of milk P4 at d 21 post-AI as a selection criteria to identify pregnant cows as part of resynchronization programs may not be accurate enough to justify its use.

Key Words: OvSynch, Milk Progesterone, Synchronization

W238 Use of CIDR with a timed insemination protocol in lactating dairy cows during summer in Mexico. F. Moreira*, R. Flores, and J. Boucher, *Pfizer Animal Health,*.

The objective was to evaluate whether addition of EAZI-BREED CIDR Cattle Inserts (CIDR) to the Ovsynch program increases first service pregnancy rate (PR) in lactating dairy cows. The study was conducted in 5 dairies in Central Mexico. Cows were inseminated from June through September, 2001. Within trial site and within parity, cows were assigned to either an Ovsynch (n=255) or an Ovsynch-CIDR group (n=255) for their first service. Ovsynch was initiated at 50±3 d postpartum with an injection of 100 μg of GnRH (2 mL, i.m.; CYSTORELIN), an injection of 25 mg of $PGF_{2\alpha}$ (5 mL, i.m.; LUTALYSE Sterile Solution) 7 d later, a second 100 μg injection of GnRH 48 h later, and timed insemination 8 to 20 hours after the second GnRH injection. Ovsynch-CIDR cows received the same treatments but also received a CIDR Insert (1.38 g of progesterone) which was administered with the first GnRH injection and removed 7 d later at the $PGF_{2\alpha}$ injection. Cows were palpated for pregnancy 40 to 45 d after timed insemination. An interaction between treatments and parity was detected (P=0.023). The interaction indicated that PR was increased for Ovsynch-CIDR compared to Ovsynch in primiparous cows (38.2% and 20%, respectively; P=0.024) but no differences were detected in multiparous cows (22.3% and 27.5%, respectively; P=0.375). A subset of cows (n=466) was classified as anestrus or cyclic based on progesterone concentrations of two blood samples collected 7 d prior to and at the first GnRH injection. For anestrous cows, PR was 18.8% for Ovsynch (6/32) and 18.4% for Ovsynch-CIDR (7/38). For cyclic cows, PR was 23.5% for Ovsynch (47/200) and 29.1% for Ovsynch-CIDR (57/196). Such effects were further subdivided according to parity but none were significant. Addition of CIDR increased first service pregnancy rates of primiparous but not multiparous lactating dairy cows submitted to an Ovsynch program. Because cows were inseminated during summer, heat stress might have affected embryonic survival but the study was not designed to specifically address such an effect.

Key Words: CIDR, Ovsynch

W239 Efficacy of an injection of Dinoprost Tromethamine when given subcutaneously in two different sites on luteal regression in lactating Holstein cows. R. C. Chebel*[1], J. P. Reynolds[1], R. L. A. Cerri[1], J. Versteeg[2], H. M. Rutgliano[1], and J. E. P. Santos[1], [1]*University of California Davis, Tulare,* [2]*Pfizer Animal Health*.

The objective of this study was to compare the efficacy of administration of 25 mg of dinoprost tromethamine sterile solution (Lutalyse, Pfizer Animal Health) through different routes and in different sites on luteal regression. Lactating Holstein cows, 109, were synchronized with one injection of PGF2a 14 d prior to enrollment (study d 0). On study d 0, cows were examined by ultrasonography to determine presence of a CL in one of the ovaries. Cows with CL were blocked by parity and d in milk and, within each block, randomly assigned to receive PGF2a as an i.m injection in the semimenbranous/semitendinous muscle (CON); subcutaneous injection in the cervical area (SC); and subcutaneous injection in the ischiorectal fossa (SCI). Blood was sampled at 0, 12, 24, and 48 h after treatments for measurement of plasma progesterone concentrations using a validated EIA. Luteal regression was considered when progesterone decreased to less than 1.0 ng/ml. Relative changes in progesterone (0h=100%) were evaluated after PGF2a injection. Continuous and binomial data were analyzed by the MIXED AND LOGISTIC procedures of SAS (2001), respectively. CL regression for CON, SC, and SCI at 24 (65.7 vs 64.1 vs 68.6%; P=0.92) and 48 h (94.3 vs 86.8 vs 88.6; P=0.55) after treatment did not differ. Relative changes in progesterone (0 = 100%) at 12, 24, and 48h after treatment were 50.4, 34.5, and 27.7% for CON, 53.0, 33.1, and 28.4% for SC, and 52.4, 32.5, and 30.6% for SCI, and no effects of treatment (P=0.98) or treatment by time interaction (P=0.87) were observed. Injection of 25 mg of dinoprost tromethamine subcutaneously in the cervical area or ischiorectal fossa resulted similar changes in progesterone and luteal regression when compared with an i.m. injection in the semimenbranous/semitendinous muscle.

