



## Estimated energy balance of ewes grazing in rangelands

Eliel González García, Dagiale Tagliatella, Magali Jouven Pouderoux Jouven,  
Francois Bocquier

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# TABLE OF CONTENTS

## ORAL SESSIONS

SECTION & SESSION	ABSTRACT	PAGE
<b>ADSA FOUNDATION SYMPOSIUM</b>		
Meeting the Present and Future Demand For Employees with a PhD in Dairy Science.....	1-5.....	1
<b>ADSA SOUTHERN SECTION SYMPOSIUM</b>		
Strategies for Housing Dairy Animals in the Southeast .....	6-10.....	3
<b>ADSA-ASAS NORTHEAST SECTION SYMPOSIUM</b>		
Opportunities to Meet Changing Consumer Preferences for Animal Products.....	11-13 .....	6
<b>ADSA-SAD UNDERGRADUATE STUDENT PAPER COMPETITION</b>		
ADSA-SAD Undergraduate Presentations–Dairy Foods .....	14-17 .....	8
<b>ADSA-SAD UNDERGRADUATE STUDENT PAPER COMPETITION</b>		
ADSA-SAD Undergraduate Presentations–Dairy Production .....	18-23 .....	10
<b>ADSA-SAD UNDERGRADUATE STUDENT PAPER COMPETITION</b>		
ADSA-SAD Undergraduate Presentations–Original Research .....	24-31 .....	13
<b>ANIMAL BEHAVIOR AND WELL-BEING</b>		
Animal Behavior & Well-Being I .....	32-38 .....	16
Animal Behavior & Well-Being II.....	39-46 .....	20
Animal Behavior & Well-Being III.....	47-51 .....	24
Animal Behavior & Well-Being IV.....	52-59 .....	27
<b>ANIMAL HEALTH</b>		
Animal Health Symposium I: Animal Health Research From the Perspective of Information Gaps .....	60-63 .....	31
Animal Health I: Models of Disease and Stress .....	64-75 .....	33
Animal Health Symposium II: Optimizing Disease Response Modeling .....	76-79 .....	39
Animal Health II: Host–Microbial Interactions: Detection and Intervention .....	80-90 .....	41
Animal Health III: Periparturient and Lactation Health.....	91-101 .....	46
<b>ARPAS SYMPOSIUM</b>		
ARPAS Symposium: Customer/Consumer Confidence in the Livestock Industry–Ethics .....	102-105 .....	52
<b>ASAS CELL BIOLOGY SYMPOSIUM</b>		
Long-Term Consequences of Maternal and Neonatal Nutrition for Pregnancy and Postnatal Outcomes .....	106-108 .....	54
ASAS Graduate Student Symposium		
Research Ethics: What Are They and Why Are They Needed?.....	109-111 .....	56
Beef Cattle Reproduction Symposium		
Rebuilding the U.S. Cowherd: Rethinking the Way Industry Selects and Develops Replacements.....	112-116 .....	58
<b>BEEF SPECIES</b>		
Making More, But Using Less: The Future of the U.S. Beef Industry with a Reduced Cowherd and the Challenge to Feed the U.S. and the World; <i>Session 1. The U.S.</i> Stocker and Feedlot Industries.....	117-120 .....	61
Making More, but Using Less: The Future of the U.S. Beef Industry with a Reduced Cowherd and the Challenge to Feed the U.S. and the World; <i>Session 2. The Cow–Calf Industry</i> .....	121-125 .....	63
Cow–calf.....	126-136 .....	65
Stocker and Feedlot.....	137-143 .....	70
Feed Additives .....	144-151 .....	74
<b>BREEDING AND GENETICS</b>		
Applications and Methods in Animal Breeding–Dairy I .....	152-158 .....	78
Genetic and Genomic Methods .....	163-169 .....	82

