

SCIENTIFIC PROGRAM

11.09.2016 (Sunday)

18.00-20.00 **Registration**

20.00 **ISC Meeting in Kogel Mogel Restaurant**

12.09.2016 (Monday)

8.00-9.00 **Registration**

9.00 **Opening: Gert van Duinkerken • Jacek Skomial**

Chairman: H  l  ne Lapierre

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|-------------|-------------------------|--|
| 9.30-10.15 | Lecture 1, Teresa Davis | <i>Timing of nutrient delivery impacts muscle protein synthesis and lean growth</i> |
| 10.15-11.00 | Lecture 2, Mick Bailey | <i>Interaction between immunological system, microflora of the gastrointestinal tract and metabolism</i> |

11.00-14.00 Oral presentations: **S-1 Physiological aspects of protein and energy metabolism and nutrition: Pigs** | **Chairman: Johan de Boever**

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| 11.00 | 1. Palma-Granados, P.; Haro, A.; Seiquer, I.; Lara, L.; Aguilera, J.F.; Nieto, R. <i>Changes in muscle metabolism in Iberian and Landrace x Large-White pigs fed lysine deficient diets</i> |
| 11.20 | 2. Labussiere, E. ; Dubois, S.; Castex, M.; Renaudeau, D. <i>Effect of dietary live yeast supplementation on thermal heat acclimatization in finishing male pigs</i> |
| 11.40 | 3. Marini, J.C. ; Agarwal, U.; Robinson, J.; Yuan, Y.; Didelija, I.C.; Stoll, B.; Burrin, D.G. <i>Citrulline and arginine synthesis in perinatal and young pigs</i> |

12.00-13.00 **Lunch**

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| 13.00 | 4. Marini, J.C. ; Agarwal, U.; Didelija, I.C. <i>Dietary citrulline supplementation is an efficient strategy to increase arginine availability</i> |
| 13.20 | 5. Jansman, A.J.M. ; van Diepen, H.; Rovers, M.; Corrent, E. <i>Lowering the dietary protein content in piglets: how far can we go?</i> |
| 13.40 | 6. van der Meer, Y. ; Gerrits, W.J.J.; Jansman, A.J.M.; Kemp, B.; Lammers, A. <i>Does a reduction in dietary protein affect immune status of pigs kept under different sanitary conditions?</i> |

14.00-14.30 **Coffee break**

11.09.2016 (Sunday)

18.00-20.00 **Registration**

20.00 **ISC Meeting in Kogel Mogel Restaurant**

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9.00 **Opening: Gert van Duinkerken • Jacek Skomial**

Chairman: H  l  ne Lapierre

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| 9.30-10.15 | Lecture 1, Teresa Davis | <i>Timing of nutrient delivery impacts muscle protein synthesis and lean growth</i> |
| 10.15-11.00 | Lecture 2, Mick Bailey | <i>Interaction between immunological system, microflora of the gastrointestinal tract and metabolism</i> |

11.00-14.00 Oral presentations: **S-1 Physiological aspects of protein and energy metabolism and nutrition: Ruminants** | **Chairman: H  l  ne Lapierre**

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| 11.00 | 1. Nichols, K. ; Van Laar, H.; Bannink, A.; Dijkstra, J. <i>Energy from fat increases milk lactose yield from dairy cows to the same extent as energy from protein</i> |
| 11.20 | 2. Oltjen, J.W. ; Sainz, R.D.; Barioni, L.G.; Medeiros, S.R. <i>Rate of protein growth and energy for maintenance parameter changes in the Davis Growth Model</i> |
| 11.40 | 3. White, R.R. ; Roman-Garcia, Y.; Firkins, J.L.; VandeHaar, M.H.; Armentano, L.E.; McGill, T.; Garnett, R.; Hanigan, M.D. <i>Evaluation of the 2001 Dairy NRC and derivation of new equations</i> |

12.00-13.00 **Lunch**

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| 13.00 | 4. Grandl, F.; Kreuzer, M. ; Zeitz, J.O.; Schwarm, A. <i>Age effects on energy balance of dairy cows subjected to different diet types since first calving</i> |
| 13.20 | 5. Gilbert, M.S. ; van den Borne, J.J.G.C.; van Reenen, C.G.; Gerrits, W.J.J. <i>Predicting variation in feed efficiency in veal calves by early life characterization</i> |
| 13.40 | 6. Cantalapiedra-Hijar, G. ; Dewhurst, R.J.; Cheng, L.; Cabrita, A.R.J.; Fonseca, A.J.M.; Fouillet, H.; Nozi  re, P.; Ortigues-Marty, I. <i>Isotopic N fractionation as a biomarker of nitrogen use efficiency by ruminants: a meta-analysis</i> |

