A001 FTAI, FTET and AI

Reproductive performance of Nelore cows submitted to FTAI and exposed to clean-up bulls

J.E. Ferreira, O.R. Silva, S.R.B. Couto, L.N. Silenciato, M.R.B. Mello

UFRRJ, Seropedica.

Keywords: synchronization of ovulation, *bos taurus indicus*, breeding season.

The aim of this study was to evaluate the effect of FTAI associated with clean-up bulls on reproductive efficiency of Nellore females in a breeding season from November 2013 to June 2014. To this end, 744 Nellore females, lactating and non-lactating, were divided into two treatments: natural mating group (NM; N = 396) in which females were subjected to natural breeding throughout the breeding season (BS) that lasted 180 days (November 2013 to April 2014). In the other group (FTAI + NM; N = 347), the animals were submitted to FTAI followed by exposition to clean-up bulls (February-April 2014). In random day of the estrous cycle, females received an intravaginal device (DIB®, Coopers, São Paulo, Brazil) and 2 mg of estradiol benzoate (Estrogin®, Agroline, São Paulo, Brazil) intramuscularly (im), which was considered day 0 (D0). At D8, the animals received (im) 150µg of cloprostenol (CIOSIN®, Intervet Schering Plough Animal Health, São Paulo, Brazil) and 1 mg of estradiol cypionate (ECP®, Pfizer, São Paulo, Brazil) and the P4 device was removed. At D10, FTAI was performed and the females were exposed to clean-up bulls, 15 days after insemination. The pregnancy diagnosis was performed by rectal palpation and transrectal ultrasonography at the end of BS to differentiate the pregnancies of FTAI from natural mating. Data were analyzed by chi-square test with 5% significance level. The animals submitted to FTAI + NM showed similar conception rate (56.3 vs 56.1) to the NM ($P > 0.05$), however, the pregnancy rate (77.2 versus 56.1) as well as reproductive efficiency (75.6 vs 54.9) were higher for the FTAI group+NM. This difference could be explained by the fact that synchronization treatment, prior to FTAI, induce the resumption of female cyclicity, increasing the number of pregnancies when these females are exposed to the cleanu-up bull after FTAI, which is in agreement with Cunha et al (Arquivo Brasileiro de Medicina Veterinária e Zootecnia, 65, 1041-1048, 2013). However, our results disagree with Gutierrez et al (Theriogenology, 81, 918-924, 2014) who found no differences in pregnancy rate and also in reproductive efficiency when compared FTAI + NM to NM for Angus heifers. This fact can be explained by the animal category (heifers versus cows) and animals breed (Nellore versus Angus). We concluded that the use of FTAI associated with clean-up bulls resulted in higher pregnancy rates and higher reproductive efficiency comparing to natural mating. Additionally has a genetic gain due to the Artificial Insemination compared to natural mating.

A002 FTAI, FTET and AI

Effect of prolonging the proestrous in estradiol and progesterone-based synchronization protocols on pregnancy rate in beef heifers

J.M. Persico[1], G. Esperanza[2], J.C. Muriel[1], G.A. Bo[3], S. Callejas[4]

[1]Biogenesis Bago, Garin; [2]Grupo Gct, San Vicente; [3]Irac, Pozo Del Tigre; [4]Civetan Conicet Uncpba, Tandil.

Keywords: heifer, proestrous, ovulation synchronization.

The objective of the study was to evaluate the effect of prolonging the proestrous on pregnancy rate in Bos taurus beef heifers submitted to conventional or short (7 or 6 days) estradiol and progesterone (P4) based fixed-time artificial insemination (FTAI) protocols. A total of 219 Angus heifers, 14 to 15 months old, with 3.4 ± 0.3 body condition score (BCS; 1-5 scale) were enrolled in the study. On Day -1 ultrasonography (US; Honda HS 101V – 5 MHz) was performed to evaluate ovarian structures (OST): corpus luteum (20.4%) or follicles ≥10mm (79.6%); and determine BCS. All heifers were randomly distributed based on theirs OST and BCS, to 4 different groups depending on the duration of the intravaginal device (IVD) treatment (7 or 6 days) and the interval from IVD removal to the estradiol benzoate (EB) treatment for induction of ovulation. On Day 0 all heifers received 2 mg of EB (Bioestrogen®, BiogénesisBagó, Argentina) i.m. along with an IVD containing 0,558 g of P4 (Cronipres® Monodosis, BiogénesisBagó, Argentina). The IVD were removed on Day 6 (6D36 and 6D48 groups) or Day 7 (7D24 and 7D36 groups) and all heifers received an i.m. administration of 0,150 mg of D-Cloprostenol (Enzaprost® D-C, BiogénesisBagó, Argentina). To induce ovulation 1 mg of EB was administered i.m. at different intervals from IVD removal: 24 h (7D24, n = 57) 36 h (7D36, n = 55; 6D36, n = 53) or 48 h (6D48, n = 54). Times of AI were based on a previous follicular dynamics study and were: 7D24 = 53.5h; 7D36 = 70.5h; 6D36 = 70.5h; 6D48 = 80h. FTAI was performed by one veterinarian and semen from one bull was used. Pregnancy diagnosis was done by US on Day 47. Pregnancy rate was analyzed by logistic regression (InfoStat, UNC, 2015. Argentina). Non-statistical differences were observed between 6D36 (62.3%) and 7D24 (68.4%; $P > 0.05$); but both were higher than 7D36 group (41.8%; $P < 0.05$). Then, pregnancy rate in group 6D48 (50.0%) was not different from 6D36 and 7D36 groups ($P > 0.2$) but was lower than 7D24 ($P < 0.05$). In conclusion, short IVD treatment combined with long proestrous (6D36 protocol) achieved similar pregnancy rate than conventional FTAI protocol (7D24), while 7D36 and 6D48 protocols resulted in lower pregnancy rates.

A003 FTAI, FTET and AI

Cost reduction in FTAI programs replacing the source of progestogen in dairy cows

J.P.N. Andrade[1], F. Sonnewend[1], J.P.M. Ferreira[1], O.R. Silva[1], O.A. Resende[2], R.S.L. Fajardo[2], M.R.B. Mello[1]

[1]Universidade Federal Rural do Rio de Janeiro, Madre de Deus de Minas; [2]PESAGRO - Rio, Seropédica.

Keywords: cattle, reproduction, progesterone.

The present study aimed to compare two different sources of progesterone (injectable x intravaginal devices) in dairy cows undergoing FTAI. This study was carried out at Empresa Brasileira de Pesquisa Agropecuária do Estado do Rio de Janeiro PESAGRO – RIO. Non-lactating Girolando cows (N = 24), with an average body condition score of 3.75 (scale of 1 to 5) and raised on Brachiaria decumbens pasture with mineral supplementation ad libitum were used. The females were allocated into two groups, control group (CG, n = 12) and experimental group (EG, n = 12). In random moment of the estrous cycle (Day 0 of the protocol), the cows from the CG received an 1g progesterone intravaginal device (DIB®, Coopers, São Paulo, Brazil) and an injection of 2.0 mg of estradiol benzoate (SINCRODIOL®, Ourofino, Brazil). At D8 the intravaginal device was withdraw and 150µg D-cloprostenol (SINCROCIO®, Ourofino, Brazil) were injected. At D9, cows received 1.0 mg estradiol benzoate. The cows of the experimental group received the same synchronization protocol of the CG, except in D0, where the intravaginal device was replaced by an injection of 150mg injectable progesterone (SINCROGEST injetável® - Ouro Fino, Brazil). The FTAI was performed on D10 at 6:00 pm in both groups. From the D8, gynecological exams were performed with ultrasound assistance (Mindray DP-2200 Vet) every 12 hours, in order to monitor follicular dynamics and compare the following reproductive parameters: average follicular growth (AFG), ovulation rate (OR), diameter of the ovulatory follicle (DOF), ovulation time (OT) regarding the D-cloprostenol injection and conception rate (CR). Data were analyzed by ANOVA and differences compared by the Student's T test for quantitative parameters, and by the Chi-square test for qualitative parameters. A P value of 5% was considered as significant. The control (intravaginal device) and experimental (injectable P4) groups had an AFG of 1.03 ± 0.41 and 0.86 ± 0.37 mm/day, OR of 100 (12/12) and 83% (10/12), DOF of 15.74 ± 4.09) and 14.28 ± 3.78 mm, OT of 57h48min (± 8.26) and 58.08 ± 12.01 h after the application of D-cloprostenol and CR of 50 (6/12) and 42% (5/6), respectively. There was no statistical difference for any of the parameters evaluated. It was also carried out an evaluation of the costs for each treatment, where was a 48% difference between injectable P4 (R$6.03) and intravaginal device (R$ 11.53) protocols. It is interesting to consider that intravaginal devices might cause vaginitis in some animals and eventually be lost during the protocol, reducing synchronization efficiency. This study suggests that the injectable progesterone may be an alternative in FTAI protocols of dairy cows Girolando with similar efficiency to intravaginal devices, and greatly reduce the cost. Studies with larger numbers of animals are being made to consolidate our working hypothesis.

A004 FTAI, FTET and AI

The computer analysis of sperm motility presents good ability to predict semen fertility for IVP and/or timed-AI?

L.Z. Oliveira[1], J.T. Carreira[2], H. Atique Netto[2], R.F.G. Peres[3], H.B. Graff[3], F.M. Monteiro[4], E.A.R. Dias[4], C.S. Oliveira[5], R.P. de Arruda[1]

[1]USP, Pirassununga; [2]UNIRP, São José do Rio Preto; [3]AFB, Nova Xavantina; [4]IZ, Sertãozinho; [5]EMBRAPA, Valença.

Keywords: conception rate, embryo production, semen quality.

It has been often reported varied fertility rates for IVP and Timed-AI according to the semen utilized. Although many laboratory tests are available to evaluate the several sperm characteristics that may influence the fertilizing capacity of semen, sperm motility analyzed by CASA system is still one of the few parameters used by AI companies for the selection of batches to be released in the market. This study aimed to evaluate the ability of computer-assisted-sperm motility in predicting in vivo and in vitro semen fertility. Hence, 1324 multiparous Nelore cows, with 40 days postpartum and BCC between 2.5 to 3.25 were used. All cows were synchronized with the same Timed-AI protocol. The timed-AIs were performed using frozen semen of 7 Angus bulls from the same AI Company. For each bull, two different batches (B) were used (n = 14). The batches were equally distributed through the timed-AIs groups. The assessment of conception rate (CR) was performed by ultrasonography 40 days after AI. The same semen batches utilized for Timed-AI were used for IVP. For IVP procedures, slaughterhouse ovaries from Nelore cows were collected and only cumulus-oocyte complex (COC) presenting quality I were used. The blastocysts productions (BP) were evaluated on day 7 after IVF. For each semen batch, the IVP was repeated three times (n = 42). Progressive motility (PM) was assessed in the same batches used for Timed-AI and IVP. To assess PM, semen doses were thawed in a water bath at 37°C for 30sec and a 2uL aliquot was evaluated by computer assited semen analysis (CASA). The CR was analyzed by logistic regression and the means of BP and PM were compared by Tukey test using significance level of 5%. The overall average of CR at Timed-AI was 48.9%. No effect of AI technician, BCC and day of Timed-AI were observed ($P > 0.05$). However, significant differences between semen batches were observed ($P < 0.05$), where CR1a = 40%(n = 120)a, CR2a = 48%(n = 104)abc, CR2b = 49%(n = 76)abc, CR3a = 44%(n = 134)ab, CR4a = 45%(n = 71)abc, CR4b = 41%(n = 93)a, CR4c = 55%(n = 71)abc, CR5a = 50%(n = 88)abc, CR5b = 54%(n = 84)bc, CR6a = 49%(n = 88)abc, CR6b = 54%(n = 83)bc, CR6c = 51%(n = 80)abc, CR7a = 47%(n = 131)abc, CR7b = 58%(n = 101)c. Overall average (± standard deviation) of BP (%) at IVP was 36.8 ± 11.8, being also observed difference ($P < 0.05$) among some semen batches. The following BP (average ± SD) were obtained for each tested batch at IVP: BP1a = 23.9 ± 3.5a, BP2a = 23.7 ± 6.1a, BP2b = 40.0 ± 9.3ab, BP3a = 42.2 ± 1.9b, BP4a = 37.8 ± 4.8ab, BP4b = 39.4 ± 17.6ab, BP4c = 44.6 ± 17.9ab, BP5a = 44.3 ± 11.6ab, BP5b = 31.3 ± 10.9ab, BP6a = 26.1 ± 11.8ab, BP6b = 42.2 ± 14.2ab, BP6c = 35.0 ± 7.6ab, BP7a = 34.2 ± 15.2ab, BP7b = 50.0 ± 5.0b.In addition, statistical differences were also observed for PM assessed by CASA among semen batches. However, the batches that presented lower PM were not the same batches presenting lower CR and/or BP in the present study. The percentage of PM (± SD) obtained by CASA were PM1a = 40.5 ± 11.0a, PM2a = 43.2 ± 8.4a, PM2b = 41.3 ± 9.2abc, PM3a = 39.3 ± 8.1a, PM4a = 31.8 ± 3.3abc, PM4b = 42.2 ± 14.2a, PM4c = 22.3 ± 2.2abc, PM5a = 30.2 ± 10.3abc, PM5b = 26.2 ± 3.4ab, PM6a = 51.0 ± 11.0c, PM6b = 45.8 ± 1.8c, PM6c = 50.8 ± 7.4abc, PM7a = 38.3 ± 10.2abc, PM7b = 36.3 ± 9.4a ($P < 0.05$). It was concluded that PM assessed by CASA is a weak parameter to estimate the real fertilizing capacity of semen samples for both IVP and Timed-AI since batches that presented higher sperm motilities were not the ones which necessarily demonstrated the best performances in the tested reproductive programas.

A005 FTAI, FTET and AI

Retained placenta and subclinical endometritis: prevalence and relation with reproductive performance of crossbred dairy cows

R.R. Buso, C.C. Campos, T.R. Santos, T.S. Maia, J.P.E. Saut, R.M. Santos

UFU, Uberlandia.

Keywords: postpartum, retained placenta, subclinical endometritis.

This study aimed to evaluate the effects of type of calving (eutocic vs. dystocic), season of the year (rainy vs. dry) on retained placenta (RP) and subclinical endometritis (SE) prevalence, to verify the relation between these diseases, as well as its effects on culling rate, days open and number of AI/conception. Retention of fetal membranes was recorded on first day postpartum. Endometrial cytology was performed between 30 and 80 days in milk (DIM) and positive cases were considered ≥ 5% neutrophils. Data were analysed by logistic regression and analysis of variance on Minitab program ($P < 0.05$). The prevalence of RP was 14.93% (69/462) and of SE was 27.49% (127/462). A tendency of effect of RP on SE prevalence was detected ($P = 0.10$). Dystocia increased RP prevalence ($P < 0.05$). Cows that calved during rainy months had greater SE prevalence ($P < 0.05$). RP increased culling rate ($P < 0.05$), calving to conception interval ($P < 0.05$) and number of AI/conception ($P < 0.05$), although SE occurrence did not affect these variables ($P > 0.05$). In conclusion, RP tended to be a risk factor for SE, dystocia is a predisposing factor for RP and calvings that happens during rainy period increases SE. There is a negative impact on reproductive efficiency of crossbred dairy cows that had retained placenta.

A006 FTAI, FTET and AI

Use of hormonal protocols for induction of puberty in Nelore heifers and its impact on pregnancy rate. Case report

J.P.M. Ferreira, J.P.N. Andrade, F. Sonnewend, O.R. Silva, M.R.B. Mello

Universidade Federal Rural do Rio de Janeiro, Seropedica.

Keywords: cattle, sexual maturity, progesterone.

This study aimed to evaluate the induction of puberty associated with FTAI protocols in Nellore prepubertal heifers. The experiment was carried out at Saco da Prata farm in Itaguai-RJ, between October 2015 and March 2016. For this, 43 acyclic heifers (average age 23 months, average weight of 283 kg and an average score of 3.25 on a scale of 1 to 5) were divided into three groups according to the weight presented on the first evaluation, so that the weight distribution was similar between groups. Sixty days before the start of the breeding season, the animals in the experimental group 1 (EG1; n = 15) received in random day of the estrous cycle an third use intravaginal device (DIB®, Coopers, Sao Paulo, Brazil), which was considered day 0 (D0). At D12, 1 mg of estradiol cypionate (ECP®, Pfizer, Sao Paulo, Brazil) was applied intramuscularly. The experimental group 2 (EG2; n = 14) received similar treatment of the EG1, except at D0, where the intravaginal device was substituted for 150mg of subcutaneously injectable progesterone (SINCROGEST injetável® - Ouro Fino, Brazil). In the control group (CG, n = 14) no hormonal treatment was performed. The diagnosis of puberty induction was done 10 days after application of ECP®. The breeding season was similar for the three groups: FTAI with further exposition of heifers to clean-up bull for three months. The synchronization of ovulation was initiated in all animals on December 4th with an third use intravaginal device and application of 2 mg of estradiol benzoate - D0 (Sincrodiol®, Ouro Fino, Brazil). At D8, the device was removed and 0.5 mg of estradiol cypionate, 150µg of cloprostenol (SINCROCIO®, Ourofino, Brazil) and 300 IU of eCG (SincroeCG- Ouro Fino, Sao Paulo, Brazil) were administered intramuscularly. The inseminations were performed at D10 (December 15th), the clean-up bull was placed with females on January 05th and removed on March06th. The pregnancy diagnosis was performed by rectal palpation 60 days after the bull removal. The data was statistically analyzed by T test, for quantitative samples and chi-square for qualitative samples, both with 5% significance. The cyclicity induction rates were 80 (12/15), 29 (4/14) and 14% (2/14), respectively, for the EG1, EG2 and CG groups with statistical difference ($P < 0.05$) in EG1 compared to other groups. The conception and pregnancy rates were 13 (2/15) and 60% (9/15); 36% (5/14) and 57% (8/14); 36 (5/14) and 64% (9/14), respectively, for EG1, EG2 and CG, no difference was found between treatments. Therefore, it can be concluded that the EG1 protocol was effective to induce cyclicity in Nellore heifers. And the puberty induction does not affect conception rate and pregnancy rate after FTAI.

