258 Mean and basal LH concentrations increased in peri-puberal beef heifers during early exposure to androgenized steers. C. Fiol*[1], N. Curbelo[2], G. Larraz[2], L. de Melo Menezes[3], and R. Ungerfeld[2], *[1]Departamento de Bovinos, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay, [2]Departamento de Fisiología, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay, [3]Universidad de Pelotas, Rio Grande del Sur, Brazil.*

The aim of the experiment was to characterize the LH secretion pattern in peri-puberal beef heifers exposed to androgenized steers (AS) during 80 d. Thirty anestrous Hereford heifers (24-mo-old, 257.5 ± 32.5 kg) and 3 AS were used. Since D0, 15 heifers were exposed to AS during 80 d (group EH), remaining 15 heifers isolated from AS or any other male (group IH). Both groups grazed low quality native pastures in 2 paddocks separated by 600 m. From D-10 to D30, daily ovarian ultrasonographic evaluations were done in all the heifers to determine the presence of corpus luteum and the onset of cyclic activity. Thereafter, ovarian ultrasonographic determinations were done every week (D32 to D60) and every 10d (D60 to D80) to determine the presence of corpus luteum. At 10 d intervals (D-10 to 30), 8 heifers per treatment were housed in individual cages and blood samples were collected at 15-min intervals for 6h. Concentrations of LH were determined by RIA, and compared with repeated measures ANOVA; cyclic activity was compared with chi-squared test. Cumulative proportion of cyclic heifers was greater for EH than IH on D60 (33.3 vs 0%, $P = 0.01$), 70 (47 vs 0%, $P < 0.005$) and 80 (53 vs 0%, $P < 0.001$). On D10 of the exposure period, mean and basal concentrations of LH were greater in EH than IH (Table 1). The frequency of LH pulses was greater in D10 compared with D0 and 20, and tended to be greater to D30 (Table 1). In conclusion, exposure to AS stimulated LH secretion pattern during the first days of the exposure period.

Table 1.

	Mean LH, ng/mL		Basal LH, ng/mL		LH pulse frequency, pulses/6h
Day	EH	IH	EH	IH	
−10	1.18 ± 0.09	1.27 ± 0.09	1.05 ± 0.08	1.12 ± 0.08	3.12 ± 0.25
0	1.08 ± 0.09	1.19 ± 0.09	0.96 ± 0.08	1.02 ± 0.08	2.81 ± 0.25^{y}
10	1.68 ± 0.09^{a}	0.88 ± 0.09^{b}	1.53 ± 0.08^{a}	0.75 ± 0.08^{b}	3.68 ± 0.25^{x}
20	1.83 ± 0.09	1.82 ± 0.09	1.66 ± 0.08	1.63 ± 0.08	2.68 ± 0.25^{y}
30	1.45 ± 0.09	1.94 ± 0.09	1.26 ± 0.09	1.77 ± 0.08	2.96 ± 0.26

Different superscripts indicate significant differences between treatments (in the same row; a vs b) and days (in the same column; x vs y). a vs b, x vs y: P < 0.05.

Key Words: LH profiles, male effect, puberty

259 Plasma progesterone concentration in beef heifers receiving exogenous glucose, insulin, or bovine somatotropin. B. I. Cappellozza*[1], R. F. Cooke[1], M. M. Reis[2], F. N. T. Cooke[1], D. W. Bohnert[1], and J. L. M. Vasconcelos[2], *[1]Oregon State University - EOARC, Burns, [2]UNESP - FMVZ/DPA, Botucatu, SP, Brazil.*