14.00-14.30 **Coffee break**

Chairman: Michael Kreuzer		
14.30-15.15	Lecture 3, Sam Millet	<i>Pork production with minimum nitrogen input</i>
15.15-17.35	Oral presentations: S-1 Physiological aspects of protein and energy metabolism and nutrition: Pigs and Rodents Chairman: Jürgen Zentek	
15.15	1. Mansilla, W.D. ; Agyekum, A.K.; Zhu, C.L.; Htoo, J.K.; Nyachoti, C.M.; de Lange, C.F.M. <i>Dietary ammonia appearance in portal blood of pigs fed diets deficient in non-essential amino acid nitrogen is incomplete</i>	
15.35	2. van Erp, R.J.J. ; van Hees, H.; Zijlstra, R.T.; Gerrits, W.J.J. <i>The effect of the rate of starch digestion on energy efficiency in low and high performing piglets</i>	
15.55	3. Tran, A.T. ; Paulick, M.; Berk, A.; Kluess, J.W.; Frahm, J.; Schatzmayr, D.; Dänicke, S. <i>Influence of deoxynivalenol (DON) on the piglet's immune system with due regard to sodium sulfite decontaminated feed: in vivo results</i>	
16.15	4. Ruiz-Ascacibar, I.; Stoll, P.; Bee, G. <i>Impact of dietary crude protein and amino acid restriction on the amino acid deposition rate and profile in the empty body of modern Swiss Large White pigs</i>	
16.35	5. Kar, S.K. ; Jansman, A.J.M.; Kruijt, L.; Benis, N.; Smits, M.A. <i>Effect of dietary proteins on immunity and metabolism in mice</i>	
16.55	6. Liu, G.M. ; Hanigan, M.D.; Lin, X.Y.; Zhao, K.; Wang, Z.H. <i>Methionine, leucine, isoleucine or threonine effects on mammary cell signalling and pup growth in lactating mice</i>	
17.15	7. Rudar, M. ; Zhu, C.L.; de Lange, C.F.M. <i>Effects of supplemental dietary leucine and immune system stimulation on whole body protein turnover in starter pigs</i>	
19.00	Welcome meeting in Stara Zajeźdźnia (The Old Depot)	

Chairman: Michael Kreuzer		
14.30-15.15	Lecture 3, Sam Millet	<i>Pork production with minimum nitrogen input</i>
15.15-17.15	Oral presentations: S-3 Environmental and animal welfare aspects of protein and energy nutrition Chairman: Michael Kreuzer	
15.15	1. White, R.R. ; Hall, M.B. <i>Agriculture without animals? The environmental and economic role of livestock in food production</i>	
15.35	2. Weisbjerg, M.R. ; Johansen, M.; Larsen, M.; Lund, P. <i>Soybean meal supplementation in automatic milking systems</i>	
15.55	3. Costa e Silva, L.F.; Valadares Filho, S.C.; Rotta, P.P. ; Marcondes, M.I.; Chizzotti, M.L.; Menezes, A.C.B. <i>Update of protein requirements for Zebu beef cattle</i>	
16.15	4. Lamp, O.; Derno, M.; Nürnberg, G.; Metges, C.C.; Kuhla, B. <i>Intravenous lipid infusion affects methane production apart from reducing dry matter intake in late lactation German Holstein cows</i>	
16.35	5. Cabezas-Garcia, E.H. ; Krizsan, S.J.; Shingfield, K.J.; Huhtanen, P. <i>Effects of dietary carbohydrate source on milk production and environmental impact of lactating dairy cows</i>	
16.55	6. Engelke, S.W. ; Daş, G.; Derno, M.; Kuhla, B.; Metges, C.C. <i>Delineation of relationships between feed composition, methane emission and milk fatty acids in cows – prerequisite for the development of an indirect methane indicator</i>	
19.00	Welcome meeting in Stara Zajeźdźnia (The Old Depot)	