A007 FTAI, FTET and AI

Deep cervical insemination in dairy sheep synchonized with an intravaginal device without use of antibiotic (preliminay data)

R. Casali, L. Zanferari, M.L.G. Pinto, R. Toazza, P. Gregianin, G.B. Camargo, G. Dias, A. Mezzalira

Universidade do Estado de Santa Catarina, Lages.

Keywords: cervical catheterization, estrus synchronization, semen reflux.

Transposition of cervical rings can optimize artificial insemination (AI) in ewes, since it reduces the semen reflux observed in a cervical AI. This study assesses the effectiveness of deep cervical insemination in dairy sheep, synchronized with an intravaginal device, made with vaginal tampons for human use (OB™) to which was incorporated 60 mg of MAP and 0.5 mL of a 1% violet gentian solution. The implants were kept for 12 days in 33 Lacone ewes. At the time of implant removal it was applied 500 IU eCG and 12.5 mg of dinoprost tromethamine, intramuscularly. The removed tampons showed a slightly deposition mucopurulent secretion. After 24 h it was performed the estrus observation, at 12 h interval. The AI was performed 12 h after estrus onset. All ewes manifested estrus, being 5 at 24 h (2 superficial AI, and 3 deep AI), 19 at 36 h (11 superficial AI and 8 deep AI), and 9 at 48 h (4 superficial AI and 5 deep AI). The inseminations were performed with a pool of fresh semen obtained from two rams, diluted in Tris with 5% egg yolk, with insemination dose of 200 million sperm cells in 0.25 mL. The ewes were restrained and the hind limbs elevated on an easel, with 45° angle with the ground. In superficial AI the semen was deposited at the cervix entrance with the aid of a vaginal speculum. In the deep AI, after the location of the cervix, it was sprayed xylocaine 10% (Xylestesin - Cristália). Then the vaginal fornix was pinched and the cervix pulled up near to the vaginal orifice. Catheterization was performed with an ovine insemination pipette (Alta Genetics®), during a period not superior to 2 minutes, with deposition of semen held from the third cervical ring. The semen backflow was observed in 16 of 17 (94.1%) ewes inseminated by superficial cervical method and in 1 of 16 (6.2%) ewes deep inseminated. Ultrasound pregnancy diagnosis was performed 30 days after insemination. The pregnancy rate was 47.0% for cervical AI and 68.7% for deep AI, which did not differ by X2 ($P < 0.05$), probably due to the low number of ewes treated (preliminary data). The timing of AI influenced the pregnancy rates in treatments. In AI performed at 24 h, pregnancy rate was 0% (0/2) in cervical AI and 33.3% (1/3) in deep AI. At 36 h AI, pregnancy rate was 45.4% (5/11) in cervical AI, and 87.5% (7/8) in deep AI. At 48h AI pregnancy rates was 75% (3/4) in Cervical AI, and 60% (3/5) in deep AI. Our data suggest that the device employed without antibiotics is indicated to synchronize lactating ewes; That reduced reflux in deep IA may permit a reduction in sperm concentration which would bring a better use of the ram; The concentration of estrus between 36 and 48 hours after treatment makes possible the option for taimed AI between 48h and 60h. However, these observations should be better investigated.

A008 FTAI, FTET and AI

Corn supplementation during 41 days after the begginning of TAI protocol and its effects on metabolic hormones and reproductive performance of Nelore females

R.F.G. Peres[1], R. Carvalho[1], H.B. Graff[2], J.H. Furlan Junior[2], A.D.P. Rodrigues[1], G.A. Franco[3], D. Keisler[4], M.F. Smith[4], K. Pohler[3], J.L.M. Vasconcelos[1]

[1]UNESP - Botucatu, Botucatu; [2]AFB, Barra do Garças; [3]University of Tennessee, Knoxville; [4]University of Missouri, Columbia.

Keywords: metabolic hormones, reproduction, Nelore.

This study evaluates the effects of corn supplementation beginning at start of a TAI (D0) protocol until pregnancy check (D41) on metabolic hormones (Exp1) and reproductive performance of Nellore females (Exp1 and 2). On both trials TAI protocol was used according to Meneghetti et al. (Theriogenology,72,179-189,2009) and AI was performed on D11. On Exp1, 681 primiparous (P) cows with BCS 2.84 ± 0.36 and BW:407.12 ± 42.58 kg was used and blood samples was performed on D0, D11, D41 and D52 to evaluate IGF-1, leptin and GH concentrations. On Exp2, Nellore females (n = 2,395) were used, divided in twenty groups that included heifers (H, n = 648; four groups), P (n = 635; six groups) and multiparous (M; n = 1,112; ten groups) with BCS: 2.96 ± 0.36 and BW: 401.32 ± 50.06 kg). All P and M received resynchronization and second AI if they were open at the D41, and calves weaning weight was evaluated on Exp2. After calving, each group of cows was randomly assigned into two treatments: No Supplementation (NS) or supplementation with 1.0 kg/cow/day of corn from D0 to D11 and 2.2 kg/cow/day from D11 to D41 (CS). Both groups stayed on pastures with ad libitum access to water and mineral and TAI protocols started 35 days post calving. Continuous variables were analyzed using PROC MIXED and binomial variables using PROC GLIMMIX and PROC LOGISTIC, both from SAS. Lot was the experimental unit. On Exp1, there was interaction between treatment and day such that CS group had higher IGF-1 concentration on D11 (138.4 ± 2.2 vs 130.8 ± 2.1) and lower ($P < 0.01$) concentration on D41 (135.5 ± 2.2 vs 141.5 ± 2.1) compared to NS group. Also, CS increased ($P < 0.01$) the average of IGF-1 concentrations (140.3 ± 1.71 vs. 122.7 ± 1.81 ng/mL). Regardless of treatment, probability of pregnancy on D11 was positively correlated to IGF-1 on D11 ($P = 0.02$) and leptin ($P = 0.02$) and GH ($P = 0.04$) on D0 and negatively correlated to IGF-1 concentrations on D41 ($P = 0.04$). There was a positive linear effect of IGF-1 on D52 on probability of pregnancy at second AI ($P < 0.01$) and positive linear effect of IGF-1 on D11 on probability of final pregnancy rate ($P < 0.01$). On Exp2, there was no difference ($P = 0.50$) in TAI pregnancy rate between NS (50.97%) and CS (52.41%), but M cows had higher ($P < 0.01$) PR (56.62%) than H (47.99%) and P (50.46%) cows. Cows with BCS below 2.75 had lower ($P < 0.01$) PR (44.08% vs. 55.50%) compared to BCS 2.75 or more. Pregnancy rate at second AI tended ($P = 0.10$) to be higher in CS (44.25%) compared to NS (38.54%) cows. M cows had higher (46.22%) PR compared to P (36.57%) cows on second AI ($P = 0.01$). Final pregnancy rate was different ($P < 0.01$) between H, P and M cows (89.32%a, 71.74%b and 89.46%a) and there was an interaction ($P < 0.01$) between treatment and cow category: CS increased final pregnancy rate in P cows (77.81% vs. 65.68%) and decreased final PR in M (86.96% vs. 91.96%), with no effect on heifers (89.30%). Calves from CS P cows were heavier ($P < 0.01$) at weaning compared to NS group (207.79 ± 1.54 vs. 194.57 ± 1.73). M and P cows from CS group (425.31 ± 2.36 e 464.25 ± 1.81 kg) were heavier ($P = 0.01$) in the end of BS compared to NS (415.17 ± 2.47 e 457.83 ± 1.84 kg). In conclusion, corn supplementation for 41 days increased IGF-1 concentrations on first and second AI that was positively correlated to PR, increased PR to a second AI on P and M cows, increased final PR in P cows, decreased final PR in M cows; even thought, increased final breeding season M and P weight as well as increased calves weaning weight of P cows.

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A009 FTAI, FTET and AI

Ovulation inductors in short duration protocol for dairy ewes

L. Zanferari, R. Casali, R. Toazza, G. Dias, G. Santos, P. Gregianin, A. Mezzalira

Universidade do Estado de Santa Catarina, Lages.

Keywords: estradiol, GnRH, short protocol.

Dairy sheep industry is booming, especially in Santa Catarina state. The success of the dairy sheep industry depends on an adequate distribution of births during the year to enable a constant production of milk. However, few studies have evaluated estrus induction protocols outside of the breeding season in dairy sheep, especially those that evaluate the ovulation-inducing. This study aimed to evaluate dairy sheep pregnancy rates (Lacaune and Milchaf) synchronized with a short progesterone protocol and employing two ovulation inducers (GnRH and oestradiol benzoate). The ewes (n = 132) received a progesterone implant (Progespon®Syntex) for 6 days, and then were submitted to experimental groups: Control group (n = 44) in which it was applied 500 IU eCG (Novormon®Syntex) and 1.0 mL of prostaglandin (Lutalyse®Pfizer) at the implant removal; Group BE (n = 42) in which, in addition to eCG and prostaglandin it was applied 1.0 mL of estradiol benzoate (RICBE®Tecnopec) 24 hours after implant removal, and GnRH group (n = 43), similar to control, but with the application of 2.0 mL of GnRH (Sincroforte®Ourofino) 36 hours after implant removal. Artificial insemination was performed 52 hours after implant removal through laparoscopy. For laparoscopy, the animals were submitted to fasting for 24 hours and hydric fasting by 12 hours. Before the procedure, it was administered 0.2 mL acepromazin (Apromazin 1%®Syntec) intramuscularly, and 0.5 mL of lidocaine (Lidovet®Bravet) at the site of trocars introduction. Then, the abdominal cavity was inflated with CO2 to better visualize the uterine horns. With the aid of an ocular, the uterine horns were located and through whit a insemination pipet (®WTA) was held the insemination. The used semen was collected from sexually mature Lacaune and Milchaf males, using an artificial vagina at 38 0C temperature, and evaluated according to criteria of the Brazilian Animal Reproduction College. After evaluation, a pool of semen from each breed was diluted in Tris with 5% egg yolk in order to obtain an insemination dose of 100 million spermatozoa in 0.25 mL volume. Pregnancy diagnosis was performed by trans-rectal ultrasound 30 days after artificial insemination. The pregnancy data were analyzed by the $\chi 2$ test with 5% significance. The pregnancy rate in the control group was 45.4% (24/44) and did not differ ($P > 0.05$) from GnRH group 49.0% (21/43), demonstrating that there was no positive effect on pregnancy rates with GnRH use. In contrast, we observed a significant reduction ($P < 0.05$) in pregnancy rate in BE group 8.9% (4/45), demonstrating that estradiol benzoate is not suitable to induce ovulation in dairy ewes, at the time it was applied (24 hours after implant removal).

A010 FTAI, FTET and AI

Impact on estrus manifestation, ovulatory follicle diameter, ovulatory and pregnancy rate using EC or GnRH as ovulation inductors in TAI protocols in beef heifers

E.P. da Silva[1], M.M. Dias[1], A.B. Machado[1], L.S. Gambin[1], H.B. Bonadiman[1], M. da Silva[1], M.V. Klafke[1], A.V. Gonsioroski[1], M.F.C. Chaiben[2], J.B.S. Borges[1]

[1]Universidade Federal do Rio Grande do Sul, Porto Alegre; [2]Agener União, Porto Alegre.

Keywords: beef heifers, estrus, TAI.

The aim of this study was to compare estrus expression, ovulatory follicle diameter, ovulation and pregnancy rate in Angus heifers (Bos taurus) using estradiol cypionate (EC) or GnRH as ovulation inductors for timed artificial insemination (TAI). On day 0, heifers (n = 415), body condition score average = 3.0 ± 0.2 (1 to 5 escale) and body weight = 315 ± 23 kg, were evaluated by transrectal ultrasound to verify the presence of corpus luteum (PCL n = 213) or the absence of corpus luteum (ACL n = 202). Heifers received an intravaginal device with progesterone 1g (P4) (Primer®, Agener União, São Paulo - Brazil) and 2 mg of estradiol benzoate (EB), im, (RIC-BE®, Agener Union, São Paulo - Brazil). On Day 8, the P4 device was removed, and 500 mcg of sodium cloprostenol were administered, im, (ESTRON®, Agener União, São Paulo - Brazil). Heifers were tail painted (TELL TAIL®, GEA, New Zealand) to control estrus expression. Four groups were established according to treatments and ovarian status: EC-ACL [(n = 101); 0.5mg EC, im, (SincroCP®, Ouro Fino, São Paulo - Brazil) on day 8 and TAI 48 hours later]; GnRH-ACL [(n = 101); 25 mcg of Licerelin, im, (GestranPlus®, Agener União, São Paulo - Brazil) at the moment of TAI on day 10]; EC-PCL [(n = 113), 0.5 mg EC, im, on day 8 and TAI 48 hours later] and GnRH-PCL [(n = 100); 25 mcg of Licerelin, im, at the time of TAI on day 10]. On day 10 and 11, heifers were scanned (7.5 MHz linear transducer MediSono® P3V, USA) to evaluate the diameter of the ovulatory follicle and ovulation rate, and, on day 30, to determine pregnancy diagnosis. Estrus detection was confirmed when marking ink was removed on day 10. Statistical analyzes were performed using the PROC GLIMMIX SAS software (SAS® 9.3). Estrus expression was higher (P = 0.0001) in EC groups (ACL = 93% and PCL = 94%) compared to GnRH groups (ACL = 63.37% and PCL = 72%). Diameter of the ovulatory follicle was different (P < 0.05) according to the CL (ACL = 9.6 ± 0.1 and PCL = 10.3 ± 0.1,), but not different among hormone treatments. Ovulation rate did not differ (P > 0.05) among groups or treatments, EC-ACL (80%, 8/10); GnRH-ACL (87.5%, 7/8); EC-PCL (90%, 9/10), GnRH-PCL (100%, 10/10). Pregnancy rate was higher (P < 0.05) in GnRH-PCL heifers (68%, 68/100) compared to EC-ACL (50.5%, 51/101); GnRH-ACL (50.5%, 51/101); EC-PCL (54.8%, 62/113). In this study we concluded that the presence of CL, at the beginning of the TAI protocol, had a positive effect on ovulatory follicle diameter and pregnancy rate in TAI. Considering hormonal protocol, heifers treated with EC had more estrus expression, but the use of GnRH as ovulatory inductor determined higher pregnancy rate.

A011 FTAI, FTET and AI

Resynchronization in ewes: effect on luteal function and pregnancy rates

V.O. Miranda, F.C. Oliveira, K.L. Goularte, J.H. Dias, H.S. Pestano, C.E.R. Ferreira, S.F. Vargas Junior, T. Lucia Junior, A.D. Vieira, B.G. Gasperin

Universidade Federal de Pelotas, Pelotas.

Keywords: ewes, TAI, resynchronization.

In animal production systems, there is a need for alternative procedures that allow decreasing animal handling during the breeding season. In cattle, two consecutive (resynchronization) timed artificial inseminations (TAI) are effective; however, there is no report of resynchronization in sheep. This study was designed to investigate the effect of resynchronization on luteal function and pregnancy rates in ewes. The experiments were conducted between March and May, 2016, at a farm located in the Southern region of Rio Grande do Sul State (31°48'09.8"S 52°30'55.7"W). In a first study, 19 Texel ewes received (D-10) an intravaginal device (IVD; 60mg medroxyprogesterone acetate) and an i.m. administration of 250IU eCG (Novormon, Zoetis, São Paulo, Brazil) at IVD withdrawal (D0). Nine days later, nine ewes received a new IVD (RES) for eight days and 10 ewes remained as control group (CON). Serum progesterone (P4) levels were determined on days 12, 15 and 19. Luteal function was influenced (Mixed procedure SAS) by day and group. On the day of IVD insertion (D12), no difference in P4 levels was observed (6.6 ± 0.6 vs. 6.2 ± 0.7ng/mL P4, for CON and RES, respectively), as expected. However, on D15, it was observed 5.8 ± 0.5 vs. 4.7 ± 0.5ng/mL, for CON and RES, respectively ($P < 0.05$). On day 19, serum P4 levels were <1ng/mL in all animals, indicating luteolysis. In a second experiment, 68 Corriedale ewes received an intravaginal device (CIDR®, Zoetis, São Paulo, Brazil) on D-12, eCG and CIDR withdrawal on day 0 and TAI 54h after (cervical insemination; 200x106 sperm cells). The animals were then divided into three groups: CON = no further treatment (n = 28); RES without pregnancy diagnosis (PD; group s/DG) = CIDR from D10 to D20, eCG on D20 and TAI 54h later (n = 20) and RES with PD (group c/DG) = CIDR from D16 to D25, PD on D25 and eCG administration in non-pregnant ewes and TAI 54h later. Pregnancy rates after the first TAI did not differ among CON (52%), RES s/DG (60%) and RES c/DG (50%) ($P > 0.05$; chi-square test). The second TAI with unknown pregnancy status (RES s/DG) did not affect pregnancy maintenance (US after 35 days after TAI) from the first TAI. In the third experiment, 45 Corriedale ewes were submitted to TAI (D2) and 11 days later (D13) received a second-use CIDR. Seven days later (D20), CIDR was removed and all the ewes received 250IU eCG followed by TAI 54h later (D22). Pregnancy rate from the firs TAI (38%; 17/45) did not differ ($P > 0.05$) from the second TAI (43%; 12/28). In conclusion, progestagen supplementation after TAI decreases corpus luteum progesterone synthesis, without affecting luteolysis. Resynchronization and a second TAI in ewes with unknown pregnancy status do not affect pregnancy rate from the first TAI and pregnancy rates between the first and second TAI are similar. The technique allowed obtaining 65% pregnancy rate during the first 20 days of breeding season.

Authors are grateful to Zoetis for providing the hormones.

A012 FTAI, FTET and AI

Embryonic recovery increase and quality of embryos after intrauterine treatment: case report

O.R. Silva, H.S. Fernandez, J.E. Ferreira, M.R.B. Mello

UFRRJ, Seropedica.

Keywords: biotechnology, embryo transfer, reproduction.

