with joint pain. The objective of this study was to determine if long-term supplementation of long chain protected polyunsaturated fatty acids (PUFAs) in sow rations alter the metabolism of cartilage ex vivo. Sows (6 sows/trt) were fed either control corn/soybean meal based diets, or the control diets supplemented with 0.5 to 1.0% protected PUFA from Fertilium (JBS United, Sheridan, IN). Sows were fed their respective treatments continuously for at least three parities prior to slaughter and harvesting of both forelimbs approximately 2 inches above the humeral-ulnar joint. Cartilage explants (6 mm disks) were isolated and placed, 2 per well, in a 24-well culture plate, with twelve wells per animal. Explants were cultured in DMEM: Ham's F-12 modified serum free medium with no exogenously added fatty acids or cultured in the same media and challenged daily with porcine Interleukin-1 (pIL-1; 10 ng/ml) to stimulate inflammatory pathways. Media were collected every 24 h for 3 d and analyzed for the production of nitric oxide (NO), PGE_2, and Interleukin-6 (IL-6). Proteoglycans in the media were measured as an indicator of cartilage catabolism. Statistics were analyzed using proc mixed of SAS 8.2 with sow, day, pIL-1 addition, and diet as class variables. Explants from sows fed PUFAs had reduced proteoglycan and IL-6 release regardless of pIL-1 challenge (Diet $P < 0.05$). The pIL-1 challenge increased NO production (pIL-1 x Day $P < 0.01$) and sows fed PUFAs had a 31% reduction in NO production, but the impact of PUFA feeding was not significant (Diet $P = 0.30$). Media PGE_2 concentrations were not different among treatments. Thus, 2 out of the 4 indicators of inflammation were significantly mitigated in cartilage explants following long-term supplementation with protected PUFAs. These results suggest that protected PUFAs containing high levels of EPA and DHA can alter chondrocyte metabolism in vivo.

Key Words: Arthritis, Health, Swine

466 Varying dietary cation-anion difference in late gestation and in lactation on sow productivity. M. L. Roux*[1], P. W. Jardon[2], S. L. Johnston[1], T. D. Bidner[1], and L. L. Southern[1], [1]*LSU Agricultural Center*, *Baton Rouge*, [2]*West Central*, *Ralston, IA*.

Primiparous or multiparous sows and their pigs were used to evaluate the effects of changing dietary cation-anion difference (DCAD; Na + K - Cl - S) in late gestation and in lactation on sow productivity. In a preliminary experiment (20 sows), urinary pH was linearly decreased ($P < 0.001$) as DCAD decreased in the diet (DCAD; 140, 99, 75, and 45 mEq/kg). Reducing DCAD tended to linearly increase ($P = 0.15$) plasma Ca concentrations. Thus, in Exp. 2, 66 sows (33 per treatment) were used and the dietary treatments consisted of corn-soybean meal diets with DCAD of 140 or 45 mEq/kg. These DCAD's were achieved by 0 or 3.5% added SoyChlor 16-7. The diets were fed from d 111 of gestation to weaning. Sows were allotted based on parity and the date of d 111 of gestation. Reducing DCAD reduced ADFI from d 111 of gestation to d 1 postfarrowing ($P < 0.02$), but ADFI was not affected by DCAD during lactation or overall ($P > 0.10$). Sow weight change was not affected by DCAD ($P > 0.10$). Reducing DCAD did not affect total number pigs born, pigs born alive, stillbirths, mummies, number nursed, number weaned, percent survivability, live and total birth weights, initial litter weight adjusted for mortality and cross-fostering, final litter weight, or litter weight gain ($P > 0.10$). Decreasing DCAD in the diet decreased urinary pH ($P < 0.001$) but had no effect on plasma Ca concentration. Twenty-seven sows fed the control diet and 21 sows fed the reduced DCAD diet were evaluated during their subsequent farrowing. Sows that had been fed the reduced DCAD diet had increased total number of pigs born ($P < 0.08$) and pigs born alive ($P < 0.02$) in the subsequent farrowing. Stillbirths, mummies, and live and total birth weights were not affected in the subsequent farrowing by DCAD. Changing DCAD had little affect on sow and litter response variables, but it decreased urine pH ($P < 0.001$) and increased total number of pigs born and pigs born alive in the subsequent farrowing.

