

T243 Performance of modern vs 1970's heritage broilers fed drug free recommended and low protein diets. T. A. Woyengo¹, A. Golian², W. Guenter¹, C. Bennett³, and H. Muc¹, ¹University of Manitoba, Winnipeg, Manitoba, Canada, ²University of Ferdowsi, Mashhad, Iran, ³Manitoba Agriculture, Food and Rural Initiative, Winnipeg, Manitoba, Canada.

A study was conducted to compare the performance of a modern broiler breed (Ross; RS) with those of two 1970's heritage broiler breeds (HB1 and HB2) fed drug free recommended protein (RP; 22% CP) and low protein (LP; 19% CP) diets from 1 to 63 d of age. Six hundred mixed sex old chicks from each of the three breeds were divided into ten groups of equal weight and randomly placed in 30 floor pens. Five replicates pens of each breed were randomly assigned to the RP and LP starter (1-16 d of age) and grower (16-30 d of age) diets, respectively. The LP grower diet was used to feed all birds from 31-63 d of age. The BW gain (BWG) and feed intake (FI) of the RS birds were higher ($P < 0.05$) than those of the two heritage breeds at 16, 30, 35, 49 and 63 d of age. Among the heritage breeds, the BWG

and FI of HB1 birds were higher ($P < 0.05$) than those of HB2 birds at all the measured periods. For the entire experimental period, the BWG and FI of RS birds were higher than those of HB1 and HB2 birds by 35.6 and 53.4%, and 21.7 and 37.5%, respectively. The feed conversion ratio (FCR) was also better ($P < 0.05$) for RS birds than for HB1 and HB2 birds. The HB1 and HB2 birds were, however, similar ($P > 0.05$) in FCR. The BWG and FCR of all the three breeds were depressed ($P < 0.05$) when they were fed LP starter and grower diets up to 30 d of age, but not ($P > 0.05$) when they were fed a common finisher diet from 30 to 63 d of age. Regarding FI, a significant depression ($P < 0.05$) of a LP diet on the same was only observed for RS birds from 1 to 35 d of age. For the entire experimental period, the LP starter and grower diets only negatively affected BWG of the RS birds (3992 vs 3771 g/bird). The results show that the modern RS broilers compared with the 1970's heritage breeds have superior performance, but are more sensitive to dietary protein level.

Key Words: Broiler, Breed, Performance

Physiology & Endocrinology - Livestock and Poultry: Estrus Synchronization

T244 Evaluation of 5-day versus 7- day CIDR treatment on reproductive performance of beef cows using a timed AI protocol. D. Gunn¹, J. B. Glaze, Jr.², R. Findlay³, D. Falk⁴, and A. Ahmadzadeh⁴, ¹University of Idaho Extension, Fort Hall, ²University of Idaho, Twin Falls, ³University of Idaho Extension, Pocatello, ⁴University of Idaho, Moscow.

The objective of this experiment was to determine the effect of reducing the length of CIDR exposure in a CIDR-based timed AI synchronization protocol (CIDR-PGF_{2α}-GnRH and AI) on conception and pregnancy rates in multiparous, suckled beef cows. British cross-bred cows ($n = 138$) were stratified by days postpartum (dpp), age and body weight (BW) and were randomly assigned to one of the following two treatments: 1) cows ($n = 68$) received CIDR (d -7) for 7 days, PGF_{2α} (25 mg) at CIDR removal (d 0), GnRH (75 μ) 56 h after CIDR removal and immediate AI (d 3; **7-d CPG**); or 2) cows ($n = 70$) received CIDR (d -5) for 5 days, PGF_{2α} (25 mg) at CIDR removal (d 0), GnRH (75 μ) 56 h after CIDR removal and immediate AI (d 3; **5-d CPG**). Cows were exposed to bulls 19 days after timed-AI. Pregnancy status was determined by ultrasonography 35 and 68 days after AI. Treatment had no effect on conception to AI (54.41% and 55.71% for 7-d CPG and 5-d CPG, respectively). Pregnancy rate was also unaffected by the treatment protocols (79.41% and 77.14%) for 7-d CPG and 5-d CPG, respectively). Age, BW, and BCS did not have an effect on conception percentage and pregnancy rate. However, dpp had a significant effect ($P < 0.01$) on conception to AI (30% for < 60 dpp vs 80% for > 60 dpp) and overall pregnancy rate (50% for < 60 dpp vs. 82% for > 60 dpp). Results from this study indicate that reducing the length of CIDR treatment (5 days vs. 7 days) in a CIDR-based timed AI synchronization protocol did not influence conception to AI and pregnancy rate in suckled beef cows.

Key Words: Cattle, CIDR, Timed AI

T245 Effect of reusing CIDRs on the pregnancy rate of beef cattle. M. L. Borger* and W. A. Greene, *The Ohio State University, Wooster.*

The main objective of this study was to determine the effect of reusing CIDRs, as a part of a synchronization program, on pregnancy rates (PR) in beef cattle. One hundred-fourteen animals were allotted to two similar groups, new CIDR (N) and used CIDR (U), based upon breed, age, postpartum interval, and postpartum cyclicity (as determined by ultrasonography). All cattle received 100 μg GnRH i.m. on d 0. Also on d 0, cattle in the N group received a new intravaginal releasing device (CIDR), containing 1.38 g progesterone, while U group cattle received a CIDR previously used for 7 d. On d 7, jugular blood samples were collected for plasma progesterone (P4) analyses, CIDRs were removed, and all animals received 25 mg PGF_{2α} i.m. Each removed CIDR was evaluated for signs of vaginal infection and scored from 1 to 5 (1= clear, 5=heavy pus). Animals were observed for estrus 0700 and 1900 and were artificially inseminated (AI) 11-13 h after estrus was observed. If estrus was not observed, animals were timed AI (TAI) and received 100 μg GnRH i.m. 70-72 h after PGF_{2α}. Following the synchronization period, repeat breedings were done until d 61. Cows were pregnancy diagnosed by ultrasonography on d 88. N and U groups had similar ($P > .05$) estrus detection rates [EDR] (47.4 and 59.7%), PR to synchronization (52.6 and 57.9%) and overall PR (86.0 and 93.0%). Cycling ($n=91$) and anestrous animals had similar ($P > .05$) EDR (55.0 and 47.8%), PR to synchronization (58.2 and 43.5%), and overall PR (89.0 and 91.3%). Cattle with high vaginal scores (4 & 5, $n=76$) and low vaginal scores (1, 2, and 3) had similar ($P > .05$) PR to synchronization (55.3 and 55.3%) and overall PR (85.5 and 97.4%). The N group had more ($P < .05$) high vaginal scores than the U group (77.2 and 56.1%). Mean P4 levels (ng/ml) were similar ($P > .05$) for N (1.9 ± 1.2) and U (1.9 ± 1.4) cattle. P4 levels were higher ($P < .05$) at CIDR removal for cycling (2.0 ± 1.3) than anestrous (1.4 ± 1.0) cattle. There were no noticeable differences between synchronizing beef cattle with previously used CIDRs and new CIDRs.

Key Words: Synchronization, CIDR Reuse, Progesterone

T246 Evaluation of human chorionic gonadotropin (hCG) as a replacement for GnRH in an ovulation-synchronization protocol before fixed timed AI. M. G. Burns^{*1}, B. S. Buttrey¹, D. R. Eborn¹, J. E. Larson², B. J. Lovaas², G. C. Lamb², K. C. Olson¹, and J. S. Stevenson¹, ¹Kansas State University, Manhattan, ²University of Minnesota, Grand Rapids.

Two experiments evaluated differences between GnRH and hCG given at the onset of a timed AI protocol and their effects on fertility. In Exp. 1, beef cows (n = 676) at 6 locations were assigned randomly to treatments based on parity, BCS, and days postpartum. On d -20 and -10, blood was collected to determine progesterone (P4) concentrations and assess cyclicity. Blood was collected for P4 analysis at each subsequent handling of 113 cows at 1 location. Cattle were treated with a CIDR insert on d -10 and with 100 µg of GnRH (OvaCyst) or 1,000 IU of hCG (Chorulon; CO-Synch + CIDR). An injection of PGF2α (Prostamate) was given and CIDR inserts were removed on d -3. Cows were inseminated at 62 h (d 0) after CIDR insert removal. Pregnancy was diagnosed at 33 d (range: 32 to 35 d) after AI to determine pregnancy rate (PR). For cows that were pregnant after the first AI, a second pregnancy diagnosis was conducted 35 d (range: 33 to 37 d) after the first diagnosis to determine pregnancy survival. Injection of hCG reduced ($P < 0.001$) PR compared with GnRH, with a greater reduction in noncycling cows. Serum P4 was greater ($P = 0.06$) 7 d after hCG than after GnRH (4.4 ± 0.5 vs 3.2 ± 0.5 ng/mL). In Exp. 2, cattle were assigned randomly to 3 treatments, balanced across the 2 treatments applied in Exp. 1. Cows were injected (same doses as in Exp. 1) with GnRH, hCG, or saline 7 d before first pregnancy diagnosis in Exp. 1. At the time of pregnancy diagnosis, cattle diagnosed not pregnant (n = 328) were given PGF2α and inseminated 56 h later, concurrent with a GnRH injection. Compared with saline (n = 107), injections of GnRH (n = 107) and hCG (n = 114) tended ($P = 0.07$) to reduce PR at second AI (40, 33, and 31%), respectively. Concentrations of P4 did not differ among GnRH, hCG, or saline cows (6.0 ± 0.6 , 6.6 ± 0.6 , 6.4 ± 0.5 ng/mL, respectively) 7 d after treatment at pregnancy diagnosis. We concluded that hCG compared with GnRH given before first timed AI reduced PR (Exp. 1). Neither GnRH nor hCG may be necessary to initiate a CO-Synch protocol for cows identified not pregnant at 33 d after AI (Exp. 2).