The embryo production is a biotechnology of reproduction that allows you to optimize the donor genetic merit (female correspondent of AI) allowing the same animal to generate a greater number of offspring. The in vivo embryo production by multiple ovulation and embryo transfer (MOET) is influenced by many factors such as heat stress, nutrition, physiological state and still infectious causes that can alter the uterine microenvironment, affecting the quantity and quality of produced embryos. The uterus is considered a sterile environment that can sometimes suffer from contamination by opportunistic pathogens causing problems in the viability of the embryos produced by the donor. The aim of this summary was report an intrauterine treatment (uterine infusion) performed in a Nellore donor belonging to the Rural Federal University of Rio de Janeiro (UFRRJ) in Seropedica, Rio de Janeiro. The donor had a history of low efficiency in MOET with no production of viable embryos previously. In order to improve the uterine environment and consequently increase the embryo recovery and the viability of embryos was performed in a single treatment in the embryo donor seven days before the start of superstimulation protocol. The treatment was done by uterine infusion with combination of 300 mg of gentamicin, 150 mg of bromhexine hydrochloride, 100 mg of benzalkonium chloride (Gentrin®- uterine infusion, Sao Paulo, Brazil) plus 75 mg of cefquinome (Cobactan® intramammary Schering Plough Animal Health, Sao Paulo, Brazil). The drugs were administered using a uterine infusion pipette for cattle with syringe. After uterine flushing, the collector filter was taken to the laboratory for searching and morphological evaluation of recovered embryos. The superstimulation and embryo flushing, before and after treatment were carried out employing the same protocol hormone, semen and the same technician. The Nellore donor produced no viable embryo and presented an embryo recovery rate of 33% (three corpora lutea and recovered only a single non-transferable structure) before intrauterine treatment. After treatment, the same animal yielded 24 structures, 22 of transferable embryos (92% viable embryos) and a recovery rate of 141%. This high recovery was due to inability to count the corpus luteum due to high superovulatory response. Therefore, an increase in embryo recovery and an improvement in embryo quality in Nellore donor of this study after intrauterine treatment was observed.

A013 FTAI, FTET and AI

Effect of hCG at low dosage on follicular dynamics and ovulation in estrous synchronized sheep during anestrus

J.F. Cox[1], J. Dorado[2], F. Saravia[1]

[1]Universidad de Concepción, Chillán; [2]Universidad de Córdoba, Córdoba.

Keywords: estrous synchronization, hCG, sheep.

Conventional estrous synchronization protocols use eCG to stimulate terminal follicular development without considering that this control depends mainly on LH (Campbell et al., 2007 Biol. Reprod, 76, 719-727). This study was aimed to assess the effect of hCG, that binds specifically to LH receptor, upon terminal follicular development, ovulation and fertility of ovulation in anestrous sheep. In Experiment 1, 34 Highlander ewes under a feeding program were treated with progesterone (CIDR G, Pfizer, Chile) for 6 days and cloprostenol (0.125 mg, im, Ciclase, Syntex, Chile) at device removal. At that moment, ewes were grouped as follows: Control (no gonadotropins, n = 8), eCG (350 IU im Novormon, Syntex; n = 9), hCG-200 and hCG-300 (200 and 300 IU im Chorulon, Intervet, Chile; n = 8 and 9 respectively). Ovulations were induced by estradiol (0.2 mg im Estradiol Benzoato, Syntex, Chile) 24 h after CIDR. Follicles ≥ 4 mm in diameter at 24 h after CIDR, at ovulation and CL 10 days after ovulation were measured by transrectal US (10 mHz-probe, Honda 2100 Vet) and registered in individual charts whereas the moment of ovulations was detected by assessing ovaries each 8 h since 48 h after CIDR (average period between the last time a follicle was observed and its disappearance). The interval to ovulation was considered as the period between the CIDR removal and ovulation. In Experiment 2, another group of 20 ewes were synchronized as before and at CIDR removal they were allocated in eCG Group (350 IU eCG, n = 10) and in hCG Group (300 IU hCG, n = 10), ovulations were induced as before and 24 h after, ewes were exposed to the same rams of known fertility (1:10 ratio). Ewes were scanned at estradiol, at 7 and at 35 days after breeding to assess follicular development, functional ovulations and fertility of ovulations. Descriptive and parametric statistics were carried out using the STATISTICA 10.1 (StatSoft Inc, Tulsa, OK, USA) statistical package. Results in Exp. 1 show the ewes have similar follicle numbers at 24 h but those treated with hCG are larger than controls (4.5 ± 0.11 vs. 5.0 ± 0.18, 5.6 ± 0.27 and 5.7 ± 0.24 mm for controls, eCG, hCG-200 and 300, mean ± SEM; $P < 0.05$); control ewes almost did not ovulate (12.5%) whereas eCG, hCG-200 and hCG-300 ewes showed similar ovulation rate (77.8%, 100% and 100%), ovulated follicles (1.2, 2.0 and 1.8), ovulatory follicle diameter (5.1 ± 0.19; 5.9 ± 0.34 and 6.1 ± 0.52 mm), CL diameters (9.8 ± 0.46, 10.1 ± 0.47 and 9.8 ± 0.28 mm) and interval to ovulation (62.2 ± 2.06, 59.5 ± 1.27 and 63.0 ± 1.92 h; $P > 0.10$). Exp. 2 showed that eCG and hCG ewes exhibit similar follicle and CLs numbers and diameters and fertility of ovulations (2.1 vs. 2.0; 5.2 ± 0.21 vs. 5.0 ± 0.2 mm; 1.7 vs. 1.9; 10.5 ± 0.32 vs. 10.2 ± 0.25 mm; and 67.7% vs. 67.7% of pregnancy rates respectively; $P > 0.10$). Collective results suggest that hCG can stimulate terminal follicular development with similar efficiency compared to eCG.

A014 FTAI, FTET and AI

Evaluation of delaying time to insemination in cyclic Nelore heifers with absence of estrus behavior up to 48 hours of P4 device withdrawal

J.P. M. Lollato[1], T.L. Conti[2], R.L. Gonçalves[3], G.P. Santos[3], J.M.R. Persico[3], A.J. Saran Junior[4], J.N.S. Sales[5], P.S. Baruselli[6], R.M. Ferreira[6]

[1]Universidade Estadual de Maringá, Arapongas; [2]Departamento de Medicina Veterinária - FZEA - USP, Pirassununga; [3]Biogénesis-Bagó, Curitiba; [4]Profissional Autõnomo, Casa Branca; [5]Departamento de Medicina Veterinária - UFLA, Lavras; [6]Departamento de Reprodução Animal - FMVZ - USP, São Paulo.

Keywords: estrus, fertility in heifers, time to insemination.

Several previous studies report lower conception rates in heifers with absence of estrus behavior during the TAI protocol than in those that showed estrus. The aim of these studies was to evaluate if delaying time to insemination of cyclic Nelore heifers subjected to TAI and with absence of estrus behavior up to 48 h of P4 device removal could improve their conception rate, leading to rates closer to that from heifers showing estrus. In Studies 1 and 2, 1004 heifers with average BCS 3.17 ± 0.02 and 328 heifers with average BCS 3.30 ± 0.02 (1-4 point scale) were used. All heifers were Nelore, aged 18-24 months old and were located in two commercial farms in Nova Bandeirantes-MT, Mato Grosso State, Brazil. All heifers were cyclic and were treated with similar protocols of synchronization of follicular wave emergence and ovulation for TAI. Briefly, at random days of the estrous cycle (D0), all heifers received a Cronipres® Mono Dose intravaginal device containing 1 g P4, (Biogénesis Bagó, Brazil), 1-2 mg estradiol benzoato (EB; Bioestrogen®, Biogénesis Bagó, Brazil) and 75-150 µg D-Cloprostenol (PGF; Croniben®, Biogénesis Bagó, Brazil) IM. On D8, the device was removed and 75-150 µg D-Cloprostenol, 200 IU eCG (Ecegon®, Biogénesis Bagó, Brazil) and 0.5 mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó, Brazil) IM were administered. On D8 heifers were also painted with chalk on their tailheads, and removal of chalk was used as an indication of estrus. On D10, 48 h after device removal, the occurrence of estrus was determined based on the visual analysis of tail-paint score of removal. In Study 1, all heifers were inseminated 48h after device removal, regardless the presence and intensity of estrus. In Study 2, heifers considered to be (or to have been) in strong (absence of painting) or moderate (more than 70% of painting rubbed off) estrus were immediately inseminated (48h), while the remaining heifers were considered as in absence of estrus and were inseminated 6 h later (54h). All inseminations were performed by the same veterinary using the semen of Aberdeen Angus and Senepol bulls. Pregnancy diagnosis was done 40d after AI (Mindray DP2200VET). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). There was no effect of EB, PGF and bull ($P > 0.05$). In Study 1, 76.3% (766/1004) of the heifers showed estrus up to 48h after device removal. Those heifers had greater conception rate [55.2% (423/766)] than heifers without estrous signs [40.8% (97/238; $P = 0.01$) when they were all inseminated 48h after device withdrawal. In Study 2, 60.7% (199/328) of the heifers showed estrus up to 48h after device removal. Conception rate was greater ($P = 0.0001$) in heifers that had showed estrus and were inseminated 48h after device removal [63.3% (126/199)] than in those without estrous behavior and inseminated 54h [38.8% (50/129)], evidencing no advantages of delaying time to insemination. Thus, delaying time to AI in cyclic Nelore heifers subjected to TAI and that did not show estrus after device removal up to 48h apparently brings no beneficial impact on conception rate.

Credits: Farms Beira Rio and Novo Brasil, CNPq 486089/2013-4 and 152030/2016-6.

A015 FTAI, FTET and AI

Induction of cyclicity in prepubertal nelore heifers using new or previously used Cronipres® mono dose devices originally containing 1 g P4

R.L. Gonçalves[1], T.L. Conti[2], G.P. Santos[1], J.M.R. Persico[1], A.J. Saran Junior[3], J.N.S. Sales[4], P.S. Baruselli[5], R.M. Ferreira[5]

[1]Biogénesis-Bagó, Curitiba; [2]Departamento de Medicina Veterinária - FZEA - USP, Pirassununga; [3]Profissional Autõnomo, Casa Branca; [4]4departamento de Medicina Veterinária - UFLA, Lavras;
[5]Departamento de Reprodução Animal - FMVZ - USP, São Paulo.

Keywords: *Bos indicus*, puberty, progesterone.

The aim of this study was to investigate the efficacy of using and reusing the intravaginal device Cronipres Mono Dose originally containing 1 g P4 (Biogénesis Bagó, Brazil) to induce cyclicity in prepubertal Nelore heifers. A total of 227 Nelore heifers aging 16-24 months old, with minimum body weight of 250 kg and minimum BCS of 2.5 (1 to 4 point scale) from two commercial farms located in Nova Bandeirantes, Mato Grosso State, Brazil were evaluated by ultrasonography (uterus and ovaries; Mindray DP2200VET). Heifers without CL on their ovaries and with immature uterus (1 and 2, in a 1-4 scale of uterine thickness) were considered prepubertal and were subjected to treatments for cyclicity induction. Heifers were homogenously (BCS, body weight and age) distributed to receive (D0) a new or a previously used (for 8d) Cronipres Mono Dose device originally containing 1 g P4. The devices removal was performed after 10 days (D10) concomitant with the administration of 0.5 mg estradiol cypionate (Croni-Cip, Biogénesis Bagó, Brazil) IM. All heifers were reevaluated (uterus and ovaries) 30 days after devices withdrawal (D40). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). Similar average BCS (2.91 ± 0.02 and 2.91 ± 0.02; P = 0.77), body weight (269.0 ± 3.9 and 267.7 ± 3.9; P = 0.64) and score of uterine maturity on D0 (1.55 ± 0.05 and 1.53 ± 0.05; P = 0.64) were observed in heifers treated with new and previously used devices, respectively, demonstrating that an homogenous distribution between groups was guaranteed before treatment. At cyclicity evaluation 30 days after the end of treatment, it was observed increased score of uterine maturity in heifers of both groups compared to D0. No differences (P = 0.88) were observed regarding the uterine maturity of heifers treated with new (3.00 ± 0.06) and previously used (3.00 ± 0.06) devices. Moreover, similar percentage of heifers with CL on D40 was detected between groups (new device: 65.5%, previously used device: 68.7%; P = 0.55). Finally, the rate of induction of cyclicity was also similar (P = 0.99) between heifers treated with new (81.3%, 91/112) or previously used (81.7%, 94/115) devices. In conclusion, protocols with Cronipres Mono Dose devices containing 1 g P4 both new and previously used for 8d were equally efficient to induce cyclicity in prepubertal Nelore heifers.

Credits: Farms Beira Rio and Novo Brasil, CNPq 486089/2013-4 and 405770/2015-4.

A016 FTAI, FTET and AI

Dose reduction of estradiol benzoate and PGF2a in TAI protocols for cyclic Nelore heifers treated with Cronipres® mono dose intravaginal device containing 1 g P4

R.M. Ferreira[1], T.L. Conti[2], A.J. Saran Junior[3], R.L. Gonçalves[4], G.P. Santos[4], J.M.R. Persico[4], J.N.S. Sales[5], P.S. Baruselli[1]

[1]Departamento de Reprodução Animal - FMVZ - USP, São Paulo; [2]Departamento de Medicina Veterinária - FZEA - USP, Pirassununga; [3]Profissional Autônomo, Casa Branca; [4]Biogénesis Bagó, Curitiba; [5]Departamento de Medicina Veterinária - UFLA, Lavras.

Keywords: *Bos indicus* heifer, reproductive efficiency, timed artificial insemination.

The aim of the present study was to evaluate the dose reduction of estradiol benzoate (EB) and PGF2α on a TAI protocol using Cronipres® Mono Dose device containing 1 g P4 (Biogénesis Bagó, Brazil) for cyclic Nelore heifers. A total of 588 heifers aging 18-24 months old, with average body weight 316.5 ± 2.0 kg, and average BCS 3.17 ± 0.02 (1-4 points scale) from two commercial farms located in Nova Bandeirantes, Mato Grosso State, Brazil were used herein. All heifers had a CL and were treated with the same protocol for synchronization of follicular wave emergence and ovulation for TAI, except for the administration of different doses of EB and PGF2α. Briefly, at random days of the estrous cycle (D0) all heifers received a Cronipres® Mono Dose intravaginal device containing 1 g P4 and were homogenously distributed (BCS, body weight and age) to receive 1 or 2 mg EB (Bioestrogen®, Biogénesis Bagó, Brazil) and 150 or 75 µg D-Cloprostenol (PGF2α, Croniben®, Biogénesis Bagó, Brazil) IM, following a 2x2 factorial design. On D8, the device was removed and 150 or 75 µg D-Cloprostenol (same dose given on D0), 200 IU eCG (Ecegon®, Biogénesis Bagó, Brazil) and 0.5 mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó, Brazil) IM were administered. Also on D8 heifers were painted with chalk on their tailheads, and removal of chalk was used as an indication of estrus. TAI was performed by a single veterinary 48h after device withdrawal (D10) and concomitant with estrus determination by visual analysis of tail-paint score. Semen of two Aberdeen Angus bulls was homogenously distributed between groups. Pregnancy diagnosis was done 40d after TAI (Mindray DP2200VET). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). There was no effect of bull (P = 0,86) and no interation between doses of EB and PGF2α (P = 0,51). Similar rates of estrus and conception were observed when heifers were treated either with 1 and 2 mg EB on D0 [estrus: 74.4% (218/293) vs 78.0% (230/295); P = 0.30 and conception: 54.9% (163/293) vs 49.8% (147/295); P = 0.18, respectively]. The reduction of the dose of PGF2α from 150 to 75 µg also had no effect on the occurrence of estrus [77.1% (226/293) vs 75.3% (222/295); P = 0.57] and conception [51.5% (151/293) vs 53.2% (157/295); P = 0.74] of Nelore heifers. Moreover, regardless of treatment, heifers showing estrus had greater conception rate than those without estrus occurrence [56.5% (253/448) vs 39.3% (55/140); P = 0.001). Body weight had no influence on conception. Heifers with <300kg [51.3% (97/189)] and ≥ 300 kg [53.0% (211/398)] had similar (P = 0.56) rates of conception after TAI, probably because they all had uterine maturity already established on D0 (score of uterine thickness of 3 and 4 in a 1 to 4 points scale). Thus, it is possible to reduce the doses of EB to 1 mg (D0) and PGF2α to 75 µg D-Cloprostenol (D0 e D8) in TAI protocols for cyclic Nelore heifers without reducing the rates of estrus and conception.

Credits: Farms Beira Rio and Novo Brasil, CNPq 486089/2013-4 and 152030/2016-6.

A017 FTAI, FTET and AI

Comparative conception rate of cyclic Nelore heifers with or without CL at the onset of TAI protocol with Cronipres® mono dose device containing 1 g P4

A.J. Saran Junior[1], T.L. Conti[2], R.L. Gonçalves[3], G.P. Santos[3], J.M.R. Persico[3], J.N.S. Sales[4], P.S. Baruselli[5], R.M. Ferreira[5]

[1]Profissional Autônomo, Casa Branca; [2]Departamento de Medicina Veterinária - FZEA - USP, Pirassununga; [3]Biogénesis Bagó, Curitiba; [4]Departamento de Medicina Veterinária - UFLA, Lavras;
[5]Departamento de Reprodução Animal - FMVZ - USP, São Paulo.

Keywords: *Bos indicus* heifers, puberty, uterine maturity.