Applications and Methods in Animal Breeding–Livestock II .....	170-173 .....	85
Applications and Methods–Molecular Biology .....	174-179 .....	87
<b>COMPANION ANIMALS</b>		
Companion Animal Nutrition and Pet Food Processing .....	180-187 .....	90
Companion Animals and Sustainability: Today's Impact on the Future .....	188-192 .....	94
George C. Fahey Companion Animal Nutrition Symposium: Preparing Future Companion Animal Biologists .....	193-196 .....	97
<b>COMPARATIVE GUT PHYSIOLOGY SYMPOSIUM</b>		
Comparative Physiology of Lower Gut .....	198-209 .....	99
<b>CSAS GRADUATE STUDENT ORAL COMPETITION</b>		
CSAS Oral Student Presentation Competition .....	212-228 .....	105
<b>CSAS SYMPOSIUM</b>		
Understanding Feeding Behaviour to Improve Animal Well-being and Productivity .....	229-232 .....	114
<b>DAIRY FOODS</b>		
Symposium: Advances in Delivery of Dairy Ingredients for Health and Functional Benefits .....	233-237 .....	116
Technical Oral Session: Cheese / Yogurt / Ice Cream .....	238-247 .....	118
Symposium: Protein Functionality in Cheese Systems: Natural, Process Cheese and Analogs .....	248-252 .....	123
Symposium: Milk Protein-Hydrocolloid Interactions: Recent Impacts .....	253-256 .....	125
Technical Oral Session: Analytical / Processing .....	257-265 .....	127
Technical Oral Session: Protein / Polysaccharide Interactions .....	266-275 .....	131
Symposium: Dairy Foods Consumption, Gut Microbiota and Human Health .....	276-280 .....	136
<b>EAAP EQUINE SYMPOSIUM</b>		
Know-how and Future Challenges for Developing the Horse Sector in Europe: The Activity of the EAAP Horse Commission .....	281-285 .....	139
<b>EXTENSION EDUCATION</b>		
Extension Education .....	286-291 .....	142
Decision Support Tools in Extension .....	292-294 .....	145
<b>FOOD SAFETY</b>		
Global Challenges to a Safe Food Supply .....	295-296 .....	147
Food Safety: Advances in Food Safety .....	299-303 .....	148
<b>FORAGES AND PASTURES</b>		
Forages and Pastures I, Silages .....	304-312 .....	151
Forages and Pastures Symposium: Use of Marginal Lands and Fibrous Byproducts in Efficient Beef and Dairy Production Systems .....	313-316 .....	155
Forages and Pastures II, Forages for Livestock Systems .....	317-324 .....	157
<b>GRADUATE STUDENT COMPETITION: ADSA DAIRY FOODS ORAL</b>		
ADSA Dairy Foods Division Oral Competition .....	325-333 .....	161
<b>GRADUATE STUDENT COMPETITION: ADSA PRODUCTION ORAL, MS</b>		
ADSA Production Oral Competition, MS .....	334-347 .....	166
<b>GRADUATE STUDENT COMPETITION: ADSA PRODUCTION ORAL, PhD</b>		
ADSA Production Oral Competition, PhD .....	348-358 .....	173
<b>GRADUATE STUDENT COMPETITION: ADSA SOUTHERN SECTION ORAL</b>		
Graduate Student Competition: ADSA Southern Section Oral .....	359-360 .....	179
<b>GRADUATE STUDENT COMPETITION: ADSA-ASAS NORTHEAST SECTION ORAL</b>		
ADSA/ASAS Northeast Branch Graduate Student Competition .....	361-369 .....	180
<b>GROWTH AND DEVELOPMENT</b>		
Growth & Development .....	370-376 .....	185
Joint Meat Science & Muscle Biology, and Growth & Development Symposium: Applications of Proteomics in Animal Production .....	377-381 .....	189
<b>HORSE SPECIES</b>		
Advances in Equine Stem Cell Biology .....	382-384 .....	191