Table 1. Pregnancy rates (PR) and pregnancy survival (PS) after first timed AI

Exp. 1	Exp. 2	PR at first AI, % (no.)	PS 33 to 68 d, % (no.)	PR After 2 AI, % (no.)
GnRH	Sal	54.5 (112)	90.2 (61)	67.9 (112)
	GnRH	55.2 (116)	92.2 (64)	64.3 (115)
	hCG	50.5 (111)	96.4 (56)	65.1 (109)
GnRH Σ		53.4 ^a (339)	92.8 (181)	65.8 (336)
hCG	Sal	38.4 (112)	93.0 (43)	62.7 (110)
	GnRH	38.3 (107)	97.6 (41)	61.7 (107)
	hCG	39.8 (118)	95.7 (46)	56.8 (118)
hCG Σ		38.9 (337)	95.4 (130)	60.3 (335)

^aDifferent ($P < 0.001$) from hCG total.

Key Words: Ovulation Synchronization, hCG, GnRH

T247 Synchronization of estrous with melengestrol acetate and estradiol cypionate in Nellore heifers and Angus dry cows. R. F. G. Peres^{*1}, O. G. Sa Filho¹, R. L. Valarelli², and J. L. M. Vasconcelos¹, ¹FMVZ - UNESP, Botucatu, Brazil, ²Pfizer Animal Health, Brazil.

Two experiments evaluated reproductive performance of Angus dry cows and Nellore heifers treated with melengestrol acetate (MGA; MGA Premix[®], Pfizer Animal Health, Brazil) associated to estradiol cypionate (ECP[®], Pfizer Animal Health, Brazil). Exp.1 evaluated estrus detection (EDR), conception (CR) and pregnancy rates (PR) in a 10 days breeding season (BS) in Angus dry cows treated with melengestrol acetate. Exp.2 evaluated EDR, CR and PR in the first 10 days of BS and PR in 30 days of BS in Nelore heifers. In both experiments, animals were randomly assigned to receive one of two treatments: Control (no treatments; Exp.1: n=60; Exp.2: n=180) or MGA+ECP (addition of MGA on mineral between days -14 and -1, and 2.0mg i.m. injection of ECP on day -9; Exp.1: n=67; Exp.2: n=321). Estrus behavior observation started on day 0 and cows detected in heat were inseminated after 12h. Data were analyzed by Chi-square. In Exp.1, treatment with MGA+ECP increased EDR (62.7% vs. 36.7%; $P < 0.01$) and tended to increase PR (37.3% vs. 21.7%; $P < 0.1$). The effect of MGA+ECP treatment on PR was mainly due to increase on EDR since no effect on CR was found (59.1% vs. 59.5% for Control and MGA+ECP treatments, respectively). In Exp.2, treatment with MGA+ECP increased EDR (64.2% vs. 30.6%; $P < 0.0001$) and PR in the first 10 days of BS (29.3% vs. 15.0%; $P < 0.001$). The effect of MGA+ECP treatment on PR was mainly due to increase on EDR since no effect on CR was found (49.1% vs. 45.6% for Control and MGA+ECP treatments, respectively). PR in 30 days of BS was higher in heifers treated with MGA+ECP than in Control (55.4% vs. 35.6%; $P < 0.0001$). In conclusion, treatment with MGA+ECP did not alter CR, but increased EDR and PR, allowing higher amount of cattle pregnant in shorter time.

Key Words: MGA, Dry Cows, Heifers

T248 Effect of treatment with melengestrol acetate combined with estradiol cypionate on pregnancy rates along a 70 days breeding season in postpartum Nellore cows. R. F. G. Peres^{*1}, O. G. Sa Filho¹, R. L. Valarelli², and J. L. M. Vasconcelos¹, ¹FMVZ - UNESP, Botucatu, Brazil, ²Pfizer Animal Health, Brazil.

The aim of this trial was to evaluate the effect of treatment with melengestrol acetate (MGA; MGA Premix[®], Pfizer Animal Health, Brazil) associated with estradiol cypionate (ECP[®], Pfizer Animal Health, Brazil) on pregnancy rates (PR) to natural service of postpartum Nellore cows at 10, 40 and 70 days of breeding season (BS). Postpartum Nellore cows (n=204) were randomly assigned to receive one of two treatments: Control (no treatment; n=102) or MGA+ECP (addition of MGA on mineral between days -14 and -1, and 2.0mg i.m. injection of ECP on day -9; n=102). On day 0, cows from MGA+ECP treatment received calf removal and cows from both two treatment groups were allocated with sires (1/15 proportion) for natural service during 70 days. Pregnancy diagnosis were performed by ultrasound on days 40, 70 and 100 of BS to determine PR at 10, 40 and 70 days of BS. Data were analyzed by Chi-square. Treatment with MGA+ECP increased PR at 10 days (12.7% vs. 4.9%; $P < 0.05$) and at 70 days (55.45% vs.

35.6%; $P < 0.01$), and tended to increase PR at 40 days of BS. (47.1% vs. 35.3%; $P < 0.1$). In summary, treatment with MGA+ECP resulted in a higher proportion of cows pregnant during the BS.

Key Words: MGA, ECP, Natural Service

T249 Effect of estradiol cypionate dosage (1 vs. 2 mg) on estrus detection and pregnancy rates of postpartum Nellore cows synchronized with melengestrol acetate. R. L. Valarelli*¹, O. G. Sa Filho², and J. L. M. Vasconcelos², ¹Pfizer Animal Health, Brazil, ²FMVZ - UNESP, Botucatu, Brazil.

The aim of this trial was to evaluate the effect of two dosages of estradiol cypionate (ECP[®], Pfizer Animal Health, Brazil) on estrus detection (EDR) and pregnancy rates (PR) of postpartum Nellore cows synchronized with melengestrol acetate (MGA; MGA Premix[®], Pfizer Animal Health, Brazil). Postpartum multiparous Nellore cows ($n=399$), evaluated on day -14 by ultrasound to determine presence of corpus luteum (CL), were randomly assigned to receive one of three treatments: Control (no treatment; $n=127$), ECP1 (addition of MGA on mineral between days -14 and -1, and 1.0 mg of ECP on day -9; $n=137$) or ECP2 (addition of MGA on mineral between days -14 and -1, and 2.0 mg of ECP on day -9; $n=135$). On day 0, cows from ECP1 and ECP2 treatments received calf removal and cows from the three treatment groups were observed for estrus behavior during 30 days. Cows were inseminated 12h after heat detection. Data were analyzed by logistic regression, and when effect of treatment was detected, means were compared by orthogonal contrasts (C1: "MGA1" vs. "MGA2"; C2: "Control" vs. "MGA1" + "MGA2"). There was effect of treatment on EDR (Control: 14.9%; ECP1: 48.2%; ECP2: 47.4%; C1: $P > 0.1$; C2: $P < 0.001$) and PR (Control: 7.9%; ECP1: 21.2%; ECP2: 21.5%; C1: $P > 0.1$; C2: $P < 0.01$) in the first 10 days of breeding season (BS). Effect of treatments on PR in the first 10 days of BS was mainly due to increase on EDR, since no effect of treatments on conception was detected. Treatments tended to affect PR in 30 days of BS (Control: 30.7%; ECP1: 31.4%; ECP2: 42.2%; C1: $P < 0.1$; C2: $P > 0.1$). Considering only cows treated with MGA, presence of CL did not affect EDR (47.8%), conception (44.6%) and PR (25.0%) in the first 10 days of BS, and on PR in 30 days of BS (36.8%). In conclusion, regardless of ECP dosage, treatment with MGA+ECP brought heat behavior together in the first 10 days of BS, anticipating conception, and allowed cows without presence of CL to have similar PR than cows with CL.

Key Words: MGA, ECP, Pregnancy Rate

T250 Pregnancy rates in a 10 days breeding season in postpartum Nellore cows treated with melengestrol acetate associated or not with estradiol cypionate. R. L. Valarelli*¹, O. G. Sa Filho², M. Meneghetti², and J. L. M. Vasconcelos², ¹Pfizer Animal Health, Brazil, ²FMVZ - UNESP, Botucatu, Brazil.

The aim of this trial was to evaluate the effect treatment with melengestrol acetate (MGA; .5mg/head/day; MGA Premix[®], Pfizer Animal Health, Brazil) associated or not with estradiol cypionate (ECP[®], Pfizer Animal Health, Brazil) on pregnancy rate (PR) to natural service of postpartum Nellore cows during a 10 days breeding season (BS). Postpartum Nellore cows ($n=1033$) were blocked according to

presence of corpus luteum (CL; evaluated on day -14 by ultrasound). Within each block, cows were randomly assigned to receive one of three treatments: Control (no addition of MGA; $n=67$ with CL; $n=245$ without CL), MGA (addition of MGA between days -14 and -1; $n=93$ with CL; $n=278$ without CL) or MGA+ECP (addition of MGA between days -14 and -1, and 2.0mg i.m. injection of ECP on day -9; $n=86$ with CL; $n=265$ without CL). On day 0, cows from MGA and MGA+ECP treatments received calf removal and cows from the three treatment groups were allocated with sires (1/15 proportion) for natural service during 10 days. Data were analyzed by logistic regression, and when effect of treatment was detected, means were compared by orthogonal contrasts (C1: "MGA" vs. "MGA+ECP"; C2: "Control" vs. "MGA" + "MGA+ECP"). Treatments affected PR in cows without CL (Control: 12.6%; MGA: 36.3%; MGA+ECP: 38.5%; C1: $P > 0.1$; C2: $P < 0.001$). In cows with CL, treatments affected PR (Control: 40.3%; MGA: 36.6%; MGA+ECP: 54.6%; C1: $P < 0.05$; C2: $P > 0.1$). Beneficial effect of ECP in cows with CL could be due to prevention of development of persistent dominant follicle. Regardless of treatment, body condition score (BCS) affected PR in cows without CL ($P < 0.0001$) but not in cows with CL, indicating that the effect of BCS is mainly in resuming of cyclicity than in conception. In conclusion, in cows without CL, treatment with MGA (associated or not with ECP) increased amount of cows pregnant in a 10 days BS; in cows with CL, treatment with MGA should be associated with ECP for better PR.