The aim of this study was to comparative evaluate the rates of estrus and pregnancy of cyclic Nelore heifers with or without CL at the onset of the TAI protocol using Cronipres® Mono Dose intravaginal device containing 1 g P4 (Biogénesis Bagó, Brazil). A total of 577 cyclic Nelore heifers aging 18-24 months old, with average body weight of 308.1 ± 2.4 kg and average BCS of 3.13 ± 0.02 (1-4 point scale) from two commercial farms located in Nova Bandeirantes, Mato Grosso State, Brazil were used herein. Heifers with adequate uterine maturity detected by transretal palpation (classified as 3 and 4 considering a 1-4 points scale for uterine thickness) were considered cyclic regardless the presence of CL. All heifers were treated with the same protocol to synchronize follicular wave emergence and ovulation for TAI. Briefly, at random days of the estrous cycle (D0) heifers with and without CL received one Cronipres® Mono Dose intravaginal device containing 1 g P4 and 2 mg estradiol benzoate (Bioestrogen®, Biogénesis Bagó, Brazil). Heifers with CL also received 150 µg D-Cloprostenol (Croniben®, Biogénesis Bagó, Brazil) IM. On D8, the device was removed and 150 µg D-Cloprostenol, 200 IU eCG (Ecegon®, Biogénesis Bagó, Brazil) and 0.5 mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó, Brazil) were administered IM in all heifers. On D8 heifers were also painted with chalk on their tailheads, and removal of chalk was used as an indication of estrus. TAI was performed by a single veterinary using semen of three Aberdeen Angus bulls 48h after device withdrawal (D10) and concomitant with estrus determination by visual analysis of tail-paint score. Pregnancy diagnosis was done 40d after TAI (Mindray DP2200VET). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). Similar rate of estrus (P = 0.87) was observed in heifers with CL on D0 [78.0% (230/295)] or without CL on D0 [77.0% (217/282)]. Likewise, similar conception (P = 0,22) rate was observed regardless of presence of CL on D0 [with CL: 49.3% (144/292) and without CL: 54.5% (153/281)]. Thus, Nelore heifers with CL and receiving PGF on D0 had similar rates of estrus and conception following TAI protocols compared with heifers without CL and adequate uterine maturity on D0. Therefore, heifers with adequate uterine maturity had similar fertility at TAI, regardless of having or not a CL on D0.

Credits: Farms Beira Rio and Novo Brasil, CNPq 486089/2013-4 and 405770/2015-4.

A018 FTAI, FTET and AI

Effect of using PGF2a on D0 and different doses of eCG on D8 of TAI protocols with Cronipres® mono dose 1g on conception rate of Nelore cyclic heifers

R.W. Girotto[1], T.L. Conti[2], A.A. Schneider[1], J.L.B. Leite Neto[1], R.L. Gonçalves[3], G.P. Santos[3], J.M.R. Persico[3], J.N.S. Sales[4], P.S. Baruselli[5], R.M. Ferreira[5]

[1]RG Genetica Avançada, Agua Boa; [2]Departamento de Medicina Veterinária - FZEA - USP, Pirassununga; [3]Biogénesis Bagó, Curitiba; [4]Departamento de Medicina Veterinária - UFLA, Lavras;
[5]Departamento de Reprodução Animal - FMVZ - USP, São Paulo.

Keywords: equine chorionic gonadotropin, fertility in heifers, progesterone.

The aim of the study was to evaluate the effect of using one dose of PGF2α at the onset of TAI protocol (D0) and 0, 200 or 300 IU eCG at intravaginal device removal on conception rate of Nelore heifers with corpus luteum on D0. A total of 877 Nelore heifers from two commercial farms located in Barra do Garças and Campinápolis, Mato Grosso State, Brazil and with average BCS 3.01 ± 0.02 on D0 were used herein. On D0 all heifers received one intravaginal device containing 1g P4 (Cronipres® Mono Dose, Biogénesis Bagó, Brazil), 2 mg estradiol benzoate (Bioestrogen®, Biogénesis Bagó, Brazil) IM and were homogenously allocated to receive or not 150 µg of D-Cloprostenol (PGF2α, Croniben®, Biogénesis Bagó, Brazil) IM. On D8, the device was removed and all heifers were treated with 150 µg D-Cloprostenol and 0.5 mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó, Brazil) IM. Both heifers receiving and not PGF2α on D0 were redistributed on D8 to receive 0, 200 or 300 IU eCG (Ecegon®, Biogénesis Bagó, Brazil), following a 2X3 factorial design. TAI was performed 48h after device withdrawal by a single veterinary and using semen of six bulls (Nelore and Aberdeen Angus) homogenously distributed between the six experimental groups. Pregnancy diagnosis was done 45d after TAI (Mindray DP2200VET). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). Neither effect of bull (P = 0.79) nor interation between the use of PGF2α on D0 and eCG on D8 (P = 0.76) were found. Similar conception rate (P = 0.65) was observed between heifers treated (42.0%, 188/443) or not (39.4%, 171/434) with PGF2α on D0. However, greater conception rate (P = 0.04) was detected when heifers where treated with 200 IU eCG (45.8%a, 132/288) compared to those that did not receive this gonadotropin (35.5%b, 103/290). No difference was observed on conception rate when 200 or 300 IU eCG (40.8%ab, 122/299) was used. Despite the absence of improvement on conception rates of Nelore heifers, new studies must be conducted before recommending the exclusion of PGF2α on D0 of TAI protocols. The need for using PGF2α on D0 may be related to the level of P4 production by the CL and the level of hepatic metabolism of P4, witch in turn can be related to heifers` nutrition. However, the use of eCG was effective to improve conception rate of Nelore heifers subjected to TAI. Besides, the reduction of eCG dose from 300 to 200 IU was successfully employed without causing any loss to zebu heifers reproductive efficiency. Thus, based on the presented results, there is no need for using PGF2α on D0 and it is possible to reduce the dose of eCG from 300 to 200 IU on D8 of the TAI protocol of Nelore heifers treated with Cronipres® Mono Dose intravaginal device containing 1g P4.

Credits: Farms Estrela do Vale and Água Preta, CNPq 486089/2013-4 and 405770/2015-4.

A019 FTAI, FTET and AI

Comparative conception rate of cyclic Nelore heifers treated with Cronipres® mono dose devices containing 0.558 g or 1 g progesterone

T.L. Conti[1], A.J. Saran Junior[2], R.L. Gonçalves[3], G.P. Santos[3], J.M.R. Persico[3], J.N.S. Sales[4], P.S. Baruselli[5], R.M. Ferreira[5]

[1]Departamento de Medicina Veterinária - FZEA - USP, Pirassununga; [2]Profissional Autônomo, Casa Branca; [3]Biogénesis Bagó, Curitiba; [4]Departamento de Medicina Veterinária - UFLA, Lavras;
[5]Departamento de Reprodução Animal - FMVZ - USP, São Paulo.

Keywords: *Bos indicus* heifer, reproductive efficiency, timed artificial insemination.

The aim of this study was to comparative evaluate the rates of estrus and pregnancy of cyclic Nelore heifers subjected to TAI using Cronipres® Mono Dose intravaginal device containing 0.558 g or 1 g progesterone (P4; Biogénesis Bagó, Brazil). A total of 288 cyclic Nelore heifers aging 18-24 months old, with average body weight 316.1 ± 2.0 kg and average BCS 3.15 ± 0.02 (1-4 point scale) from two commercial farms located in Nova Bandeirantes, Mato Grosso State, Brazil were used herein. All heifers had a CL and were treated with the same protocol to synchronize follicular wave emergence and ovulation for TAI, except for the concentration of P4 of the intravaginal device. Briefly, at random days of the estrous cycle (D0) heifers were homogenously (BCS, body weight and age) distributed to receive one Cronipres® Mono Dose intravaginal device containing 0.558 g or 1 g P4. At that same time, they also received 1 mg estradiol benzoato (Bioestrogen®, Biogénesis Bagó, Brazil) and 75 µg D-Cloprostenol (Croniben®, Biogénesis Bagó, Brazil) IM. On D8, the device was removed and 75 µg D-Cloprostenol, 200 IU eCG (Ecegon®, Biogénesis Bagó, Brazil) and 0.5 mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó, Brazil) IM were administered. On D8 heifers were also painted with chalk on their tailheads, and removal of chalk was used as an indication of estrus. TAI was performed by a single veterinary 48h after device withdrawal (D10) and concomitant with estrus determination by visual analysis of tail-paint score. Semen of a single Aberdeen Angus bull was used. Pregnancy diagnosis was done 40 days after TAI (Mindray DP2200VET). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). Similar rates of estrus (P = 0.61) and conception (P = 0.16) were observed when heifers were treated with Cronipres® Mono Dose device containing 0.558 g P4 [estrus: 76.2% (109/143) and conception: 45.8% (65/142)] or 1 g P4 [estrus: 73.1% (106/145) and conception: 54.2% (78/144)]. Thus, increasing P4 concentration from 0.558 g to 1 g in the intravaginal device did not affect negatively conception rate in zebu heifers. Therefore, it is possible to infer that both Cronipres® Mono Dose devices (0.558 g and 1 g P4) can be used in TAI protocols for cyclic Nelore heifers, resulting similar rates of estrus and conception.

Credits: Farms Beira Rio and Novo Brasil, CNPq 486089/2013-4.

A020 FTAI, FTET and AI

Comparison of pregnancy rate between fixed-time artificial insemination and natural mating in the state of Sergipe

F.C. Almeida[1], F.F. Almeida[1], D.C. Burgos[2], A.M. Batista[3], S.V. Silva[4]

[1]Fertvet, Aracaju; [2]Criar Veterinária, Aracaju; [3]UFRPE, Recife; [4]UFPB, João Pessoa.

Keywords: cattle, FTAI, reproduction.

This study aimed to compare two different reproductive management systems: fixed-time artificial insemination (FTAI) associated with natural mating (NM) and only natural mating, related to gains in the number of pregnancies and reduction of costs. The study was conducted at the Moreira Farm in Riachão do Dantas, Sergipe, Brazil. Nellore cows (Bos indicus) (n = 512), among 35 to 60 days postpartum, were randomly assigned to the following groups: FTAI+NM (n = 256) or NM (n = 256), using cow:bull ratio of 25:1 for a three months of breeding season. The protocol for the FTAI cows was conducted an intravaginal progesterone-releasing device at 1g (Cronipress®, Biogenesis-Bagó) and 2 mg of estradiol benzoate (Bioestrogen®, Biogenesis-Bagó) i.m. on D0. On D8, the devices were removed and cows received 150µg of D-cloprostenol (Cronibem®, Biogenesis-Bagó); 0.75 mg estradiol cypionate (Chronicity-CIP®, Biogenesis-Bagó) and 300 IU eCG i.m. (Ecegon®, Biogenesis-Bagó). On the D10, 48h after devices removal, all cows were artificially inseminated. Fifteen days after insemination, the cows were exposed to bulls at a cow:bull ratio of 20:1 during 15 days and at a cow:bull ratio of 32:1 in the remaining period. On D45, pregnancy diagnosis in FTAI+NM group was performed to analyze the pregnancy rate of inseminated animals. At the end of three months, bulls of all lots were removed and pregnancy diagnosis was performed after 35 days. For statistical analysis we used the chi-square test. On D45, pregnancy rate results in FTAI+NM group was 65% (166/256). At the end of the breeding season, pregnancy rate to FTAI+NM group was 91% (232/256), significantly higher ($P < 0.001$) when compared to the NM group with pregnancy rate of 72% (184/256). In Sergipe state, a FTAI protocol costs around to R$ 70,00/inseminated cow (including semen, hormones and veterinary service) and the average price of the calf is around R$ 1,400.00. Whereas at FTAI+MN group were obtained 48 calves more than in MN group, associated with removal the income estimated by the number of calves in each batch, it obtained 20% more financial income in the FTAI+MN group. In conclusion, FTAI associated to natural mating proposes direct gains, as a greater number of pregnancies, increases revenue from properties and also has indirect gains, such as to approximate the cows to the beginning of breeding season and use of bulls with high genetic merit.

A021 FTAI, FTET and AI

The quality of semen used in TAI is able to alter the serum concentration of acute phase protein?

E.C.C. Celeghini[1], B.M. Oliveira[1], R.P. de Arruda[1], M. Maturana Filho[1], D.B. Birgel[2], F.C. Pogliani[3], E.H. Birgel Junior[2]

[1]Centro de Biotecnologia Em Reprodução Animal - Departamento de Reprodução Animal - FMVZ-USP, Pirassununga; [2]Departamento de Medicina Veterinária - FZEA-USP, Pirassununga; [3]Departamento de Clínica Médica - FMVZ-USP, São Paulo.

Keywords: albumin, fertility, sperm.

During an inflammatory process, in addition to local reactions , there is also a systemic reaction , called the acute phase response. This response is characterized by the change of acute phase protein concentrations that develops quickly after any tissue damage. It is known that after the deposition of semen in the female reproductive tract is an inflammatory reaction that can be enhanced by the presence of higher amounts of dead cells. Thus, the objective of this experiment was to study the effects of the quality of semen used in timed artificial insemination (TAI) on serum albumin, which is a negative acute phase protein, ie, has a reduced concentration during processes inflammatory. For this, 362 Nellore cows were divided into three groups according to the quality of semen, based on the percentage of cells with intact plasma membrane intact acrosome and high mitochondrial potential (IPIHM): 44.5% (Good, n = 121), 23% (Medium, n = 121) and 8.5 (Regular , n = 120). Semen was evaluated by the association technique of fluorescent probes described by Celeghini et al. (Anim Reprod Sci, 104:119-131, 2008). Four hours after TAI, blood samples were collected from the external jugular vein of all animals and serum albumin was measured using automatic biochemical analyzer (RX Daytona), using a specific kit Randox® (London, UK) (AB3800). Data were analyzed using PROC MIXED (SAS, version 9.2, 2010), to compare the means we used the Tukey test and statistical differences were considered when $P < 0.05$. The groups had similar albumin values (Good = 3.16 ± 0.02 g/dL; Medium = 3.19 ± 0.02 g/dL; Regular = 3.11 ± 0.02 g/dL). Given that the groups were divided according to the number of viable cells in semen and semen regular showed greater amount of injured cells, it was hoped that this group had increased local inflammatory reaction and thus lower amounts of this protein as albumin, which is a negative acute phase protein, and in situations of tissue injury has its concentration decreased. However, this was not observed. Thus, the results of this research suggest that the inflammatory reaction that takes place after the deposition of semen with the highest number of injured cells can not cause a systemic reaction to affect the production of albumin four hours after TAI.

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A022 FTAI, FTET and AI

The spermatozoa back flow in artificial insemination sheaths used in cattle

G.A. Pessoa[1], A.P. Martini[1], A.P. Baioco[1], T.G. Jacques[1], J.M. Weigert[2], T. Minela[1], C.E.P. Leonardi[3], M.F. Sá Filho[4], M.I.B. Rubin[1]

[1]Laboratório de Embriologia Animal (Embryolab), DCGA, CCR, UFSM, Santa Maria; [2]Médico Veterinário- Autônomo, Santa Maria; [3]University of Saskatchewan, Saskatoon; [4]Alta Genetics, Uberaba.

Keywords: beef cattle, FTAI, sheaths.

The objective was to detect the presence of spermatozoa back flow in 4 different sheath brands at moment of AI: A (n = 580), B (n = 1178), C (n = 775) and D (n = 1173). Only the brand D sheaths have the anti-back-flow system. The sheaths were tested on 3706 FTAI in beef cows during the breeding season of 2015-16 in the South of Brazil. The four brands were assigned (farm/group) between 0.25 and 0.5 mL semen straws: A0.25 (n = 378), A0.5 (n = 202), B0.25 (n = 996), B0.5 (n = 212), C0.25 (n = 494), C0.5 (n = 281), D0.25 (n = 685), D0.5 (n = 488). The same operator placed the straws into the sheaths and two veterinarians carried out the AI throughout whole experiment. To measure the amount of spermatozoa back flow, straws with cotton plugs remaining and attached to the sheaths after AI (n = 1128) were randomly assigned into groups. Then the sheaths were divided into brands and straw sizes: A0.25 (n = 179) and A0.5 (n = 67), B0.25 (n = 141) and B0.5 (n = 83), C0.25 (n = 122) and C0.5 (n = 78), D0.25 (n = 366) and D0.5 (n = 92). Immediately after AI, the end parts (3cm) of the sheaths with straws attached were cut, and placed in a 10 ml tube with 4 ml of formol citrate until counting in a Neubauer chamber under microscopy (400x). The statistical analyzed was performed with PROC GLIMMIX in the SAS 9.3 program. Straws detached from sheaths after AI were observed in 9.7% (358/3706) of total sheaths [A = 23.8% (138/580), B = 10.9% (129/1178), C = 5.3% (41/775), D = 4.3% (50/1173); $P < 0.0001$]. Straws of 0.25 ml (12.3%, 274/2229) had more detached straw-sheaths than 0.5 ml [(7.4%, 84/1099), $P = 0.0255$)]. Among sheath brands, A (41.9%, 75/179) and B (24.1%, 34/141) showed more detachments than C (16.4%, 20/122) and D (15.0%, 35/366) ($P < 0.0001$) in 0.25 straws. When 0.5 ml straws were used, the semen back flow was higher for sheath brand A (32.8%, 22/67 ($P = 0.0001$) than B, C and D was 15.7% (13/83), 9.0% (7/78) and 3.3% (3/92), respectively. In combined analysis of 0.25 and 0.5 mL straws, the semen back flow was higher for brands A (39.4%, 97/246) and B (21.0%, 47/224) than C (13.5%, 27/200) and D (12.7%, 58/458), ($P = 0.0001$). The numbers of spermatozoa (mean ± SE, x103) found in the back flow sheaths were A0.25 (66.4 ± 10.7), A0.5 (19.3 ± 5.2), B0.25 (10.63 ± 2.8), B0.5 (6.0 ± 2.6), C0.25 (4.7 ± 1.5), C0.5 (2.7 ± 1.4), D0.25 (1.5 ± 0.3) e D0.5 (0.17 ± 0.1). There was a higher number of spermatozoa in 0.25 than 0.5 mL straws ($P = 0.0004$), and in A and B than C and D sheath brands ($P < 0.0001$). In conclusion, detachment or partial semen back flow was observed among all brands test. However, back flow was low in sheaths with anti-back-flow system. Therefore, the quality of AI sheath should be included as a factor on the planning of breeding in cattle.

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A023 FTAI, FTET and AI

Characteristics of the dynamics follicular in heifers Girolandas under two FTAI protocols

S. Costa e Silva[1], Á.M. Borges[1], E.C.M. Pereira[2], R.M. Santos[2], F.A.O. Silva[2], J.L.A. de Andrade[2], G.M. Souza[2], D.C. Antonino[2], A.M. Teixeira[2]

[1]UFMG, Belo Horizonte; [2]UFU, Uberlandia.

Keywords: FTAI, Girolanda heifers, GnRH.