13.09.2016 Tuesday

Chairman: James Oltjen

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| 8.15-9.00 | Lecture 4,
Margrethe Therkildsen | <i>Feeding strategies to manipulate in vivo protein turnover and post mortem proteolysis in meat</i> |
| 9.05-11.35 | Oral presentations: S-1 Physiological aspects of protein and energy metabolism and nutrition: Ruminants Chairman: Zygmunt M. Kowalski | |
| 9.05 | 1. Burakowska, K. ; Górká, P.; Kowalski, Z.M.; Laarveld, B.; Penner, G.B. | <i>Effect of canola meal heat treatment and glycerol inclusion in calf starter on GIT development</i> |
| 9.25 | 2. Fontoura, A.B.P. ; Keomanivong, F.E.; Prezotto, L.D.; Camacho, L.E.; Montanholi, Y.R.; Vonnahme, K.A.; Swanson, K.C. | <i>Associations between body weight change, hepatic and intestinal oxygen consumption in pregnant cows</i> |
| 9.45 | 3. Qin, N. ; Kokkonen, T.; Salin, S.; Selim, S.; Seppänen-Laakso, T.; Taponen, J.; Vanhatalo, A.; Elo, K. | <i>Overfeeding alters hepatic lipidomic and gene expression profiles in the periparturient dairy cows</i> |
| 10.05-10.35 | Coffee break | |
| 10.35 | 4. Stefański, T. ; Huhtanen, P.; Vanhatalo, A.; Shingfield, K.J.; Ahvenjärvi, S. | <i>Ruminal metabolism of rapeseed meal insoluble nitrogen</i> |
| 10.55 | 5. van den Borne, J.J.G.C. ; Alferink, S.J.J.; Heetkamp, M.J.W.; Gerrits, W.J.J. | <i>Effect of solid feed intake on nutrient utilization from milk replacer in veal calves</i> |
| 11.15 | 6. Crouse, M.S. ; McLean, K.J.; Crosswhite, M.S.; Reynolds, L.P.; Dahlen, C.R.; Neville, B.W.; Borowicz, P.P.; Caton, J.S. | <i>Bovine utero-placental glucose and cationic amino acid transporters during early gestation</i> |
| 12.15 | Start for Wieliczka Tour, pick-up: Wyspiański Hotel
Start for Michałów Tour, pick-up: Conference Venue | |

13.09.2016 Tuesday

Chairman: James Oltjen

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|-------------|---|---|
| 8.15-9.00 | Lecture 4,
Margrethe Therkildsen | <i>Feeding strategies to manipulate in vivo protein turnover and post mortem proteolysis in meat</i> |
| 9.05-11.35 | Oral presentations: S-5 Methodological aspects of research on protein and energy metabolism and nutrition Chairman: James Oltjen | |
| 9.05 | 1. Moraes, L.E. ; Kebreab, E.; Doepel, L.; Lapierre, H. | <i>A new modelling system to estimate lactation requirements and the efficiency of utilizing metabolizable protein to synthesize milk protein</i> |
| 9.25 | 2. Dhanoa, M.S. ; Sanderson, R. | <i>Incorporating Theil-Sen regression method into Bartlett's 3-group Type II unknown variances model to improve its robustness</i> |
| 9.45 | 3. Stein, H.H. ; Mathai, J.K. | <i>Use of the pig to determine digestible indispensable amino acid scores (DIAAS) in human foods</i> |
| 10.05-10.35 | Coffee break | |
| 10.35 | 4. Ghimire, S. ; Pomar, C.; Remus, A. | <i>Variation in protein content and efficiency of lysine utilization in growing-finishing pigs</i> |
| 10.55 | 5. Cantalapiedra-Hijar, G. ; Prache, S.; Téa, I.; Faure, S.; Chantelauze, C.; Ortigues-Marty, I. | <i>Evaluation of compound-specific N isotope analysis in key amino acids to predict feed efficiency in growing lambs</i> |
| 11.15 | 6. Anderson, F.; Williams, A.; Pannier, L.; Pethick, D.W.; Gardner, G.E. | <i>Using computed tomography to assess fat distribution in lamb carcasses</i> |
| 12.15 | Start for Wieliczka Tour, pick-up: Wyspiański Hotel
Start for Michałów Tour, pick-up: Conference Venue | |