Key Words: MGA, ECP, Natural Service

T251 Fixed-time artificial insemination in replacement beef heifers after treatment with human chorionic gonadotropin (hCG), progesterone, and prostaglandin F_{2α}. G. C. Lamb¹, J. E. Larson*¹, C. R. Dahlen², and G. Marquezini¹, ¹North Central Research and Outreach Center, University of Minnesota, Grand Rapids, ²Northwest Research and Outreach Center, Crookston, MN.

We determined whether pre-treatment with human chorionic gonadotropin (hCG) 14 d prior to estrous synchronization or replacing GnRH with hCG at the time of CIDR insertion would alter pregnancy rates in replacement beef heifers estrous synchronized with the CO-Synch + CIDR protocol. Five hundred forty seven replacement beef heifers were assigned randomly to one of four treatments in a 2 × 2 factorial design: 1) heifers received a 100 µg injection of GnRH at CIDR insertion (d -7) and a 25 mg injection of PGF_{2α} at CIDR removal (d 0), followed in 54 h by fixed-time AI (TAI) with a second injection of GnRH (CG; $n=160$); 2) CG but the first injection of GnRH was replaced with a 1,000 IU injection of hCG (CH; $n=158$); 3) CG, plus heifers received a 1,000 IU injection of hCG 14 d prior to CIDR insertion (HG; $n=116$); and 4) CH, plus heifers received a 1,000 IU injection of hCG 14 d prior to CIDR insertion (HH; $n=113$). Blood samples were collected on d -24, -14, -7, 0, and 2 to determine concentrations of progesterone. Transrectal ultrasonography was used to monitor ovarian structures on d -7 and 0, plus pregnancy status on d 35. Between pre-treatment factors of control or hCG pregnancy rates were similar, whereas for the factor of GnRH or hCG at CIDR insertion pregnancy rates for the GnRH treated heifers (41%) was greater ($P < 0.05$) than hCG treated heifers (29%). Heifers treated with hCG at CIDR insertion had an increased ($P < 0.05$) occurrence of multiple corpora lutea compared to those receiving GnRH at the time of CIDR removal (38.3% vs. 24.0%, respectively) and had increased concentrations of progesterone at the time of CIDR removal (2.68 ng/ml vs 2.10 ng/ml; $P < 0.05$) and at TAI (0.56 ng/ml vs. 0.39 ng/ml; $P < 0.05$). We concluded that presynchronization with hCG 14 d prior

to CIDR insertion failed to enhance pregnancy rates and replacing GnRH at CIDR insertion with hCG resulted in decreased pregnancy rates. However, hCG enhanced the incidence of multiple ovulations and concentrations of progesterone at CIDR removal and at TAI.

Key Words: Human Chorionic Gonadotropin, Estrous Synchronization, Beef Heifers

T252 Artificial insemination of superovulated Angus cows using sexed or conventionally frozen semen. G. C. Lamb^{*1}, B. J. Lovaas¹, S. L. Bird¹, A. Martins¹, J. E. Larson¹, J. C. Rodgers¹, D. J. Frank², and D. M. Williams², ¹North Central Research and Outreach Center, University of Minnesota, Grand Rapids, ²ABS Global, Inc., DeForest, WI.

We determined whether embryo production characteristics would be compromised in a superstimulation protocol when sexed semen was utilized for insemination of donors. Thirty two, Angus cows from a single herd were stratified by age and body condition score before random assignment to a switch-back experimental design: 1) cows received four inseminations of conventionally frozen semen at a minimum concentration of 15×10^6 sperm/straw (Conventional; n = 32); and 2) cows received four inseminations of sexed semen at a minimum concentration of 2.1×10^6 sperm/straw (Sexed; n = 32). Cows were blocked by two separate AI sires. During period 1, 10 d after estrus, eight 2x daily injections of FSH were administered to the cows, with cows receiving PGF at the time of the seventh injection of FSH. Cows were inseminated 1x at the time of first detected estrus, 2x 12 h after onset of estrus, and 1x 24 h after onset of estrus. Embryos were collected 7 d after first detected estrus and all embryos were assigned a developmental stage and quality grade. After a 30 d adaptation interval, period 2 was initiated and cows were resynchronized and superovulated using the same protocol as for period 1. The total ova per flush was similar between Conventional (11.7 ± 1.8) and Sexed treatments (12.0 ± 1.6), but the number of transferable embryos was greater ($P < 0.01$) for Conventional (6.5 ± 1.0) than Sexed (4.5 ± 0.9) treatments. In contrast, the mean number of unfertilized ova were greater ($P < 0.05$) for Sexed (6.3 ± 1.0) than Conventional (3.1 ± 1.2) treated cows. The number of degenerate, Grade 2, and Grade 3 embryos were similar among treatments. There were no differences between Bull 1 (44.4%) and Bull 2 (46.7%) in the percentage of transferable embryos recovered. However, fertilization rates and the percentage of transferable embryos were affected ($P < 0.05$) by period and donor. We concluded that insemination of superstimulated donor cows with sexed semen will result in lower transferable embryos and an increase in unfertilized ova than those cows inseminated with conventionally frozen semen.

Key Words: Superovulation, Sexed Semen, Artificial Insemination

T253 Effect of length of treatment with melengestrol acetate (7 vs. 13 days) prior to induction of ovulation on occurrence of short cycle in anestrous Nellore cows. O. G. Sa Filho^{*1}, R. L. Valarelli², and J. L. M. Vasconcelos¹, ¹FMVZ - UNESP, Botucatu, Brazil, ²Pfizer Animal Health, Brazil.

The aim of this trial was to evaluate if treatments with 1.5 mg/day of melengestrol acetate (MGA; MGA Premix[®], Pfizer Animal Health,

Brazil) during 7 or 13 days prior to induction of ovulation are effective to prevent premature luteolysis in anestrous Nellore cows. Fifty three post-partum anestrous multiparous Nellore cows (evaluated by two ultrasound exams 9 days apart) were randomly assigned to receive one of three treatments: Control (no addition of MGA on mineral; n = 15), MGA-7 (addition of MGA on mineral between days -10 and -3; n=18) or MGA-13 (addition of MGA on mineral between days -16 and -3; n = 20). Ovulation was induced with 48 h calf removal (between days -2 and 0) followed by 100 mcg i.m. GnRH (Fertagyl[®], Intervet, Brazil) injection on day 0. Ovarian ultrasound exams were performed to measure size of ovulatory follicle (day 0) and to evaluate ovulation (days 0 and 2). Cows that did not ovulate were excluded from the trial (n = 13). On day 9, ultrasound exam was conducted aiming to determine presence and size of CL, and blood samples were collected for serum progesterone analysis by RIA. Cows were considered having short cycle when luteal tissue was absent and/or serum progesterone was < 0.5 ng/mL. Binomially distributed data and continuous data were analyzed by PROC LOGISTIC and PROC GLM of SAS, respectively. Treatments did not affect ovulation rate (Control: 86.7%; MGA-7: 72.2%; MGA-13: 75.0%; $P > 0.1$), but affected size of ovulatory follicle (Control: 9.8 ± 0.4 mm; MGA-7: 10.6 ± 0.4 mm; MGA-13: 11.9 ± 0.4 mm; $P < 0.01$) and percentage of short cycle (Control: 76.9%; MGA-7: 38.5%; MGA-13: 0.0%; $P < 0.001$). In conclusion, feeding anestrous cows with 1.5mg/day of MGA during 13 days decreased percentage of cows with premature luteolysis following the first postpartum ovulation.

Key Words: Melengestrol Acetate, Anestrous Cows, Short Cycle

T254 Effect of length of exposure to exogenous progesterone (3 vs. 6 days) prior to induction of ovulation on premature luteolysis in anestrous Nellore cows. O. G. Sa Filho^{*}, C. R. Zilioni, and J. L. M. Vasconcelos, FMVZ - UNESP, Botucatu, Brazil.

The objective of this trial was to evaluate if 3 days pre-treatment with exogenous P₄ has the same efficiency than 6 days pre-treatment on prevention of short cycles. Anestrous Nellore cows (evaluated by 2 ultrasound exams 8 days apart; n=109) were randomly divided in two experimental groups: 3d Group - Intravaginal P₄ device (CIDR[®], Pfizer Animal Health, Brazil) by 3 days followed by calf removal (CR; 48 hours); Control Group: Intravaginal P₄ device by 6 days followed by CR. At end of CR (day 0), all cows received 100mcg GnRH i.m. injection GnRH (Fertagyl[®], Intervet, Brazil). Ovulation was evaluated by two ultrasound exams on days 0 and 2 and only cows which ovulate were used for the study (Control: n=36; Group 3d: n=18). Blood samples were collected on days 0, 5, 7 and 9 for corpus luteum lifespan evaluation by serum P₄ dosage (RIA). Ovulation rate and percentage of short cycles were analyzed by logistic regression and serum P₄ concentrations were analyzed by PROC MIXED of SAS. Ovulation rate was lower ($P < 0.001$) on 3d Group (33.3%, 18/54) than Control (65.4%, 36/55). The frequency of short cycles did not differ among both groups (5.5% vs. 5.5%, $P > 0.10$), as well as serum P₄ concentrations on days 0, 5, 7 and 9 (0.3 ± 0.5 vs. 0.3 ± 0.4 ; 1.8 ± 0.5 vs. 2.1 ± 0.4 ; 2.8 ± 0.5 vs. 2.9 ± 0.4 ; 3.4 ± 0.5 vs. 3.6 ± 0.4 ng/mL respectively; $P > 0.10$). For both treatments, serum P₄ increased between days 0, 5, 7 and 9 ($P < 0.001$), indicating normal development of CL during this period. We concluded that 3 days treatment with P₄ prior to induction of ovulation in anestrous cows warranted normal luteal lifespan.

Key Words: Progesterone, Anestrous Cows, Short Cycle

T255 Ovarian and hormonal responses to a progesterone releasing intravaginal device (PRID) treatment in the presence or absence of estradiol from the early luteal phase in heifers.