The Fixed-Time Artificial Insemination (FTAI) is an animal reproduction biotechnique which has been widely used in dairy and beef herds in Brazil. The use of this tool offers substantial advantages on reproductive management of dairy herd, allowing the improvement of reproductive performance of high production cows, which is currently low. However, the conception subsequent to FTAI protocols are variable due to several factors as differences among the ovulation induction hormones, hormonal concentration and doses and the dominant follicle diameter at the moment of Artificial Insemination (AI). Accordingly, the aim of this current study, was to evaluate the diameter of the largest follicle in heifers receiving two different FTAI protocols, with different methods of follicular wave synchronization. Heifers Girolando (3/4 to 7/8 Holstein-Zebu) were submitted to two FTAI protocols: Protocol I (PI) (n = 30): injection via intramuscular (IM) of 10.5µg GnRH and the placing of intravaginal device containing progesterone (P4) (D0-day zero); injection IM of 150µg prostaglandin F2alfa (PGF2a), removal of P4 device on the fifth day (D5); injection IM of PGF2α on the sixth day (D6) and AI and injection IM of 10.5µg GnRH on the eighth day of the protocol (D8). Protocol II (PII) (n = 30): injection IM of 2.0mg of estradiol benzoate (EB) and the placing of intravaginal device containing progesterone (P4) (D0); injection IM of 150µg of PGF2α on the seventh day (D7); removal of P4 device and injection IM of 1mg of estradiol cypionate (EC) on the ninth day (D9) and AI on the eleventh day of the protocol (D11). Transrectal ultrasonography was performed in the beginning of the protocols (D0), two days after the beginning (D2) and on AI day (D8 of Protocol I and D11 of Protocol II). Vaginal device used were Primer (Tecnopec, São Paulo, Brazil) and hormones GnRH (Gonaxal), EB (Bioestrogen), EC (Croni-cip), PGF2α (Croniben) of Biogenesis Bagó SA (Garin, Buenos Aires, Argentina). Aiming to confirm the ovulation of the animals, it was also performed transrectal ultrasonography seven days after the AI in each protocol. The follicles diameters in different days of the protocols, were statistically evaluated (ANOVA), means were compared using Mann Whitney Test and ovulation rate analyzed using Chi-Square Test, considering $P < 0.05$. The follicles diameters at D0, D2 and AI day, expressed as means ± SEM, were: 13.1 ± 0.4mm and 12.8 ± 0.6mm, 8.1 ± 0.5mm and 12.0 ± 0.6mm, 12.6 ± 0.6mm and 10.6 ± 0.7mm, respectively for protocol I and II. Significant differences $P < 0.05$ were observed between the follicular diameters at D2 and AI day. The ovulation rates were 83.3% and 60.0% for PI and PII, respectively. The follicles diameters differences observed, occurred due to the distinct wave synchronization methods in each protocol.

A024 FTAI, FTET and AI

Evaluation of pregnancy rates of *Bos indicus* cows subjected to synchronization of ovulation protocols using injectable progesterone

M.M. Seneda, J.T. Campos, F. Morotti, C.B. Costa, L.Z. Bergamo, N.C. da Silva

UEL, Londrina.

Keywords: FTAI, injectable progesterone, Nelore.

This study evaluated the pregnancy rate in Nelore cows (Bos indicus) subjected to fixed-time artificial insemination (FTAI) using different protocols consisting of injectable progesterone (P4) or an intravaginal device (impregnated with P4). Multiparous cows 72–84 months in age, 30–45 days postpartum, were selected on the basis of the absence of a corpus luteum (CL) and follicles <8 mm after transrectal palpation and ultrasound examinations. On a random day of the estrus cycle (D0), the selected animals (n = 135) were randomly assigned to one of three experimental groups (n = 45 each). Group I (injectable P4/FTAI 36 hours) received 250 mg of injectable P4 and 2 mg EB on D0; on D7, they received 500 µg of cloprostenol; on D8, 300 IU of eCG and 1 mg of EB were administered; and finally, FTAI was performed 36 hours after the application of EB. Group II (injectable P4/FTAI 48 hours) received the same protocol as Group I, except that the FTAI was performed 48 hours after ovulation induction. The animals of Group III (Control/CIDR) received a conventional protocol for FTAI using an intravaginal device (D0: P4 and 2 mg EB; D8: device removal, 500 µg cloprostenol, 300 IU eCG, 1 mg EB; and FTAI performed 48 hours after removal of the device). The results showed that cows synchronized with the conventional protocol for FTAI (Control/CIDR) had a higher pregnancy rate (60%, 27/45) than those synchronized with an injectable P4/FTAI 36 hours (33.33%; 15/45, P = 0.010). However, the group receiving injectable P4 group/FTAI 48 hours had a similar pregnancy rate (48.9%; 22/45; P = 0.290) when compared to both the group receiving the conventional protocol and that receiving injectable P4/FTAI 36 hours (P = 0.134). The use of injectable P4 in cows inseminated 48 hours after ovulation induction presented similar pregnancy rates to cows that received the intravaginal device.

A025 FTAI, FTET and AI

Synchronization with a 5-day prid sync protocol for first service decreased age at first calving and rearing costs in Holstein dairy heifers

C.E. Cardoso Consentini[1], P.D. Carvalho[2], V. Santos[3], R.V. Barletta[2], C. Maia[2], B. Carneiro[2], A. Valenza[4], A.H. Souza[4], P.M. Fricke[2]

[1]Faculdade de Medicina Veterinária e Zootecnia da Universidade de São Paulo - FMVZ-USP, Jacutinga; [2]University of Wisconsin - Madison, Madison; [3]Diessen Servicos Veterinarios Lda, évora; [4]Ceva Sante Animale, Libourne.

Keywords: fertility, heifers TAI.

The objective of present study was to compare reproductive performance and rearing costs in Holstein dairy heifers after synchronization of ovulation and timed artificial insemination (TAI) for first service and natural service for subsequent breedings or natural service (NS) for all breedings. A total of 366 nulliparous Holstein dairy heifers were randomized according to body condition score and age in two groups (TAI and NS) at the onset of experiment, in order to receive two different reproductive managements. Heifers from TAI group received TAI after a 5-day PRID sync protocol (Day 0, GnRH+PRID; Day 5, PGF+PRID removal; Day 6, PGF; Day 8, TAI) for first service and natural service with a bull/heifer ratio of 1:30 for subsequent services. On the other hand NS heifers were submitted to natural service with a bull/heifer ratio of 1:30 for all breedings. Heifers were 420 ± 7 days age when received TAI for first service or when were placed with the bulls in case of NS heifers. A partial budget was developed to calculate the economic differences between the reproductive programs using specific inputs for each heifer. The structure of the economic analysis included expenses with hormones for synchronization of ovulation, labor associated with hormone administration and AI, semen and AI supplies, costs of pregnancy diagnosis, costs of bull, and feed costs, as well as, genetic gain associated with the use of AI sires of greater genetic potential. Data were analyzed by ANOVA and logistic regression using MIXED and GLIMMIX procedures of SAS. Age at first calving was less for TAI than NS heifers (23.7 vs. 24.9 months; $P < 0,01$). In addition, more TAI than NS heifers calved with less than 24 months [77% (141/183) vs. 44% (81/183); $P < 0,01$]. Considering all the economic inputs, rearing costs were 67.5€ less ($P < 0.01$) per heifer in TAI group when compared to NS group (1430.9€ vs. 1498.4€). In conclusion, performing TAI for 1st service decreased age at first calving and reduced rearing costs of Holstein dairy heifers.

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A026 FTAI, FTET and AI

Effect of different types of gonadotropins on pregnancy rate of suckling Nelore cows subjected to FTAI

I. Claro Junior[1], L.S. Valino[2], F.M. Mantelo[2], L. Cutaia[3], S.P. Wallace[4], J.L.M. Vasconcelos[2]

[1]Faculdade de Medicina Veterinária e Zootecnia, Botucatu; [2]UNESP, Botucatu; [3]Syntex, Buenos Aires; [4]ZOETIS, Buenos Aires.

Keywords: eCG, FTAI, Nelore.

The aim of this study was to evaluate pregnancy rate of cows subjected to timed AI (TAI) based on estradiol and progesterone (E2/P4) protocols using different types of gonadotropin. This study was conducted in União livestock and 1142 primiparous and multiparous Nelore cows, with average body condition score (BCS) of 3.0 ± 0.5, were used. The cows were synchronized according to the following TAI protocol: D0 – 2mg of EB im (2.0ml Gonadiol®, Syntex, Buenos Aires, Argentina) and P4 intravaginal device (CIDR®, Zoetis, SP, Brazil); D8 – 12.5mg of dinoprost im (2.5ml Lutalyse®, Zoetis, SP, Brazil), plus 0.5mg of ECP im (0.25ml ECP®, Zoetis, SP, Brazil) and intravaginal device removal. Cows were randomly distributed to receive one of four treatments at D8: T1 – 1.5ml of eCG (300IU Novormon®, Zoetis, SP, Brazil); T2 – 1.5ml of eCG (300IU Product A, Cerro Largo, Uruguay); T3 – 10mg of FSH (0.5ml Product B, Ontário, Canada) and T4 – Control, without additional treatment. At D10 (48 hours after device removal) the cows were inseminated by AI technicians using frozen bulls semen with known fertility. At D8 tail painting was used for behavioral estrus checking. However, 180 cows were taken away from that variable due to the rain. The proportions were compared with regression logistic and the variables were analyzed using PROC GEN-MOD, SAS. Overall, pregnancy rate was higher for T1 ($P < 0.05$; 42.5% [127/299]) than T3 (30.3% [88/290]) and T4 (33.2% [82/247]), and similarly to T2 (36.6% [112/306]). Cows that exhibited estrous behavior had higher ($P < 0.01$) pregnancy rate (48.1% [177/368]) than cows that did not (28.9% [172/594]). There was no interaction between estrous and treatment on pregnancy rate, but cows from T1 ($P = 0.08$; 43.4% [106/244]) exhibited more estrous behavior than T3 (36.5% [88/241]) and T4 (35.0% [79/226]) and was similar to T2 (37.8% [95/251]). There was interaction between BCS (Higher ≥3.00 and Lower ≤2.75) and treatments on pregnancy rate ($P < 0.05$). Pregnancy rate did not differ between cows with Higher BCS ($P > 0.1$; T1 = 53.5%, T2 = 50.7%, T3 = 45.8% and T4 = 49.2%). However, Low BCS T1 ($P < 0.05$) had higher pregnancy rate (34.3% [59/172]) than T2, T3 and T4 (22.7% [35/154], 15.1% [22/146] and 16.1% [19/118], respectively). There was interaction between order and treatments ($P = 0.07$). Pregnancy rate of multiparous cows did not differ into treatments ($P > 0.1$; T1 = 57.3% [78/136], T2 = 56.2% [77/137], T3 = 46.6% [63/135], T4 = 51.5% [63/128]). Nevertheless, primiparous T1 had more pregnant cows (30.1% [67/130]) than T2, T3 and T4 (20.7% [35/169], 16.1% [25/155], and 12.8% [15/117], respectively). Treatment with Novormon® provided improved pregnancy rate in primiparous and lower BCS cows compared to other gonadotropins.

A027 FTAI, FTET and AI

Pregnancy rate to FTAI in Nelore and crossbreed heifers submitted to J-Synch protocol (6 days)

J.C. Lemos Motta[1], M.H.A. Colli[1], L. Penteado[1], B.M. Bayeux[1], R.D. Mingoti[2], G.A. Bo[1], L.C. Lugo[1], R.G. Rezende[3], P.S. Baruselli[1]

[1]Faculdade de Medicina Veterinária e Zootecnia da Universidade de São Paulo (FMVZ/USP), São Paulo; [2]Empresa FIRMASA, Londrina; [3]Instituto de Reproducción Animal Córdoba (IRAC), Córdoba.

Keywords: 6 days vs.8 days, beef heifers, synchronization.

The aim of this research was to determine the pregnancy rate for J-Synch protocol comparing to the conventional protocol for FTAI. It was enrolled a total of 785 cycling (presence of corpus luteum in the beginning of the protocol) Nelore (n = 211) and Crossbreed (½ Nelore *vs*. Angus; n = 574) heifers. The animals were kept on pasture with mineral supplementation ad libitum. The females were equally distributed in two groups, J-Synch (n = 391) and Control (n = 394), according to the body condition score (J-Synch = 3.40 ± 0.25; Control = 3.45 ± 0.19). On D0 all animals received an intravaginal release progesterone device (1.2 g of P4; Fertilcare 1200®, Valée, previously used for 16 days) and a treatment with 2 mg of Estradiol Benzoate im (Fertilcare Sincronização®, Vallée). For the J-Synch group, the device were removed on D6, followed by the administration of 200 UI of eCG im (Folligon®, MSD Animal Health) and 0.265 mg of sodium cloprostenol im (Ciosin®, MSD Animal Health).Three days after (72 hours), it was administrated 100 µg of gonadorelin i.m. (Cystorelin®, Merial Animal Health) and the FTAI was proceeded. On the Control group, the device was removed on D8 simultaneously to the administration of 0.5 mg of estradiol cypionate i.m (ECP®, Zoetis), 200 UI of eCG i.m. (Folligon®, MSD Animal Health) and 0.5 mg of sodium cloprostenol i.m (Ciosin®, MSD Animal Health). The FTAI was performed on D10 (48 hours after device removal). The pregnancy diagnostic was performed 30 days after FTAI. The data were analyzed using the GLIMMIX procedure of SAS®. No interaction was observed between protocol and breed on pregnancy rate [J-Synch*Nelore = 47.1% (48/102); J-Synch*Cruzada = 55.0% (159/289); Control*Nelore = 48.6% (53/109); Control*Crossbreed = 55.4% (158/285); P = 0.89]. There was no difference on pregnancy rate between treatment, which was 53.6% (211/394) for the Control group and 52.9% (207/391) for the J-Synch group (P = 0.80). Furthermore, no difference was found on pregnancy rate between breeds, Nelore 47.9% (101/211) and Crossbreed 55.2% (317/574; P = 0.07). In conclusion, the J-Synch protocol presents similar pregnancy rate to the conventional protocol for FTAI in Nelore and Crossbreed heifers. These results indicate that there is a possibility to use these different protocols with the same efficiency. The J-Synch protocol represents a new alternative of reproductive schedule for FTAI in Nelore and Crossbreed heifers.

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A028 FTAI, FTET and AI

Influence on the diameter of the dominant follicle 48 hours after progesterone device removal on the follicular dynamics of *Bos indicus* cows submitted to synchronization of ovulation protocol

L.M.S. Simoes[1], M.P. Bottino[1], G.A. Crepaldi[2], R.W. Girotto[3], P.S. Baruselli[4], J.N.S. Sales[1]

[1]Universidade Federal de Lavras, Lavras; [2]ST Repro, Indaiatuba; [3]RG Genética Avançada, Água Boa; [4]Universidade de São Paulo, São Paulo.

Keywords: cattle, reproduction, TAI.

The objective of this study was evaluate the influence of the diameter of the dominant follicle (DF) 48 after progesterone device (P4) removal on the follicular dynamics of Bos indicus cows submitted to synchronization of ovulation protocol with P4 and estradiol (E2). 357 suckling Nelore cows with body condition score (BCS) of 2,73 ± 0,1 (scale of 1 – 5) and 30 to 60 days post-partum were used. On a random day of the estrous cycle (D0), the animals received 2 mg of estradiol benzoate (EB; Sincrodiol®, Ouro Fino, Brazil) and a P4 intravaginal device (Sincrogest®, Ouro Fino, Brazil). On day 8 (D8), the P4 device was removed and cows received 500µg Cloprostenol (Sincrocio®, Ouro Fino, Brazil) and 300 IU of eCG (Folligon®, MSD, Brazil). Induction of ovulation was performed with 1mg of estradiol cypionate (EC; ECP®, Zoetis, Brazil) on day 8 or 1mg of BE on D9. Ultrasound exams were performed every 12 hours, starting on D10 until ovulation or 96 hours after P4 device removal. Maximum diameter of the dominant follicle (MDDF), diameter of the ovulatory follicle (DOF), moment of ovulation (MOV) and ovulation rate (OVR) were evaluated. After ultrasound evaluation, cows were divided into 4 groups, according to the diameter of the DF 48 hours after P4 device removal, making the groups DF9 (DF≤9.0mm), DF9-11 (9.0<DF≤11.0mm), DF11-13 (11.0<DF≤13.0) and DF13 (DF>13.0mm). The statistical analysis was performed by GLIMMIX procedure of SAS. Differences were observed among groups on maximum diameter of the dominant follicle [DF9 (9,4 ± 0,3d), DF9-11 (11,6 ± 0,2c), DF11-13 (13,5 ± 0,1b), DF13 (15,5 ± 0,1a), P < 0,01], diameter of the ovulatory follicle [DF9 (11,3 ± 0,3c), DF9-11 (11,7 ± 0,2c), DF11-13 (13,5 ± 0,1b), DF13 (15,0 ± 0,2a), P < 0,01], moment of ovulation [DF9 (78,0 ± 4,5a), DF9-11 (69,7 ± 1,2a), DF11-13 (71,4 ± 0,9a), DF13 (66,0 ± 0,7b), P < 0,01] and ovulation rate [DF9: 13,2% (7/53)c, DF9-11: 66,2% (49/74)b, DF11-13: 89,0% (89/100)a, DF13: 93,9% (122/130)a, P < 0,01]. It was concluded that diameter of the dominant follicle 48 hours after P4 device removal, influences the follicular dynamics of suckling Nelore cows submitted to synchronization of ovulation protocol.

A029 FTAI, FTET and AI

Fertility in texel ewes synchronized with progesterone, Melengestrol or Medroxi-progestore Acetate

E.B. Parmeggiani[1], M.M.C. Bernardes[2], G.M.C. Bernardes[2], A.S. Tatsh[2], A.P. Martini[1], M.I.B. Rubin[1], G.A. Pessoa[1]

[1]Laboratório de Embriologia Animal (Embryolab), DCGA, CCR, UFSM, Santa Maria;
[2]Universidade Federal de Santa Maria, Santa Maria.

Keywords: ewe, pregnancy, progesterone.