Three experiments evaluated plasma concentrations of glucose, insulin, IGF-I, and progesterone (P4) in pubertal beef heifers receiving exogenous glucose, insulin, or sometribove zinc. All heifers utilized had no luteal P4 synthesis but received a controlled internal drug releasing device containing 1.38 g of P4 to estimate treatment effects on hepatic P4 degradation. In Exp. 1, 8 nulliparous Angus × Hereford heifers (initial BW = 442 ± 14 kg; initial age = 656 ± 7 d) were randomly assigned to receive, in a crossover design containing 2 periods of 10 h: 1) intravenous (i.v.) insulin infusion (1 μg/kg of BW; INS) or 2) i.v. saline infusion (0.9%; SAL). Treatments were administered via jugular venipuncture in 7 applications (0.15 μg of insulin/kg of BW per application) 45 min apart (from 0 to 270 min). Blood samples were collected immediately before each infusion, as well as at −120, −60, 330, 390, and 450 min relative to the first infusion. Heifers receiving INS had greater ($P < 0.01$) plasma insulin, reduced ($P \leq 0.04$) plasma glucose and IGF-I, but similar ($P = 0.62$) plasma P4 concentrations compared with SAL heifers. In Exp. 2, the same heifers were assigned to receive, in a similar experimental design as Exp. 1: 1) i.v. infusion containing insulin (1 μg/kg of BW) and glucose (0.5 g/kg of BW; INS+G) or 2) SAL. Heifers receiving INS+G had greater ($P \leq 0.02$) plasma insulin, glucose, and P4, but reduced ($P = 0.01$) plasma IGF-I concentrations compared with SAL heifers. In Exp. 3, the same heifers were assigned to receive, in a crossover design containing 2 periods of 14 d: 1) subcutaneous injection containing 250 mg of sometribove zinc (BST), or 2) SAL. Blood samples were collected 3 h apart (from 0900 to 1800 h) on d 6, 8, and 10 relative to treatment administration (d 1). Heifers receiving BST had greater ($P < 0.01$) plasma glucose and IGF-I, and similar ($P \leq 0.67$) plasma insulin and P4 concentrations compared with SAL heifers. Results from this series of experiments suggest that concurrent increases in glucose and insulin are required to reduce hepatic catabolism and increase plasma concentrations of P4 in bovine females.

Key Words: heifer, insulin, progesterone

260 Prediction of estrus in beef cows using ruminal temperature. B. H. Boehmer* and R. P. Wettemann, *Oklahoma Agricultural Experiment Station, Stillwater.*

Core body temperature increases at estrus in beef cows. Monitoring ruminal temperature (RuT), a measure of core body temperature, may be useful for the prediction of estrus. The objective of this experiment was to evaluate the use of RuT in beef cows for the prediction of estrus. Hourly reporting temperature boluses (SmartStock, LLC) were administered to Angus cows (n = 60) with a balling gun. Estrus was synchronized with $PGF_{2\alpha}$ at 66 ± 2 d postpartum. The onset of estrus was determined as a 0.7°C increase in mean RuT of a cow for any 9 h period compared with the mean RuT 12 to 84 h before the 9 h identification period. The onset of estrus was determined by HeatWatch (CowChips, LLC). Ambient temperature (Tamb; www.mesonet.org) and RuT were analyzed using the UNIVARIATE and MIXED procedures (SAS). Mean Tamb for the experimental period was 19.1 ± 0.1°C (range: 16 to 32°C). Maximal daily Tamb (Tmax) was ≥32°C in only one of the 13 d. Mean RuT for all cows was 37.96 ± 0.01°C. The beginning of the 9 h mean increase of 0.7°C in RuT occurred 8.4 ± 6.1 h before the onset of estrus, as determined by HeatWatch. During the 9 h after the onset of estrus (HeatWatch), RuT was greater ($P = 0.001$, 38.54 ± 0.09°C) compared with 16 to 24 h before (37.92 ± 0.09°C) and 24 to 32 h after (37.98 ± 0.09°C) onset of estrus. Ruminal temperature correctly identified estrus in 79% of cows and identified a non estrus cow as estrus in 40% of cows. Diurnal variation in RuT was maximal at 2300 h (38.22 ± 0.03°C) and had a nadir at 1200 (37.70 ± 0.04°C). The magnitude of the increase in