Key Words: Electrolyte balance, Sows, Urinary pH

Production, Management and the Environment III

467 Carry-over effect of extended photoperiod during pubescence on first lactation in beef heifers. J. A. Small*[1] and A. D. Kennedy[2], [1]*Agriculture & Agri-Food Canada*, *Brandon, MB, Canada*, [2]*University of Manitoba*, *Winnipeg, MB, Canada*.

A 2*2 factorial arrangement of photoperiod treatments in autumn (A) and winter (W) was applied to spring-born crossbred beef heifers (N=540 over 6 yrs) assigned at weaning (Sep; 0 wk), by body weight and age, to one of four pens in one of two similar open shed/drylot facilities. Supplemental light (350 lux, 1 m above ground) was used to extend photoperiod (natural + supplemental light) to 16 h for 12 wk starting in Sep (A), or Dec (W), or for both periods (AW), while the control group was exposed to natural photoperiod (NP) only. Heifers were fed diets formulated to achieve 60% mature body weight at 32 wk through one of three feeding strategies: low gain during the prepubescent (0.6 kg d-1; 4 to 16 wk), high gain during the pubescent (1.2 kg d-1; 16 to 24 wk) and moderate gain during the post-pubescent (0.7 kg d-1; 24 to 32 wk) period, or low, low, high and constant (0.9 kg d-1) gain throughout these periods, respectively. In May each year heifers were synchronized for fixed-time AI (0 d) followed by exposure to bulls (2-42 d) and turn-out. In the fall bred heifers continued in one management group. At 8 wks postpartum heifers were milked, separated from their calves and milk collected 8 h later used to determine yield and composition. Data were analyzed as a 2*2*3 factorial using Proc Mixed and included the random effect of year. Mean pre- and post- calving body weights and condition scores, and calf birth weight of milked heifers were similar (P>0.05) among treatments. Yield of milk (8.3±0.3, 8.3±0.2, 7.9±0.3 and 7.6±0.2 kg d-1), protein and solids not fat were greater for A- or W- than AW- and NP treatments, respectively (P=0.05). Feeding strategy had no significant effect (P>0.05) on milk, body weight or condition. Extended photoperiod treatment during pubescence increased first lactation milk yield by 9.2%.

Key Words: Beef heifer, Photoperiod, Lactation

468 Influence of breed type and temperament on feedlot growth and carcass characteristics of beef steers. R. C. Vann*[1], R. D. Randel[2], T. H. Welsh, Jr.[2], S. T. Willard[4], J. A. Carroll[5], M. S. Brown[3], and T. E. Lawrence[3], [1]*MAFES-Brown Loam Exp. Station*, *Raymond, MS*, [2]*TAES*, *College Station and Overton, TX*, [3]*West Texas A&M University*, *Canyon,* [4]*Mississippi State University*, *Starkville*, [5]*Livestock Issues Research Unit, Agricultural Research Service-USDA*, *Lubbock, TX*.

