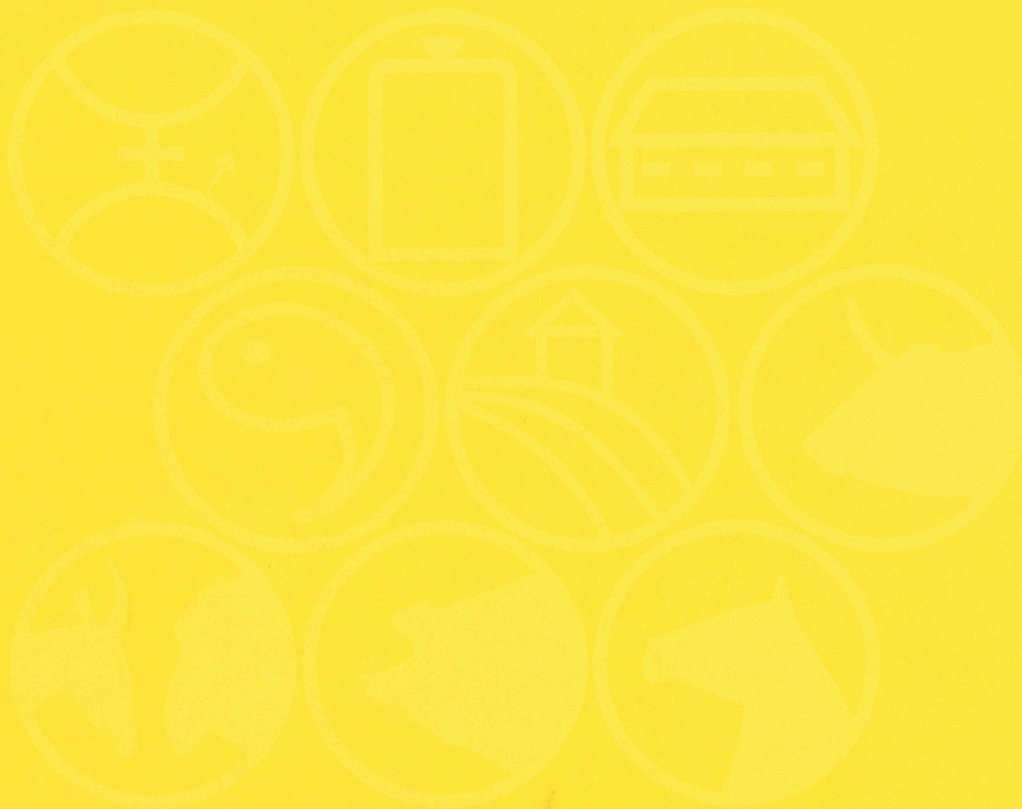


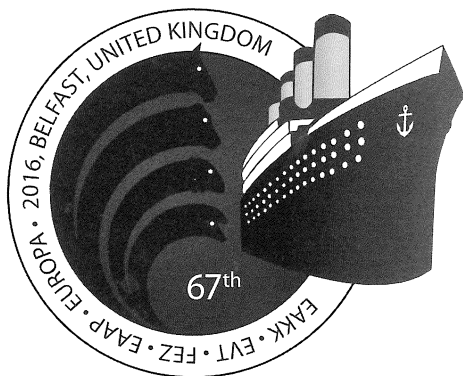
# **Book of Abstracts of the 67<sup>th</sup> Annual Meeting of the European Federation of Animal Science**



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# Book of Abstracts of the 67<sup>th</sup> Annual Meeting of the European Federation of Animal Science

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**Growth, carcass and feed efficiency traits of lambs born to ewes restricted during mid gestation**

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The effect of energy restriction during dam's gestation on lamb's birth (BW), weaning (WW) and slaughter weight, carcass and meat traits was evaluated. Eighty three adult Polwarth ewes sired with Texel, bearing single (n=54) or twin (n=29) lambs were allotted to two treatments by day 45 of gestation: T60 ewes offered a TMR (137.2 g CP/kg DM; 2.7 Mcal ME/kg DM) to provide 60% of the energy requirements for gestation from day 45 to day 115 of gestation and T100 ewes with 100% energy requirements. On day 116 all ewes were shorn and grazed oat grass (1,396 kg DM/ha; 180 g CP/kg DM; 2.4 Mcal ME/kg DM) until weaning (104 days of age). After weaning, 40 lambs were fed individually ad libitum to record feed intake (FI), weight gain (WG) and feed efficiency (FE=FI/WG) and 72 lambs were fed in 3 collective pens to determine ADG. The finishing TMR had 207 g CP/kg DM and 2.6 Mcal ME/kg DM. At 150 days of age, lambs were shorn and slaughtered. All traits were analyzed by ANOVA using SAS 9.2. The model included the type of birth, restrictions, and the interaction between these factors. For WBW, FBW and carcass characteristics age were included as covariate. Means were compared by Tukey's. Feeding restriction affected (P<0.01) preweaning ADG (T60=164 vs T100=183 g/d/lamb), WBW (T60=23.2 vs T100=25.3 kg) and FBW (T60=34.7 vs T100=37.2 kg) but not BBW or post weaning ADG. Litter size and sex affected all growth traits. T60 lambs FI tended (P=0.10) to be higher than T100 lambs (59.7 vs 54.9 kg/finishing period/lamb) and FI was higher (P<0.01) for T60 vs T100 (3.82 vs 3.21%). FE tended (P=0.16) to be better for T100 vs T60 lambs (5.5 vs 6.3 kg/LW). Treatment, sex and litter size affected (P<0.05) slaughter weight. Differences between treatments were due to different preweaning ADG and consequently different final and slaughter weight.

