquesa breed <i>C. Venâncio, D. Moreira, J.C. Almeida, R. Vieira, J.A. Silva and S.R. Silva</i>	602
68.14	Rumen protected fat in early stage altered adipogenic gene expression and carcass quality in cattle <i>K.H. Kim, K. Thirugnanasambantham, R. Bharanidharan, J.Y. Kim, G.D. Kim, X. Panyavong and S.H. Beak</i>	602
68.15	Genetic trends in the most important beef cattle breeds in Poland <i>B. Szymik and G. Skrzynski</i>	603
68.16	Essential amino acids in beef from Wagyu, Wangus and European bulls under Spanish production systems <i>J.C. Gardón, J.M. Vázquez-Mosquera, C. Sánchez-Romero, J. Fayos, M. Vázquez-Gómez, S.S. Pérez-Garnelo, A. Villagrá, D. Martínez, F. Sebastian and S. Astiz</i>	603
68.17	French management of beef eating quality <i>I. Legrand and C. Denoyelle</i>	604
68.18	Use of NIR spectroscopy in the characterisation of bovine meat for the preparation of hamburgers <i>C. Maduro Dias, T. Melo, H. Rosa, C. Silva and A. Borba</i>	604
68.19	Optimisation of solid phase micro-extraction methods (SPME) for beef flavour analysis <i>F.S. Chong, J. Kerry, M. O'Sullivan, J. Legako, T.D.J. Hagan, A.W. Gordon and L.J. Farmer</i>	605

68.20	Classification of beef carcasses according to meat quality using pH/temperature decline descriptors <i>C. Xavier, U. Gonzales-Barron and V.A.P. Cadavez</i>	605
68.21	Difference in beef features between pure and crossbred Wagyu bulls under Spanish production systems <i>M. Vázquez-Gómez, J.M. Vázquez-Mosquera, C. García-Contreras, S.S. Pérez-Garnelo, A. Villagrá, J.C. Gardón, D. Martínez, F. Sebastian and S. Astiz</i>	606

## Session 69.

## Dietary methyl donor supplementation in dairy ruminants

Chair: Pinotti

Theatre Session 69		Book of Abstracts page
13:45	Defining the ability of choline and methionine to modulate methyl donor metabolism in the liver <i>Invited T.L. Chandler and H.M. White</i>	606
14:15	Importance of folic acid and vitamin B12 for endogenous production of methyl groups in lactating cow <i>Invited C.L. Girard and M. Duplessis</i>	607
14:45	Energy balance, adipokines and milk fatty acids of dairy cows receiving B-vitamin supplements <i>M. Duplessis, R. Gervais, H. Sauerwein, H. Lapierre and C.L. Girard</i>	607
15:00	Methyl donor and fatty acid interactions in the dairy cow: classic viewpoints and new perspectives <i>Invited J.W. McFadden</i>	608
15:30	Coffee break	
15:45	The rumen-protected amino acids affect sheep milk chemical composition and antioxidant capacity <i>Invited E. Tsiplakou, A. Mavrommatis and C. Mitsiopoulou</i>	608
16:00	The role of rumen-protected amino acids on the expression of genes involved on ewes' immune system <i>E. Tsiplakou, A. Mavrommatis, D. Skliros, F. Righi and E. Flemetakis</i>	609
16:15	Rumen-protected choline supplementation in dairy ruminants: the current status of knowledge <i>L. Pinotti, M. Ottoboni, A. Luciano and A. Baldi</i>	609
16:30	Responses to methionine, lysine plus histidine and energy supply on mammary metabolism in dairy cows <i>C. Omphalius, H. Lapierre, L. Bernard, L. Bahloul and S. Lemosquet</i>	610