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Some studies have reported that the timing of a progesterone device treatment in the estrous cycle influences the efficacy of estrus synchronization. The aim of this study was to investigate ovarian and hormonal profiles in heifers treated with a PRID with or without 10mg of estradiol benzoate (E) from the early luteal phase. Cycling Holstein heifers were assigned randomly to five groups and received PRID with E (PE0; n=6) or without E (P0; n=5) on Day 0 (= ovulation), or PRID with E (PE2; n=6) or without E (P2; n=6) on Day 2, for 12 days. The control group received a placebo device from Day 0 to Day 14 (Cont; n=5). Ultrasonographic images of the ovary and blood samples were collected throughout the experiment. The proportions of heifers with detected estrus within three days after PRID removal in the PE0, P0, PE2, P2, and Cont groups were 3/6, 2/5, 3/6, 2/6, and 0/5, respectively. There was no significant difference in the mean plasma concentrations of progesterone among the five groups during the period of PRID treatment except for a few days after PRID insertion. The mean area of corpus luteum (CL) in four PRID treated groups was significantly smaller than that in the Cont group ($p < 0.05$). CL regression started on Days 10.6 ± 4.4 , 10.8 ± 5.4 , 14.3 ± 0.5 , 13.8 ± 5.6 and 16.8 ± 0.8 in the PE0, P0, PE2, P2 and Cont groups, respectively, and there was a significant difference between PE0 and PE2 ($p < 0.05$). In the most heifers that did not exhibit the estrus within three days, no developing dominant follicle was observed at PRID removal. These data suggest that earlier treatment of PRID with E after ovulation advances the regression of CL during the early luteal phase; however, the effective rate for estrus synchronization was around 50 % in all groups. The mechanism for the failure of estrus synchronization seems to be correlated to the absence of growing follicle at the time of PRID removal rather than the regression of CL in the case of PRID treatment from the early luteal phase.

Key Words: Estrus Synchronization, Early Luteal Phase, PRID

T256 A stochastic model to compare breeding system costs for synchronization of estrus and AI to natural service. S.K. Johnson* and R.D. Jones, *Kansas State University, Manhattan.*

A partial budget approach was used to stochastically model costs of several systems for synchronization of estrus and AI plus clean-up natural service compared to natural service only breeding systems and to identify the most important factors in determining the differences in the expected economic returns between breeding systems. Three herd sizes, 3 cow to bull ratios and 7 systems for synchronization of estrus were examined, for a total of 63 simulation models. Each model estimated the expected distribution of costs associated with one synchronization system and compared it to the natural service option. Stochastic variables in the model included bull purchase price, percent calf crop, calf price, AI conception rate, cull bull value, cull bull weight, genetic value premium of AI-sired calf, heat detection rate, season pregnancy rate, semen cost, and synchronized calf weight advantage. Cost per pregnancy for breeding systems that included both AI and natural service ranged from \$46 to \$95. Natural service tended to be a lower cost breeding system at higher cow to bull ratios whereas AI systems were more cost effective at lower cow to bull

ratios. Overall, the combination heat detection and clean-up fixed-time AI synchronization systems were economically preferred to natural service 33% of the time, with this value increasing to 41% for synchronization systems using strict fixed-time AI, and 49% for heat detection only systems. Heat detection only systems in large herds using low cow to bull ratios demonstrated a net economic advantage relative to natural service 85% of the time. Genetic value premiums and semen cost were consistently included in the top 3 factors that determined expected economic differences between natural service and AI systems across herd sizes and cow to bull ratios. Variability in bull purchase price was the most important factor when the cow to bull ratio was low. Estrus synchronization and AI were economically advantageous when a sufficient genetic value premium could be obtained from AI-sired calves.

Key Words: Estrus Synchronization, AI, Breeding Costs

T257 Different estrus synchronization protocols in sheep. B. R. Avila¹, M. T. Sánchez¹, E. O. García*², O. D. Montañez-Valdez³, P. M. Molina¹, J. G. Peralta¹, M. E. Ortega¹, and J. L. Cordero¹, ¹*Colegio de Postgraduados, Montecillo, Estado de México, México*, ²*Centro Universitario de la Costa Sur de la Universidad de Guadalajara, Aútlan, Jalisco, México*, ³*Centro Universitario del Sur de la Universidad de Guadalajara, Ciudad Guzmán, Jalisco, México.*

The objective of the present experiment was to evaluate different protocols for estrus synchronization in ewes. It was performed in a sheep farm located in the property "El Tilzapote", which is located north of the city of Aútlán de Navarro, Jalisco, México. Forty adult female crossbreed Katahdin and Pelibuey with over 2 deliveries were used, which were randomly assigned to four treatments of ten ewes each. In treatment A, two dosages of 1 ml of synthetic PGF_{2α} (d-cloprostenol 0.075 mg/ml) were administered on days -22 and -13, and on day -11 a Chronogest intravaginal sponge containing 40 mg fluorgestone acetate (FGA) was inserted, on day 0 sponges were removed and 1 ml intramuscular PGF_{2α} was administered. Treatment B was similar to treatment A but sponges remained for 5 days. In treatment C, two dosages 1 ml PGF_{2α} were administered on day PGFs -24 and -15, on day -7, 50 µg (0.5 ml) of a synthetic GnRH was administered, and on day 0, 1 ml PGF_{2α}. In treatment D, three applications of 1 ml PGF_{2α} were given, with 9 day intervals on days -18, -9 and 0. Estrus detection was performed 24 hours after the removal of the intravaginal sponge and the last dosage of PGF_{2α}, ewes were observed during 1 h every 4 h, for a period of 4 days. Percentages of onset of estrus and gestation were analyzed with χ^2 , and onset and duration of estrus with GLM procedure of SAS. The percentage of females detected in estrus were 100, 100, 90 and 80 % for treatments A, B, C, and D, respectively ($P > 0.05$); the time to onset of estrus was at 42.8 ± 6.81 , 55.20 ± 15.17 , 43.55 ± 3.71 and 40 ± 8.28 h for treatments A, B, C, and D, respectively ($P < 0.05$); the duration of estrus was 36.754 , 28.4 ± 3.97 , 35.1 ± 5.20 and 42.5 ± 13.68 h for treatments A, B, C, and D respectively ($P < 0.05$); the percentage of gestation was of 60 % for treatment A, and 90 % for treatments B, C, and D ($P < 0.05$). The estrus cycle of ewes can be synchronized with intravaginal sponges of FGA for 5 days, as well as with GnRH and prostaglandin with similar results of the traditional use of the sponge for 11 days.

Key Words: Estrus, Synchronization, Sheep

T258 Treatment with bST during progestin synchronization increases the blastocyst rate in ewes. A. Montero, J. Hernández, J. Valencia, C. G. Gutiérrez, S. Rojas, and J. Hernández-Cerón*, *Facultad de Medicina Veterinaria y Zootecnia. Universidad Nacional Autónoma de México., Mexico.*

Treatment with bST during synchronization increased prolificacy in sheep. Here, we tested whether a single dose of bST 5 days before the end of progestin treatment improves fertilization and embryo development. Thirty-two ewes were synchronized with progestin and superovulated with FSH. Five days before the end of progestin treatment half of the ewes were injected with 125mg bST (n=16; Lactotropina®, Elanco) or saline solution (control; n=16). Estrus was detected every 2h and estrous sheep were served every 8 h whilst in estrus. Embryos were recovered on day 7 of the cycle. Embryos were assessed microscopically and fixed in 4% paraformaldehyde. Cell numbers in blastocysts were counted after Hoechst staining. In addition, blood samples were collected from 8 sheep per group, starting the day of bST treatment and ending on the day of embryo recovery to determine plasma concentration of IGF-I, insulin and progesterone. The proportions of cleaved and transferable embryos in the morula and blastocyst stage were compared between groups by logistic regression. Cell number, IGF-I, insulin and progesterone plasma concentrations was analyzed by ANOVA. Cleavage rate was greater (P<0.01) in the bST (86) than in the control group (62) whilst transferable embryos did not change (P>0.83; bST=88.5 vs control=87.5). However, the proportion of embryo reaching the blastocyst stage (bST =77.6 vs. control =48.5) and the number of cells in the blastocyst (bST =88.9±3.7 vs. control =76.1±3.7) were greater (P<0.01) in bST treated sheep. Plasma concentrations of IGF-I and insulin were higher (P<0.01) in bST treated sheep. No changes were observed in progesterone concentrations (P>0.49). It is concluded that bST treatment is associated with increased IGF-I and insulin concentrations and that treatment during the period of follicular development, fertilization and early embryo development increases cleavage rate and blastocyst development in sheep.

Key Words: bST, Blastocyst, Sheep

T259 Effect of estradiol-17β supplementation at the last GnRH of the Ovsynch protocol in lactating dairy cows. A. P. Cunha*, J. N. Guenther, E. P. B. Silva, J. B. C. Heijink, and M. C. Wiltbank, *University of Wisconsin, Madison.*

The aim of this study was to evaluate whether estradiol supplementation at the last GnRH of the Ovsynch protocol would affect ovulation rate, uterine tone score, and pregnancies/AI (P/AI) in a TAI protocol for lactating dairy cows. Holstein cows (n=391) were assigned to two groups in a CRD design. Control cows were presynchronized (GnRH-7d-PGF2α-3d-GnRH) and 7d later began Ovsynch (GnRH-7d-PGF2α-52h-GnRH-18h-TAI). Treated cows received the same TAI protocol plus 0.5 mg of estradiol-17β (E2) at the second GnRH of Ovsynch. Ovarian ultrasound and uterine palpation were performed in order to assess ovulation, ovulatory follicle size, pregnancy diagnosis and uterine tone score. Ovulation rate differed between 1st and later services (P<0.05) but did not differ between E2-treated vs control cows at 1st service (91.4%, n=81 vs. 90.7%, n=75) and second or later services (76.6%, n=77 vs. 75.3%, n=81). Average ovulatory follicle size was not different between E2-treated and control (14.9 mm vs. 15.1 mm; P>0.10). There was an interaction

between season and ovulatory follicle size. Cows ovulated smaller follicles during Aug-Sep when compared with Oct-Jan (average amb. temp.: Aug-Sep=61F; Oct-Jan=36F). E2-treated cows had higher uterine tone scores at TAI than control cows (2.53, n=113 vs. 2.35, n=119; P<0.05). Overall P/AI and pregnancy loss did not differ (P>0.10) between E2 and control; however, parity (P=0.04) and number of service (P=0.03) did have an effect on P/AI. Primiparous E2-treated cows had higher P/AI than multiparous E2-treated cows (53.1% vs 35.5%; P=0.03), and also tended to have better P/AI than primiparous (40.0%, P=0.07) and multiparous control (42.7%, P=0.10) cows. 1st service E2 cows had higher P/AI than later services, but there was no difference between 1st service E2 and 1st service control cows. In conclusion, E2 increased uterine tone, but did not have an overall effect on P/AI. Nevertheless, E2 supplementation at the last GnRH of Ovsynch may increase P/AI in primiparous cows at the first service postpartum.