Horse Species .....	385-392 .....	193
Developmental Programming: Applications in the Horse .....	393-395 .....	197
<b>INTERNATIONAL ANIMAL AGRICULTURE</b>		
International Animal Production.....	396-399 .....	199
Global Prospective of Livestock Production Systems to Meet the Growing Need for Animal Protein in Human Diets: Impacts on Production and Human Health.....	402-403 .....	201
<b>LACTATION BIOLOGY</b>		
Lactation Biology I .....	404-411 .....	202
Lactation Biology II .....	412-418 .....	206
<b>MEAT SCIENCE AND MUSCLE BIOLOGY</b>		
Meat Science & Muscle Biology .....	419-429 .....	210
<b>MULTIDISCIPLINARY AND INTERNATIONAL LEADERSHIP KEYNOTE (MILK) SYMPOSIUM</b>		
Water: Consideration for the Future of Animal and Food Production and Processing .....	430-434 .....	216
<b>NONRUMINANT NUTRITION</b>		
Nutrient Requirements of Monogastrics and Amino Acid Digestibility of Feedstuffs .....	435-446 .....	218
Nutrient Digestibility of Ingredients for Monogastric Diets .....	447-457 .....	224
Functional Amino Acids: New Paradigm Shifts in Understanding Animal Protein Nutrition .....	458-462 .....	229
Fat, Fiber, Fermentation, and Residual Feed Intake .....	463-473 .....	231
Feed Additives, Enzymes, and Dietary Supplements .....	474-485 .....	236
<b>PHYSIOLOGY AND ENDOCRINOLOGY</b>		
Pregnancy, Placentation and Reproductive Health in Ruminants .....	486-497 .....	242
Interrelationships Between Environmental, Metabolic and Physiological Processes I .....	498-508 .....	248
Interrelationships Between Environmental, Metabolic and Physiological Processes II .....	509-520 .....	254
Novel Approaches to Improving Reproductive Success in Domestic Animals .....	521-530 .....	260
Reproductive Success in Ruminants: A Complex Interaction Between Endocrine, Metabolic and Environmental Factors .....	531-535 .....	265
Advances in Estrous Synchronization .....	536-546 .....	268
<b>PRODUCTION, MANAGEMENT, AND THE ENVIRONMENT</b>		
Influence of Diet and Management Practices on Environmental Footprint .....	547-552 .....	274
Animal Health: A Retrospective Look .....	553-558 .....	277
Nutrition and Management .....	559-565 .....	281
Economics of Different Management Practices .....	566-577 .....	285
Effects of Temperature on Performance .....	578-588 .....	291
<b>RUMINANT NUTRITION</b>		
Ruminant Nutrition I .....	589-600 .....	296
Ruminant Nutrition II .....	601-612 .....	302
Ruminant Nutrition III .....	613-624 .....	308
Symposium: The Rumen Microbiome and Nutritional Health and Production .....	625-630 .....	313
Ruminant Nutrition IV .....	631-642 .....	316
Ruminant Nutrition V .....	643-654 .....	322
Ruminant Nutrition VI .....	655-666 .....	328
Ruminant Nutrition VII .....	667-674 .....	334
Ruminant Nutrition VIII .....	675-682 .....	338
Ruminant Nutrition IX .....	683-694 .....	342
The Glen Broderick Symposium – Improving Nitrogen Utilization in Dairy Cows .....	695-700 .....	348
Ruminant Nutrition X .....	701-711 .....	351
Ruminant Nutrition XI .....	712-723 .....	357
<b>SMALL RUMINANT</b>		
Small Ruminant .....	724-734 .....	363
Sustainable Small Ruminant Production Strategies to Meet Global Demands .....	735-740 .....	369
<b>SWINE SPECIES</b>		
Mini-Symposium: Opportunities and Challenges with the Use of Carbohydrase and Protease Enzymes in Swine Formulations .....	741 .....	372
Swine Species Reproduction and Management .....	742-748 .....	373
Procedures and Methodology for Determining SID Amino Acid Digestibility and Energy of Feedstuffs .....	749-751 .....	377
Swine Species Nutrition .....	752-761 .....	379

**TEACHING/UNDERGRADUATE AND GRADUATE EDUCATION**

Teaching: Undergraduate and Graduate Education.....	762-773 .....	384
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**TRIENNIAL LACTATION SYMPOSIUM**