In this study, the effect of different progesterone sources reproductive pre-season on fertility of acyclic ewe. The experiment was conducted in the RS/Brazil. Texel ewes (n = 89) with mean body condition score of 2.50 (Scale 1 to 5: 1-thin and 5-obese) were randomized into 4 groups before the start of the breeding season (January 2016). Ewes in the Control Group (GC, n = 12) no received treatment during the synchronization period. All ewes had uterus and ovaries evaluated by transretal ultrasound with a linear transducer (5-10Mhz, Mindray DP2200, Shenzhen, China) before synchronization. On day 0 (D0), the sheep of Group Melengestrol 12 days (GMGA, n = 25) received in feed 1.4g/day/ewe of melengestrol acetate (MGA PREMIX, Zoetis, Brazil) to D12, where also 300IU of eCG were administered (Novormon, Zoetis, Brazil) and 1mL IM of prostaglandin (Lutalyze, Zoetis, Brazil). The Group of injectable P4 (GP4, n = 25) received 200mg IM progesterone in D0 and D6 (Sincrogest, Ourofino, Brazil), followed by 300IU IM of eCG (Sincro eCG, Ourofino, Brazil) and 0.5mg IM sodic cloprostenol (Sincrocio, Ourofino, Brazil) in D12. The Group of females who received Intravaginal Sponges (GPI, n = 25) in the D0 impregnated with medroxyprogesterone acetate (Progespon, Zoetis, Brazil). In D12, the intravaginal sponges was removed and the sheep received 300IU eCG IM (Novormon, Zoetis, Brazil) and 10mg IM Dinoprost Tromethamine (Lutalyze, Zoetis, Brazil). The females in all groups were observed in the estrus during 30 days (D12 to D42) and mating was conducted by controlled breeding (1 ram to 20 ewes). All rams underwent breeding soundness examination. After D42, rams were separated from ewes and D80 was performed the diagnosis of ultrasound for pregnancy. The data were analyzed by Proc Means, Proc Freq and Proc GLIMMIX the statistical program SAS 9.3. The estrus expression was lower ($P = 0.05$) in females 64.3% control group (9/14) compared to GP4: 72% (18/25), GMGA: 84% (21/25) and GPI: 80% (20/25). The average time (h) for estrus expression after application of the luteolytic agent did not differ ($P = 0.09$) between GC treatment (101.4 ± 7.7), GP4 (86 ± 6.1) GMGA (69 ± 5.2) and GPI (57.7 ± 4.8). Pregnancy in the first cycle was lower ($P < 0.0004$) in the GC (35.7%, 5/14) and GP4 (24%, 6/25), compared to GMGA (80%, 20/25) and GPI (76%, 19/25). Pregnancy at 80 days (D80) in GMGA was higher ($P < 0.0089$) (91.3%, 23/25) than in the GC (42.9%, 6/14), however the groups GMGA, GP4 (56.0%, 14/25) and GPI (83.3%, 21/25) did not differ ($P > 0.05$). The use of Melengestrol or Medroxyprogesterone Acetate was more effective in providing higher number of pregnancies in the first cycle in ewes.

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A030 FTAI, FTET and AI

Effect of mineral supplementation and vitamin injection (Kit Adaptador® MIN and Adaptador® VIT, Biogenesis Bagó) on pregnancy rates in beef cows

M. Maturana Filho[1], K.M. Lemes[2], M.A. Silva[2], T. Santin[2], R.L. Gonçalves[3], G.A. Mattioli[4], J.P. Mendes Lollato[3], J.M. Persico[3], E.H. Madureira[2]

[1]MF VetPlan Consultoria Pecuária/Universidade de São Paulo, Aguas da Prata; [2]Universidade de São Paulo, Pirassununga; [3]Biogenesis Bagó, Curitiba; [4]Universidade Nacional La Plata, La Plata.

Keywords: fertility, injectable supplementation, Nelore cows.

Strategic supplementation of vitamins and minerals during the pre TAI has been linked to improved reproductive performance in beef cows, however, the lack of selenium, zinc and copper occurs largely in Brazil. These trace minerals are essential to antioxidative activities, which can contribute to improved fertility in beef cows. Injectable mineral supplementation is economically viable option to meet the demand for these micronutrients, mainly on higher demand periods. The aim of this study was to verify the efficiency of mineral supplementation and vitamin injection (Kit Adaptador® MIN and Adaptador® VIT, Biogenesis Bagó) during the breeding season in improving the fertility of cows Nelore breed (n = 1232). The experiment was conducted in the beef cattle sector's administrative campus of Pirassununga USP in the years 2014 and 2015. Animals were treated 20 days before the start of the TAI protocol and received a second dose on the day of implant placement. Hormonal protocol was used: D0 = Cronipres® implant insertion Mono Dose with 1 g + P4 application of 2 mg of EB (Bioestrogen®, Biogenesis Bagó, Brazil); D8,5 = withdrawal of intravaginal implant P4 + application of 300 IU of eCG (Ecegon®, Biogenesis Bagó, Brazil), + 75 ug of D-cloprostenol (PGF2a, Croniben®, Biogenesis Bagó, Brazil) + 1mg BE (Bioestrogen® , Biogenesis Bagó, Brazil). In D10 was held TAI in the morning. The cyclicality rate and pregnancy rate (PR) were evaluated by ultrasound (Mindray DP2200 Vet with linear probe of 5.0 MHz). Evaluation of Pregnancy rates was evaluated on 30 and 60 days after TAI. Data were subjected to frequency analysis by PROC FREQ and logistic regression analysis using PROC LOGISTIC, using the Statistical Analysis System (SAS, 9.3) adopting If a significance level of 5%. There was a 7% improvement in the cyclicity in the group of treated cows (C = 51.3% = 58.3% vs Trat), 20 days after the first application of the kit Adaptador® ($P < 0.05$). There was no difference in the cyclicity rate between the groups in the first assessment of cyclicality (C = 52.5% vs Trat = 51.3%). At the beginning of the protocol, the cyclicality rate of the treated group was higher ($P < 0.05$) in the control group (58.3% vs 48.5%, respectively). The pregnancy rate at 30 was higher in the treated group (C = 51.5% vs Trat = 57.6%). The pregnancy rate at 60 days ($P < 0.05$) was also higher in the treated group (C = 49.5% vs 55.7% trat-). Additionally, it was observed that cows in the treatment group, had a greater diameter at the time of follicular TAI ($P < 0.05$) with a minor variation (C = 13.1 ± 0.4 vs 14.1 ± Trat = 14.1 ± 0.2). Therefore, the strategic supplementation Kit Adaptador® MIN and Adaptador® VIT, Biogenesis Bagó is efficient and cost-effective in improving results in TAI programs of beef cattle, mainly for assisting in improving the cyclicality of animals.

A031 FTAI, FTET and AI

Reproductive performance in a large organic dairy farm in the southern united states

R.S. Ramos[1], K. Bryan[2], J. Velez[3], M. Binelli[4], P. Pinedo[5]

[1]Ourofino Saúde Animal, Cravinhos; [2]Texas A&M Agrilife Research, Amarillo; [3]Aurora Organic Dairy, Hereford; [4]Universidade de São Paulo, Pirassununga; [5]Colorado State University, Fort Collins.

Keywords: cows, reproduction, organic milk.

Organic dairy farms face strict limitations in the use of antimicrobials and hormones, resulting in a reduced availability of therapies for treatment of reproductive disorders and unfeasibility of implementation of TAI protocols. Information about the reproductive performance of cows in organic systems is limited. Consequently, the aim of this work was to estimate reproductive variables and to test the effect of reproductive disorders on cow performance in a large (8.319 cows) organic dairy farm in Texas, USA. Reproductive management was based on artificial insemination, following visual heat detection (tail chalking). Outcome variables were time from calving to first service (FS1: ≤ 100d; FS2: ≤ 150d; FS3: > 150d) and time to conception (TC1: ≤100d; TC2: ≤150d; TC3 = open or pregnant after 150d). Explanatory variables included parity, milk yield (M305ME), number of breeding, and occurrence of reproductive diseases. Potential associations were tested by logistic regression (PROC GLIMMIX, SAS 9.2) and LSMEANS were estimated for time to first service and time to conception with adjustment for multiple comparisons (Turkey-Kramer test, PROC GLM, SAS). Average days to first breeding and days to conception were 69 (N = 6037) and 118 (N = 3869), respectively. The average number of breedings per pregnancy was 2.38. Pregnancy rate at 21 days was 17%, with 90% of the cows (5433/6036) bred until 100d and 97.6% until 150d. The odds of having at least one service up to 100d after calving were significantly higher for cows not affected by endometritis (Odds Ratio [OR] = 3.43, P < 0.0001) or pyometra (OR = 8.10, P < 0.0001). There was also significant effect on days to first breeding for milk (P < 0.0001), parity (P < 0.0001) and calving season (P < 0.001). The odds of having at least one service up to 100d for cows calving in fall, spring or summer were 6.87, 2.03, and 3.06 times the odds of cows calving in winter. However, no significant effect was found for metritis and retained fetal membranes (RFM). Least Square Means (LSMEANS) for M305ME by time of first service were FS1: 8,030a, FS2: 8,281bc and FS3: 8,343c (Kg). Conception until 100d was associated with absence of endometritis (OR = 5.07, P < 0.0001); metritis (OR: 2.287, P < 0.0001); pyometra (OR: 49.51, P < 0.001); and RFM (OR = 1.89, P < 0.001). There was also a significant association with parity (P = 0.01), M305ME (P < 0.001) and calving season (P < 0.001). The odds of pregnancy up to 100d for cows calving in fall, spring or summer were 39.5, 5.82, and 9.05 times the odds of cows calving in winter. The LSMEANS for M305ME by time to conception were TC1: 7,733a, TC2: 7,950 b and TC3: 8,208c (Kg). In conclusion, postpartum problems delayed the first service and consequently the conception in the studied organic dairy farm. Also, milk production was higher in the cows that did not conceive before 100 d after calving.

A032 FTAI, FTET and AI

Conception rate, pregnancy loss and proportion of females born in dairy herds wich use artificial insemination or *in vitro* embryo transfer as reproductive technique for milking cows

M.H.C. Pereira, M.S. Coelho

Fazenda Sta. Luzia, Passos.

Keywords: pregnancy loss, females, *in vitro* embryos.

The objective of this study was to evaluate reproductive performance in dairy herds wich use artificial insemination (AI) or in vitro embryo transfer (ET) as reproductive technique for milking cows. A retrospective study was conducted in eight farms located within a 100 km radius in the state of Minas Gerais. Four farms perform artificial insemination (n = 16315) and 4 farms perform in vitro embryo transfer (n = 12084) as reproductive technique, the in vitro embryos were generated with sexed semen. Only lactating dairy cows were used in the evaluations, in which the following reproductive parameters were evaluated: conception rate at 30, 60 and 120 days, calving rate, pregnancy loss between 30 and 60 days, 30 days to calving, 60 days to calving, percentage of stillbirths and proportion of born females. On farms wich use AI as reproductive technique, the conception rate at 30 days was 29.3% ([4785/16315] min 27.9% max 33.9%) at 60 days 25.0% ([4076/16312] min 23.1% max 27.2%), 120 days 22.9% ([3732/16315] min 20.5% max 25.6%) and calving 20.3% ([3307/4785] min 18, 0% max 23.2%). The pregnancy loss between 30 and 60 days was 14.8% ([706/4782] min 9.2% max 20.1%) between 30 days and calving 30.8% ([1475/4782] min 22.7% max 36.1%), between 60 days and calving 18.9% ([769/4076] min 14.8% max 21.9%). The percentage of born females was 50.0% ([1655/3307] Min 42.6% max 55.8%) and stillbirth percentage was 6.1% ([184/2995] min 2.0% max 9.8%). On farms wich use ET as a reproductive technique, the conception rate at 30 days was 42.6% ([5147/12084] min 38.9% max 43.0%) at 60 days 35.8% ([4327 / 12084] min 32.5% max 38.1%). The conception at 120 days and the calving rate were evaluated in only two herds, the pregnancy at 120 days was 32.9% ([3785/11483] min 30.9% max 33.2) and calving rate was 29.7% ([3407/11483] min 24.8% max 30.1%). Pregnancy losses between 30 and 60 days were 15.9% ([820/5147] min 7.4% max 18.8%) from 30 days to calving 30.5% ([1492/4899] min 29.9% max 38.5%), between 60 days and calving 16.9% ([692/4099] min 16.4% max 24.2%). The percentage of born females was 86.7% ([2639/3045] min 81.7% max 87.0%). The percentage of stillbirths was 4.9% ([169/3407] min 4.8% max 8.0%). When the data of each reproductive technique were grouped, the conception rate at 30 days was 29.3% at AI and 42.6% at ET, at 60 days 25.0% at AI and 35.8% at ET, at 120 days 22.9% at AI and 32.9% at the ET, the calving rate in IA was 20.3% and 29.7% at ET. Pregnancy loss between 30 and 60 days was 14.8% at AI and 15.9% at ET, pregnancy loss between 30 days and calving was 30.8% at IA and 30.5% at ET, the pregnancy loss between 60 days and calving was 18.9% at IA and 16.9% at ET, the percentage of female born was 50% at IA and 86.7% at ET, the stillbirth percentage was 6.1% at IA and 4.9% at ET. In summary for each 100 cows inseminated 9.9 females born alive, for each 100 ET 24.5 females born alive. This retrospective study in lactating cows from farms located in the same region show that around a third of pregnant animals at 30 days lose their pregnancy until calving, both in AI and in ET. There are differences between herds, and suggests that the use of embryos in vitro produced with sexed semen allow greater number of females born.

A033 FTAI, FTET and AI

Double PGF2a dose capacity associated with eCG to adjust the proestrus crossbred cows submitted to a FTAI protocol

G.F.O. de Menezes[1], A.S. Rodrigues[2], M.A.A. Silva[1], T.O. Brandão[1], A.B. Nascimento[1], B.S.S. Carõso[1], A.B. Pereira[2], R.F. Bittencourt[1], M. Chalhoub[1], A.L. Ribeiro Filho[1]

[1]UFBA, Salvador; [2]UFOB, Barra.

Keywords: bovine, equine chorionic gonadotropin, luteolysis.

This study aims to evaluate the effect of one or two prostaglandin doses F2α (PGF2a) with or without equine chorionic gonadotropin (eCG) in the follicular dynamics, the pre-ovulatory luteal function, as well as corpus luteum's (CL) post-ovulatory structural and functional characteristics in crossbred females subjected to fixed time artificial insemination (FTAI) protocol. For this, 29 multiparous cows were subjected to transrectal ultrasound examination (US) and, upon detection of CL, initiated a FTAI protocol on day called zero (D0) by the insertion of progesterone implant (P4) associated with 2.0mg estradiol benzoate. On D7 these animals received 12.5mg of dinoprost tromethamine. At D9 P4 devices were removed and it was applied 0.6mg of estradiol cypionate. At that time, the females were divided into the following treatments: control group (n = 7) - was administered 2.5mL of saline solution, 2PGF group (n = 7) - applied 12.5mg of dinoprost tromethamine, eCG group (n = 7) - was administered 300IU eCG, eCG + 2PGF group (n = 8) - made the application of 300 IU eCG dinoprost tromethamine and 12.5mg. To assess follicular dynamics were performed US scans B-mode and color doppler (Mindray Z5, Shenzhen, China) every 12h from D7 until the time of ovulation or 96h after removal of the P4 implants, measuring follicular diameter (DFOL), the area of the follicular wall (AFOL) and the vascularization area of the follicular wall (VFOL). Simultaneously with each test, blood samples were collected to determine P4 preovulatory plasma concentration by chemiluminescence method using the Access immunoassay system progesterone. In D24 was held US B-mode and color doppler analyzing the luteal diameter (DCL), luteal area (ACL) and vascularization area CL (VCL), as well as a blood sample was collected to determine the plasma concentration of post-ovulatory P4. The data were evaluated by ANOVA using the Tukey test and repeated measures analysis, $P < 0.05$. There was no significant difference between the synchronization protocols for DFOL, AFOL and VFOL variables over follicular dynamics' time. Experimental groups have similar P4 plasma concentrations in every moment of evaluation. There was no distinction of DCL, ACL and VCL between hormone treatments. However, there was a tendency ($P = 0.07$) of P4 higher concentrations on D24 animals of eCG group (11.00 ± 3,32ng/mL) compared to 2PGF (6.37 ± 1,31ng/mL), while the Control and 2PGF+eCG groups showed intermediate results that resemble both groups at levels of 8.43 ± 3.85 and 9.18 ± 2.82ng/mL, respectively. The results of this study suggest that in cyclic animals FTAI protocols using a single PGF2a dose and without gonadotropic support eCG seems to promote adequate follicular and luteal responses.

A034 FTAI, FTET and AI

Bovine cooled semen with or without glycerol in extender for fixed-time artificial insemination in beef cattle

J.C. Borges[1], M.R. Silva[2], E. Nogueira[1], D.S. Costa[3], L.O.F. Oliveira[1], U.P.G. Abreu[1], D.B. Marinho[4], R. Sartori[5]

[1]EMBRAPA, Corumba; [2]Melhore Animal Consultoria Ltda, Jaboticabal; [3]UFMS, Campo Grande; [4]Ema Pantanal Agropecuária Ltda, Corumbá; [5]ESALQ-USP, Piracicaba.

Keywords: extender, pregnancy rate, sperm viability.

Cooled semen is not submitted to the freeze-thaw process and suffers fewer injuries, resulting in greater viability and better fertility rates, when compared with frozen-thawed semen (J. C. Borges-Silva et al., Reproduction Fertility and Development, on line, 2015). However, the composition of the extenders are issues that warrants attention and additional research. For example, the effects of glycerol on sperm remain unclear, and could be toxic during the cooling process. This study evaluated the use of cooled semen with or without the cryoprotectant glycerol in egg-yolk extender in a fixed-time artificial insemination (FTAI) program in beef cattle. Ejaculates of three bulls were collected (on D9 of a FTAI protocol) and divided into two treatments: 1) cooled semen with glycerol and 2) cooled semen without glycerol. Straws (25x106 sperm) were submitted to cooling for preservation at 5°C for 24 h, after which FTAI was performed. Nelore cows (n = 346) submitted to FTAI received 2mg estradiol benzoate (EB, RIC-BE®, im, Tecnopec-Agener União, Brazil), and an intravaginal progesterone device (Primer®, Tecnopec-Agener União, Brazil) on D0 which remained for 8 d, and 150µg d-cloprostenol (Prolise®, im, Arsa, Argentina) and 1mg EB (RIC-BE®) on D8. On D10, 44 h after implant withdrawal, the cows were randomly inseminated using cooled semen with or without glycerol in extender. The statistical analysis was accomplished by the SAS program (SAS/STAT® 9.2, SAS Institute Inc., USA), using the variance analysis by Tukey and Chi-square test ($P < 0.05$). There was no difference in pregnancy per AI (P/AI) using cooled semen with vs. without glycerol in the extender (50.0 ± 4.7 vs. 53.0 ± 5.0%; $P > 0.05$). There was no difference in P/AI among bulls ($P = 0.44$) and between treatments (with or without glycerol) in cooled semen when evaluated by sperm motility (81.7 vs. 79.0%), slow thermoresistance test (68.1 vs. 66.7%) and hypooosmotic swelling test (55.3 vs. 53.7%), respectively ($P > 0.05$). In conclusion, fertility rates were equal when samples were cooled with or without glycerol in extender. Therefore it is possible to use commercial extender with 6% glycerol when performing a FTAI program with cooled semen.