Key Words: Prostaglandin, Luteolysis, Dairy Cows

Production, Management and the Environment: Reproduction and Health Management

W240 A herd health management program resulted in decreased days open in first lactating cows in northern Thailand. K. Kreausukon*[1], V. Punyapornwitthaya[1], P. Kattapan[2], and W. Suriyasathaporn[3], [1]*Clinic of Ruminant, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai Province, Thailand,* [2]*LumPhoon Office of Department of Livestock Development, Thailand*.

The herd health management program (HH) is used to improve production performance in dairy farms, especially in Europe and North America. In northern Thailand, the HH program was introduced a few years ago by the faculty of Veterinary Medicine, Chiang Mai University. Therefore, the goal of this study was to evaluate the HH program on reproductive performance in the primiparous crosbred holstein cows. Data from 27 farms in Lamphun province during 1999 to 2003 were used to compare reproductive efficiencies before and after participating in the HH program that started in October 2001. Data on calving date, insemination date, and pregnancy check date were recorded. Calving and breeding season were divided into 3 seasons based on Thai Meteorological Department data, summer (mid Feb.–mid May), rainy (mid May-mid Oct.), and winter (mid Oct.–mid Feb.). The HH program factor was divided into two groups: before and after participating in the program. Factors associated with pregnant cows within 120 days postpartum were evaluated by Cox model. Results from 177 cows showed that median of days open of cows before and after the program were 155 and 129 days, respectively. Results from the Cox's model showed that conception rate after participating in the HH program was increased significantly (HR = 1.96). In addition, conception rate of cows inseminated durung the rainy season was lower than in summer (P = 0.07, HR = 1.82) and winter (P < 0.05, HR = 2.28). In conclusion, the HH management program improved reproductive performance of primiparous cows in northern Thailand.

Key Words: First Lactating Cows, Days Open, Cox Model

W241 Pregnancy rates and serum cortisol concentrations of relocated recipient cows in an embryo transfer program. J. L. Lopez*, E. Gonzalez, and D. L. Fernandez, *California State Polytechnic University, Pomona*.

Embryo transfer pregnancy rates are lower than pregnancy rates reported for AI or natural service, resulting in a significant economic loss to producers. Recipient cows in embryo transfer programs are routinely relocated. Relocation includes transportation, social regrouping of the animals, climate changes and dietary changes, among others, the stresses of which constitute relocation stress. Because stress affects reproduction, we hypothesized that relocation stress may play an integral role in the success rates of embryo transfer pregnancies. Recipient cows from Montana and Oregon (n=17) were relocated to California State Polytechnic University, Pomona (CPP) and cows from CPP (n=57) were used as non-relocated controls. All cows were treated identically in regards to diet, management and climate after arriving at CPP. Cows were synchronized for estrus and were implanted with Day 7 embryos 7 d after behavioral estrus. Blood samples were collected, centrifuged and the serum stored at -20°C until assayed for cortisol by RIA. The cows were palpated *per rectum* for evidence of pregnancy 60 days after implantation (Day 67) and another blood sample was collected. There was no difference (χ^2= 2.42, p > 0.10) in pregnancy rates between the control (61%) and the relocated (41%) cattle. Cortisol levels were not different (1.66 ± 0.40 vs. 1.67 ± 0.20 $ngml^{-1}$, respectively, p > 0.10) between

pregnant and non-pregnant cattle. Cortisol levels were higher 60 days after embryo transfer than day of embryo transfer (2.05 ± 0.24 vs. 1.28 ± 0.33 $ngml^{-1}$, respectively, p = 0.059). We reject our hypothesis that relocation stress reduces pregnancy rates in embryo transfer recipient cows, and hypothesize that relocation stress affects the hypothalamic-pituitary-gonadal axis to reduce fertility, not the cows ability to carry an embryo transfer pregnancy to term.