14.09.2016 Wednesday

Chairman: Mario Luiz Chizzotti

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| 8.15-9.00 | Lecture 5,
Harald Hammon | <i>Hepatic metabolism of glucose in the adaptation to transition period</i> |
| 9.00-9.45 | Lecture 6,
Steven Lonergan | <i>Proteomics applied to animal efficiency and meat quality</i> |
| 9.45-11.15 | Coffee break & Poster session S-1 Ruminants (14) | |
| 11.15-15.15 | Oral presentations: S-1 Physiological aspects of protein and energy metabolism and nutrition: Ruminants and Poultry
Chairman: André Chwalibog | |
| 11.15 | 1. Sauvant, D. ; Giger-Reverdin, S.; Nozière, P.; Ortigues-Marty, I. | <i>Heat production in ruminants: from experimental data to feed unit systems through meta-analysis</i> |
| 11.35 | 2. Sauvant, D. ; Daniel, J.B.; Cantalapiedra-Hijar, G. Nozière, P. | <i>Meta-analysis of the efficiency of metabolisable protein utilization in dairy cows and goats</i> |
| 11.55 | 3. Berends, H. ; Gerrits, W.J.J.; Webb, L.E.; Bokkers, E.A.M.; van Reenen, C.G. | <i>Determinants of feed preferences and intake in calves</i> |
| 12.15-13.15 | Lunch | |
| 13.15 | 4. Furukawa, K. ; Kikusato, M.; Toyomizu, M. | <i>Roles of corticosterone and superoxide in the ubiquitin proteasome system in heat-stressed chickens</i> |
| 13.35 | 5. Kikusato, M. ; Toyomizu, M. | <i>A comparisons of reactive oxygen species regulation in skeletal muscle with different muscle fiber compositions from heat-stressed birds</i> |
| 13.55 | 6. Vignale, K.; Caldas, J.V.; England, J.A.; Boonsinchai, N.; Sodsee, P.; Put-sakum, M.; Pollock, E.D.; Dridi, S.; Owens, C.M.; Coon, C.N. | <i>Breast muscle protein turnover in broiler breeder parent stock</i> |
| 14.15 | 7. Boonsinchai, N.; Hilton, K. ; Mullenix, G.; Caldas, J.V.; Magnuson, A.; Eng-land, J.A.; Coon, C.N. | <i>De novo lipogenesis in broiler breeder hens</i> |
| 14.35 | 8. Troni, A.R. ; Green, M.H.; Ford, J.L.; Sakomura, N.K.; Suzuki, R.M.; Campos, D.M.B.; Peruzzi, N.J.; Pacheco, L.G. | <i>Application of compartmental analysis to study nitrogen kinetics in broilers</i> |
| 14.55 | 9. Suzuki, R. M. ; Sakomura, N.K.; Bendassolli, J.A.; Denadai, J.C.; Troni, A.R.; Campos, D.M.B.; Pacheco, L.G.; Júnior, P.M. | <i>Incorporation of ¹⁵N from L-threonine in plasma of broilers</i> |
| 15.15-15.45 | Coffee break | |

14.09.2016 Wednesday

Chairman: Mario Luiz Chizzotti

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|-------------|---|--|
| 8.15-9.00 | Lecture 5,
Harald Hammon | <i>Hepatic metabolism of glucose in the adaptation to transition period</i> |
| 9.00-9.45 | Lecture 6,
Steven Lonergan | <i>Proteomics applied to animal efficiency and meat quality</i> |
| 9.45-11.15 | Coffee break & Poster session S-1 Monogastrics (12) | |
| 11.15-14.55 | Oral presentations: S-4 Feed sources and feed processing related to energy and protein digestion and metabolism
Chairman: Mario Luiz Chizzotti | |
| 11.15 | 1. Navarro-Villa, A.; van Laar, H. ; Doorenbos, J.; Martín-Tereso, J. | <i>Rumen degradation kinetics of protein rich feedstuffs in dairy cows and intensively fed beef cattle</i> |
| 11.35 | 2. Labussière, E. ; Thibault, J.N.; Lefèbvre, T.; Martineau, C. | <i>Effect of starch content of milk replacer on energy metabolism in growing-finishing veal calves</i> |
| 11.55 | 3. Rico, D.E. ; Chouinard, P.Y.; Cohou, C.; Parales, J.E.; Plante-Dubé, M.; Gervais, R. | <i>Effects of dietary fatty acid chain length on performance of early lactation dairy cows</i> |
| 12.15-13.15 | Lunch | |
| 13.15 | 4. Miller, D.W. ; Bowen, E.J.; Jacobson, C.L. | <i>Altering the starch and fat content of the peri-conception diet has no effect on fertility in breeding ewe lambs</i> |
| 13.35 | 5. Salazar-Villanea, S. ; Bruininx, E.M.A.M.; Carré, P.; Quinsac, A.; van der Poel, A.F.B. | <i>Effect of toasting time on proteolysis of soluble and insoluble protein fractions of rapeseed meal</i> |
| 13.55 | 6. Halmemies-Beauchet-Filleau, A. ; Lamminen, M.; Kokkonen, T.; Jaakkola, S.; Vanhatalo, A. | <i>Rapeseed meal, faba beans and microalga (Spirulina platensis) as protein supplements for dairy cows on grass silage based diets</i> |
| 14.15 | 7. Lamminen, M. ; Halmemies-Beauchet-Filleau, A.; Kokkonen, T.; Jaakkola, S.; Vanhatalo, A. | <i>Microalgae as a substitute for soya bean meal in the grass silage based dairy cow diets</i> |
| 14.35 | 8. Keomanivong, F. ; Rodenhuis, M.; Ruch, M.; Crouse, M.; Kirsch, J.; Bauer, M.; Borhan, M.; Rahman, S.; Swanson, K. | <i>Impact of grain source and distillers fat level on ruminal enzymes, pH and methane production</i> |
| 15.15-15.45 | Coffee break | |