RuT at estrus (9 h period compared with the previous 12 to 84 h) was greater when estrus occurred from 1700 to 0000 h compared with 0100 to 0800 h ($P = 0.009$; 0.98 ± 0.15°C vs. 0.49 ± 0.09°C, respectively). The magnitude of increase in RuT at estrus tended to be greater when estrus occurred from 1700 to 0000 h compared with 0900 to 1600 h ($P = 0.079$). These results indicate that RuT can be used for the prediction of estrus in beef cows. Diurnal variation in RuT should be incorporated in a model that utilizes RuT to predict estrus in beef cows.

Key Words: beef cow, ruminal temperature, estrus

261 Comparison of three CIDR-based fixed-time AI protocols for beef heifers. G. A. Perry*[1], J. K. Grant[1], J. A. Walker[1], G. A. Bridges[2], S. G. Kruse[2], S. Bird[2], K. Heaton[3], R. Arias[4], and S. L. Lake[4], *[1]Department of Animal Science, South Dakota State University, Brookings, [2]North Central Research and Outreach Center, University of Minnesota, Grand Rapids, [3]Utah State University, Logan, [4]Department of Animal Science, University of Wyoming, Laramie.*

Several effective fixed-time AI (FTAI) protocols have been developed to facilitate AI while eliminating the need for estrus detection. Among these are the 5-d CO-Synch+CIDR (5d), PG 6-d CIDR (PG-CIDR), and 14-d CIDR-PG (CIDR-PG) protocols. While each of these protocols vary in duration and approach to synchronizing estrus and ovulation, each has been reported as an effective method to facilitate FTAI in beef heifers. Therefore, the objective of this study was to compare FTAI pregnancy rates in beef heifers synchronized with these 3 CIDR based protocols. Virgin beef heifers (n = 801) at 4 locations were synchronized with one of 3 protocols: 1) (5d) an injection of GnRH (100 μg; i.m.) and insertion of a CIDR on d −5, PG (25 mg; i.m.) and CIDR removal on d 0 and a second injection of PG (>4 h after CIDR removal) on d 0 and FTAI at 72 h after CIDR removal, 2) (PG-CIDR) PG (25 mg; i.m.) on d −9, GnRH (100 μg; i.m.) and insertion of a CIDR on d −6, PG and CIDR removal on d 0, and FTAI at 66 h after CIDR removal, or 3) (CIDR-PG) a CIDR insert from d 0 to 14 and PG (25 mg; i.m.) on d 30 and FTAI at 66 h after PG. All heifers received an injection of GnRH (100 μg; i.m.) concurrent with FTAI. Timing of treatment initiation was offset to allow all heifers to receive FTAI concomitantly and at random. Pregnancy success was determined between 35 and 40 d after FTAI by transrectal ultrasonography. Blood samples were collected approximately 12 d before the beginning of each protocol and at the initiation of each protocol to determine estrous cycling status (77%). Data were analyzed using the GLIMMIX procedures of SAS. Fixed-time AI pregnancy success did not differ between treatments ($P = 0.13$; 62.5%, 56.9%, and 53.3%, for 5-d, PG-CIDR, and CIDR-PG; respectively) or location ($P = 0.16$; 51.5%, 62.7%, 56.1%, and 58.6% for location 1, 2, 3, and 4; respectively). However, heifers that had reached puberty had greater ($P < 0.01$) pregnancy success compared with heifers that were prepubertal (60.7% and 47.3%; respectively). In summary, all 3 protocols had similar FTAI pregnancy success, and puberty status had the greatest impact on pregnancy success.