Forty steers (Angus, n = 20; Brahman, n = 20) were used to examine the effects of breed type and temperament classification on feedlot growth performance and carcass traits. Steers were weaned, assigned a temperament classification (TEMP; calm or excited), commingled and grazed on rye-ryegrass pastures for 130 d and then shipped from Overton to Canyon, TX (500 miles). At weaning, steers were assigned a pen temperament score (PS; 1 = non-aggressive, to 5 = aggressive), weighed and assigned a chute score [CS; 1 = calm, to 5 = highly agitated), restrained in a squeeze chute and then released; time to travel 1.83 m was recorded (exit velocity (EV), m/s)]. TEMP was calculated as [(PS + EV)/2]. Steers were assigned to pens at the feedlot based on mean TEMP: calm pen means for Angus were 2.3 and 2.3 (n = 2), and for Brahman were 1.4 and 1.4 (n = 2; SEM 0.4); excited pen means for Angus were 3.5 and 3.4 (n = 2) and for Brahman were 3.8 and 2.5 (n = 2; SEM 0.4). Steer BW, ultrasound measurements for Longissimus area, rib fat, and percent intramuscular fat (%IMF), and PS and EV were collected on arrival at the feedlot and after 113 d on feed. A positive correlation ($P < 0.001$) between weaning PS ($r=0.64$) and EV ($r=0.72$) and PS and EV at feedlot arrival demonstrates the utility of the predictive value of weaning TEMP scores to future TEMP scores. Steers were harvested after reaching a similar rib fat thickness as per breed type. Angus steers ate 1.68 kg/d more DM ($P = 0.004$), and had greater ADG ($P = 0.05$), adjusted feed efficiency ($P = 0.05$), HCW ($P = 0.001$), carcass marbling score ($P = 0.05$), ultrasound and carcass fat thickness ($P = 0.003$), yield grade ($P = 0.05$) and lower shear force ($P = 0.04$). TEMP influenced carcass fat thickness ($P = 0.03$); excited steers had lower fat thickness compared to calm steers. Breed type x temperament interaction influenced carcass marbling score ($P = 0.08$); Angus calm steers had greater marbling scores than Brahman calm or excited steers. Temperament and breed type influenced carcass quality as indicated by marbling; however, breed type had the greatest effect on growth and carcass characteristics.

Key Words: Steers, Feedlot, Temperament

469 The effect of supplemented light on certain production parameters of young beef bulls fed intensively. P. J . Fourie*, D. J . Maasz, and D. O. Umesiobi, *Central University of Technology, Free State*, *South Africa*.

The objective of the study was to quantify the differences in average daily gain (ADG), back fat thickness (BFT), longissimus dorsi (LD), P8 (fat layer on the rump), feed conversion ratio (FCR) and body dimensions (by means of body measurements) of animals exposed to different levels of light supplementation. Thirty young Bonsmara bulls from the same farm (203 ± 14 days old) weighing (257 ± 15.1kg) were randomly divided into three homogeneous groups (n = 10 per group) and were subjected to three different levels of light supplementation (16h, 24h and normal photoperiod). The additional lights provided an average light intensity of 155 lux measured at eye level. The animals were housed in open pens and fed intensively ad libitum on a diet containing 11 MJ ME/kg DM and 14% CP for 84 days. An accredited operator did the ultrasound scanning, using a PIE Medical Falco 100 scanner to measure subcetaneous fat depth between the 12th and 13th rib (BFT), LD and P8 on days 1, 22, 51, 62 and 84 (end of the trial). Other data collected included body weight (BW) (taken every seven days starting on day one of the trial), shoulder height, body length and heart girth. The ADG, FCR and feed intake (FI) were calculated at the end of the trial. Data was statistically analysed using a one-way ANOVA in Proc GLM to determine the effect of supplemented light on the different parameters. Results of this study demonstrate that light supplementation was significantly effective in improving the ADG and FCR, mostly at 24 h photoperiod. No differences between the groups were evident for body measurements and ultrasound parameters. The final results of the study concluded that extented photoperiod (EP) (24h) improved ADG and FCR of young beef bulls fed under intensive conditions.

Key Words: Extended photo period, Beef bulls, Intensively

470 A nutritional supplement for beef cattle grazing endophyte-infected tall fescue. I. Response of herd-managed cows and calves. D. G. Ely*, D. K. Aaron, J. Wyles, R. A. Zinner, A. K. Lunsford, and M. L. Mallory, *University of Kentucky*, *Lexington*.