## Session 70.

## Applied animal behaviour

Chair: Boyle / Dantas de Brito Almeida

Theatre Session 70		Book of Abstracts page
13:45	Interobserver- and retest-reliability of different human-animal-relationship tests in dairy cattle <i>K. Krugmann, C. Möhlmann, J. Krieter and I. Czycholl</i>	610
14:00	Ingestive and postural behaviour in frequently regrouped heifers <i>M. Moratorio, F. Silveira, A. Ruba, M. Carriquiry, R. Ungerfeld and C. Fiol</i>	611
14:15	Evaluation of methods for assessing positive emotions in dairy calves in groups for usage by farmers <i>M. Guse, J. Nachtsheim, F. Wolbers, J.J. Hayer and J. Steinhoff-Wagner</i>	611
14:30	Relationship between tail biting in pigs and tail posture <i>T. Wilder, J. Krieter, N. Kemper and K. Büttner</i>	612
14:45	Characterisation of tail biting outbreaks in rearing piglets: identification of early signals <i>S. Ammer, J. Ahlhorn, M. Wutke, S. Zeidler and I. Traulsen</i>	612

15:00	Fattening pigs display weak behavioural changes due to gastric ulcerations <i>M. Holinger, B. Früh, P. Stoll, M. Kreuzer and E. Hillmann</i>	613
-------	---	-----

15:15	Do sows have individual nest building profiles? <i>A. Wallenbeck, B. Algers, L. Rydhmer and R. Westin</i>	613
-------	--	-----

Poster Session 70		Book of Abstracts page
70.08	Relationships between temperament and productive traits in Pyrenean cattle <i>L.X. Estevez-Moreno, G.C. Miranda-De La Lama, L. García-Pastor, J.A. Abecia, P. Santolaria-Blasco and G.A. María</i>	614
70.09	Tail biting in Switzerland: a retrospective study <i>C. Ollagnier and G. Bee</i>	614
70.10	Tail docking or tail biting in pigs? <i>M. Parreira, S. Silva, S. Botelho and D. Monteiro</i>	615
70.11	Welfare assessment and wool cortisol determinations in feedlot Castellana and INRA 401 lambs <i>R. Bodas, T. Peric, A. Comin, M. Montañés and J.J. García-García</i>	615
70.12	Behaviour and growth performances in growing rabbits submitted to time restrictions on access to water <i>V. Pinheiro, J. Gonçalves and D. Monteiro</i>	616

## Session 71. Combating the increasingly negative consumer opinion on livestock's contribution to climate change

Chair: Pulina

Theatre Session 71		Book of Abstracts page
13:45	The Sustainable Meat project: science based communication to contrast fake news drift <b>Invited</b> <i>A. Bertaglio, G. Pulina, E. Capri and E. Bernardi</i>	616
14:15	Farmpedia: the reference toolbox for teaching animal husbandry in general education <b>Invited</b> <i>A. Chouteau, C. Disenhaus, R. Baumont and G. Brunschwig</i>	617
14:45	Serious games to explain animal husbandry <b>Invited</b> <i>A. Chouteau, E. Zanchi, R. Baumont, C. Disenhaus and G. Brunschwig</i>	617
15:15 Coffee break		
15:30	Assessment and valuation of ecosystem services provided by beef farms in Alentejo, Portugal <b>Invited</b> <i>M.P. Dos Santos, T.G. Morais, T. Domingos and R.F.M. Teixeira</i>	618
16:00	Prediction of nitrogen output in urine and faeces from beef on diets with different protein contents <b>Invited</b> <i>A. Angelidis, L. Crompton, T. Misselbrook, T. Yan, C.K. Reynolds and S. Stergiadis</i>	618
16:30	The emissions balance of the production of Mozzarella di Bufala Campana DOP <b>Invited</b> <i>R. De Vivo, L. Zicarelli and R. Napolano</i>	619

Poster Session 71		Book of Abstracts page
71.07	Italian livestock emissions balance <i>R. De Vivo and L. Zicarelli</i>	619