Key Words: Stress, Cortisol, Embryo Transfer

W242 Evaluation of temperature and temperature-humidity index and their effects on reproduction in beef cattle. J. L. Amundson*, T. L. Mader, R. J. Rasby, and Q. S. Hu, *University of Nebraska-Lincoln*.

Elevated ambient temperatures and humidity during the breeding season can decrease female fertility, reduce the duration of estrus, and results in a lengthened postpartum interval in cattle. The objective of this study was to quantify the effect of temperature-humidity index (THI) on pregnancy rate (PR) of beef cattle. Ten years of calving records were examined from a 150 head herd of commercial, *Bos taurus*, crossbred cows. Cows were managed at the University of Nebraska Dalbey-Hallack Research Farm, located in southeast Nebraska. All cows were bred by natural service, beginning in late May, with a breeding season of 65d. Breeding date was determined by subtracting 283d from the calving date. Relationships were determined between the proportion of cows bred in the first 30d, 60d and the entire breeding season to corresponding average temperature and THI. Weather data were compiled from a Great Plains Climate Center Weather Archives weather station located approximately 20 km from the research site. Average daily temperature and relative humidity were used to calculate daily THI. Average temperature (R^2=0.38; P=0.06) and THI (R^2=0.44; P=0.04) for the first 30d of the breeding season decreased PR 1.95 and 1.38% per unit increase in temperature and THI, respectively. Average THI greater than 65 for the first 30d decreased (P=0.08) pregnancy rate 1.60%/THI unit (R^2=0.58), but had no effect later in the breeding season. In years where the 60d average THI was greater than 70, PR in 60d decreased 3.15%/THI unit (R^2=0.84, P=0.08) but had no effect on PR for the remainder of the season. Among all years, season THI had no effect (P>0.1) on pregnancy rate (R^2=0.01). However, the correlation was greater for years where the average THI exceeded 70 (R^2=0.43; P>0.1). Temperature and THI can reduce 30 and 60d pregnancy rates in beef cows that are pasture bred during years of above average temperature and THI in Southeast Nebraska. However, females acclimatize to temperature and resulting THI because PR did not differ among years.

Key Words: Beef Cattle, Heat Stress, Temperature-Humidity Index

W243 Synchronization of beef cows using GnRH, prostaglandin $F_{2\alpha}$, and estradiol. W.A. Greene and M.L. Borger*, *The Ohio State University, Wooster*.

The main objectives of this study were to investigate the effect of the addition of estrogen to a common synchronization program on estrus detection rates (EDR) and pregnancy rates (PR). Eighty-four beef cows were allotted to two similar groups (CTRL and ECP) based upon breed, age, postpartum interval, and postpartum cyclicity (as determined by ultrasonography). Each anestrus cow (n=25) received an intravaginal releasing device (CIDR), containing 1.38 g progesterone, from d 0 to d 7. All cows received 50 μg GnRH i.m. on d 0 and 25 mg $PGF_{2\alpha}$ i.m. on d 7. The estrogen (ECP) group cows received 0.5 mg estradiol cypionate i.m. 24 h after $PGF_{2\alpha}$. Cows were observed for estrus 0730 and 1930 and were artificially inseminated (AI) 8-16 h after estrus was observed. If estrus was not observed, CTRL cows were timed AI (TAI) 66 h after $PGF_{2\alpha}$ and received 50 μg GnRH i.m. 0-4 h after AI while ECP cows were TAI 48 h after ECP injection. Following the synchronization period, repeat breedings were done until d 49. Cows were pregnancy diagnosed by ultrasonography on d 80. CTRL and ECP groups had similar (P>.05) EDR to synchronization (22.5 and 24.4%), PR to synchronization (30.0 and 36.6%), and overall PR (92.5 and 80.5%). Statistically, the only difference noted was that PR to synchronization was higher (P=.03) for anestrus than cycling cows (52.0 vs. 25.0%), perhaps due to the insertion of a CIDR in all anestrus cows.