Triennial Lactation Symposium.....	774-780 .....	390
------------------------------------	---------------	-----

**WORKSHOPS**

Crafting USAID's Livestock Research Agenda – Animal Science Priorities		
Under Feed the Future .....	781-786 .....	393

**POSTER SESSIONS**

SECTION & SESSION	ABSTRACT	PAGE
<b>ADSA-SAD UNDERGRADUATE STUDENT PAPER COMPETITION</b>		
ADSA-SAD Undergraduate Original Research Poster Competition .....	787-790 (M001-M004).....	395
<b>ANIMAL BEHAVIOR AND WELL-BEING</b>		
Animal Behavior & Well-Being I .....	791-801 (M005-M015).....	397
Animal Behavior & Well-Being II .....	802-826 (W001-W025) .....	402
<b>ANIMAL HEALTH</b>		
Models of Animal Immune Status and Performance .....	827-853 (M016-M042).....	414
Calf Health .....	854-863 (T001-T010).....	427
Cow and Heifer Health .....	864-884 (W026-W046) .....	432
<b>ASAS UNDERGRADUATE STUDENT POSTER COMPETITION</b>		
ASAS Undergraduate Student Poster Competition .....	885-904 (T011-T030).....	443
<b>BEEF SPECIES</b>		
Feedlot and Stocker .....	905-914 (T031-T040).....	452
Cow-Calf and Bull .....	915-928 (W047-W060) .....	457
<b>BREEDING AND GENETICS</b>		
Applications and Methods in Animal Breeding–Beef.....	929-938 (M043-M052).....	464
Genomic Methodology .....	939-942 (M053-M056).....	469
Applications and Methods in Animal Breeding–Dairy II.....	943-950 (T041-T048).....	471
Applications and Methods in Animal Breeding–Poultry.....	951-956 (T049-T054).....	475
Applications and Methods in Animal Breeding–Livestock I.....	957-961 (W061-W065) .....	478
Molecular Biology and Genomics .....	962-968 (W066-W072) .....	481
Companion Animal Nutrition.....	969-978 (T055-T064).....	485
<b>CSAS GRADUATE STUDENT POSTER COMPETITION</b>		
CSAS Student Poster Presentation Competition .....	979 -988 (M057-M066).....	490
<b>DAIRY FOODS</b>		
Technical Session I: Cheese / Yogurt .....	989-1006 (M067-M084).....	495
Technical Session II: Analytical / Processing .....	1007-1018 (T065-T076).....	503
Technical Session III: Fluid Milk .....	1019-1036 (W073-W090) .....	509
<b>EXTENSION EDUCATION</b>		
Extension Education Posters .....	1037-1052 (T077-T092).....	517
<b>FOOD SAFETY</b>		
Food Safety .....	1053-1067 (T093-T106).....	525
<b>FORAGES AND PASTURES</b>		
Forages and Pastures I: Silages and Forages in Dairy		
Production Systems .....	1068-1094 (M085-M111).....	532
Forages and Pastures II: Forages in Beef Production Systems .....	1095-1103 (T108-T116).....	544
Forages and Pastures III: General Forages and Forage Systems.....	1104-1128 (W091-W115) .....	548
<b>STUDENT POSTER COMPETITIONS</b>		
ADSA Dairy Foods Division.....	1129-1138 (M112-M121).....	560
ADSA Production, MS .....	1139-1148 (M122-M131).....	565
ADSA Production, PhD .....	1149-1160 (M132-M143).....	570