## Session 72.

# Resilient sheep and goats: breeding & management strategies to overcome disease and environmental challenges

Chair: Conington / McHugh

Theatre Session 72		Book of Abstracts page
13:45	Could rumen volumes measured by CT scanning help to breed sheep with lower methane emissions? <i>N.R. Lambe, A. McLaren, K. McLean, J. Gordon and J. Conington</i>	620
14:15	Calibrating lamb cut weight data using computed tomography <i>A. Williams, F. Anderson and G.E. Gardner</i>	620
14:30	Genetic basis of body reserves mobilisation and accretion in Manchega ewes <i>C. Diaz, I. Ureña, A. Rubio, C. Gonzalez, M.D. Perez-Guzman, M. Ramon, M. Serrano and M.J. Carabaño</i>	621
14:45	Determining factors affecting feed intake in grazing sheep <i>F. McGovern, P. Creighton, N. Galvin, D. Hennessy, M. O'Donovan, B. Garry, N. McHugh and M. Beecher</i>	621
15:00	The estimation of dispersion parameters for growth traits of lambs in Slovenia <i>M. Bizjak, M. Špehar, K. Potočnik, M. Štepec, B. Luštrek, G. Gorjanc and M. Simčič</i>	622
15:15	Liveweight and body composition responses to differential feeding in a range of Merino genetics <i>C.J. Byrne, S. Blumer and A.N. Thompson</i>	622
15:30	Coffee break	
15:45	Weaning performance of sheep grazing on different swards under cell grazing or continuous stocking <i>M.J. Rivero, H. Fleming, O. Lawal-Adebawale, R. Pywell and J. Storkey</i>	623
16:00	Differential mucin gene expression in the ovine cervix contribute to breed differences in fertility <i>L. Abril-Parreño, P. Cormican, A. Krogenæs, X. Druart, K.G. Meade and S. Fair</i>	623
16:15	Analysis of the sheep footrot microbiome using whole-metagenome sequencing <i>A. Usié, C. Leão, D. Gaspar, A. Botelho, S. Cavaco, M. Monteiro, M. Madeira, J. Santos, L. Tábuas, S. Branco, E. Bettencourt, L. Padre, R. Romão, P. Caetano, P. Damião, C. Dias, N. Carolino, C. Bettencourt, C. Matos and A.M. Ramos</i>	624
16:30	A survey of pathogens on lamb carcasses from Portuguese local breeds <i>S. Coelho-Fernandes, D. Félix-Oliveira, G. Rodrigues, V.A.P. Cadavez and U. Gonzales-Barron</i>	624
Poster Session 72		Book of Abstracts page
72.11	Polymorphisms of the melatonin receptor 1A gene determine sexual activity of rams in spring <i>J.A. Abecia, L. Pulinas, M.C. Mura, M. Carvajal-Serna, A. Casao, R. Pérez-Pe and V. Carcangiu</i>	625
72.12	Breeding value estimates of daily gain in six small Swiss sheep populations <i>A. Burren, C. Hagger, C. Aeschlimann, P. Beffa and H. Joerg</i>	625
72.13	Effect of dietary seaweed on growth performance, carcass quality and faecal coccidia oocysts of lamb <i>D. Martín, B. Agudo, I. Hurtado, C. Bodini, J. Viguera and J. Peinado</i>	626
72.14	Indirect parameters of resistance and tolerance to worms for sheep breeding in developing countries <i>L. Sartori Menegatto, R. Dutra Do Bem, L. Afonso De Freitas, L. Vage Coelho Sartori, N. Bonvino Stafuzza and C.C. Paro De Paz</i>	626
72.15	Clustering models and the use of extrinsic and intrinsic parameters as anaemia measurements in sheep <i>L. Sartori Menegatto, L. Afonso De Freitas, R. Dutra Do Bem, L. Vage Coelho Sartori, N. Bonvino Stafuzza and C.C. Paro De Paz</i>	627

72.16	Exploiting most informative markers to predict group membership of North Aegean sheep <i>A. Kominakis, E. Tarsani, A. Hager and I. Hadjigeorgiou</i>	627
72.17	Intra-day repeatability of methane emissions in sheep <i>E. O'Connor, F.M. McGovern, T.M. Boland, E. Dunne and N. McHugh</i>	628
72.18	Environmental impact of Sardinia dairy goat farms <i>M.F. Lunesu, A.S. Atzori, P. Sau, A. Ledda, F. Lai, A. Fenu, R. Rubattu, A. Mazza, F. Correddu and A. Cannas</i>	628
72.19	The effect of rotational grazing on sheep and grassland performance <i>T. Meeke and A. Aubry</i>	629
72.20	Genomic characterisation of Portuguese native sheep breeds <i>D. Gaspar, H. Magalhães, A. Usié, C. Leão, C. Ginja, C. Matos and A.M. Ramos</i>	629
72.21	No such thing as a 'strong' lamb – ewe influence on pre- and post-weaning animal growth <i>A.G. Jones, T. Takahashi, H. Fleming, B.A. Griffith, P. Harris and M.R.F. Lee</i>	630
72.22	Modelling adaptive capacity of goats to a high concentrate diet using rumen hydrogen ion <i>M. Taghipoor and S. Giger-Reverdin</i>	630
72.23	Effect of essential oils and plant extracts supplementation (Aerorum) on lamb growth performances <i>P.H. Pomport, V. Berthelot, J.P. Ricaud and M. Pondet</i>	631
72.24	Screening Mediterranean shrubs selected by browsing goats against gastrointestinal strongyles <i>L. Padre, C. Costa and A.T. Belo</i>	631