Key Words: Beef, Synchronization, Pregnancy Rates

W244 Monitoring of estrus characteristics in pubertal and pregnant heifers using radiotelemetry. M. Paczkowski*, T. Craig, D. Magee, J. Thompson, and D. Forrest, *Texas A&M University, College Station*.

Prepubertal (age= 9.5 mo old) Angus-sired heifers (n=21) were fitted with HeatWatch® (HW) transponders and continuously monitored for mounting activity. Estrus was defined by a minimum of 3 mounts within a 4-hr interval. Heifers were artificially inseminated (AI) at the second observed estrus. Pregnancy was confirmed 30 d after AI via ultrasound and all pregnant heifers were monitored with HW for at least 35 d up to a maximum of 220 d gestation. The GLM and Mixed Procedures of SAS were used to compare number of mounts, total mount duration, and estrus duration between the pubertal and second estrus. Mean duration of estrus was longer (P<0.01) for the second (17.54 ± 3.42 hr) than for the pubertal (12.42 ± 3.42 hr) estrus. Total mount duration and number of mounts did not differ (P>0.60) between the pubertal and second estrus. Logistic regression was used to determine if the characteristics of the second estrus were associated with pregnancy (yes/no). Number of mounts at second estrus were greater (P<0.05) for pregnant than for non-pregnant heifers after AI. Mean duration of estrus and total mount duration at second estrus were not significantly associated with pregnancy outcome. Estrus events as defined by HW (n=73) that occurred during gestation were recorded in 9 heifers. The interestrus intervals during gestation were distributed as follows: <10 d= 48%, 10-16 d= 27%, 17-24 d= 10%, and >24 d= 15%. The Mixed Procedures of SAS were used to determine whether characteristics of the second estrus were predictive of characteristics of estrus during gestation (number of mounts, total mount duration, and interestrus interval). Number of mounts (P<0.04) and total duration of mounts (P<0.02) at second estrus were predictive of number of mounts during gestation. We conclude that estrus duration is longer for the second estrus compared to the pubertal estrus and the number of mounts received during the second estrus was greater in heifers that were pregnant after AI compared to non-pregnant heifers. Supported by Merial LLC.

Key Words: HeatWatch, Estrus, Pregnancy

W245 The effect of body weight change on conception. C. D. Dechow*, J. E. Vallimont, and M. L. O'Connor, *The Pennsylvania State University, University Park*.

The objective of this study was to estimate the effect of body weight change two weeks prior to insemination (WC14) on the success of insemination. The Afimilk computerized milking and management system records daily body weights for each Penn State dairy cow upon exiting the milking parlor. Body weights and insemination results from the first 200 DIM were retained. Lactation records with fewer than four usable daily body weights over any two week lactation period were eliminated. The final dataset included 77 lactation records from 65 cows with 154 inseminations from 2002 through 2003. Daily body weight variation due to gut fill and measurement error was accounted for by nesting fixed 5th order polynomials of DIM in each lactation record using the PROC MIXED procedure of SAS. A random effect of date was included in the model and regression results were used to reconstruct body weight curves for a cows lactation. The reconstructed body weight curves were then used to derive WC14. Positive values for WC14 indicate cows were losing weight prior to an insemination; a negative value for WC14 indicates cows were gaining weight prior to an insemination. Quartiles of WC14 were constructed (Q1=<-7.7 kg, Q2= -7.7 kg to -2.9 kg, Q3= -2.8 kg to 3.8 kg and Q4=>3.8 kg). Conception outcome (1 = pregnant, 0=open) was treated as a binary response variable in the PROC NLMIXED procedure of SAS. Significant effects included fixed year-season of insemination and WC14 quartiles. Conception outcome was significantly different (p<.05) between Q1 and Q4 (odds ratio = 4.2). Conception outcome was also significantly different if WC14 quartiles were expressed as a percentage of body weight lost prior to insemination (Q1:Q4 odds ratio = 3.7). Cows losing more than 3.8 kg of body weight were significantly less likely to conceive than those cows gaining

more than 7.7 kg. Automated daily body weight measurements can be used as a reproductive management tool to optimize the likelihood of conception.

