

4.7 vs 72.1 ± 4.7 ng/mL; P = 0.022) whereas urea concentrations were decreased (5.16 ± 0.21 vs 4.11 ± 0.21 mmol/L; P = 0.001). Cows that had commenced estrous cycles by the start of the AI program had higher plasma concentrations of IGF-I than anestrus cows at Week 0 (56.5 ± 3.8 vs 39.8 ± 4.1 ng/mL; P=0.009) and Week 10 (87.3 ± 4.2 vs 64.5 ± 4.3 ng/mL; P=0.001). These results suggest an association between plasma concentrations of IGF-I and resumption of ovarian function in pasture-fed Holstein-Friesian cows.

**Key Words:** anestrus, blood metabolite, body condition

**M232 Metabolic profile of the hypocalcemic dairy cows in an intensive grazing system in south of Brazil.** E. Schmitt<sup>\*1,2</sup>, D. A. C. Hoffmann<sup>1</sup>, M. E. Lima<sup>1</sup>, T. dos S. Farofa<sup>1</sup>, M. A. Goulart<sup>1</sup>, M. S. Lopes<sup>1</sup>, P. Montagner<sup>1</sup>, R. T. França<sup>1</sup>, F. A. B. Del Pino<sup>1</sup>, J. J. Loo<sup>2</sup>, and M. N. Corrêa<sup>1</sup>, <sup>1</sup>Federal University of Pelotas, Pelotas, RS, Brazil, <sup>2</sup>University of Illinois, Urbana.

Some dairy farms in the south of Brazil rely on intensive grazing due to low cost of this practice. This nutritional management system without supplementation of grain could increase the risk of periparturient clinical and subclinical problems. We used 13 crossbred Jersey cows grazing tropical pastures to research blood metabolic profiles during the transition period emphasizing subclinical hypocalcemia. During -22 and 22 DIM, every 2 d blood was collected from the coccygeal vein to measure concentrations of calcium, magnesium, phosphorus, chlorides, glucose, insulin, glucagon, NEFA, aspartate aminotransferase (AST), and gamma-glutamyl-transferase. Cows were retrospectively divided into a hypocalcemic (HYP, n = 5) and normocalcemic (NOR, n = 8) group (total calcium < 8 mg/dL) prior to statistical analysis. Average milk yield for the first 3-wk postpartum was higher (P < 0.01) for HYP cows (14.4 vs. 10.7 L/d). These cows had higher (interaction P < 0.05) calcium at -12 and lower calcium at 4 DIM. Glucose concentration also was higher (interaction P < 0.05) prepartum (-14 DIM) and lower postpartum (16 DIM) than NOR cows. The HYP cows had higher levels (interaction P < 0.05) of AST (6 DIM), NEFA (0, 4 and 10 DIM), glucagon (6, 10, 18, 20 and 22 DIM) and glucagon:insulin (6 and 20 DIM). Other variables were not different between groups. Results indicate that high milk production potential, in particular, is related to the incidence of subclinical hypocalcemia in cows grazing tropical pastures. These animals might be at higher risk of development other disorders in the transition period due to the more severe negative energy balance.

**Key Words:** hypocalcemia, energy balance, transition period

**M233 A comparison of physiological and endocrine parameters during the peri-estrous period in lactating dairy cows that did and did not conceive.** A. K. Sanders<sup>\*1</sup>, D. Ray<sup>1</sup>, C. H. Hamilton<sup>1</sup>, C. Tritsch<sup>1</sup>, M. E. Risley<sup>2</sup>, M. F. Smith<sup>2</sup>, and W. J. Silvia<sup>1</sup>, <sup>1</sup>University of Kentucky, Lexington, <sup>2</sup>University of Missouri, Columbia.