Key Words: Estradiol, Uterine Tone, Dairy Cow

T260 Effect of GnRH after TAI on subsequent Resynch fertility. A. P. Cunha*, J. A. Powell, J. N. Guenther, E. P. B. Silva, and M. C. Wiltbank, *University of Wisconsin, Madison.*

Two experiments were performed to evaluate if GnRH treatment 15–16d after TAI increased pregnancies/AI (P/AI) during the subsequent Ovsynch-TAI in high producing dairy cows. In experiment 1, cows (n=368) were presynchronized (GnRH-7d-PGF-3d-GnRH) and 7d later began Ovsynch (GnRH-7d-PGF-52h-GnRH-18h-TAI). Cows were then assigned randomly but at a 2:1 distribution to one of two groups: 1) G-16 – received GnRH (100µg) 16d after last GnRH of Ovsynch; 2) control – no treatment. Ovarian ultrasound was used to assess ovulation and for pregnancy diagnosis. Macro GLIMMIX of SAS was used for statistical analyses. Ovulation to G-16 differed between open and pregnant cows (43.5% vs 22.4%; P<0.01; n=209). Ovulation to GnRH on day 26 (1st GnRH of Resynch) was higher for G-16 cows that ovulated to G-16 than those that did not (52.4% vs 34.7%; P=0.02; n=161), but there was no difference between G-16 and controls (44.1%, n=93). There was no effect of G-16 on P/AI to previous TAI (40.0% vs. 40.7%; n=368). However, cows that received G-16 had numerically higher P/AI at the subsequent TAI (33.0% vs 26.4%; P>0.10; n=144). In experiment 2, 781 lactating Holstein cows underwent Presynch (PGF-14d-PGF) and 14 days later began Ovsynch (GnRH-7d-PGF-48h-GnRH-16h-TAI). At 15d after last GnRH of Ovsynch cows were assigned to one of two groups: 1) G-15 – received GnRH 15d after last GnRH of Ovsynch; 2) control – no treatment. Cows in G-15 had similar P/AI as Control cows at previous AI (36.3% vs. 33.9%; n=781) but higher P/AI at subsequent AI (38.8% vs 23.7%; P=0.01; n=278). Parity (P<0.05) had an effect on P/AI at subsequent AI with G-15 higher than control in primiparous cows (47.9%, n=48 vs 27.8%, n=36; P=0.05) or multiparous cows in G-15 (31%, n=87; P=0.05) or control (22.2%, n=90; P<0.01). In conclusion, GnRH treatment at 15–16d after TAI increased P/AI at subsequent TAI in lactating dairy cows. The positive effect of post-breeding GnRH on subsequent TAI may depend on ovulation to the GnRH and may possibly improve synchrony for the subsequent Resynch protocol.

Key Words: GnRH, Pregnancy, Dairy Cows

T261 Human chorionic gonadotropin (hCG) and GnRH influences pregnancy survival and resynchronized ovulation before timed AI in Holstein cattle. B. S. Buttrey*, M. G. Burns, and J. S. Stevenson, *Kansas State University, Manhattan.*

Treatment with hCG at 4 to 9 d after AI induced ovulation, increased number of corpus luteum (CL), size of the original CL, and increased serum P4 concentrations in lactating dairy cows (JDS 90:331-340; 2007). We hypothesized that replacing the first injection of GnRH (d -7) with hCG or saline in a Resynch-Ovynch protocol would alter pregnancy rates in cows subsequently diagnosed not pregnant (d 0; Exp. 1) and pregnancy survival in cows subsequently diagnosed pregnant (d 0; Exp. 2). Cows in 4 herds were assigned randomly based on lactation number, number of previous AI, and last test-day milk yield to treatments of 1,000 IU of hCG (Chorulon), 100 µg of GnRH (Fertagyl), or saline 7 d before pregnancy diagnosis. In Exp. 1, cows found not pregnant were given PGF2α (Prostamate; d 0), then inseminated 72 h later, concurrent with a GnRH injection (3 herds) or given GnRH 16 to 24 h before AI at 72 h (1 herd). Pregnancy rates were or tended to be reduced by saline (13.1%; n = 510) compared with GnRH (18%; n = 694; $P < 0.02$) or hCG (16.9%; n = 544; $P = 0.08$). In Exp. 2, among pregnant cows treated, pregnancy survival 4 to 9 wk after initial pregnancy diagnosis differed among herds ($P < 0.001$), but a treatment x herd interaction ($P < 0.01$) also was detected (see table). Ovarian structures were monitored in herd 1 by using transrectal ultrasonography 0 and 7 d after treatment with hCG, GnRH, or saline (Exp. 3). Incidence of a new CL was reduced ($P < 0.05$) in pregnant cows 7 d after treatment. A treatment x pregnancy status interaction ($P < 0.05$) was detected. Incidences of ovulation in open cows were: hCG (52.6%; n = 97), GnRH (47.8%; n = 92), and saline (27%; n = 89), whereas those in pregnant cows were: hCG (56.3%; n = 48), GnRH (25%; n = 48) and saline (7.1%; n = 56). Initiating a Resynch-Ovynch protocol 7 d before pregnancy diagnosis with saline reduced timed AI pregnancy rates (Exp. 1). In pregnant cows treated with GnRH, pregnancy survival was slightly reduced in 2 of 4 herds (Exp. 2). Incidence of new CL was greater after hCG than GnRH in pregnant cows, but not in nonpregnant cows (Exp. 3).

Table 1. Pregnancy survival in dairy cows (Exp. 2)

	Herd 1	Herd 2	Herd 3	Herd 4	Treatment Σ
Days since AI ¹	23-36	31-37	30-36	32-38	
Treatment*	% (no.)	% (no.)	% (no.)	% (no.)	% (no.)
hCG	95.6 (37)	99.1 (106)	86.4 (103)	94.2 (173)	93.6 (419)
GnRH	76.3 (38)	100 (95)	93.3 (105)	92.6 (175)	93.0 (413)
Saline	84.4 (45)	100 (106)	93.9 (99)	96.1 (153)	95.3 (403)
Herd Σ	85.0 (120)	99.7 (307)	91.2 (307)	94.2 (501)	

*Treatment x herd ($P < 0.05$). ¹Days since AI at treatment with hCG, GnRH, or saline (7 d before pregnancy diagnosis).

Key Words: hCG, GnRH, Ovulation Synchronization

T262 Logistic regression analysis for relationship between the timing of the resumption of normal ovarian cycles and metabolic status in postpartum dairy cows. C. Kawashima*, M. Matsui, E. Kaneko, C. Amaya Montoya, T. Shimizu, N. Matsunaga, K. Kida, Y-I. Miyake, and A. Miyamoto, *Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido, Japan.*

The duration and severity of negative energy status after parturition are correlated with the interval to resumption of ovarian activity in dairy cows. The aim of our study was to examine the weekly relationship between the timing of the resumption of normal ovarian cycles (NOV) and the metabolic status in postpartum (pp) dairy cows. Blood samples were obtained from 26 multiparous Holstein cows from wk 1 (0 to 6 d after parturition) to wk 10 pp, and measured metabolites (glucose; non-esterified fatty acid, NEFA; total cholesterol; aspartate aminotransferase, AST; γ-glutamyl transpeptidase, γ-GTP), metabolic hormones (growth hormone; insulin-like growth factor-I; insulin) and progesterone concentrations. When the progesterone concentrations in plasma increased to more than 1 ng/ml for 7 to 21 d, the cows was confirmed as having NOV. Cows having the resumption of NOV by wk 3, wk 4 and so on were compared with the remaining cows using logistic regression analysis to identify the independent variables that were effective for predicting the resumption of NOV. The number of cows showing the resumption of NOV by each wk pp was 5 by wk 3, 9 by wk 4, 12 by wk 5, 15 by wk 6, 17 by wk 7, 19 by wk 8 and 22 by wk 9 pp. The analysis showed that the higher probability of the resumption of NOV by wk 3 pp was associated with higher plasma insulin concentrations from wk 1 to wk 3 pp ($P < 0.05$). On the other hand, the higher probability of a later (after wk 9 pp) resumption of NOV was associated with higher concentrations of NEFA, AST and γ-GTP ($P < 0.05$) in the early pp period. In conclusion, our data suggest that metabolic status in the early pp period influences the timing of the resumption of NOV, in which higher energy status by wk 3 pp has a real-time beneficial effect on early NOV and greater mobilization of body fat stores plus declining of hepatic function in the early pp period has a longer-time inhibitory effect and leads to delayed NOV.

Key Words: Dairy Cow, Metabolic Status, Resumption of Normal Ovarian Cycle

T263 Does synchronization protocol affect conception in lactating dairy cows? J. L. M. Vasconcelos*¹, R. M. Santos², B. L. Cardoso¹, F. M. Abreu¹, L. H. Cruppe¹, and S. Soriano³, ¹FMVZ-UNESP, Botucatu, SP, Brazil, ²UFU, Uberlandia, MG, Brazil, ³Faz Colorado, Araras, SP, Brazil.