Chairman: **Gert van Duinkerken**

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| 15.45-16.30 | Lecture 7,
Etienne Labussière | <i>Fasting heat production and metabolic body weight in growing animals</i> |
| 16.30-17.50 | Oral presentations: S-1 Physiological aspects of protein and energy metabolism and nutrition: Ruminants Chairman: Gert van Duinkerken | |
| 16.30 | 1. Koch, F. ; Lamp, O.; Kuhla, B. | <i>Heat stress involves activation of pAMPK and FOXO3 regulating glycolysis and proteolysis in the skeletal muscle of dairy cows</i> |
| 16.50 | 2. Sainz, R.D. ; Dykier, K.C.; Mitloehner, F.M.; Oltjen, J.W. | <i>Performance and body composition in high and low RFI beef cattle</i> |
| 17.10 | 3. Sainz, R.D. ; Dykier, K.C.; Mitloehner, F.M.; Oltjen, J.W. | <i>Energy metabolism in high and low RFI beef cattle</i> |
| 17.30 | 4. Meese, S.; Ulbrich, S.E.; Bollwein, H.; Bruckmaier, R.; Wellnitz, O.; Kreuzer, M.; Röntgen, M.; Gimsa, U.; Schwarm, A. | <i>Relation of leukocyte activation and proliferation to feed efficiency in peripartal cows</i> |
| 19.00 | Start for Gala Dinner
Pick-up point indicated on your invitation ticket | |

Chairman: **Gert van Duinkerken**

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|-------------|--|---|
| 15.45-16.30 | Lecture 7,
Etienne Labussière | <i>Fasting heat production and metabolic body weight in growing animals</i> |
| 16.30-18.10 | Oral presentations: S-4 Feed sources and feed processing related to energy and protein digestion and metabolism Chairman: Cornelia C. Metges | |
| 16.30 | 9. Hulshof, T.G. ; van der Poel, A.F.B.; Bikker, P. | <i>Oilseed meal processing affects whole body amino acid retention and composition in growing pigs</i> |
| 16.50 | 10. Hulshof, T.G. ; van der Poel, A.F.B.; Bikker, P. | <i>Oilseed meal processing affects protein digestion kinetics and metabolic organ load of growing pigs</i> |
| 17.10 | 11. Ivarsson, E. ; Hanhineva, K.; Wall, H. | <i>Increasing level of full-fat rapeseeds in broiler chicken diets changes the plasma nontargeted metabolic profile</i> |
| 17.30 | 12. Chen, H. ; de Vries, S.; de los Mozos, J.; Jansman, A.J.M. | <i>Protein digestion kinetics of different protein sources in broilers</i> |
| 17.50 | 13. Caldas, J.V. ; Hilton, K.; Boonsinchai, N.; Mullenix, G.; England, J.A.; Coon, C.N. | <i>Maintenance energy requirements in modern broilers fed exogenous enzymes</i> |
| 19.00 | Start for Gala Dinner
Pick-up point indicated on your invitation ticket | |