## Session 73.

## Innovative farm systems to meet societal demand

Chair: Siqueira

Theatre Session 73		Book of Abstracts page
13:45	Developing cross-boundaries based innovations to design diversified and integrated livestock systems <b>Invited</b> <i>M.A. Magne, M. Duru and B. Dedieu</i>	632
14:15	Preconditioning programs: a solution to reduce bovine respiratory diseases in fattening units? <i>E. Vanbergue, G. Foucras, M. Guiadeur, N. Cebron, G. Meyer, R. Maillard, B. Mounaix and S. Assié</i>	632
14:30	Rapeseed-oil as ω3-rich natural sources for livestock feeding to obtain differentiated meat products <i>N. Mandaluniz, I. Olazaran, J. Arranz, E. Ugarte and R. Ruiz</i>	633
14:45	Sustainability of extensive livestock production systems: the challenge of PA technologies <i>J. Serrano, S. Shahidian, E. Carreira, J. Marques Da Silva, A. Pereira and M. Carvalho</i>	633
15:00	A framework to analyse agricultural innovation systems applied to the sheep sector <i>D. Martin-Collado, A. Caudevilla Pérez, A. Bernués and I. Casasús</i>	634
15:15	How an on-farm experimentation may improve attitudes and practices of dairy farmers <i>B. Mounaix, M. Guiadeur, T. Jozan and S. Assié</i>	634
15:30	Coffee break	
15:45	Planning farm efficiency at territorial scale to improve environmental performance of dairy sheep <i>A.S. Atzori and A. Cannas</i>	635
16:00	Resilience of three farming systems to decline in synthetic nitrogen and feed imports availability <i>C. Pinsard, F. Accatino, S. Martin and F. Leger</i>	635
16:15	Can collective brands push dairy farms to adopt innovative practices? <i>T.T.S. Siqueira, A. Gonçalves and L. Mur</i>	636

**Poster Session 73**

**Book of Abstracts page**

- 73.11 Short supply chains of Bísaro pig – TREASURE project as a reference of knowledge and networking tool 637  
*J. Santos Silva, J.L. Cerqueira, M. Čandek-Potokar and J.P. Araújo*
- 73.12 Horizontal arrangements, technologies and productive capacity of Brazilian dairy farmers 637  
*R.R. Martinelli, J.C. Damasceno, V.D.V. Da Costa, T.T.S. Siqueira and F.I. Bánkuti*
- 73.13 Comparison of organic and traditional lamb production systems by meta-analysis 638  
*R. Catani, J.P. Araújo and V. Cadavez*
- 73.14 Life cycle assessment of the Iberian pig systems in the Spanish dehesa 638  
*C. Reyes-Palomo, E. Aguilera, M. Llorente, C. Diaz-Gaona, G. Moreno and V. Rodriguez-Estévez*
- 73.15 A study of growth performance of Bordaleira de Entre Douro e Minho lambs breed 639  
*R. Catani, J. Cerqueira, J.P. Araújo and V.A.P. Cadavez*
- 73.16 A study of growth performance of Churra Galega Bragançana lambs breed 639  
*R. Catani and V.A.P. Cadavez*
- 73.17 Eco-efficiency assessment of Iberian pig production in Spanish dehesa: preliminary results 640  
*E. Angón, J. García-Gudiño, I. Blanco-Penedo and J. Perea*