The objective of this study was to evaluate ovulation, conception and conception of ovulated cows to AI or TAI (Heatsynch+CIDR) protocol, in primiparous and multiparous lactating dairy cows. Lactating Holstein cows, 239 primiparous (36.1±7.2 kg milk/d and 183±139 DIM) and 278 multiparous (39.8±10.7 kg milk/d and 177±139 DIM), from June to August 2006, were randomly assigned to receive one of 2 treatment; AI: cows artificial inseminated 12 h after estrous detection or TAI: cows received HEATSYNCH+CIDR protocol [CIDR insertion (CIDR®1.9mg Pfizer Animal Health) + GnRH (1mL Fertagyl®Intervet) - 7 days - CIDR removed + PGF2α (5mL Lutalyse®Pfizer Animal Health) - 24h - Estradiol Cypionate (0.5mL ECP®Pfizer Animal Health)]. Cows detected in estrus were inseminated 12 h later and the remaining were TAI 48 h after the ECP injection. Presence of CL at day seven (ovulation rate) and pregnancy 28 days after AI were evaluated by ultrasonography (Aloka 500; 7.5 MHz linear transrectal probe). The variables: ovulation, conception and conception of ovulated cows were analyzed by the logistic model to evaluate the influence of the covariates (DIM, milk yield, and treatment) on the probability of success for primiparous and multiparous cows. In the primiparous cows, the ovulation, conception and conception of ovulated cows were 92.2; 30.4 and 33.0% for AI group (n=115) and 93.6; 35.5 and 37.9%

for TAI group (n=124). DIM did not affect the ovulation rate but increasing DIM decreased (P=0.028) the conception and conception of ovulated cows. In the multiparous cows, the ovulation, conception and conception of ovulated cows were 85.8; 16.9 and 19.7% for AI group (n=155) and 86.2; 25.2 and 29.3% for TAI group (n=123). Increasing DIM have tendency (P=0.1) to decrease the ovulation rate. TAI cows had tendency (P<0.1) to have higher conception and conception of ovulated cows than cows that were bred after heat detection. These results shows that TAI (Heatsynch+CIDR) protocol could increase conception in multiparous lactating dairy cows.

Key Words: Synchronization, Conception, Dairy Cows

T264 Effect of physiological status on the concentrations of progesterone maintained by CIDRs in Holstein cattle. K. T. Wolf*, A. K. Sanders, D. L. Ray, and W. J. Silvia, *University of Kentucky, Lexington.*

The concentrations of progesterone (P) maintained by EAZI-BREED CIDR® Cattle Inserts (Pfizer, New York, NY) were examined in nonpregnant Holstein cattle of three different physiological states: lactating cows (LACT, AVE DIM 112, AVE milk production 42 kg/day), nonlactating cows (DRY) and breeding age heifers (HEIF). Ovaries were scanned ultrasonographically to confirm the presence of a mature corpus luteum. CIDRs were inserted into each animal on the day of CL detection (expt day 0) and removed after 7 days. Each animal received two injections of prostaglandin F2 α (Lutalyse® Sterile Solution, Pfizer, 25 mg each, i.m.), the first on the morning of day 1, the second 12 h later, to induce luteolysis. In replicate 1 (LACT n = 6; DRY n = 4; HEIF n = 5), coccygeal blood samples were collected twice daily from day 0 to 9 to quantify P. The concentration of P maintained by the CIDR (CIDR-P) was defined as the mean concentration in samples collected from the AM of day 3 (after luteolysis was complete) through the AM of day 7 (when CIDRs were removed). Milk production was recorded at each milking on days 0 to 9. Body weights were recorded on days 0 and 9. Replicate 2 (LACT n = 9; DRY n = 6; HEIF n = 4) was conducted as Replicate 1 except that blood samples were collected daily from the jugular vein and daily feed intakes were recorded. The effect of physiological state on CIDR-P was determined by ANOVA with replicate and body weight included as covariates. There was an effect of body weight (p < 0.01) and physiological state (p < 0.01) on CIDR-P. CIDR-Ps were 2.6 \pm 0.3 (mean \pm sem), 2.0 \pm 0.2 and 1.5 \pm 0.1 ng/ml in HEIF, DRY and LACT groups respectively (groups different; p < 0.05). Within the LACT group, the relationships between CIDR-P and milk production or CIDR-P and daily feed intake were small (R-square = 0.09 and 0.14, respectively). Differences in CIDR-P are most likely due to differences in clearance rates. Over the ranges examined in this study, differences in CIDR-P among LACT cows could not be explained by differences in the level of milk production or feed intake.

Supported by the KY Agr. Expt. Stn. and Pfizer.

Key Words: Dairy Cattle, Progesterone, Lactation

T265 Effect of flunixin meglumine at days 15 and 16 after TAI on pregnancy rates in lactating Holstein cows. L. F. M. Pfeifer¹, J. L.

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Administration of flunixin meglumine to heifers following insemination increased pregnancy rate (PR; Guzeloglu et al., 2006). The objective was to determine if two injections of flunixin meglumine (FM) at days 15.5 and 16.0 to lactating Holstein cows following timed AI would increase PR. The hypothesis is that administration of FM at a critical anti-luteolytic stage of conceptus development will increase PR. The trial was conducted in Brazil from June to September 2006. Lactating Holstein dairy cows (n=87; 30.3 \pm 10.2 kg milk/d and 181 \pm 152 DIM) were synchronized with one 3 mg norgestomet ear-implant (Crestar®, Intervet) and a 2 mg injection of estradiol benzoate i.m. (EB, Index) given on random days of the estrous cycle. Seven days later 0.53 mg i.m. of sodium cloprostenol, (PGF2 α ; Ciosin®, Schering-Plough) was injected, and the implant removed on day 9. Two days later, a 100 μ g i.m. of gonadorelin (Fertagyl®, Intervet) was given followed by TAI 12 h later. Cows randomly assigned to the treatment group (n=46) were injected twice with FM (1.1 mg/kg BW; i.m., Banamine®, Schering-Plough) given 12 h apart on the evening of Day 15 and the morning of Day 16. The control group (n = 41) was not treated. PR were the percentage of cows diagnosed pregnant by ultrasonography (Aloka 500, probe 7.5 MHz) at Days 30 and 60 after TAI. Effects of treatment on PR were analyzed by chi-square test. PR in the cows treated with FM were higher at Days 30 and 60 (37 and 37% vs. 17 and 15 %; P<0.05). In lactating dairy cows the beneficial effect of administering two injections of FM at days 15.5 and 16.0 after a timed AI on PR is due likely to its antiluteolytic effect that attenuates the secretion of PGF2 α in a manner that is additive to the antiluteolytic effect of the conceptus. Strategies to optimize the dialogue between conceptus and maternal unit leading to maintenance of the CL warrant further investigation.

Key Words: Pregnancy, Flunixin Meglumine, Lactating Cows

T266 Effect of GnRH administered four days after synchronization of ovulation and timed AI on fertility of anovular lactating dairy cows. R. A. Sterry*¹, E. Silva¹, D. Kolb², and P. M. Fricke¹, ¹University of Wisconsin-Madison, ²Lodi Veterinary Clinic, Lodi, WI.

In a previous study (Sterry et al., 2006; JDS 89:4237), treatment with GnRH 5 d after first postpartum TAI increased fertility for anovular but not cycling cows. To further assess this effect, lactating Holstein cows (n=1047) were submitted for first postpartum timed AI (TAI) using a Presynch + Ovsynch protocol, and cows were classified as anovular (n=156) vs. cycling (n=891) using transrectal ultrasonography based on the presence or absence of a corpus luteum (CL) at the first GnRH injection of Presynch + Ovsynch. Anovular cows were randomly assigned to receive either no further treatment (Control, n = 85), or 100 μ g GnRH 4 d after TAI (G4; n = 71). Ovarian structures were examined using transrectal ultrasonography and blood samples were collected to assess serum progesterone (P₄) at the first GnRH and PGF_{2 α} injections of Ovsynch and 4 and 11 d after TAI. For G4 cows, 51% responded by ovulating a follicle in response to GnRH treatment 4 d after TAI; however, pregnancies per AI (P/AI) did not differ (P = 0.24) between G4 cows that ovulated (36%) compared to G4 cows that did not (21%). In addition, control and G4 cows in which an ovulation

was synchronized after Presynch + Ovsynch had similar ($P = 0.39$) serum P_4 concentrations 11 d after TAI (4.9 vs. 5.3 ng/mL), whereas G4 cows failing to ovulate to GnRH treatment 4 d after TAI had lower ($P = 0.06$) P_4 (3.9 ng/mL) than control cows and G4 cows that ovulated. Overall, P/AI did not differ ($P = 0.89$) between control (30%) and G4 (30%) cows. There was a quadratic effect of P_4 at the $PGF_{2\alpha}$ injection of Ovsynch on P/AI, and cows with $P_4 \geq 1.0$ ng/mL at the $PGF_{2\alpha}$ injection of Ovsynch had greater ($P < 0.01$) P/AI (41%) than cows with $P_4 < 1.0$ ng/mL (12%); however, no treatment difference ($P = 0.76$) was detected. Although treatment of anovular cows with GnRH 4 d after TAI failed to affect fertility, variation among cows in serum P_4 at the $PGF_{2\alpha}$ injection of Ovsynch dramatically affected fertility of anovular cows.

Key Words: Anovular, Dairy Cow, Ovsynch

T267 Effect of human chorionic gonadotropin or gonadotropin releasing hormone injected 5 or 7 days after 72 h Co-Synch on first service pregnancy rates in lactating dairy cows. R. L. Nebel¹, J. M. DeJarnette¹, D. A. Whitlock¹, C. E. Marshall¹, M. R. Mink², and R. Kasimanickam², ¹Select Sires Inc., Plain City, OH, ²Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg.