Key Words: Body Weight, Conception, Fertility

W246 Productive and reproductive performance of bathed Holstein cows during the summer. M. Tarazon*, J. Valenzuela, S. Araiza, and F. Denogean, *Universidad de Sonora, Hemosillo, Mexico*.

The objective of the current study was to evaluate the effects of daily baths during the summer months on productive and reproductive performance of multiparous Holstein cows. Eighteen cows were assigned to one of the two groups in a completely randomized design. The treatment group consisted of nine cows, which received a daily bath 30 days before and 30 days after the expected calving date; while the nine cows from the control group did not receive the bath. Cows on treatmernt were bathed at 15:00 hours using a hose to completely wet the body of the animal. Twenty-five liters of water, at 26 to 29° C were used to wet the animal. Temerature and relative humidity were taken and recorded once every other day at 16:00 hours. Rectal temperatures were measured on all cows during the experimental period. Milk productions from all cows were measured three times a week and daily milk productions were estimated. Days open and services per conception were obtained from the dairy farm records. Also, data from the previous lactating period were used as a covariance. Data were analyzed by the statistical model from Costat) Cohort software, 1986-95).
One of the cows from the group that received the baths, died due to mastitis. The highest temperature and relative humidity were recorded during July (44° C y 68%, respectively) and the lowest ones were during June (35° C y 40%, respectively). Milk yields were not altered by the treatment. Open days for treated cows were mumerically lower that the non treated cows, but the difference was not significant. In the same way, services per conception were numerically higher in non treated than in treated cows, but the difference was not significant. Rectal temperatures were significantly ($P<0.05$) reduced in treated cows before and after calving.

Key Words: Milk Production, Bathed Cows, Temperatures

W247 Financial losses and management practices associated with BTSCC. A. C. O. Rodrigues*, D. Z. Caraviello, and P. L. Ruegg, *University of Wisconsin-Madison*.

The objective of this study was to determine the relationships among bulk tank somatic cell count (BTSCC) and financial and management characteristics of Wisconsin dairy farms enrolled in a state-wide team-based milk quality program. Management and financial data was obtained from a sample of enrolled dairy farms (n = 149). The logarithm of BTSCC (LogBTSCC) was regressed on meeting year, season, number of lactating cows, average milk production per cow per day, and financial and management attributes. Linear effects, nonlinear effects and interactions were estimated for financial and management characteristics. The median LogBTSCC was 5.52 (range of 5.08 - 6.07) and the number of lactating cows was 129 (22 - 1838) having a mean RHA of 10034.5 kg. The logarithm of standard plate count had a significant positive correlation with LogBTSCC (ρ = 0.001). As LogBTSCC increased the monthly clinical mastitis rate (0.07) and mastitis cull rate (0.02) increased in a significant positive linear association. The duration of milk discard for clinical cases of mastitis was 6.1 days and accounted for 58.8% of total costs. Both the average linear score of first lactation cows (2.97) and second or greater lactation cows (3.7) were higher on farms with higher LogBTSCC resulting in a significant greater monthly production loss per cow due to subclinical mastitis (ρ = 0.004). At enrollment in the program, herds received $0.001 per kg of milk in quality premiums in contrast to available premiums of $0.011 per kg of milk for achieving their goal SCC values (mean of 188,320 cells/ml). The monthly premium opportunity was positively associated with LogBTSCC. Forestripping and predipping were adopted by 83.7% and 89.1% of farms, respectively. Farms that did not always use gloves during milking cow preparation had higher LogBTSCC as compared to farms that did use. The use of CMT paddle was associated with lower LogBTSCC (ρ = .012).

Key Words: Milk Quality, Management, Finance

W248 Consistency Index as a Dynamic Field Measure of BTSCC Variation. J. Lukas*[1], M. L. Kinsel[2], and J. K. Reneau[1], [1]*University of Minnesota, St. Paul,* [2]*Agricultural Information Management, Inc., Ellensburg, WA*.