A035 FTAI, FTET and AI

The time of estrus expression impact on fertility of TAI protocols?

C.A. Rodrigues[1], M.H.C. Pereira[2], C. Bortoletto[1], A. Lavezzo Ranieri[3]

[1]SAMVET, São Carlos; [2]Fazenda Sta. Luzia, Passos; [3]ZOETIS, São Paulo.

Keywords: estrus, TAI, pregnancy.

The objective of this study was to assess whether the timing of estrus expression impacts pregnancy per AI (P/AI) and pregnancy loss in Holstein dairy cows submitted to TAI program. Cows were synchronized receiving on D-11 relative to 2mg of estradiol benzoate (Gonadiol/Zoetis/Brazil) IM + 0.1 mg of gonadorelin (Fertagyl/MSD/Brazil) im + P4 intravaginal device (CIDR/Zoetis/Brazil); on D-4, 25mg of PGF (Lutalyse/Zoetis/SP/Brazil) was give im followed by CIDR removal + 25mg of PGF IM and 1 mg of ECP im (ECP/Zoetis /Brazil) on D-2 relative to TAI. At the time of CIDR removal cows were randomly allocated into 2 treatments: one received TAI 48 hours after CIDR removal (TAI), whereas the other treatment had cows inseminated 12h after estrus detection. When estrus was not observed, cows were inseminated at fixed time 48 hours after CIDR removal (ESTRUS). The variables P/AI and pregnancy loss were analyzed using PROC GLIMMIX. Pregnancy per AI was determined by US at 30 and 60d. There was no difference between treatments (TAI vs. ESTRUS) in P/IA at 30d (TAI = 36% [151/414] vs. Estrus = 34% [143/420]; P > 0.1), at 60d (TAI = 29% [122/414] vs. Estrus = 26% [110/420]; P > 0.1) and pregnancy loss between 30 and 60 days (TAI = 19% [29/151] vs. Estrus = 23% [33/143]; P > 0.1). There was no interaction between birth rate and treatment on P/AI at 30 and 60 d post insemination (P > 0.1). The distribution of estrus after CIDR was: 2% of the animals showed estrous 12 hours after CIDR removal, 48% of animals in 24h, 27% in 36h, 13% in 48h and 11% in cows that did not show signs of estrus. There was no treatment effect on P/AI at 30d regardless of the time of estrus expression after CIDR removal: 12h - TAI = 33% (2/6) vs. Estrus = 38% (3/8); 24h - TAI = 38% (71/188) vs. Estrus = 36% (74/203); 36h - TAI = 42% (48/113) vs. Estrus = 42% (45/108); 48hs - TAI = 37% (24/65) vs. Estrus = 29% (11/38). Cows that did not show signs of estrus P/AI on d 30 post AI lower (14% [12/86]) than cows that expressed estrus (38% [278/729]) regardless of treatment (P > 0.1). At 60d pregnancy were similar to the results observed on d 30 with: 12hs - TAI = 33% (2/6) vs. Estrus = 25% (2/8); 24h - TAI = 29% (55/188) vs. Estrus = 27% (55/203); 36hs - TAI = 37% (42/113) vs. Estrus = 33% (36/108); 48 hours - TAI = 28% (18/65) vs. Estrus = 29% (11/38). Cows that did not show signs of estrus had lower P/AI on d 60 (10% [9/86]) than the cows expressing estrus (30% [221/729]) regardless of treatment (P > 0.1). TAI protocol maintained pregnancy outcomes in cows inseminated in pre- determined time in relation to insemination 12 hours after estrus detection. Cows that expressed estrus had higher pregnancy outcomes than cows that did not show estrus.

A036 FTAI, FTET and AI

Ciclicity induction protocols in Nelore zebu heifers using injectable long-acting progesterone

A.R. Felisbino Neto[1], B.G. de Freitas[1], R.S. Ramos[1], M.L.G. Rezende[1], R.F.G. Peres[2], J. Pozzobon[3], D. Fernando[4], M.R. Bastos[1]

[1]Ourofino Saúde Animal, Cravinhos; [2]Agropecuária Fazenda Brasil, Barra do Garças;
[3]Pozzobon Assessoria e Representações, Barra do Garças; [4]Fazenda Sant Vera, Barra do Garças.

Keywords: ciclicity induction, heifer, injectable progesterone.

The puberty induction (PI) in Zebu-heifers using an intravaginal progesterone (P4) device associated with an estradiol administration increase the cyclicity and conception rate at Timed Artificial Insemination (TAI; Sá Filho, et al., 2015, doi:10.1016/j.anireprosci.2015.06.024). However, there is little information about the use of injectable long-action progesterone in PI protocols. Thus, this work aim to evaluate the efficacy of PI protocols using injectable long-acting progesterone (Sincrogest® Injetável, Ourofino Saúde Animal, SP, Brazil) or an intravaginal P4 device (Sincrogest®, Ourofino). The experiment 1 was conducted at three different farms at southeast of Mato Grasso state in Brazil. About 557 Nelore heifers (BCS: 3.42 ± 0,15) aged 24.0 ± 3.10 months and without corpus luteum (CL) at D–24 were randomized in two experimental groups: 1) P4 Device group (N = 281) and 2) Injectable long-action P4 group (N = 276). At D–24, cows from P4 Device group received a Sincrogest® previously used for 24 days (4th use) and the Injectable long-action P4 group received 150 mg IM of injectable P4 (Sincrogest® Injetável). At D–12 the P4 devices were removed and all the heifers from both groups received 1 mg IM of estradiol cypionate (SincroCP, Ourofino). After 12 days (D0) all the heifers received the same TAI protocol [D0 = 2mg estradiol benzoate (Sincrodiol, Ourofino) and insertion of the Sincrogest®; D8 = Sincrogest® were removed, 530 ug of cloprostenol sodium (Sincrocio, Ourofino), 1 mg of SincroCP and 300 IU of eCG (SincroeCG, Ourofino)]. All the timed inseminations were performed 48h after the Sincrogest® has been removed. At D–24 and D0 the presence of CL, as well as at D40 the pregnancy, was evaluated by ultrasonography. The statistical analyses were performed using the GLIMMIX procedure of SAS® (version 9.3). There was no difference on the presence of CL between the groups [P4 device group: 80.8% (227/281) and Injectable long-action P4 group: 82.6% (228/276); P = 0.34]. Also, the conception rate was similar in both groups [P4 device group: 50.2% (141/281) and long-action P4 group: 51.4% (142/276); P = 0.75]. In Experiment 2, 617 heifers in two different farms with unknown ciclicity status at D–24 were evaluated with the same experimental design of experiment 1. There was a treatment*farm interaction (P = 0.04) but no difference on presence of CL at D0 [P4 device group: 83.0% (258/311) and Injectable long-action P4 group: 75.8% (232/306); P = 0.10] and conception rate [P4 device group: 39.5% (123/311) Injectable long-action P4 group: 33.0% (101/306); P = 0.48] were found between the experimental groups. In conclusion, the PI protocol using Sincrogest® Injetável has the same efficacy of PI protocol using P4 device previously used for 24 days and could be strategically adopted at heifer's breeding programs.

Acknowledgments: Fazendas Sta Vera, Alegria, Filipina e Brasil.

A037 FTAI, FTET and AI

TAI increases reproductive efficiency in intensive pasture based milk production systems

M.L.G. Pinto[1], L. Ramos[2], F.D. Mozzaquatro[3]

[1]EPAGRI, Lages; [2]UDESC, Lages; [3]UNIPAMPA, Uruguaiana.

Keywords: reproductive efficiency, colving-conception interval, TAI.

The aim of this study was to evaluate the reproductive efficiency of dairy cows kept on pasture feeding system with corn silage and 16% crude protein concentrated supplementation, submitted to three different reproductive programs. The experiment took place in three small farms, with two Jersey herd and average milk production of 21 liters a day and another herd of Holstein and Simmental crossbred cows with average milk production of 28 liters a day. The farms regularly used estrus detection and Artificial Insemination (AI), performed twice a day, when the animals were brought to the milking and feed. Multiparous cows were selected by reproductive history and subjected to complete gynecological evaluation between 30-40 days postpartum. All females considered healthy were randomly allocated to one of three treatments: control - Cows (n = 58) were inseminated 12 hours after the start of the first natural estrus occurred, after 50 days in milk. In PGF treatment, each cow (n = 43) with 50-60 days postpartum received an IM dose of 0.5 mg of d-cloprostenol and was inseminated 12 hours after detection of estrus. Cows not entering into heat received a second dose of 0.5 mg d-cloprostenol between 11 to 14 days later. In the Fixed Time Artificial Insemination (FTAI) treatment, cows (n = 47) were inseminated at fixed time. The protocol was initiated 50-60 days postpartum with 1g progesterone intravaginal device and IM administration of 2.0 mg of estradiol benzoate (EB; D0). In D8, the device was removed and administered 0.5 mg of D-cloprostenol and 1 mg estradiol cypionate (IM). The FTAI was performed 48 hours after implant removal. Pregnancies diagnosis occurred 30 days after AI with ultrasound assistance. Empty cows returned to conventional management of the property and the IA until the 150 days in lactation (DIM) were recorded and later examined by US. The DIM for the first IA (DIM/IA) and calving conception interval (CCI) variables were examined by analysis of variance followed by Tukey's test. Deviance analysis was applied to the conception rates to first insemination (CR); and pregnancy at 150 days in milk (P150). A significance level of 5% was set for all statistical tests employed in this study. The effects of farm, parturition order, ovarian condition, body condition score, breed and dairy production had no significant interaction with experimental treatments. As expected, there was a reduction in DIM/IA for FTAI (65.49 ± 0.64 days)b and PGF treatments (68.07 ± 1.76 days)b, compared to the control (77.59 ± 3.01 days)a. The conception rate was higher in the IATF (78.72 ± 6.03%)a in relation to PGF (53.49 ± 7.70%)b and the control (51.72 ± 6.62%)b. The pregnancy rate at 150 DIM (P150) was higher than the use of FTAI (90.01 ± 4.38%)a compared to the control group (70.59 ± 6.44%)b and PGF group (67.50 ± 7.50%)b. The CCI of pregnant animals at 150 DIM was reduced by FTAI treatment (68.55 ± 2.17 days)a, when compared to control groups (89.31 ± 4.80 days)b, and PGF (73.33 ± 4.30 days)b. The better results obtained in FTAI possibly were due to a positive effect of hormonal protocol combined with high service rate. It was conclude that, at the observed experimental conditions, FTAI improved reproductive efficiency of dairy herds exploited at intensive pasture based system.

A038 FTAI, FTET and AI

Resynchronization 22 days after the first FTAI in females buffalo, raised extensively in wetlands in the state of Amapá, Amazon

W.F. Lima, G.A.L. Silva, H.F.L. Ribeiro, S.T. Rolim Filho, M.B. Macêdo, E.F. Mesquita, A.S. Ramos, R.C. Conde, V.C. Mileo

UFRA, Belem.

Keywords: resynchronization, FTAI, buffalo.

This study aimed to evaluate the effect on pregnancy rate in buffaloes submitted to FTAI with D22 protocol and use of 2.0 mL IM of BE with the intravaginal device P4 in resynchronization. The study was conducted in farms located in lowland area, the ebb station of the Amazon River in the state of Amapá . They used 96 multiparous buffalo, Murrah, kept on native pasture without mineral supplementation. The FTAI protocol was an intravaginal device introduction of P4 of first use (Primer®, Tecnopec, São Paulo, Brazil) and 2.0 mg BE (Sincrodiol®, Ouro Fino, Sao Paulo, Brazil), the D0 (zero-day) one afternoon. In D8 (day eight) also the afternoon, the removal of the device and application of 0.5 mg of PGF2a (Sincrocio®, Ouro Fino, Sao Paulo, Brazil) and 400 IU eCG (Synchro eCG®, Ouro Fino, Sao Paulo, Brazil). In D9 (ninth day) afternoon, was administered 1.0 mg BE and made two inseminations, the D10 (afternoon) and D11 (in the morning), 58 and 70 hours respectively after removal of the P4 device. In D22, after the first FTAI, intravaginal device was used to P4 (2nd use) and 2.0 mg BE IM. Eight days after, D30 was performed in the ultrasound diagnostic for pregnancy. In non-pregnant buffaloes was applied 0.5 mg of PGF2a and 400 IU eCG at D32 the second FTAI 54 and 70 hours after removal of the device. The analysis of variance (ANOVA) and Tukey test were used, adopting the significance level of 5%. The pregnancy rate of the first FTAI was 47.91% (46/96) a result satisfactory to the kind of extensive farming of this species in the region. The 2 mg dose of BE in the D22, despite being twice the recommended, did not interfere in pregnancy rate. However, the result was 12% resynchronization (6/50) ($P < 0.05$), which we attribute to the fact that the FTAI be performed only once, after the withdrawal of progesterone 50hs of second use. Studying the efficiency of the Protocol nelores tested cows D22 re-synch with 1.0 mg of BE, the authors obtained result of 53.0% of pregnancy in first FTAI and 38.9% in the second (GUERREIRO, Anais do XXIX SBTE, 273, 2015). Therefore the resynchronization in D22 with 2.0 mg of BE, can be a good alternative to management in the FTAI in buffaloes created extensively in lowland area.

A039 FTAI, FTET and AI

Evaluation of the effect on pregnancy per AI of three different eCG comercial preparations administered in Nelore cows synchronized for TAI

A.F. Chaves Neto[1], B.J.C. Watanabe[2], B.G. de Freitas[3], R.S. Ramos[3], M.L.G. Rezende[3], R.D. Mingoti[4], M.R. Bastos[3]

[1]Mamelle Serviços Agropecuários, Arapongas; [2]Fazenda Baguassu, Porto Murtinho; [3]Ourofino Saúde Animal, Sao Paulo; [4]FMVZ-USP, Sao Paulo.

Keywords: eCG, TAI, zebu cows.

The treatment with equine chorionic gonadotrofin (eCG) stimulates the final development of the follicle and enhances the pregnancy rate after timed artificial insemination (TAI), principally in low body condition score and anestrous cows (Baruselli et al., Anim Reprod, v.9, p.139-152, 2012). Considering the importance of such hormone to the increment of the reproductive efficiency, the present had the objetive to compare the effect of the administration of 3 different comercial eCG preparations on the pregnancy per TAI (P/AI) in zebu beef cows. The study was performed on one commercial farm located at Porto Murtinho, Mato Grosso do Sul state (Brazil). A total of 844 Nelore females (547 suckled multiparous, 212 non-suckled multiparous and 85 suckled primarous beef cows), with BCS = 2.97 ± 0.01 and presence of a corpus luteum at the beggining of the experiment (CLD0) = 29.1% were randomly allocated in 3 experimental groups: SincroeCG group [n = 277 (201 suckled multiparous, 58 non-suckled multiparous and 18 suckled primarous); BCS = 2.97 ± 0.01; CLD0 = 26.7%; 300 IU of eCG from Ourofino Saúde Animal company], Group A [n = 247 (128 suckled multiparous, 96 non-suckled multiparous and 23 suckled primarous); BCS = 2.97 ± 0.01; CLD0 = 35.6%; 300 IU of a commercial preparation of eCG from the company A] or Group B [n = 320 (218 suckled multiparous, 58 non-suckled multiparous and 44 suckled primarous); BCS = 2.98 ± 0.01; CLD0 = 25.9%; 300 IU of a comercial preparation of eCG from the company B). At the beggining of the experiment (D0), all females received 2.0 mg IM of estradiol benzoate (Sincrodiol, Ourofino Saúde Animal) and an intravaginal progesterone releasing device (Sincrogest®, Ourofino Saúde Animal). After eight days (D8), the devices were removed and were administered 1.0 mg IM of estradiol cypionate (SincroCP, Ourofino Saúde Animal), 0.530 mg IM of sodic cloprostenol (Sincrocio, Ourofino Saúde Animal) and 300 IU of eCG IM (SincroeCG, Group A or Group B). All cows were timed artificially inseminated 48 hours after the device removal. Ultrasound examinations were performed at D0 to verify the presence of a CL (all females with a CL at D0 received 0.530 mg IM of PGF, according to Chaves Neto et. al., Anim Reprod, v.12, n.3, p.669, 2015) and 30 days after the TAI for pregnancy diagnosis. To evaluate the effect of BCS at D0 on the P/AI, all females were classified as BCS ≤ 2.75 or BCS > 2.75. Data were analized using the GLIMMIX procedure of the SAS® 9.3 software. It was not observed triple interaction between CLD0, BCS and Treatment for P/AI (P = 0.74). Furthermore, no CLD0*BCS (P = 0.97), CLD0*Treatment (P = 0.16) and BCS*Treatment (P = 0.19) interaction was observed. Still, similar P/AI were observed among the experimental groups [SincroeCG = 50.9% (141/277); Group A = 51.4% (127/247); Group B = 50.6% (162/320); P = 0.20]. However, it was observed an effect on P/AI according to CLD0 [without CL = 48.1% (288/599) vs. with CL + PGF = 58.0% (142/245); P = 0.02] and according to the BCS [≤ 2.75 = 46.8% (146/312) vs. > 2.75 = 53.4% (284/532); P = 0.05]. Thus, based on the results of the present, it is concluded that the P/AI of Nelore females was similar between SincroeCG and the other eCG commercial preparations.