Eighty-four Angus x Beefmaster cow/calf pairs were used in a 3-yr study to determine response to gradient levels (0, 10, 20, and 40 g/cow) of a nutritional supplement produced from brewer's dried yeast (FEB-200™, Alltech, Inc., Nicholasville, KY). The supplement, carried in 0.45 kg ground shelled corn, was provided 1x/d during the grazing period. Cows and calves were managed in eight, 10.5-ha endophyte-infected (> 90%) KY 31 tall fescue pastures (two pastures/supplement level, re-randomized each year) from May 4 to July 11 (Period 1) and from July 11 to weaning on October 24 (Period 2). Cows averaged 5.1 yr, 490 kg, and 5.3 BCS on May 4. Initially, calves averaged 106 kg at 72 d of age. In Period 1, cows in the 0, 10, and 20 g treatments lost 9, 8, and 9 kg, respectively, as cows in the 40 g treatment gained 1 kg/hd (Linear; $P = 0.03$). No treatment effects on cow gain were found in Period 2. Gains for the total grazing season (May 4 to October 24) were 26, 26, 23, and 31 kg/cow for 0, 10, 20, and 40 g treatments, respectively. The greatest treatment effect was found in cows older than 5 yr (Linear; $P = 0.01$). Cow BCS increased linearly ($P = 0.07$) with increasing supplementation level during Period 1. No treatment effect was found in Period 2; however, overall BCS changes from May 4 to October 24 were positive and increased linearly ($P = 0.07$). Although supplementation had no effect on condition of 2-yr-old cows, BCS of 3 to 5 and > 5-yr-old cows increased linearly ($P = 0.04$ and 0.07) as level of FEB-200™ consumption increased. Calves in the 0, 10, 20, and 40 g treatments gained 61, 60, 58, and 65 kg/hd, respectively (Linear; $P = 0.01$), in Period 1. Gains during Period 2 were not affected by supplement level. Overall gains from May 4 to October 24 were 154, 153, 150, and 159 kg/hd (Quadratic; $P = 0.02$). These results show daily supplementation with 40 g FEB-200™ can increase weight gains of cows and calves grazing endophyte-infected tall fescue.

Key Words: Fescue, Cows, Calves

471 A nutritional supplement for beef cattle grazing endophyte-infected tall fescue. II. Response of individually-pastured cow/calf pairs. D. K. Aaron*, D. G. Ely, J. Wyles, R. A. Zinner, A. K. Lunsford, and M. L. Mallory, *University of Kentucky*, *Lexington*.

Sixty, 3 to 5 yr-old, Angus x Beefmaster cows and their calves were used in a 3-yr study to assess response to gradient levels (0, 10, 20, and

40 g/cow) of a nutritional supplement produced from brewer's dried yeast (FEB-200™, Alltech, Inc., Nicholasville, KY). The supplement, carried in 0.45 kg ground shelled corn, was provided to cows on a daily basis during the grazing period, which began on May 4 each year. From this date until July 11 (Period 1), cows and calves were managed in eight, endophyte-infected (> 90%) KY 31 tall fescue pastures (two pastures/supplement level, re-randomized each year) stocked with 10 to 16 cow/calf pairs each. On July 11 each year, 20 pre-designated cow/calf pairs were allotted to individual 1.6-ha plots of equivalent pasture (five plots/supplement level, re-randomized each year). Cows continued their respective supplement regimes from this date until calves were weaned on October 24 (Period 2). Cow weight changes in Period 1 were -15 -9, -8, and -1 kg/hd (Linear; P = 0.01) for 0, 10, 20 and 40 g supplement levels. Although corresponding weight changes in Period 2 showed no significant trend, total cow gains from May 4 to October 24 increased linearly (24, 28, 30, and 34 kg/hd; P = .10) as level of supplementation increased. Likewise, cow BCS increased linearly in Period 1 (-0.03, 0.22, 0.30, and 0.58; P = 0.001) and overall (0.68, 0.64, 0.90, and 1.13; P = 0.02). In Period 1, calves gained 57, 58, 56, and 64 kg/hd (Linear; P = 0.10) as supplement level increased. No significant differences were found in Period 2; however, overall calf gains (146, 149, 148, and 158 kg/hd) were linear (P = 0.11). In Period 2, performance of individually-supplemented cow/calf pairs mimicked that of group-supplemented cows and calves remaining in the larger pastures until weaning. These results show that daily supplementation with 40 g/cow of FEB-200™ can increase production of cows and calves grazing endophyte-infected tall fescue.