The objective of this study was to investigate differences in variation in BTSCC depending on the mean BTSCC and develop a field friendly measure of process performance by deriving a consistency index (CI) chart that calculates the maximum allowable sigma to meet each of the following SCC standards: 750000, 600000, 500000, 400000. Bulk tank SCC data was collected daily or every other day for 6 months (January until June 2003) from 1764 Upper Midwest dairy farms. The mean of daily values and variation (sigma) in BTSCC was calculated for each individual herd. The herds were divided into seven categories depending on the mean BTSCC for the 6-month period (mean BTSCC in thousands <150, 150-200, 200-300, 300-400, 400-500, 500-600, 600-750). Average sigma was calculated for each of the seven categories and the relationship between the mean and sigma was investigated. A consistency index (CI) was developed that calculates the maximum allowable sigma to meet the SCC standard at a given mean BTSCC following the formula: CI= (standard - mean)/3 where mean is the average BTSCC and the standard represents one of four different BTSCC standards. CI400 was developed for the 400000 SCC standard imposed in the EU. CI500 relates to the 500000 SCC standard adapted in Canada. CI600 uses the 600000 SCC limit implemented in California while CI750 is based on the 750000 SCC limit obligatory in other states. Analysis of the relationship between the mean and variation of BTSCC indicated that in herds which on average have a low BTSCC, the variation in BTSCC is low. The variation increases as the mean BTSCC increases. Using the consistency index (CI) chart, dairy managers and milk plant field staff can indicate what level of variation (consistency) will have to be achieved to meet a milk quality standard with statistical certainty. The same kind of chart could also be used to assess the prospect of meeting quality premium goals and to encourage improvement in process consistency as a means of further BTSCC improvement.

Key Words: BTSCC, Consistency Index, Statistical Process Control

W249 Factors affecting raw milk quality at milk collecting center-level in Northern Thailand. S. Boonyayatra[1], S. Rojanasthien[1], K. Kreausukon*[1], P. Tharavichitkul[2], and K. Ajariyakhajorn[3], [1]*Faculty of Veterinary Medicine, Chiangmai, Thailand,* [2]*Faculty of Medicine, Chianmai, Thailand,* [3]*Faculty of Veterinary Science, Bangkok, Thailand*.

To study the herd-level factors affecting the microbiological quality of raw milk at the milk collecting center (MCC), Standard plate count (SPC) was conducted to evaluate the bacterial counts in raw milk samples every week for 2 consecutive months from 4 MCC in Northern Thailand. These selected MCC were divided by the median of average SPC from all MCC in this area into 2 groups; group1: MCC which had low bacterial count (SPC < 1.6 x 106 cfu/ml) and group2: MCC which had high bacterial count (SPC > 1.6 x 106 cfu/ml). Then, the questionnaires were administered by interviewing about the farm management and observing for the milking technique in 104 dairy farms: 50 and 54 farms for group1 and 2, respectively. The logistic regression modeling technique was used to evaluate the significance of association of each factor while simultaneously controlling for the presence of other factors. The results showed that long duration of dairy farming (OR = 1.137, 95%CI 1.022 – 1.265), high number of milking cows (OR = 1.220, 95%CI 1.033 – 1.440), udder not dry before attachment (OR = 5.817, 95%CI 1.867-18.129) and poor cleanliness of teat cup liner (OR = 6.444, 95%CI 1.835-22.627) were the risk factors to have high level of bacterial contamination in raw milk at the MCC-level. In conclusion, the farmer should pay more attention on milking hygiene and cleanliness of milking equipment to improve the microbiological quality of raw milk at the milk collecting center.