Reproductive physiological and endocrine parameters during the first peri-estrous period postpartum were compared in lactating dairy cows that conceived versus those that did not. Holstein (n=48) and Holstein X Jersey crossbred (n=7) cows were used in the experiment. A modified Ovsynch protocol was initiated 52 to 94 days postpartum (100 ug GnRH, i.m., Factrel, Fort Dodge Animal Health). Seven days later (day 0), two injections of prostaglandin (PG) F2a (25 mg, i.m., Lutalyse, Pfizer Animal Health) were administered, 12 h apart, to induce luteolysis. The ovaries were examined ultrasonographically 2x daily beginning on day 0. Blood samples were collected at 6-h intervals for quantifica-

tion of estradiol-17b. On day 2, the frequency of sample collection was increased to every 2 h for quantification of LH. Beginning on day 2, cows were observed for estrus behavior at 4-h intervals. For each cow, 27 variables were calculated from the data collected. These included the timing and magnitude of estradiol-17b and LH secretion, time of onset, intensity and duration of estrus, maximum follicle diameter, time of ovulation and intervals from onset of estrus to peak of LH and ovulation. Preovulatory surges of LH and ovulation were observed in 31 cows. Differences between cows that conceived (n=13) and those that did not (n=18) for each variable were examined by t-test. Estrus began at 74.4 h after PGF2a and lasted for 12.6 h. Peak LH occurred at 77.3 h. Ovulation occurred at 104.1 h, 25.7 h after peak LH. Peak concentration of estradiol-17b occurred at 75.8 h and averaged 2.6 pg/ml. The diameter of the preovulatory follicle was 15.4 mm. None of these variables were different between cows that conceived and those that did not (p > 0.2). The interval from onset of estrus to peak LH tended to be different between groups (p = 0.08) (4.7 h in cows that conceived, 1.6 h in cows that did not). The impact of this asynchrony in time of estrus relative to peak LH on fertility remains to be determined. Supported by the KY Agr Expt Stn and USDA NRI-CGP 2006-35203-17133.

**Key Words:** dairy cow, conception, estrus

**M234 Plant-based diets enriched with linseed oil or marine algae and organic selenium alter reproductive performances of broiler breeder hens over the reproductive season.** C. Brèque<sup>\*1,2</sup>, C. Coss<sup>1,2</sup>, C. Lessard<sup>1,2</sup>, R. Gervais<sup>2</sup>, D. Venne<sup>3</sup>, M. R. Lefrançois<sup>2</sup>, P. Y. Chouinard<sup>2</sup>, G. Vandenberg<sup>2</sup>, and J. L. Bailey<sup>1,2</sup>, <sup>1</sup>Centre de recherche en biologie de la reproduction, Québec, QC, Canada, <sup>2</sup>Département des Sciences Animales, Québec, QC, Canada, <sup>3</sup>Couvoir Scott Ltée, Scott Junction, QC, Canada.

There are indications that plant-based diets and organic (org) Se alter fertility in broiler breeders. We hypothesised that supplementing plant-based diets with n-3 fatty acids and org Se may improve female reproductive parameters. Individually caged, 23-week (wk) old female broiler breeders were fed 8 diets (n=50/diet). The control diet contained meat meal + 50 IU/kg vit E (MM50), while the others were plant-based: 2.3% soya oil + 50 IU/kg vit E (SO50), 2.3% soya oil + 100 IU/kg vit E (SO100), 2.3% soya oil + 100 IU/kg vit E + 0.3 ppm org Se (SO100Se), 2.3% linseed oil + 100 IU/kg vit E (LO100), 2.3% linseed oil + 100 IU/kg vit E + 0.3 ppm org Se (LO100Se), 1% marine algae (42% oil) + 100 IU/kg vit E (MA100), and 1% marine algae + 100 IU/kg vit E + 0.3 ppm org Se (MA100Se). Hens were inseminated at 41-46 wk and 55-60 wk of age at 3 wk intervals. Insemination doses from pooled ejaculates from males fed the same diets were standardized to 100x10<sup>6</sup> spz/hen and repeated on 2 consecutive days. Overall fertility rates (F), hatchability (H) and embryo mortality (early: EEM, intermediate: IEM and late: LEM) were estimated. Data were analysed as a completely randomized design. Regardless of the insemination period, LO diets had the best overall F (P<0.05). However, after the first inseminations, H was higher in SO50 and SO100, whereas F was highest after the second inseminations for SO100Se (P<0.05). Dietary MA increased EM and reduced F and H at both periods (P<0.05). Org Se as replacement for inorganic Se in plant-based diets decreased EEM (wk 41-46) and IEM (wk 55-60) but had adverse effects on LEM (both periods) (P<0.05). Supplementing plant-based diets with LO provides insight towards improving the reproductive performances of broiler breeder hens but research is needed to elucidate the role of org Se.

**Key Words:** broiler breeder, fertility, hatchability