Key Words: fixed-time AI, beef heifer, pregnancy

262 Ovarian dynamics and AI pregnancy rates with PGF2α administration 2 d prior to the onset of a 5-d CO-Synch + CIDR program in beef cattle. L. H. Cruppe*[1], G. A. Bridges[2], M. V. Biehl[3], F. M. Abreu[1], A. D. P. Rodrigues[4], S. G. Kruse[2], M. Maquivar[1], J. L. M. Vasconcelos[4], and M. L. Day[1], *[1]The Ohio State University, Columbus, [2]University of Minnesota, Grand Rapids, [3]University of Sao Paulo, Piracicaba, SP, Brazil, [4]Sao Paulo State University, Botucatu, SP, Brazil.*

The 5-d CO-Synch + CIDR program was used in heifers and postpartum beef cows across 2 studies to compare ovarian dynamics and AI pregnancy rates when animals received PGF 2 d before onset of the program. In all animals in both studies; blood samples were collected on d −17 and −7 of the expt. to assess reproductive status based on plasma progesterone (P4) concentration, 100 μg GnRH (GnRH-1; Cystorelin) was given at CIDR insertion on d −5, CIDR was removed on d 0 coincident with PGF injection (heifers, 25 mg; cows, 50 mg; Lutalyse). In Expt 1, prepubertal heifers (n = 35) and anestrous cows (n = 50) were randomized by age and body weight, and age and days postpartum (DPP), respectively, to receive or not, 25 mg of PGF on d −7. On d 3, all females received 100 μg GnRH (GnRH-2).Ovarian ultrasonography was conducted on d −7, −5 and −3 to determine ovulatory response to GnRH-1, d 0 to 3 to evaluate ovarian follicular dynamics during synchronization, and on d 3, 5, and 9, concurrent with blood samples to evaluate P4, size of ovulatory follicle (OF) at GnRH-2, and the proportion of females induced to ovulate and develop a functional CL following GnRH-2. In Expt 2, postpartum beef cows (n = 410) in 3 locations were randomized by DPP and age to receive or not the PGF treatment on d – 7. Estrus was detected for 60 h after PGF and AI according to the AM/PM rule. Cows not bred at estrus were timed AI on d 3 following GnRH-2. In Expt 1, ovulation response to GnRH-1, ovarian follicular development during the program, size of the OF and ovulation response to GnRH-2, size of the CL and P4 on d 9 did not differ between treatments within animal class. In Expt 2, synchronized AI pregnancy rate did not differ between cows that did and did not receive PGF on d −7 (47.3% and 50.7%, respectively). Interactions of treatment with reproductive status, estrus detection, location, AI technician and sire for AI pregnancy rate were not detected. In conclusion, PGF administration 2 d before the onset of the 5-d program did not influence ovarian dynamics in anestrous females or synchronized pregnancy rate in postpartum cows.

Key Words: beef cattle, PGF, AI

263 Efficacy of a new, once-used, or twice-used CIDR in a 5-day CO-Synch + CIDR estrous synchronization protocol in suckled beef cows. P. J. Gunn*[1], R. P. Lemenager[1], L. A. Horstman[2], and G. A. Bridges[3], *[1]Department of Animal Sciences, Purdue University, West Lafayette, IN, [2]Department of Veterinary Clinical Sciences, Purdue University, West Lafayette, IN, [3]North Central Research and Outreach Center, University of Minnesota, Grand Rapids.*

The objective of this experiment was to compare timed-AI (TAI) pregnancy rates (PR) in suckled beef cows treated with either a new, once-used, or twice-used CIDR within the 5-d CO-Synch + CIDR protocol. Angus-cross beef cows (n = 307) from 2 locations were stratified by estrous cycling status as determined by identification of a corpus luteum (CL) via transrectal ultrasonography on d −11 and −1 (d 0 = CIDR insertion, d 8 = TAI), age (2 yr old; n = 68 vs. ≥ 3 yr [mature]; n = 239), and BCS and randomly allotted to 1 of 3 treatments. Cows were enrolled in the 5-d CO-Synch + CIDR protocol that included either: 1) a new CIDR (NEW); 2) a CIDR previously used once in a 5-d estrous synchronization protocol (1X); or 3) a CIDR previously used in 2, 5-d estrous synchronization protocols (2X). Blood samples were collected