Key Words: Fescue, Production, Cows

472 A general model for predicting the retention of electronic boluses in the forestomachs of cattle and sheep. G. Caja*[1], J. Ghirardi[1], J. Casellas[1], S. Carné[1], M. Hernández-Jover[1], and D. Garín[2], [1]*Grup de Recerca en Remugants, Universitat Autònoma de Barcelona*, *Bellaterra, Spain*, [2]*Facultad de Veterinaria, Universidad de la República*, *Montevideo, Uruguay*.

Permanent identification is a key point for animal traceability and farm management. Electronic boluses are an efficient method for ruminant identification. Data from 1,203 beef calves and 1,662 sheep identified with electronic ruminal boluses, were used to build up a model for predicting bolus long-term retention in their forestomachs. All animals wore official ear tags as a control. Boluses consisted of 23 types of cylindrical capsules varying in dimensions and made of different materials (ceramic, concrete or plastic). Dimension ranges were: o.d. (9- to 21-mm), length (37- to 78-mm), weight (11 to 75 g), volume (2.5 to 22.4 ml) and specific gravity (0.63 to 3.91). Each bolus contained one half-duplex standardized glass encapsulated transponder (length × o.d., 32- × 3.8-mm). Boluses were administered orally at different ages (1 wk to adult) by using the appropriate balling guns. Bolus retention rate (RR = read/applied × 100) was calculated from data obtained by reading periodically the transponders with standardized handheld and stationary transceivers (working frequency, 134.2 kHz), under intensive conditions in cattle (for at least 1 yr) or under semi-intensive conditions in sheep (for at least 2 yr). Unreadable boluses were checked at slaughter or at necropsy of the dead animals by using a handheld transceiver. The RR varied between 0 and 100% according to bolus features in cattle and sheep. Inadequately dimensioned boluses were regurgitated or passed through the gastrointestinal tract and were rejected with the feces. Ear tag losses during the trial averaged 3.5 and 7.5% in cattle and sheep, respectively. Despite the differences between species, bolus retention rate was predicted by a unique logistic regression model ($R^2 = 0.989$; $P < 0.001$) from bolus volume (V, ml), weight (W, g) and animal specie (SP: sheep = 0; and, cattle = 5.80). The model was: $RR\ (\%) = 1/(1 + 1.849\ e^{0.400\ V - 0.429\ W + SP})$ The minimum bolus dimensions estimated to reach a RR>99% are: 19 g and 5.5 ml in sheep, and 55 g and 16 ml in cattle, when the bolus are made of a material with an specific gravity >3.4.

Key Words: Electronic Identification, Bolus, Ruminant

473 Estimation of demand function for different types of meat in Iran: Application of cointegration. J. Azizi*, *Islamic Azad University, Rasht Branch*, *Rasht, Iran*.

In this study by using the Almost Ideal Demand System (A.I.D.S), the demand function for different types of meat in urban and rural societies have been estimated and price as well as non-price elasticities of Marshall and Hicks demand function were investigated, Application of cointegration theory for determining the appropriate demand function was also investigated: Results obtained from this study indicated that during the period under study, household budget allocated to red meat have been decreased both in urban and rural societies, whereas during the same period household budget allocated to the purchase of chicken and fish have been increased. Furtheremore, the share of budget allocated to the purchase of fish in the rural societies increased first but later decreased. Price elasticities of different types of meat in urban as well as rural areas showed that during the period of study the use of price variable for the modification of consumption pattern have not been effective. This indicates that for the modification of consumption pattern, price variable has not been an effective factor. Therefore other variable such as population growth rate is of great significance that should be taken into account. Moreover, because of using time series data in this study, first the unit root in the model's variables was examined and then long-term relation of data was investigated. The results of study has revaled the existence of cointegration in this regard.