Key Words: Raw Milk Quality, Milk Collecting Center, Northern Thailand

W250 Effect of season on high bulk milk somatic cell count in northern Thailand. S. Rojstian*, V. Punyapornwittaya, W. Tiwanuntakorn, S. Boonyayatra, J. Younggad, C. Apairoj, and W. Suriyasathaporn, *Department of Clinic of Ruminant, Faculty of Veterinary Medicine, Chiangmai University, Chiangmai, Thailand.*

The objective of this study was to evaluate the effect of season on bulk milk somatic cell count (BMSCC) in Northern Thailand. Data of BMSCC from 123 dairy farms within 4 milk-collecting centers in Chiang Mai and Lumphun provinces, Thailand, were collected once a month between October 2000 to August 2001. By the definition from Thai Meteorological Department, seasons in Thailand are comprised of winter (Nov.Feb.), summer (Mar.-May), and rainy season (Jun.-Oct.). High BMSCC was defined when farms had BMSCC higher than 500,000 cells/ml. The percentage of farms with high BMSCC from each milk-collection center and each month was a dependent variable. Seasons and milk-collecting center factors were fixed effects. Data was analyzed using mixed model analysis (Proc Mixed, SAS v.8). Results showed that both season and milk-collecting center were related to the proportion of high BMSCC farms ($P < 0.05$). The percentages of high BMSCC of all centers were ranged between 5.4 and 37.9. The percentage of high BMSCC in rainy season (30.7 %) was significantly higher than summer (20.7 %) and winter (22.4 %). We concluded that a problem of sub-clinical mastitis for dairy farms in northern Thailand is highest during the rainy season.

Key Words: Bulk Milk Somatic Cell Count, Season, Cows

W251 Growth and parasite burdens of St. Croix White and Dorper X St. Croix White lambs grazing native pasture during the wet season in the US Virgin Islands. R. E. Dodson*, A. J. Weis, and R. W. Godfrey, *University of the Virgin Islands, Agricultural Experiment Station, Kingshill, VI.*

St. Croix White (STX; n = 16) and Dorper X STX (DRP; n = 14) ewe and wether lambs were used to evaluate the growth of lambs grazing during the wet season under tropical conditions. Two wk after weaning, at 63 d of age, lambs were placed in guinea grass (Panicum maximum) pastures (0.5 ha) in a rotational grazing system for 147 d. Daily rainfall amounts were recorded during the grazing period. Lambs were moved between pastures every 20 ± 3 d. Forage quantity was determined at the start and end of grazing within each pasture. Each week for the first month and every two weeks thereafter lamb weight, fecal egg count (FEC) and packed cell volume (PCV) were determined for each lamb. The pastures received 978.7 mm of rain with 64.5% of the rain falling by d 45 of the grazing period. Forage quantity was 1264.2 ± 413.9 and 627.5 ± 126.2 Mg/ha at the time of entry into and exit from pastures, respectively. Forage contained 13.3 ± 0.7 % crude protein and 60.8 ± 0.6 % TDN. Average daily gain was higher ($P < 0.05$) for DRP than for STX lambs (76.8 ± 3.8 vs 64.8 ±4.3 g/d, respectively) and wethers had higher ADG ($P < 0.009$) than ewes (79.2 ± 4.1 vs 62.5 ± 4.1 g/d, respectively). Wether lambs were heavier than ewe lambs within breed ($P < 0.001$) during the grazing period but there was no difference ($P > 0.10$) between breeds. There was no breed x gender interaction for ADG or BW. There was no difference ($P > 0.10$) between DRP and STX lambs in FEC or PCV during the grazing period. Packed cell volume was negatively correlated ($P < 0.0001$) with FEC in DRP and STX lambs (r = -0.71 and -0.67, respectively). Weight was positively correlated ($P < 0.009$) with PCV in DRP and STX lambs (r = 0.15 and 0.16, respectively).). In 3 lambs that died FEC was 2350 egg/g and PCV was 10% the week immediately prior to their death. These results indicate that DRP lambs grow faster and have similar parasite burdens when compared to STX lambs grazing native pasture during the wet season under tropical conditions.