at d −11, d −1 and d 15 for analysis of progesterone (P4) to confirm ultrasound findings for cycling status and to assess the proportion of previously anestrous cows that ovulated and developed a functional CL following TAI. Determination of pregnancy was performed by transrectal ultrasonography 31 d after TAI. Categorical and continuous data were analyzed with the GLIMMIX and MIXED procedures of SAS, respectively. The proportion of cows cyclic by d −1 (75.8%) did not differ between treatments. TAI PR did not differ ($P = 0.40$) among NEW (55.7%), 1X (57.8%), and 2X (49.5%) treatments. However, there was a treatment × age interaction ($P < 0.001$). In 2 yr olds, the 2X (78.3%) treatment had greater ($P = 0.003$) TAI PR than the NEW (34.7%) treatment, with 1X treatment being intermediate (59.1%). In mature cows, the NEW (61.7%) and 1X (57.5%) treatments had greater ($P \leq 0.02$) TAI PR than the 2X (41.0%) treatment. In addition, TAI PR was greater ($P = 0.008$) in cyclic (56%) than non-cyclic (50%) cows. On d 15, the proportion of previously anestrous cows that had greater than 1 ng/mL of P4 (94.7%) and mean P4 concentrations (4.37 ± 0.20 ng/mL) did not differ among treatments. In summary, cow age affects the number of times a CIDR can be effectively used in the 5-d CO-Synch + CIDR protocol.

Key Words: beef cow, CIDR, timed AI

264 Fixed-time AI in lactating beef cows after GnRH on day 9 of a 14-d CIDR. R. L. Giles*[1], R. K. Peel[1], J. T. French[1], P. E. Repenning[1], J. K. Ahola[1], J. C. Whittier[1], and G. E. Seidel Jr.[2], *[1]Department of Animal Sciences, Colorado State University, Fort Collins, [2]Department of Biomedical Sciences, Colorado State University, Fort Collins.*

Most progestin-based estrous synchronization protocols focus on inducing a new follicular wave before progestin removal by administering GnRH at the initiation of the protocol. However, lack of response to GnRH due to stage of the estrous cycle when given and incomplete corpus luteum regression upon progestin removal contribute to failure to conceive to timed-AI (TAI). Our objectives were (1) to determine the effectiveness of an extended controlled internal drug release (CIDR) protocol with 2 induced follicular waves, and (2) determine the efficacy of initiating the 14-d CIDR treatment with GnRH analog (Factrel) or prostaglandin $F_{2\alpha}$ (PG) injections. Lactating beef cows at 4 locations (n = 264, location 1; n = 94, location 2; n = 139, location 3; n = 128, location 4) were randomly assigned to 3 treatments. Cows in the 14-d GnRH group received a CIDR (1.38 g progesterone) and 100 µg GnRH im on d 0, 100 µg GnRH im on d 9, CIDR removal with 50 mg PG im on d 14, and 100 µg GnRH im with TAI 72 ± 3 h after CIDR removal. Cows in the 14-d PG group were assigned the same protocol as 14-d GnRH cows except that 25 mg PG im was given at CIDR insertion instead of GnRH. Cows in the control treatment, 5-d CO-Synch + CIDR (5-d CO-Synch), received a CIDR and 100 µg GnRH im on d 9, CIDR removal and 25 mg PG im on d 14, 25 mg PG im 6 ± 1 h later, and 100 µg GnRH im with TAI 72 ± 3 h after CIDR removal. Body condition scores for the 14-d GnRH, 14-d PG, and 5-d CO-Synch treatments averaged (±SD) 4.8 ± 0.82, 4.9 ± 0.85, and 4.8 ± 0.82, and postpartum intervals at TAI were 75 ± 17.2, 76 ± 17.0, and 78 ± 16.7 d, respectively. Pregnancy status to TAI was determined 40 ± 2 d after TAI by ultrasonography. With no treatment x location interaction ($P > 0.05$), combined pregnancy rates to TAI were higher ($P < 0.05$) in 14-d PG cows (70.4%, 2 = 205) than 14-d GnRH (54.4%, n = 214) and 5-d CO-Synch cows (53.5%, n = 206). There was no increase in pregnancy rate to TAI with inclusion of 2 GnRH injections within a 14-d CIDR, however replacement of GnRH with PG at the initiation of the 14-d PG treatment improved TAI pregnancy rates compared with the 5-d CO-Synch treatment.