Key Words: Meat, Almost Ideal Demand System, Cointegration

474 Optimising lactation length based on subsequent sow reproductive performance. M. Aparicio*, L. M. Ramirez, J. Morales, and C. Pineiro, *PigCHAMP Pro Europa, S.A.*, *Segovia, Spain*.

Legislation of EU is requiring 28 d minimum of lactation, based on welfare recommendations. In others countries (US or Canada), lactation length (LL) has been progressively reduced, affecting productive results and economical benefits. The objective of this study was to determine the optimal LL based on productive results. For the study, 72,160 reproductive data from a total of 15 farms and 11,275 sows were used, obtained from the PigCHAMP® database in the interval 2001-2005. Data were distributed in 5 groups depending on LL: 0-7 (L1), 8-15 (L2), 16-23 (L3), 24-32 (L4) and more than 33 days (L5). Weaning-to-first mating interval (WFMI), weaning-to conception interval (WCI), farrowing rate (FR), total number of piglets born (TB) and born alive (BA) in the subsequent farrowing were evaluated. Data were analyzed using the GLM procedure of SAS. The shortest LL groups (L1 and L2) took more time (P=0.0001) to show oestrus (18.9, 8.0 and 6.4 d WFMI in L1, L2 and the rest of groups, respectively). The same tendency was observed for WCI, which was optimal for 16-32 days LL (groups L3 and L4). WCI increased again with longer lactations (11.3 vs 9.9 d WCI in L5 and L3/L4, respectively; P<0.001). The resulting equation is an exponential curve, and the calculated optimal LL to minimize WCI was 25.1 days. FR was also influenced

by LL, and longer lactations (>16 days) showed higher FR (P<0.001), and was seriously affected by lactations shortest than 7 days (60.3 vs 72.5% in L1 and L2; P<0.001). Based on the FR equation described, the optimal LL was 25.4 d. On the other hand, TB and BA in the subsequent farrowing increased linearly with LL (P<0.001). However, prolonging lactation decreases number of weaned piglets/sow/year. In this case, from the LL and WCI data, the calculated number of litters/sow/year decreased from 2.39 in L4 to 2.26 in L5 group. We conclude that increasing LL improves productive and reproductive parameters. From these results we conclude that the best interval of LL is 24-32 d with an optimum of 25 d, offering an optimum balance among the main performance indicators.

Key Words: Lactation length, Performance, Sow

Production, Management and the Environment IV

475 Potential demand for dairy farm revenue insurance. C. A. Wolf*, J. C. Hadrich, and J. R. Black, *Michigan State University*, *East Lansing*.

Lowering the dairy price support throughout the 1980's led to a market milk price that has been largely determined by market forces since the early 1990's. Consequently the base farm market milk price has varied much more than it had in the decades where the price support intervened. In 2000 the Federal Crop Insurance Corporation authorized the Agricultural Risk Protection Act of 2000 to facilitate the provision of insurance on livestock, expanding insurance possibilities on farms to livestock enterprises. Adjusted Gross Revenue insurance is an insurance contract using expected accrual gross revenue as basis for determining the insurance guarantee. This paper examines the magnitude and causes revenue risk on dairy farms with the resulting implications for dairy farm revenue insurance demand. The empirical component of the analysis is based upon Michigan dairy farm panel data from 1990 through 2004. The average coefficient of variation for annual milk price across farms and over years was 11 percent with a standard deviation of 2 percent. This indicates that, while market price varied substantially, the institutions and policies in place to market milk heavily insulated farms from price variation on an annual basis. The crops for which current crop revenue insurance contracts are facilitated have coefficients of variation in the 18 to 22 percent range, much greater than for dairy. Milk yield per cow is also much less variable than yield in field crops, ranging from 5 to 9 percent; that compares to 25 to 40 percent for dryland crops. Kernel densities of de-trended milk per cow (milk yield) indicate that 92% of all farms were within 3,000 pounds/cow of trend yield (and 84% were within 2,000 pounds). With an average yield of 20,040 pounds/cow, the vast majority of farms were within 10 percent of trend yield. The resultant variability in milk revenue per cow is much less than that of crops, even irrigated crops. Dairy farm revenue shortfalls would seldom trigger an indemnity under the insurance policies evaluated. Potential sources of increasing risk and alternative risk management tools are considered.