<b>GROWTH AND DEVELOPMENT</b>		
Growth & Development I .....	1161-1179 (T117-T135).....	576
Growth & Development II .....	1180-1197 (W116-W133) .....	585
<b>HORSE SPECIES</b>		
Horse Species I .....	1198-1205 (T136-T143).....	594
Horse Species II .....	1206-1212 (W134-W140) .....	598
<b>INTERNATIONAL ANIMAL AGRICULTURE</b>		
International Animal Production.....	1213-1221 (T144-T152).....	601
<b>LACTATION BIOLOGY</b>		
Lactation Biology I .....	1222-1231 (M144-M153).....	606
Lactation Biology II .....	1232-1241 (W141-W150) .....	611
<b>MEAT SCIENCE AND MUSCLE BIOLOGY</b>		
Meat Science & Muscle Biology I.....	1242-1249 (M154-M161).....	617
Meat Science & Muscle Biology II.....	1250-1263 (T153-T166).....	621
Meat Science & Muscle Biology III .....	1264-1277 (W151-W164) .....	627
<b>MILK PROTEIN AND ENZYMES</b>		
Milk Proteins & Enzymes.....	1278-1287 (T167-T176).....	634
<b>NONRUMINANT NUTRITION</b>		
Amino Acid, Mineral and Energy Nutrition in Monogastrics.....	1288-1313 (M162-M187).....	639
The Impact of Feed Additives on the Health and Performance of Swine and Poultry .....	1314-1346 (T177-T209).....	651
Evaluation of Feed Ingredients for Monogastric Diets .....	1347-1364 (W165-W182).....	667
Factors Impacting Feed Intake .....	1365-1370 (W183-W188) .....	675
<b>PHYSIOLOGY AND ENDOCRINOLOGY</b>		
Physiology and Endocrinology I.....	1371-1399 (M188-M216).....	678
Physiology and Endocrinology II .....	1400-1428 (T210-T238).....	692
Physiology and Endocrinology III.....	1429-1455 (W189-W215) .....	705
<b>PRODUCTION, MANAGEMENT, AND THE ENVIRONMENT</b>		
Influence of Diet and Management on Health and Performance.....	1456-1479 (M217-M240).....	718
Management and Heat Stress .....	1480-1504 (T239-T263).....	728
Reducing the Environmental Footprint Through Nutrition and Management.....	1505-1526 (W216-W237) .....	740
<b>RUMINANT NUTRITION</b>		
Ruminant Nutrition I .....	1527-1650 (M241-M364).....	750
Ruminant Nutrition II.....	1651-1778 (T264-T391).....	809
Ruminant Nutrition III.....	1779-1898 (W238-W357) .....	868
<b>SMALL RUMINANT</b>		
Small Ruminant I.....	1899-1916 (M365-M382).....	924
Small Ruminant II.....	1917-1936 (W358-W377) .....	932
<b>SWINE SPECIES</b>		
Swine Species Reproduction and Management.....	1937-1947 (M383-M393).....	941
Swine Species Nutrition .....	1948-1954 (W378-W384) .....	946
<b>TEACHING/UNDERGRADUATE AND GRADUATE EDUCATION</b>		
Teaching/Undergraduate and Graduate Education.....	1955-1962 (W385-W392) .....	950
Physiology And Endocrinology: Interrelationships Between Environmental, Metabolic And Physiological Processes I.....		954
ASAS Early Career Winner.....		954
Author Index.....		955
Keyword Index.....		987