Key Words: CIDR, estrous synchronization, $PGF_{2\alpha}$

265 Comparison of long-term CIDR-based protocols to synchronize estrus and ovulation prior to fixed-time artificial insemination in postpartum beef cows. N. T. Martin,* J. M. Thomas, J. M. Nash, D. A. Mallory, M. R. Ellersieck, S. E. Poock, M. F. Smith, and D. J. Patterson, *University of Missouri, Columbia.*

This experiment compared 2 long-term CIDR-based protocols to synchronize estrus and ovulation before fixed-time AI (FTAI) in postpartum beef cows. Cows were assigned to treatments by age, body condition score (BCS), and days postpartum (DPP). Cows in treatment one [T1 (n = 92)] received CIDR inserts (1.38 g progesterone) from d 0 to d 14, and $PGF_{2\alpha}$ (PG; 25 mg i.m.) 19 d after CIDR removal on d 33. Cows in treatment 2 [T2 (n = 90)] received CIDR inserts from d 3 to d 17, and PG 16 d after CIDR removal on d 33. Cows in both treatments were inseminated 72 h after PG with GnRH (100 µg i.m.) at FTAI. Blood samples for progesterone were collected at d −10 and d 0 to determine pretreatment estrous cyclicity status, and again at PG. HeatWatch estrus detection transmitters were applied at CIDR removal and replaced at PG to determine onset of estrus following CIDR removal and PG. Dominant follicle diameter was determined via transrectal ultrasonagraphy at PG and FTAI. Pregnancy diagnosis was performed via transrectal ultrasonagraphy 70 d after FTAI and confirmed at 180 d gestation. Age, BCS, DPP, P4 concentrations, and follicle diameters were analyzed by PROC TTEST. Pregnancy rates for FTAI and final pregnancy were analyzed by PROC GLIMMIX. There were no differences between treatments for cow age, BCS, or DPP. Progesterone concentrations at PG were higher ($P = 0.04$) for cows assigned to T2 than T1 (2.4 versus 1.9 ng/mL, respectively). Estrous response after PG and before FTAI was higher ($P = 0.05$) for cows assigned to T1 (45%) compared with T2 (31%). There were no differences between treatments in mean diameter of dominant follicles at PG or FTAI. Despite differences in estrous response between treatments after PG, there was no difference between treatments for FTAI pregnancy rate ($P = 0.23$; T1 52/92 = 57%; T2 42/90 = 47%) or final pregnancy rate ($P = 1.00$; T1 76/91 = 84%; 76/90 = 84%). In summary, both protocols worked effectively to synchronize estrus and ovulation before FTAI in postpartum beef cows, suggesting that a range in interval from CIDR removal to PG may be feasible when using long-term CIDR-based protocols.

Key Words: fixed-time AI, CIDR, beef cow

266 Determination of concentrations of anti-Müllerian hormone at estrus during a synchronized and a natural bovine estrous cycle. K. Pfeiffer,* L. Jury, and J. Larson, *Mississippi State University, Mississippi State.*