Key Words: Sheep, Parasites, Grazing

W252 Phylogenetic relationship and distribution of bacteria in the mucosa of chicken guts: from the crops to ceca. J. Gong[1], W. Si*[1], R. Huang[2], F. Deng[1], Y. Yin[1], H. Yu[1], and Y. Han[3], [1]*Food Research Program, Agriculture and Agri-Food Canada, Guelph, Ontario,* [2]*Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha China,* [3]*3Maple Leaf Foods Agresearch, Guelph, Ontario.*

Bacterial populations in the mucosa of adult chicken guts at different regions, including the crop, gizzard, duodenum, jejunum, ileum, and cecum, were studied by molecular analysis of 16S rRNA genes. Bacteria in the mucosa of tested gut regions were mainly Gram-positive. Ceca had the most diverse bacterial population in the guts. Eleven out of 100 cloned 16S rDNA sequences from the cecum had less than 95% homology to database sequences. There were 56 phylogenetic types of bacteria (from 100 16S rDNA clones) detected in the cecum, as compared to 8 phylogenetic types (from 51 clones) in the crop, 3 phylogenetic types (from 51 clones) in the gizzard, 15 phylogenetic types (from 52 clones) in the duodenum, 11 phylogenetic types (from 50 clones) in the jejunum, and 7 phylogenetic types (from 50 clones) in the ileum. Bilophila capilosu and E. coli comprised the largest groups among the clones from the cecum, representing 12 and 11%, respectively. Lactobacilli were predominant (181 out of 254 clones) in the upper gastrointestinal tract (from crops to ilea) with the highest diversity being found in the crop. L. aviarius was the predominant species of Lactobacilli detected in the gizzard and duodenum. It also comprised the largest group of bacteria in the jejunum and ileum. This report is the first comprehensive study of mucosa-associated microbiota from different gut regions in broiler chickens.

Key Words: 16S rRNA, Bacteria, Chicken Gut

Breeding and Genetics II

W253 A computerized approach to minimize inbreeding of breeding plans. John R. Garbe* and Yang Da, *Department of Animal Science, University of Minnesota, St Paul.*

Inbreeding is an important issue in animal breeding. Since inbreeding is often associated with detrimental effects, minimizing inbreeding is often desired. Theoretical prediction of inbreeding levels for breeding plans is difficult in real animal populations due to the complex pedigree structures formed over many generations. As computing power rapidly improves, predicting inbreeding levels based on exhaustive calculation of inbreeding coefficients resulting from all potential matings becomes feasible. We developed a computer program named MiniInbred to identify a breeding scheme that minimizes inbreeding. This program predicts inbreeding level in the next generation by identifying matings that yield the lowest inbreeding level in the offspring. The inbreeding coefficient resulting from all potential matings of the current breeding animals (generation 1) are calculated, and the potential matings among the current breeding animals that yield the lowest inbreeding level are identified. The program also has the option to predict the lowest inbreeding available in the third generation. In this case, the hypothetical offspring (generation 2) of the current breeding animals are treated as parents, and the inbreeding coefficient resulting from all potential matings between the hypothetical parents are calculated, and the potential matings among the hypothetical parents that minimize inbreeding are identified. This computerized approach is illustrated and evaluated using two large animal pedigrees.

Key Words: Inbreeding, Breeding, Animal

W254 Full pedigree analysis of QTL affecting growth, carcass, and meat quality in pigs. N. Vukasinovic*[1], F.-X. Du[1], L. A. Messer[1], J. C. Byatt[1], M. M. Lohuis[1], A. C. Clutter[1], J. Bennewitz[2], N. Reinsch[2], G. Otto[2], K. Sanders[2], N. Borchers[2], and E. Kalm[2], [1]*Animal AG,* [2]*Institute of Animal Breeding and Husbandry, Kiel, Germany.*

Quantitative trait loci (QTL) detection methods in swine are often based on full- or half-sib families and ignore additional relationships among animals. In this study, a full-pedigree analysis based on a variance component (VC) approach was applied to a three-generational pedigree from a line-cross experiment involving Pietrain and Large White x Landrace hybrid. The pedigree included 17 F0, 118 F1, and 1014 F2 animals originating from repeated matings of four F1 sires to 33 full-sib F1 dams. All animals were genotyped for 27 microsatellite markers on SSC2, SSC6, and SSC7. Phenotypes on 31 growth, carcass, and meat quality traits were available on F2 animals. The analyses were performed using an animal model with random polygenic and QTL effects. The (co)variance