Pregnancy failure has been associated with low concentrations of progesterone (P_4) as early as d 6 after AI. Normally, blood P_4 (timing and magnitude) achieves greater concentrations earlier in pregnant cows. Both human chorionic gonadotropin (hCG) and gonadotropin releasing hormone (GnRH) may increase peripheral concentrations of P_4 when given early after AI, either by enhanced endogenous function of the existing CL or by inducing an accessory CL. Two trials were conducted to evaluate the effects of a 5 or 7 d post-AI injection of 100 μ g of GnRH or 5 d post-AI injection of 3,300 i.u. of hCG. Cows received Presynch + 72 h Co-Synch with timed AI between 72 and 78 DIM. In trial 1, cows ($n = 922$) were assigned to receive no post-AI injection or GnRH either 5 or 7 d after AI. In trial 2, cows ($n = 513$) were assigned to receive hCG 5 d post-AI or serve as non-treated controls. Pregnancy was diagnosed by using transrectal ultrasonography and reconfirmed in pregnant cows 21 to 27 d later by transrectal palpation. In trial 1, post-AI GnRH treatment did not affect pregnancy rates (PR). Primiparous cows tended ($P = 0.06$) to have higher PR (32.8%) than multiparous cows (27.6%), but no interaction with GnRH treatment was detected. In trial 2, post-AI hCG treatment did not affect PR (38.4% vs. 42.3% for control vs. hCG, respectively). Primiparous cows had a higher ($P < 0.05$) PR (40.4%) than multiparous cows (30.8%), but hCG had no influence on this relationship. A trend ($P = 0.09$) was detected for higher PR in the Autumn/Winter (46.3%) vs. Summer (35.7%). Though a numeric advantage favoring hCG treatment was observed in Spring (33.2 vs. 45%) and Summer (33.9 vs. 37.5%), the treatment by season interaction was not significant. We concluded that GnRH given either 5 or 7 d post-AI or hCG given 5 d after AI did not increase PR for cows that received timed AI following a 72 h Co-Synch protocol for first service.

Key Words: GnRH, hCG, AI

T268 Effect of time of AI and supplemental estradiol on reproductive performance of dairy cows. J. Hillegass*, F. S. Lima,

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Objective was to compare pregnancy rate of dairy cows time-inseminated either at 48 or 72 h after $PGF_{2\alpha}$ and receiving or not estradiol cypionate (ECP) prior to AI. Holstein cows, 971, were randomly assigned to one of four treatments as a 2x2 factorial. All cows received injections of $PGF_{2\alpha}$ at 37 and 51 d in milk (DIM). At 64 DIM, they received GnRH, followed 7 d later by $PGF_{2\alpha}$. Cows in the CoSynch 48 h (CoS48) received a final injection of GnRH at the moment of timed AI 48 h after $PGF_{2\alpha}$, whereas cows in the CoSynch 72 h (CoS72) received GnRH and were timed AI 72 h after $PGF_{2\alpha}$. Half of the cows in each CoSynch received an injection of 1 mg of ECP 24 h after $PGF_{2\alpha}$ (CoS48-NECP, $n = 240$; CoS72-NECP, $n = 246$; CoS48-ECP, $n = 245$; and CoS72-ECP, $n = 240$). Concentration of progesterone was measured at 57 and 64 DIM to determine cyclic status. A subset of 123 cows had their ovaries examined by ultrasonography to determine diameter of ovulatory follicle and ovulation rate, and blood was sampled 7 d after AI to measure progesterone. Pregnancy was diagnosed at 40 and 68 d after AI. Prevalence of anovular cows at 64 DIM was 27.6%, but it was similar for CoSynch ($P=0.67$) and ECP ($P=0.45$). Estrous detection increased ($P<0.001$) with CoS72 compared with CoS48 (64.5 vs 46.5%) and with supplemental ECP (69.8 vs 41.4%), and cows in estrus had greater ($P<0.001$) pregnancy rates than those not in estrus (54.7 vs 31.5%). Ovulatory follicle diameter was smaller ($P=0.05$) in ECP-treated cows, but ovulation rate, double ovulation rate and progesterone concentrations on d 7 after AI did not differ ($P>0.10$) among treatments. Pregnancy rates at d 40 and 68 after AI were not influenced ($P>0.10$) by either time of AI or ECP, and at 40 d they were 41.3, 46.7, 45.5 and 43.9 for CoS48-NECP, CoS48-ECP, CoS72-NECP, and CoS72-ECP, respectively. Results indicate that delaying the day of AI from 48 to 72 h and supplemental ECP, in spite of increasing display of estrus at timed AI, did not improve reproductive performance of lactating dairy cows at first AI.

Key Words: Dairy Cow, Estradiol Cypionate, Timed AI

T269 Strategies to maximize ovulation to first GnRH of Ovsynch in lactating dairy cows. N. M. Bello* and J. R. Pursley, *Michigan State University, East Lansing.*

Ovulatory response to first GnRH of Ovsynch is a critical determinant for successful synchronization of ovulation in dairy cows. Previous work from our laboratory indicated that 1) a 6-d interval between a $PGF_{2\alpha}$ -and-GnRH-based pre-Ovsynch treatment (G6G) and first GnRH of Ovsynch increased the percentage of cows that ovulated in response to first GnRH of Ovsynch; and that 2) size of the follicle that ovulated to 1st GnRH of Ovsynch was positively associated with length of the pre-Ovsynch treatment. Our objective in this study was to evaluate further $PGF_{2\alpha}$ -and-GnRH-based pre-Ovsynch strategies of longer intervals between pre-Ovsynch GnRH and first GnRH of Ovsynch. We hypothesized that a longer interval of follicular growth would maximize ovulation at initiation of Ovsynch. Lactating dairy cows ($n=165$) were assigned to receive either no treatment prior to Ovsynch (Control) or 25 mg of $PGF_{2\alpha}$ (Pre-P) followed 2 d later by 100 μ g of GnRH (Pre-G), administered 6 (G6G), 7 (G7G) or 8 (G8G) d prior to first GnRH of Ovsynch. Transrectal ultrasonography was performed to assess follicular size and ovulation throughout Ovsynch. Proportion of cows that ovulated to first GnRH of Ovsynch was 67.5, 94.4, 82.0 and 72.7 % for controls, G6G, G7G and G8G, respectively,

and was greater for G6G versus controls ($P < 0.02$). However, ovulatory response to first GnRH of Ovsynch depended on response to the pre-Ovsynch treatment ($P < 0.05$). In cows that responded to pre-Ovsynch by initiating a new estrous cycle, percentage ovulatory response to first GnRH of Ovsynch was less for G8G (74.0 %; $P < 0.05$) compared to G6G or G7G (96.6 and 92.6 %, respectively). Concentrations of progesterone at PGF_{2α} of Ovsynch were greater for cows that received pre-Ovsynch treatments (5.3±0.4, 4.5±0.5 and 4.4±0.5 ng/ml for G6G, G7G and G8G, respectively) compared to controls (2.4±0.4 ng/ml; $P < 0.04$). In summary, maximal ovulatory response to first GnRH was obtained with a PGF_{2α}-and-GnRH based Pre-Ovsynch strategy with either a 6- or 7-d interval between Pre-G and first GnRH of Ovsynch.

Key Words: Dairy Cow, Ovsynch, Ovulation

T270 Pregnancy rates to timed-AI of dairy cows treated with pLH or GnRH. M. G. Colazo*¹, D. J. Ambrose¹, and R. J. Mapletoft², ¹Alberta Agriculture and Food, Edmonton, AB, Canada, ²WCVM, University of Saskatchewan, Saskatoon, SK, Canada.

We investigated the use of 25 mg porcine LH (pLH; Lutropin-V, Bioniche Animal Health) or 100 µg GnRH (Fertiline; Vetoquinol NA Inc.) and 500 µg cloprostenol (PG; Estrumate, Schering Plough Animal Health) on ovulatory response and pregnancy rate following timed-AI (TAI) in lactating dairy cows ($n = 292$). Cows (mean ± SE; 2.4 ± 0.08 lactations, 112.5 ± 3.7 DIM) at two locations were assigned to receive 1 of 4 treatments: GnRH/PG/GnRH, pLH/PG/GnRH, GnRH/PG/pLH or pLH/PG/pLH. Cows were treated at random stages of the estrous cycle with pLH or GnRH im on Day 0, PG im on Day 7, and pLH or GnRH on Day 9 with timed-AI (TAI) 12-16 h later (Day 10). Ultrasonographic examinations were performed in a subset of 216 cows on Days 0, 7, 10, 11, and 14 for ovulation, CL and follicle development, and in all cows on Day 32 for confirmation of pregnancy. Data were compared using GLM and CATMOD procedures in SAS. Proportion of non-cycling cows and cows with ovarian cysts on Day 0 were 14 and 6%, respectively. Ovulatory response to first treatment was 63 vs. 43% for pLH and GnRH groups and 84 vs. 49% for non-cycling and cycling cows ($P < 0.01$). Pregnancy rate to TAI did not differ among treatment groups ($P > 0.05$; 31, 24, 36, and 29% for GnRH/GnRH, pLH/GnRH, GnRH/pLH and pLH/pLH, respectively) but tended to be higher in cows given GnRH on Day 0 ($P = 0.07$; 34 vs 26%). Location, ovulatory response to first pLH or GnRH, cyclicity status, presence of an ovarian cyst, and preovulatory follicle size did not affect pregnancy rate ($P > 0.05$). However, cows that ovulated before TAI (11%) tended to have lower pregnancy rate ($P = 0.1$; 17 vs. 31%). In addition, none of the cows that failed to respond to PG (12%) or ovulate following the second pLH or GnRH treatment (15%) conceived ($P < 0.01$). In summary, cows treated with GnRH on Day 0 had lower ovulation rate but tended to have higher pregnancy rate to TAI. However, pregnancy rate to TAI did not differ among treatment groups.

