modestly affected when Put synthesis was inhibited by addition of 1 to 5 mM difluoromethylornithine. Collectively, these findings indicate a novel and important role for Put in promoting growth of porcine placental cells largely via an mTOR signaling pathway, which help to explain beneficial effects of Put supplementation on improving survival and growth of embryos/fetuses in mammals.

Key Words: pigs, growth, nutrition

W32 Dietary arginine supplementation confers immunostimulatory effects on inactivated *Pasteurella multocida* vaccines immunized mice. W. K. Ren[1], Y. L. Yin*[1], L. X. Zhou[2], Y. Wang[2], and Y. Peng[2], *[1]Institute of Subtropical Agriculture, the Chinese Academy of Sciences, Changsha, Hunan, China., [2]Chongqing Key Laboratory of Forage & Herbivorce, College of Animal Science and Technology, Southwest University, Chongqing, China.*

This study was conducted to test the adjuvant effect of arginine on inactivated vaccines immunized mice. Mice immunized with inactivated *Pasteurella multocida* (*P. multocida*) vaccines alone and with dietary 0.2% or 0.5% arginine supplementation showed 100% protection after challenge with *P. multocida* serotype A (CQ2) at dose of 4.4Ã—105 cfu (2LD50). However, the antibody titers in vaccine-0.2% arginine group were much higher than those in vaccine-oil adjuvant group before challenge, meanwhile immunization with inactivated vaccines and dietary 0.2% arginine supplementation significantly increased the antibody titers at 36 h post infection, compared with the mice immunized with inactivated vaccines alone or with oil adjuvant. Furthermore, immunization with inactivated vaccines and dietary 0.2% arginine supplementation significantly increased the serum Interleukin-1 β and glutathione peroxidase levels in comparison with the vaccine and vaccine-adjuvant groups of mice. Collectively, dietary arginine supplementation performs a significant immunostimulatory effects in inactivated *P. multocida* vaccines immunized mice, and dietary 0.2–0.5% arginine supplementation was the optimal supplementation dose in mouse model.

Key Words: amino acids, mice, nutrition

W33 Prevalence of clinical and subclinical ketosis at 8 and 30 days in milk and its relationships with parity, dry period length, peak milk yield and change in body condition score in a Jersey herd in the highlands of Costa Rica. J. M. l. Sánchez* and A. Saborío, *Centro de Investigaciones en Nutrición Animal. Universidad de Costa Rica, San José, Costa Rica.*

The prevalence and grade of ketosis at 8 and 30 d in milk (DIM), as well as its relationships with parity, dry period length, peak milk yield and change in body condition score (BCS) were measured in a 203 cows Jersey herd in Oreamuno, Cartago, Costa Rica (9° 55′ North Latitude, 83° 51′ West Longitude, 2350 m of altitude).The aim was to investigate management and feeding risk factors associated with this metabolic disease. Pre and post calving feeding practices were based on intensive grazing of 30 d regrowth kikuyu (*Kikuyuocloa clandestina*) and on average cows were supplemented with 4 kg of a concentrate mix (14% CP, 1.7 Mcal of NE_L/ kg, 35% starch, 0.2% Ca) per day during the close up period, and 4 to 6 kg (20% CP, 1.9 Mcal NE_L/ kg, 48% starch, 1% Ca) in the fresh period. Average BCS at calving was 3.9 (1 to 5 scale). Prevalence of ketosis was determined by measuring blood concentration of β-hydroxybutyric acid (βHBA) at 8 ± 3 DIM in 117 animals and at 30 ± 3 DIM in 114 animals. No clinical ketosis was detected at 8 DIM, and 4.27% of the cows had subclinical ketosis (1.4 to 2.9 mmol/L) during this period. Percentages of cows with clinical (>2.9 mmol/L) and subclinical ketosis at 30 DIM were 3.51 and 9.65, respectively. Incidence of clinical and subclinical ketosis in this herd is under the average prevalence of 15% reported for confinement herds in literature. Cows developing ketosis at 30 DIM lost more body condition during the last week of gestation, than cows that did not develop this disease. During this week, body condition loss for healthy and ketotic cows was 0.09 and 0.31 points ($P < 0.05$), respectively. Cows with ketosis at 30 DIM were of greater ($P < 0.01$) parity, longer ($P < 0.05$) dry period length and greater ($P < 0.01$) peak milk yield. A logistic regression analysis showed that increments of one, 2 or 3 weeks over the 60 d dry period increases the risk of developing ketosis at 30 DIM 1.21, 1.47 and 1.79 times, respectively. Results suggest that scoring body condition during the last week of gestation could be useful to predict the risk of the animals developing ketosis at 30 DIM. Based on these results, management to avoid dry periods in excess of 60 d will help reduce the incidence of ketosis. Furthermore, feeding and management of older cows and higher producing cows to reduce the loss of body condition post calving could also reduce the incidence of ketosis.

Key Words: ketosis, β-hydroxybutyric acid, grazing cows

W34 Effects of soy isoflavones on the male reproductive regulation in Huanjiang male pigs. X. Yuan[1], L. Li[1], J. Fan[1,2], B. Zhang*[2], C. Xiao[3], and Y. Yin[1], *[1]Institute of Subtropical Agriculture, the Chinese Academy of Science, Changsha, Hunan, China, [2]College of Animal Sciences, Hunan Agricultural University, Changsha, Hunan, China, [3]Nutrition Research Division, Food Directorate, Health Products and Food Branch, Health Canada, Ottawa, Canada.*

To evaluate the effects of soy isoflavones on male reproductive regulation in Huanjiang male pigs. Fifty male black small-eared pigs were randomly divided into control group (fed a test diet), low, medium and high doses of soy isoflavones group and diethylstilbestrol group. Three different doses of soy isoflavones (125 mg/kg, 250 mg/kg, and 500 mg/kg) and 0.5 mg/kg diethylstilbestrol were evenly mixed in the feed and fed to pigs for 60 d (The purity of soy isoflavones is 80%). Analysis levels of GnRH, LH, FSH, Tes and E2 by radioimmunoassay; weigh testis and epididymis; the mRNA expression of P450scc, 3Î[2] -HSD and StAR in testicular tissue, which associated with testosterone synthesis, was measured by RT-PCR. In 250 mg/kg soy isoflavones group, testicular index increased by 44.76% than the control group, the difference was significant ($P < 0.05$); serum testosterone level increased by 51.49% than the control group, the difference was significant ($P < 0.05$); mRNA expression of StAR was up to 1.43%, a significant difference with control group ($P < 0.05$). In 500 mg/kg soy isoflavones group, testicular index decreased by 39.92% than the control group, the difference was significant ($P < 0.05$); serum testosterone level decreased by 53.69% than the control group, the difference was significant ($P < 0.05$); mRNA expression of StAR 0.49%, a significant difference with 250 mg/kg soy isoflavones group ($P < 0.05$). Soy isoflavones can affect the male reproductive hormone secretion, the growth and development of testis and epididymis, enzyme activity of testosterone synthesis, and expression of reproductive hormone genes in the brain, and in dosage-dependent ways.

Key Words: soy isoflavones, reproductive hormone, Huanjiang male pigs

W35 Estimate of serum IgG concentration using refractometry with or without caprylic acid fractionation. K. M. Morrill*[1], A. Lago[3], J. Polo[3], J. D. Quigley[3], and H. D. Tyler[2], *[1]Cornell Cooperative Extension, Westport, NY, [2]Iowa State University, Ames, [3]APC Inc., Ankeny, IA.*

The objective of this study was to develop a rapid, calf-side test to determine serum IgG concentration using a refractometer and caprylic