**1429 (W189) Estimated energy balance of periparturient ewes grazing in rangelands.**

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In a previous work we demonstrated that efficiency in body reserves (BR) mobilization/accretion was affected by parity [multiparous (MULT) ewes being more flexible than primiparous], litter size and physiological stage (peaks of BR mobilization attained around lambing and 1 mo after mating). The objective of this study was to estimate the dynamic individual energy balance of periparturient MULT Romane grazing ewes, from 15 d before until 15 d after lambing. A group of MULT ewes ( $n = 20$ ), allocated according to litter size (lambing and suckling singletons, SING- $n = 10$ , or twins, TWIN- $n = 10$ ) was used. Details on management and feeding were reported by González-García et al. (2014). At late pregnancy, ewes were in rotational grazing of native rangeland and supplemented with 0.7, 2.0 and 0.8 kg/d of hay (*Dactylus glomerata* and alfalfa), silage (*Lolium perenne* and alfalfa) and barley, respectively. After lambing, ewes were fed on fertilized paddocks without supplementation. Individual progression of BW, BCS, plasma NEFA as well as ADG of lambs was considered for energy balance interpretation. Some estimation is established based on NRC (2007) recommendations. Data were analyzed using the PROC MIXED of SAS (2007) with repeated measures. During the last 4 wk of gestation, one 50 kg ewe from this flock is estimated to display a daily consumption of around 1.6 kg of DM (3.2% BW) to support around 180 g of BW gain, requiring 3.4 mcal of ME. During the first 6–8 wk lactation, feed intake is affected by litter size (NRC, 2007; 2.1 or 2.4 kg of DM/d for ewes suckling SING or TWIN; 4.2 or 4.8% BW, respectively) with an increase in energy requirement of 4.9 or 5.6 mcal of ME for SING or TWIN, respectively. At late pregnancy, a positive energy balance of  $> 1.1$  mcal/d was observed (4.7 mcal of ME vs. 3.6 of ME requirements) due to the advantageous supplementation regime established in the farm. Paradoxically, at this stage (late pregnancy) NEFA values showed a peak in BR mobilization. After lambing, ewes suckling SING and TWIN were both required to mobilize their BR to meet energy requirement despite the high quality of the fertilized paddocks and the BW increase. More precise and targeted studies are required to better address the combined anabolic and catabolic

phases experimented under the conditions of this experiment in periparturient ewes. Reference: González-García E. et al. (2014). Domestic Animal Endocrinology 46:37–48.

**Key Words:** periparturient ewes, rangelands, energy balance, body reserves

**1430 (W190) Effects of adsorbent on milk aflatoxin M1 and lactation performance of dairy cows exposed to long-term challenge of aflatoxin B1.**

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The objective of the study was to evaluate the effects of adsorbent on milk aflatoxin (AF) M1 and lactation performance of dairy cows exposed to long-term challenge of AFB1. Forty dairy cows were blocked based on days in milk ( $33 \pm 7$ ; mean  $\pm$  SD) and milk production ( $33.9 \pm 3.1$  kg; mean  $\pm$  SD), and were randomly assigned to one of four treatments in a  $2 \times 2$  factorial arrangements with AFB1 (0 or 20  $\mu\text{g/kgDM}$ ) and Solis Mos (Novus International Inc., 0 or 0.25% of DM). The experiment lasted 9 wk, with the first week for adaptation. Milk yield and milk composition were recorded weekly, and serum concentrations of biochemical and antioxidant variables were analyzed in the first and the last week of the experiment. Milk AFM1 was analyzed by HPLC-MS/MS. Variables of data were analyzed using the PROC MIXED of SAS. Dry matter intake, milk yield, contents of milk protein and milk fat, and linear somatic cell count averaged 23.9 kg/d, 35.5 kg/d, 2.9%, 3.6%, and 5.1, respectively and were not affected ( $P > 0.05$ ) by either AFB1 or Solis Mos supplement. Addition of Solis Mos in AFB1-contaminated diet significantly reduced ( $P < 0.01$ ) milk AFM1 concentration (0.19 vs. 0.13  $\mu\text{g/kg}$ ) and transfer rates (1.38 vs. 0.89%). Dairy cows fed AFB1-contaminated diet had lower level of superoxide dismutase activity, total antioxidant capacity, glutathione peroxidase, IgG and IgA ( $P < 0.05$ ), and higher level of malondialdehyde in plasma ( $P < 0.05$ ). Inclusion of Solis Mos into diets increased the plasma superoxide dismutase activity, total antioxidant capacity, and IgG, while decreased malondialdehyde ( $P < 0.05$ ). Neither AFB1 nor Solis Mos affected ( $P > 0.05$ ) the plasma levels of alanine transaminase, aspartate aminotransferase, and alkaline phosphatase and IgM. It is concluded that inclusion of Solis Mos did not affect lactation performance, but reduced milk AFM1 concentration and transfer rate, and increased antioxidant capacity and immunity in early-lactating dairy cows exposed to long-term challenge of AFB1.

**Key Words:** adsorbent, aflatoxin, transfer