Concentrations of anti-Müllerian hormone (AMH) have been correlated to antral follicle counts, which are indicators of fertility. The effects of exogenous hormones on AMH have not been evaluated. Therefore, the objective of this experiment was to determine if concentrations of AMH at estrus differ in a synchronized compared with a natural estrous cycle. Nulliparous heifers (11 to 15 mo; n = 68) consisting of Angus (n = 19), Charolais (n = 5), Holstein (n = 34) and Jersey (n = 10) breeds were synchronized using the Select Synch + CIDR protocol ($GnRH^{+}$CIDR-7 d-CIDR removal+$PGF_{2\alpha}$). Heifers were observed for expression of synchronized estrus every 6 h until 84 h after the injection of $PGF_{2\alpha}$. Ovarian structures were evaluated by transrectal ultrasonography performed on heifers detected in standing estrus or with an activated heatmount detector and secondary signs of estrus. Blood samples were collected at estrus via venipuncture of the coccygeal vein of the tail for analysis of concentrations of AMH during the synchronized and natural estrous cycles. Visual detection of the subsequent estrus, considered natural estrus, occurred every 6 h from d 16 to 24 after synchronized estrus. The

number of days between synchronized and natural estrus was 20.05 ± 1.60 (mean ± SD). Concentrations of AMH were determined using the Beckman-Coulter AMH Gen II ELISA kit. The GLM, CORR and REG procedures of SAS were used to analyze data. Concentrations of AMH between natural and synchronized estrus were highly correlated (r = 0.67, $P < 0.001$). A 0.100 ng/mL increase in the concentration of AMH in a natural estrous cycle was associated with a 0.077 ng/mL increase in the concentration of AMH in a synchronized estrous cycle ($P < 0.001$). The mean concentration of AMH did not differ ($P > 0.05$) between the natural (0.0543 ± 0.008 ng/mL) or synchronized (0.0428 ± 0.008 ng/mL) estrous cycles. In conclusion, concentrations of AMH were similar between a natural and a synchronized estrous cycle.

Key Words: anti-Müllerian hormone, bovine, estrus synchronization

267 Effect of time of insemination relative to ovulation on pregnancy rate of Nelore cows submitted to TAI protocols. M. Maturana Filho, R. Germano de Rezende, J. R. Naves,* G. A. Fonseca, T. K. Nishimura, V. B. Nunes, and E. H. Madureira, *FMVZ/USP, Pirassununga, SP, Brazil.*

The economic efficiency of cattle is related to the production of calves. The time of insemination relative to ovulation is an important factor in conception rate due to 2 physiological factors, time required for sperm capacitation in the female genital tract and survival of both gametes (spermatozoa and oocyte). The present study aimed to evaluate the influence of time of artificial insemination (AI) on pregnancy rate. The experiment was conducted on the campus of University of São Paulo (USP) Pirassununga, College of Veterinary Medicine and Animal Science (FMVZ). We used 665 Nelore cows submitted to timed artificial insemination protocol. The TAI protocol consisted of d 0 — insertion of an intravaginal progesterone-releasing device on a random stage of estrous cycle, and an injection of 2.0 mg of estradiol benzoate (EB). On d 8, the implants were removed and the cows received an injection of 0.150 mg of PGF2α and 300 IU of equine chorionic gonadotropin (eCG). On d 9, they received an injection of 1.0 mg of EB. AI was performed at 10 d and expected to ovulation time was 1900 h. The cows were randomly divided into 3 experimental groups, according to the time of insemination, being performed using semen of 2 Nelore bulls: Group 1 (G1) inseminated between 1330 and 1450 h, Group 2 (G2) between 1451 and 1610 h and Group 3 (G3) between 1611 and 1730 h. Pregnancy rate was obtained after 30 d using ultrasound Aloka SSD 500, using linear probe. The pregnancy rate obtained in G1, G2 and G3 were 63.8, 75.4 and 54.7% respectively. The semen of 2 bulls used to AI, was distributed in a balanced form among the groups, however, there was no difference in pregnancy among them. The time of AI influenced ($P < 0.05$) fertility, was observed that the best time to perform the AI is between 6 and 4 h before the expected ovulation.

Key Words: Nelore cows, ovulation, protocols