Key Words: Insurance, Risk management

476 Effect of mastitis and postpartum metabolic diseases on milk yield persistency in Holstein and Jersey cows. J. A. D. R. N Appuhamy*[1], B. G. Cassell[1], and J. B Cole[2], [1]*Virginia Polytechnic Institute and State University*, *Blacksburg*, [2]*Animal Improvement Programs Laboratory, Agricultural Research Service, USDA*, *Beltsville, MD*.

The objective of this study was to investigate the effects of mastitis (MST) and postpartum metabolic diseases (PPMD) on persistency of milk yield (P) in Holstein (H) and Jersey (J) cows. Data consisted of daily milk yields and health events for 59 H and 27 J cows calved between July, 2004 and March, 2005 in the Virginia Tech herd (Blacksburg, VA). Persistency was calculated as a function of a standard lactation curve and the linear regression of a cow′s test day deviations on days in milk (DIM) and standardized. Values of $P > 0$ indicate greater persistency. Standard curves were calculated from the data and did not account for breed differences. 10 test day yields before 128 DIM and 10 after were used to compute P for each cow; test day DIM were the same for all cows. Milk fever and ketosis were pooled into PPMD, and two MST classes were defined: occurrences before (MST1) and after (MST2) 128 DIM. Each disease was defined as a binary trait distinguishing between cows with at least one reported case (1) and cows with no cases (0). The statistical model included fixed effects of breed and parity with two binary variables indicating the presence (1) or absence (0) of the disease of primary interest or any other disease. Frequencies of cows with MST1, MST2 and PPMD were 24.5%, 25.6% and 10.5% respectively. The effect of MST1 on P was significant and had a phenotypic correlation of -0.20 with P. Thus, cows with mastitis in the first 128 d of lactation tended to be less persistent than cows with no mastitis. The correlations of MST2 and PPMD with P were -0.04 and 0.14, respectively and were not significant. Breed effects were highly significant, suggesting that H and J have differently-shaped lactation curves. Parity effects were not significant, as expected, because different standard curves were used for first and later parities.

Key Words: Mastitis, Metabolic diseases, Milk yield persistency

477 Effect of preparturient intramuscular injection of vitamin E and selenium on milk somatic cell counts in Holstein cows. Y. K. Fan*[1], I. T. Lin[1,2], and H. I. Chang[1,3], [1]*National Chung Hsing University*, *Taichung, Taiwan, ROC*, [2]*National Taiwan University*, *Taipei, Taiwan, ROC*, [3]*Uni-President Enterprises Corp.*, *Tainan, Taiwan, ROC*.

Blood concentrations of D-α-tocopherol (vitE), selenium (Se), and glutathione peroxidase (GSHpx) activity decrease along with immune ability declines and incidence of mastitis increases during periparturient stage in dairy cows. It is supposed that application of vitE and Se on dairy cows is capable to prevent the animals from mastitis through promoting their antioxidation ability. This experiment investigated the effects of a high dose vitE and Se injection intramuscularly on the blood concentrations of vitE, Se and GSHpx activity, and milk somatic cell counts (SCC) at wk 2 and 4 postparitum in Holstein cows. Ten of 13 multiparity cows (535±50.6 kg) were randomly allotted into two treatments, e.g., intramuscular injection with 4.4 g Tween 80 (Tw) or with 3,000 IU vitE plus 50 mg Na_2SeO_3 dissolved in 4.4 g Tw (ESe)