15.09.2016 Thursday

- 8.30-13.00 Oral presentations: **S-1 Physiological aspects of protein and energy metabolism and nutrition: Pigs and Ruminants**
Chairman: **Toyomizu Masaaki**
- 8.30 1. **Soumeh, E. A.**; Hedemann, M.S.; Poulsen, H.D.; Corrent, E.; van Milgen, J.; Nørgaard, J.V. *Biomarkers of optimum dietary branched chain amino acids for the best growth performance in pigs*
- 8.50 2. **Nørgaard, J.V.**; Soumeh, E.A.; Curtasu, M.; Poulsen, H.D.; Corrent, E.; van Milgen, J.; Hedemann, M.S. *Blood biomarkers in short-term studies on amino acid requirement in pigs*
- 9.10 3. **Hanigan, M.D.**; Estes, K.; Castro J. *Assessing intestinal absorption of amino acids*
- 9.30 4. **Kelman, K. R.**; Alston, C.; Pethick, D.W.; Gardner, G.E. *Production factors have a larger impact than genetic selection for lamb growth*
- 9.50 5. **Stewart, S. M.**; Pethick, D.W.; Gardner, G.E.; McGilchrist, P. *Increasing growth breeding values in Merino lambs decreases the non-esterified fatty acid response during feed deprivation*
- 10.10 6. Palma, M.; Hernandez-Castellano, L.E.; Ferreira, A.M.; Nanni, P.; Grossmann, J.; Arguello, A.; Castro, N.; Capote, J.; Matzapetakis, M.; **Almeida, A.M.** *Energy and protein restriction in the goat mammary gland: proteomics and metabolomics profiling*
- 10.30-12.00 **Coffee break & Poster session S-2, S-3, S-5 (16)**
- 12.00 7. **Lapierre, H.**; Spek, J.W.; Galindo, C.E.; Ouellet, D.R. *Estimation of endogenous urinary N excretion in lactating dairy cattle*
- 12.20 8. **Myers, A.J.**; Hanigan, M.D.; Castro Marquez, J.; White, R.R.; Lapierre, H.; Martineau, R.; France, J. *Representation of essential amino acid use by the portal drained viscera and liver in cattle*
- 12.40 9. **Daniel, J.B.**; Friggens, N.C.; Van Laar, H.; Ingvarsen, K.L.; Sauvant, D. *Modelling homeorhetic trajectories of milk component yields, body composition and dry matter intake in dairy cows: influence of parity, phenotypic potential and breed*
- 13.15 **General assembly and closing ceremony**
- 14.00 **Lunch**

15.09.2016 Thursday

- 8.30-10.30 Oral presentations: **S-2 Animal product quality and health in the light of protein and energy metabolism and nutrition**
Chairman: **Jan Erik Lindberg**
- 8.30 1. **Gardner, G.E.**; Pethick, D.W.; Anderson, F. *Lamb intramuscular fat percentage is correlated between muscles, with whole body fatness, and with muscle oxidative capacity in the loin*
- 8.50 2. **Vernet, J.**; Reichstadt, M.; Al-Jammas, M.; Ortigues-Marty, I. *Alicar: a database for carcass characteristics, diet composition and intake in ruminants*
- 9.10 3. Al-Jammas, M.; Agabriel, J.; Vernet, J.; **Ortigues-Marty, I.** *Effects of diet composition on carcass fat in beef cattle: a meta-analysis*
- 9.30 4. **Nørgaard, P.**; Jensen, L.M. *Effect of dietary starch content on prediction of feed intake by six different models for dairy cows*
- 9.50 4. **Caldas, J.V.**; Hilton, K.; Schlumbohm, M.; Boonsinchai, N.; England, J.A.; Coon, C.N. *Dynamics of nutrient utilization, heat production and body composition in broiler breeders hens during egg production*
- 10.10 6. **Gionbelli, M.P.**; Ferreira, D.D.; Ferreira, L.K.; Chizzotti, M.L.; Valadares Filho, S.C. *Use of artificial neural networks to improve estimation of energy requirements of cattle*
- 10.30-12.00 **Coffee break & Poster session S-4 (17)**
- 12.00-13.00 Oral presentations: **S-4 Feed sources and feed processing related to energy and protein digestion and metabolism**
Chairman: **Jan Erik Lindberg**
- 12.00 1. **Mueller, S.**; Messikommer, R.E.; Kreuzer, M.; Gangnat, I.D.M. *Laying performance of layer vs dual purpose genotypes under low methionine supply*
- 12.20 2. **Kamizono, T.**; Kikusato, M.; Hayashi, K.; Toyomizu, M. *Possible mechanism of down-regulation of atrogin-1 mRNA level in butoxybutyl alcohol-fed chicken*
- 12.40 3. **Lamot, D.M.**; Sapkota, D.; Wijten, P.J.A.; van den Anker, I.; Heetkamp, M.J.W.; Kemp, B.; van den Brand, H. *Effects of increased diet density through increased dietary fat level on energy balance characteristics of broilers during the first week of life*
- 13.15 **General assembly and closing ceremony**
- 14.00 **Lunch**