Key Words: Porcine LH, GnRH, Pregnancy Rate

T271 Prepartum feed restriction and fatty acid supplementation influence reproductive performance of dairy cows. M. G. Colazo*¹, D. J. Ambrose^{1,2}, A. Hayirli², and L. Doepel², ¹Alberta Agriculture

and Food, Edmonton, AB, Canada, ²University of Alberta, Edmonton, AB, Canada.

We determined the effects of feed restriction and fatty acid supplementation during the dry period on post-calving reproductive performance of dairy cows. Thirty-four d before expected calving, pregnant dairy heifers ($n = 25$) and cows ($n = 47$; 1 to 4 lactations) were randomly assigned to 1 of 6 treatments. Treatments were ad libitum (AL) or 30% restricted (FR) feed intake in combination with 1 of 3 oilseed supplements at 8% of diet DM: canola (C), linola (L) or flax (F) to supply oleic, linoleic or linolenic fatty acids, respectively. After calving, cows were fed a common lactation diet. Measurements of uterus, corpus luteum and follicles were determined by ultrasonography (US) twice weekly from 7 ± 1 d after calving until first ovulation and thereafter every other day until second ovulation. Cows ($n = 63$) were timed-AI (TAI) and 32 d later, pregnancy was diagnosed by US. Data were analyzed using proc GLM and CATMOD. Although none of the animals in FR-L group had retained placenta and/or endometritis (RPE), diets did not affect the incidence of RPE (18%), mastitis (10%) or metabolic diseases (7%). Mean (± SE) interval from calving to uterine involution did not differ among diet groups, but it was longer in cows that had RPE ($P < 0.02$; 32.1 ± 2.7 vs. 24.8 ± 1.3 d). Interval from calving to first ovulation was longer ($P < 0.05$) in cows fed C than those fed either L or F (34.7 ± 3.1, 23.7 ± 3.2 and 21.0 ± 3.1 d, respectively) and in cows with follicles <10 mm at first US (35.1 ± 2.4 vs. 23.8 ± 2.8 d). Conception rate was higher in cows fed AL than in those fed FR ($P < 0.05$; 50 vs. 19%), and in cows with 1 than either 2 or >2 lactations ($P < 0.02$; 56, 18 and 29%, respectively). Conception rates tended ($P < 0.1$) to be lower in cows that had RPE (22 vs. 46%) or that had not ovulated within 4 wk after calving (21 vs. 46%). In summary, cows fed diets supplemented with linola or flaxseed ovulated sooner, and cows with ad libitum feed intake had higher conception rate. Conception rate tended to be higher in cows without RPE, in cows ovulating within 4 wk postpartum, and in first lactation cows.

Key Words: Feed Restriction, Fatty Acid Supplementation, Reproductive Performance

T272 Evaluation of feed restriction and pre-synchronization in a program for estrous synchronization. P. Molina¹, T. Sánchez¹, O. Mejía², J. Nuñez², E. García*³, O. D. Montañez-Valdez⁴, J. Cordero¹, J. Peralta¹, M. E. Ortega¹, R. Nieto⁵, E. Mendoza¹, and R. Avila¹, ¹Colegio de Postgraduados, Montecillo, Estado de México, México, ²Facultad de Medicina Veterinaria y Zootecnia, UNAM, Tres Marias, Municipio de Huitzilac, México, ³Centro Universitario de la Costa Sur de la Universidad de Guadalajara, Aulán, Jalisco, México, ⁴Centro Universitario del Sur de la Universidad de Guadalajara, Ciudad Guzmán, Jalisco, México, ⁵Instituto Tecnológico Agropecuario No.6, Huejutla, Hidalgo, México.

The objective of the experiment was to evaluate the effect of pre-synchronization and feed restriction in the onset, beginning and duration of estrus. Sixty nine Dorset ewes were randomly assigned to four treatments: Treatment 1 (T1): Ewes received one kg of commercial supplement (16% protein) plus one kg of oats straw for 30 days and were synchronized with fluorogestone acetate sponges (FGA, 40 mg) for 12 days; Treatment 2 (T2) ewes received the same diet as T1, but they were synchronized with two doses of PGF_{2α} 16 and 8 days before the FGA sponges; Treatment 3 (T3) ewes were feed restricted and only received 1 kg of oats straw during 30 days, with the same

synchronization regime as T1; and Treatment 4 (T4) received the same diet as T3 and the synchronization regime as T2. A hundred percent of estrus onset for all treatments, but there were differences in beginning of estrus between T4 and T2 with an average time of 50.4 ± 1.83 and 40 ± 2 h, respectively, while for T1 and T3 the average time was 46 ± 2.10 and 49.8 ± 2.88 h ($P > 0.05$). Beginning of estrus was affected for feed restriction, and restricted ewes (T3 and T4) showed estrus later (50.06 ± 1.68 h) compared to not restricted (T1 and T2) ewes (43.09 ± 1.52 h, $P < 0.05$). Duration of estrus was longer in T2 (45.8 ± 2.80 h) compared to T3 (34 ± 1.86), and for T1 and T4 there were 38.7 ± 1.37 and 41.3 ± 2.15 h, respectively ($P > 0.05$). In treatments pre-synchronized with PGF_{2 α} (T2 and T4) duration of estrus was longer

compared with not pre-synchronized, with 43.6 ± 1.80 h and 36.6 ± 1.17 h respectively ($P < 0.05$), while feed restriction did not affect duration of estrus ($P > 0.05$). We conclude that feed restriction affects beginning of estrus, while pre-synchronization prolongs duration of estrus.

Key Words: PGF_{2 α} , Ewes, FGA

T273 Please see abstract # 281.

T274 Please see abstract # 287.

Production, Management & the Environment - Livestock and Poultry II

T275 Human resource management and dairy employee organizational commitment. R. E. Stup*, *The Pennsylvania State University, University Park.*

The purpose of this research was to gather information about human resource management (HRM) practices used on dairy farms and effects these practices had on employees' feelings of commitment toward the farm. HRM practices included in the study were selection, benefits, training, performance feedback, communication systems, standard operating procedures, and employee participation. Organizational commitment is the strength of an employee's attachment to the organization where he is employed. Employees committed to the organization are less likely to leave for another job and are more likely to perform at high levels. There are three dimensions of organizational commitment: affective commitment is a feeling of emotional attachment, normative commitment is a feeling of obligation, and continuance commitment is a feeling that the costs of leaving are too high or it is too much trouble to go somewhere else. In February 2005 a survey was sent to owners and employees of dairies with herd sizes of 250 or larger in the Northeast. A total of 131 owners and 201 employees responded. Farm-level response rate was 14.8%. The following HRM practices were significantly ($p < .05$) correlated with affective commitment: level of off-farm training, adequacy of initial training, adequacy of continuing training, satisfaction with training, informal feedback was provided, satisfaction with feedback, satisfaction with performance reviews, and employee participation. Normative commitment was significantly ($p < .05$) correlated with: adequacy of initial training, adequacy of continuing training, satisfaction with training, informal feedback was provided, satisfaction with feedback, satisfaction with performance reviews, employee participation. Further analysis with stepwise multiple regression found satisfaction with feedback, employee participation, and satisfaction with performance reviews were predictive of affective commitment. The same three HRM variables predicted normative commitment as well. The results suggest that managers should focus on feedback and employee participation to build employee commitment.

Key Words: Human Resources, Employee Commitment, Labor

T276 The amount of concentrate offered in automated milking systems does not influence the frequency of visits of dairy cattle consuming high levels of corn silage. A. Bach*^{1,2}, C. Iglesias³, M.

Devant², and A. Ferrer², ¹ICREA, Barcelona, Spain, ²IRTA-Unitat de Remugants, Barcelona, Spain, ³SEMEGA, Girona, Spain.

The objective of this study was to evaluate whether the amount of concentrate offered in an automatic milking systems (AMS) would modify milking frequency, feeding behavior, and milk production. One hundred and fifteen lactating cows were used in a cross-over design with 2 periods of 90 d each and two treatments: LC (up to 3 kg/d of concentrate at the AMS) or HC (up to 8 kg/d of concentrate at the AMS). Cows were evenly distributed in 2 symmetrical pens, each containing 1 AMS and about 50 cows at any given time. All cows received the same total ration (28% corn silage; 1.67 Mcal of NEI/kg; 16.5% CP, DM basis) but a different proportion of concentrate from this ration was offered at the AMS depending on treatment. The concentrate at the AMS had the same composition in both treatments. Cows were fetched when time elapsed since last milking was greater than 12 h. The amount of concentrate offered at the AMS was proportional to the time elapsed since last visit (125 g/h and 333 g/h for LC and HC, respectively). Milk production (32.5 ± 0.89 kg/d), total number of daily milkings (2.7 ± 0.07 /d), number of cows fetched (1.2 ± 0.02 /d), or number of voluntary milkings (1.5 ± 0.09 /d) were not affected by treatments. The consumption of basal ration was greater ($P < 0.05$) in LC (19.0 ± 0.26 of DM/d) than in HC (14.2 ± 0.27 kg of DM/d), but this difference was compensated by a greater ($P < 0.05$) consumption of concentrate at the AMS in HC (6.8 ± 0.02 kg of DM/d) than LC (2.6 ± 0.02 kg of DM/d) cows. Therefore, total DMI was unaffected. The eating rate of the basal ration was greater ($P < 0.05$) in LC (113.2 ± 0.23 g of DM/min) than in HC (80.7 ± 0.21 g of DM/min), but the total amount of time that cows devoted to eat was similar between treatments (171.7 ± 5.11 min/d). Offering high amounts of concentrate to the AMS feeding a basal ration rich in corn silage is not an effective method to diminishing cow fetching and increasing number of daily milkings and milk production.

Key Words: Automatic Milking, Concentrate

T277 Effects of dam's dry period length on calf. M. T. Kuhn*, J. L. Hutchison, and H. D. Norman, *Animal Improvement Programs Laboratory, Beltsville, MD.*

Recommendations for shortened dry periods have become increasingly common in recent years. While considerable research has been done to determine effects on cow performance, research to determine what,