## Session 11

## Poster 9

**Effect of nutritional restriction in late gestation on beef female calves live weight and placentas**

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The effect of maternal undernutrition during late gestation was investigated in beef multiparous cows. All cows got pregnant by fixed time artificial insemination and all gestated female calves. The placenta structure and live weight (LW) of female calves were analyzed. Twenty two pregnant British cross-bred cows were assigned at day 195.5±1.60 of gestation (mean ± sem) to one of two treatments: (1) cows fed rations calculated to provide 125% of the energy requirements (high, H, n=11); (2) cows fed rations calculated to provide 75% of the energy requirements (low, L, n=11) where crude protein was not limiting. The duration of the experimental period was 79.5±0.73 days (last trimester of gestation). Cows weighed 479.5±11.5 kg and presented a body condition score (BCS, scale 1 to 8) of 4.0±0.05 at the onset of treatments. At birth all the placentas were collected, weighed, the total number of cotyledons was counted and LW of calves registered. Statistical analyses was performed using the restricted likelihood method, applying a mixed model. The model included the random effects of sire (4 sires) and dam breed composition (percentage of Angus and Hereford), and the fixed effects of dam age (from 4 to 9 years old) and treatment. At birth, calves in H tended to be heavier (P=0.09) than those from L treatment (34.9±2.59 vs 32.9±2.49 kg). Placenta weight was similar (P=0.18) for calves from H and L treatment (4.6±0.78 vs 4.2±0.76 kg). Also, no differences were found in the total number of cotyledons (97.3±9.75 and 88.3±8.23 for H and L, respectively; P=0.31). Under the conditions of this experiment the different nutritional levels tended to induce differences in calves LW at birth. However, the greater calves LW in H treatment cannot be explained neither by the weight of the placenta nor by the total number of cotyledons. Further research is needed to better understand the mechanisms underlying this process.

**Ten years-data of milk production in beef cattle under South American grazing conditions**

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The aim of this study was to characterize milk production in multiparous beef cows (4 to 10 years old) under grazing conditions in Uruguay. For a preliminary analysis British crossbred cows (n=114) were selected from a database of 660 over 10 years. They belonged to different experiments, where milk production was measured under identical protocol. Cows calved in spring and were managed on native pastures with a forage allowance between 8 and 12 kg DM/kg LW (8-10% CP and 45-55% of digestibility). Milk yield was assessed between 20 and 40 d postpartum (pp) and monthly until weaning (average 155 d pp), using a milking machine after oxytocin injection. Milk samples were analysed for fat, protein and lactose. LW and Body Condition Score (BCS; scale 1 to 8 u) at calving were 420.0±4.22 kg and 3.9±0.04 u. Calves LW was registered at birth and monthly until weaning (35.9±0.52 and 155.7±1.45 kg for birth and weaning, respectively). Milk yield and calves performance were analysed with lineal splines with 3 knots at 30, 60 and 150 d using PROC GLIMMIX (SAS). The model included individual dam as random effect, experiment and calves sex as fixed effects, and BCS at calving as covariable. Milk production for the entire lactation period was, on average, 826±15.2 l. Milk fat, protein and lactose were 2.15±0.06, 3.07±0.02 and 4.94±0.01% respectively. The curve showed a peak at 45 d (7.33±0.23 l) decreasing until weaning with a milk average production of 3.98±0.11 for this final period. Calves daily LW gain was 946±19.3 g from birth until 45 d, decreasing to 758±12.4 g until weaning. This milking protocol applied to cows under grazing conditions allows us to characterize the beef milk curve. It was consistent with calves LW gain evolution under the conditions of this analyses. The consolidation of a larger data set of beef milk production will enable us to reinforce the parameters to better characterize the curve shape in the production systems described above.

## Session 68

## Theatre 3

**Herbage and milk production from perennial ryegrass and white clover swards in a grazing system**

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White clover (*Trifolium repens* L.; clover) can increase the sustainability of grass based dairy systems and has the potential to increase milk production. This experiment compared milk production from a perennial ryegrass (*Lolium perenne* L.; PRG) sward receiving 250 kg N/ha/yr (Gr250), a PRG/clover sward receiving 250 kg N/ha/yr (Cl250) and a PRG/clover sward receiving 150 kg N/ha/yr (Cl150) in an intensive grazing system over two grazing seasons (2013 and 2014). Three groups of cows were allocated to graze each sward in 2013 (n=14) and 2014 (n=19) from February to November at a stocking rate of 2.74 livestock units/ha. Fresh herbage was offered daily and 350 kg concentrate were fed per cow. Pre-grazing herbage mass, sward clover content and milk production were measured. Herbage dry matter intake (DMI) was estimated on three occasions each year. Sward clover content was greater (P<0.001) on Cl150 (266 g/kg DM) compared to Cl250 (225 g/kg DM). Sward clover content increased (P<0.05) from year 1 to year 2. Treatment did not effect (P>0.05) cumulative herbage production (13,504 kg DM/ha). There was a significant (P<0.05) treatment × week interaction on daily milk yield and daily milk solids (MS) yield; in the second half of the year, the cows on the Cl250 and Cl150 treatments had a greater daily milk yield and daily MS yield compared to cows on the Gr250 treatment. The clover treatments had greater milk solids compared to the Gr250 treatment (477 and 447 kg/cow, respectively). The cows grazing had the greatest (P<0.01) DMI compared to Gr250, and the Cl150 was intermediate, 17.2, 16.2 and 16.8 kg DMI/cow, respectively. In conclusion, the lower N fertiliser application to the Cl150 treatment increased sward clover content; however there was no effect on herbage production. Inclusion of clover increased daily milk yield and daily MS yield as a result of greater DMI on both clover treatment compared to the cows grazing the Gr250 treatment.