Acknowledgement: Baguassu farm team.

A040 FTAI, FTET and AI

Embryos produced *in vitro* with sexed semen - technique application for superior beef calves production

A.O. Bezerra[1], W.B. Rodrigues[2], J.C. Borges[3], L.O.F. Oliveira[3], U.P.G. Abreu[3], N.A. Anache[1], K.C. Silva[1], A.C. Nicacio[4], E. Nogueira[3]

[1]Universidade Federal de Mato Grosso do Sul, Campo Grande; [2]Bolsista DCR FUNDECT, Campo Grande; [3]EMBRAPA CPAP, Corumbá; [4]EMBRAPA CNPGC, Campo Grande.

Keywords: embryo sexed, vitrification, FTET.

Due the relevance of the Zebu and the increasing use of production in vitro (PIV) of embryo in Brazil, we evaluated the pregnancy rates of Nelore recipients inovulated with fresh or vitrified IVP embryos obtained from Nelore donor oocytes from slaughterhouse (SLAUGHTER, n = 66 embryos) or OPU in vivo (VIVO, n = 299 embryos). For IVF was used sperm-sex sorted Y-of two Angus bulls (B. taurus). After 7 days of in vitro culture, only the embryos in morulae or blastocyst stage considered grade 1 were either transferred fresh (FRESH, n = 286) or after vitrification / devitrification (VITRIFIED, n = 79). Each recipient were synchronized in random day of the estrous cycle (D0) with the placement of intravaginal progesterone device (Cronipress® Mono Dose M-24, Biogenesis Bagó, Curitiba, Paraná, Brazil) and administration of 2 mg of estradiol benzoate (EB) (Estrogin, Biofarm, São Paulo, Brazil). On day 8 (D8) was removed concomitant P4 device with application of 1.125 µg of d-cloprostenol (Prolise, Tecnopec, São Paulo, Brazil), 1 mg of estradiol benzoate (Estrogin, Biofarm, Jaboticabal, São Paulo, Brazil) and 300 IU eCG (Folligon® 5000 IU, Intervet, Sao Paulo, Brazil). The D10 was considered the day of estrus and D17 in the recipient that had corpus luteum greater than 20 mm in diameter were inovulated. Pregnancy status was performed 60 days after embryo transfer and the data were analyzed by PROC GLIMMIX of SAS ($P < 0.05$). Cleavage rates were 63.96% ± 35.52 and 39.18 ± 17.12% for VIVO and SLAUGHTER groups respectively and were different ($P = 0.0209$), and blastocyst rates were 30.49% ± 32.34 and 14.73% ± 9.11 for VIVO and SLAUGHTER groups respectively and were no different, with only a trend ($P = 0.0892$). The less cleavage and blastocyst rate of slaughterhouse ovarian oocytes may have resulted from the range of about 6 hours from collection ovarian, transportation, and aspiration in laboratory, reducing the quality of the oocyte (Satrapa et al., 2011). There was no difference in pregnancy rate ($P = 0.72$) for FRESH (34.27% ± 47.5) or VITRIFIED (30.38 ± 46.2%) embryos, as well as the source of oocytes (VIVO = 35.12% ± 47.8; SLAUGHTER = 25.76 ± 44.0%; $P = 0.17$). It is concluded that the sexed semen associated with vitrification is viable to reduce costs and optimize the PIV technology, improving their large-scale application, regardless of the origin of ovócits.

A041 FTAI, FTET and AI

Pregnancy rate to TAI Nelore (*Bos indicus*) protocol submitted to 3 or 4 managements using Sincrogest® or CIDR® new and reused

R.D. Mingoti[1], B.G. de Freitas[2], R.S. Ramos[2], M.R. Bastos[2], A.A. Teixeira[1], M.L.G. Rezende[2], M.W. de Castro[3], A. Faquim[3], M.F. Sá Filho[1], P.S. Baruselli[1]

[1]Departamento de Reprodução Animal, VRA-FMVZ-USP, São Paulo; [2]Ourofino Saúde Animal, Cravinhos; [3]Aliança Assessoria Pecuária, Campo Grande.

Keywords: device release of progesterone, device reused, 8 days vs. 9 day.

The aim of this study was to evaluate the pregnancy rate in multiparous cows Nelore (Bos indicus) using different intravaginal progesterone (P4) devices (Sincrogest®; 1.0 g of P4 or CIDR®; 1.9g P4) new, used for the second or third time during the TAI protocol 3 (Day 0, Day 8 and Day 10) or 4 (Day 0, Day 7, Day 9 and Day 11) managements. A total of 372 cows Nelore, from a farm localized in Aquidauana / MS, was homogeneously distributed at the beginning of the TAI protocol according to body condition score (New = 3.0 ± 0.42; 2º Use = 2.6 ± 0.36; 3º Use 2.7 ± 0.39) and days postpartum (New = 43.5 ± 9; 2º Use = 44.5 ± 6; 3º Use 44.3 ± 6 dias). Animals received on Day 0 of the Protocol treatment with 2.0 mg EB IM (Sincrodiol®, Ourofino, Brazil) and insertion of the intravaginal device release of P4 (Sincrogest® or CIDR®). To avoid the effect of managements number in the pregnancy rate to TAI, the females have been separated according to experimental group (3 vs. 4 managements). In the group that received the protocol of 3 managements, at day 8 was performed withdrawal of P4 devices (Sincrogest® or CIDR®) associated to the treatment with 0.530 mg of sodium cloprostenol IM (Sincrocio®, Ourofino, Brazil), 300 UI IM chorionic gonadotropin equine (eCG; Novormon®, Zoetis, Brasil) and 1.0 mg IM of estradiol cypionate (ECP®, Pfizer, Sao Paulo, Brazil). The TAI was done at day 10 (a.m.). In the group that received the protocol of 4 managements, on day 7 were treated with 0.530 mg of sodium cloprostenol. On day 9, there was the withdrawal of P4 devices (Sincrogest® or CIDR®) associated with 300UI of equine chorionic gonadotropin and 1.0 mg of estradiol cypionate. The TAI was performed on Day 11 (a.m.). After TAI the groups of 3 and 4 managements were again regrouped until the time of pregnancy diagnosis performed by ultrasonography (Mindray, DP2200vet, São Paulo, Brazil) 30 days after TAI. Data were analyzed using the SAS procedure GLIMMIX 9.3. No triple interaction was observed between P4 device, device usage and number of managements on the pregnancy rate (P = 12:28). No double interaction was observed between between P4 device and the number of managements on pregnancy rate [Sincrogest®*3managements = 52.5% (249/474); CIDR®*3managements = 54.1% (269/497); Sincrogest®*4managements = 54.3% (265/488); CIDR®*4managements = 53.5% (258/482); P = 0.41). Likewise, there were no differences in pregnancy rate between the groups that received different number of managements, [3 managements = 53.4% (518/971); 4 managements (53.9% (523/970); P = 0.71], as well as different devices of P4 [Sincrogest® = 53.4% (514/962) vs. CIDR® = 53.8% (527/979); P = 0.97]. Thus, it is possible to obtain similar pregnancy rates to TAI in lactating zebu cows synchronized with 3 or 4 managements protocols. In addition, similar pregnancy rates to TAI were observed in cows treated with new and reused Sincrogest® or CIDR®.

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A042 FTAI, FTET and AI

Validation of *in vivo* bioactivity trials in rats and heifers of different eCG commercial preparations

M.R. Bastos[1], A.C. Carreira[2], M.L.G. Rezende[1], R.S. Ramos[1], B.G. de Freitas[1], R.D. Mingoti[3], M.C. Sogayar[2], P.S. Baruselli[3]

[1]Ourofino Saúde Animal, Cravinhos; [2]Nucel - Fm - USP, Sao Paulo; [3]FMVZ/USP, Sao Paulo.

Keywords: eCG, bioactivity, superstimulation.

The objective of the present study was to relate the results obtained with a bioactivity trial of different commercial preparations of equine chorionic gonadotrofin (eCG) in prepubertal rats (Experiment 1) with the bioactivity trial of the same preparations in bovine females (Experiment 2). On Experiment 1, five batches of the commercial preparation containing eCG (SincroeCG, Ourofino Saúde Animal; batches S1, S2, S3, S4 and S5) and one batch of the product eCG A (Company A; batch A1) were tested in rats according to the method Cole and Erway (1954), based on ovary weight gain. Saline solution was used as negative control (NC) and the international pattern (S75516 – National Institute for Biologycal Standards) as the positive control (PC). Forty rats of the Sprague-Dawley lineage (5 rats per group) received 10 UI subcutaneous eCG (D0) and, 3 days after the administration (D3), were euthanized and had their ovaries dissected and weighted. On Experminet 2, the same bacthes, S1 and A1, were tested in Bos indicus Nelore heifers with BCS = 2,9 ± 0,07, following the experimental design: D0 = administration of 2 mg IM estradiol benzoate (Sincrodiol, Ourofino Saúde Animal) and insertion of a intravaginal progesterone releasing device (Sincrogest®, Ourofino Saúde Animal). After five days (D5), all female were homogeneously allocated, according to antral follicle count and BCS at D0, into three different experimental groups [Control (n = 11) = 5 mL IM saline solution; S1 (n = 10) = administration of 1,000 UI IM eCG (SincroeCG, Ourofino Saúde Animal, batch S1); A1 (n = 11) = administration of 1,000 UI IM eCG (Company A, batch A1)]. At the eighth day of the protocol (D8) the devices were removed and were injected 0.530 mg IM sodium cloprostenol (Sincrocio, Ourofino Saúde Animal) and 1 mg IM estradiol cypionate (SincroCP, Ourofino Saúde Animal). Ultrasound examinations were performed at D0 (antral follicle counting), at D8 (counting of follicles ≥ 8.0mm) and on D16 to count the number of corpus luteum (CL). Results were analyzed using the GLIMMIX procedure of SAS® 9.3. In rats, a difference ($P < 0.0001$) was observed on the ovarian weight of the CN (CN = 33.3g ± 1.1) in comparison to the eCG-treated groups (S1 = 71.2g ± 7.1; S2 = 78.0g ± 8.3; S3 = 94.6g ± 9.3; S4 = 139.2g ± 7.9; S5 = 100.4g ± 11.8; A1 = 66.6g ± 7.5; CP = 84.4g ± 6.6), yet there was no difference among different commercial preparations ($P > 0.05$). In heifers, the number of follicles ≥ 8.0mm on D8 and the number of CL on D16 were higher for Group S1 (20.4 ± 3.5 e 18.2 ± 4.0) in comparison to the Control group (0.7 ± 0.2 e 0.5 ± 0.2), while Group A1 was intermediate between Group S1 and Control (11.1 ± 3.2 e 8.2 ± 2.3; $P < 0.0001$ and $P < 0.0001$, respectively). It is concluded that both methodologies are efficient in validating the bioactivity of the commercial preparations. Furthermore, the experimental design proposed in Experiment 2 may be used as an alternative to the quality control of the bioactivity of eCG commercial preparations in the bovine species.

A043 FTAI, FTET and AI

GnRH may increase the control on ovulation in ewes synchronized by a short-term progesterone treatment

J.M. Dorado, J.F. Cox, F.R. Saravia

Universidad de Córdoba, Estrangeiro.

Keywords: ovulation, synchronization, ewe.

This study was aimed to assess the terminal follicular dynamics and reproductive performance of estrous-synchronized ewes treated with GnRH to control ovulation compared to ewes subjected to the conventional treatment based on eCG. Ewes, BCS 3.0 (1-5 scale), and fed to satisfy their requirements were treated with a progesterone intravaginal device (CIDR G®, Pfizer, Chile) for 6 days and an injection of cloprostenol (0.125 mg, im, Ciclase®, Syntex, Chile) at device removal. In a first experiment, 59 synchronized ewes were allocated randomly to an eCG Group (400 IU im of eCG (Novormon®, Syntex), administered at CIDR removal, n = 20), an eCG+GnRH Group (as before plus 4.2 mg/ewe; buserelin acetate (Conceptal®, Intervet, Chile) 36 h after CIDR removal, n = 19 and a GnRH Group that received only GnRH as before (n = 20). To assess the effect of GnRH in the control of ovulation compared to eCG controls, follicles ≥ 4 mm in diameter at 36 h after CIDR, at ovulation and CL 10 days after ovulation were measured by transrectal US (10 mHz-probe, Honda 2100 Vet) and registered in individual charts whereas the moment of ovulation was detected by scanning ovaries each 8 h since 48 h after CIDR (average period between the last time a follicle was observed and its disappearance); the interval to ovulation was considered as the period between the CIDR removal and ovulation. In a second experiment, 136 estrous-synchronized ewes subjected to natural breeding were used to assess the potential fertility performance of GnRH plus eCG compared to ewes treated only with eCG after CIDR removal, in terms of pregnancy rate, fertility rate and prolificacy. ANOVA and Kruskal-Wallis test were used in Exp. 1 and Chi-square test in Exp.2 (STATISTICA 10.1; StatSoft Inc, Tulsa, OK, USA). In Experiment 1, results showed that GnRH reduced the interval to ovulation and grouped ovulations compared to eCG ewes (55.8 ± 0.78 vs. 67.7 ± 1.72 h respectively, $P < 0.001$). It also reduced the number of ovulatory follicles compared to eCG ewes (1.2 ± 0.16 vs. 1.9 ± 0.15 respectively, $P = 0.008$) and had no effect on ovulation rate, or on other follicular traits and on corpus luteum diameter ($P > 0.10$). The addition of eCG to GnRH-treated ewes increased the ovulation rate (100% vs. 80.0% for GnRH+eCG vs. GnRH groups, $P = 0.04$), increased the number of ovulatory follicles to that seen in eCG-treated ewes (1.8 ± 0.18 vs. 1.9 ± 0.15, $P = 0.53$), reduced further the interval to ovulation ($P = 0.007$) and the dispersion of ovulations ($P < 0.001$), and had no effect on follicle and corpus luteum diameters ($P > 0.10$). In Experiment 2, results showed that GnRH increased prolificacy compared to eCG-treated ewes (178.3% vs. 134.2%, $P < 0.001$) without affecting the pregnancy and fertility rates ($P > 0.10$). Results suggest that GnRH administered 36 h after a short-term progesterone treatment increases the control of the ovulation interval and prolificacy of synchronized ewes.

A044 FTAI, FTET and AI

Effect of PGF administration at onset of TAI protocol, and intravaginal progesterone device (Fertilcare 600®) in conception rate of Nelore heifers (*Bos indicus*)

A.A. Teixeira[1], L.M. Vieira[1], R.D. Mingoti[1], R.G. Rezende[1], J.C. Lemos Motta[1], R.W. Girotto[2], P.S. Baruselli[1]

[1]Departamento de Reprodução Animal, VRA-FMVZ-USP, São Paulo; [2]RG Genetica, água Boa.

Keywords: *Bos indicus*, PGF2α.

The objectives of present study were evaluate the effect of PGF2α administration at onset of TAI protocol, and effect of intravaginal progesterone device (Fertilcare 600®) compared to Norgestomet auricular device (CRESTAR®) in conception rate of Nelore heifers (*Bos indicus*). For this, cycling heifers (n = 450) presenting body condition score (BCS) of 3.0 ± 0.3 were randomly allocated to one of three experimental groups (G-CRESTAR, n = 146; G-P4, n = 133 e G-P4-PGFD0, n = 136). Females from G-CRESTAR, received a Norgestomet auricular device (Crestar®, MSD) plus 2.0mg of estradiol benzoate (EB; Gonadiol®, MSD) on D0. On D8, ear implant was removed and 0.265mg of PGF2α (Ciosin®, MSD) was given followed by 300 UI of equine chorionic gonadotropin (eCG; Folligon®, MSD) and 1.0mg estradiol cypionate (EC; ECP®, Zoetis). Heifers from G-P4 and G-P4-PGFD0 were submitted to a protocol for fixed-time artificial insemination (TAI) with an intravaginal device containing 0.6g of P4 (Fertilcare 600®, Vallée S.A.) plus 2.0mg of EB (Gonadiol®, MSD) on D0. Also, females from G-P4-PGFD0 received 0.265mg of PGF2α (Ciosin®, MSD). On D8, both group received the same treatment [0.265mg of PGF2α (Ciosin®, MSD), 300 UI of eCG (Folligon®, MSD) and 1.0mg of EC (ECP®, Zoetis)] together with the removal of the intravaginal device P4. The TAI was performed 48 hours after device removal for all groups using the same batch from the same bull. The pregnancy diagnosis was performed fifty days after TAI by ultrasonography. Data analysis was done by SAS Proc GLIMMIX 9.3. There was no difference in pregnancy rate at 50 days after TAI [G-CRESTAR = 48.0% (70/146); G-P4 = 45.1% (60/133); G-P4-PGFD0 = 50.0% (68/136); P = 0.72]. Therefore, we concluded that the administration of PGF at onset of protocol had no effect in conception rate. In addition, the fertility was no different between Nelore heifers receiving the different devices.

A045 FTAI, FTET and AI

Pregnancy rate of lactating Nelore cows synchronized with progesterone devices or new progestogen implants or used for eight or nine days

J.P. Barbuio[1], R.W. Girotto[2], M. de Oliveira Marques[3], L. Penteado[4], R.G. Rezende[5], R.D. Mingoti[5], L.M. Vieira[5], M.H.A. Colli[5], P.S. Baruselli[5]

[1]MSD, Saúde Animal, São Paulo; [2]RG Genética Avançada, água Boa; [3]GERAEMBRYO Assessoria e Consultoria Pecuária, Cornélio Procópio; [4]FIRMASA, Londrina; [5]Universidade de São Paulo, São Paulo.

Keywords: beef cow, FTAI, progesterone/progestogen.

The aim of this study was to evaluate the pregnancy rate in lactating Nelore cows (*Bos indicus*) using intravaginal progesterone device (FertilCare®) or ear implant containing progestogen (Crestar®) new or previously used for 8 days in FTAI protocols of 8 or 9 days of device permanence. A total of 824 multiparous lactating cows, 30 to 45 days postpartum and with body condition score mean of 2.9 ± 0.2 was used to perform 3 experiments. In all experiments, at Day 1 and Day 0 of the protocol, animals received 2.0 mg of EB i.m. (FertilCare Sincronização®, Vallée, Brazil) associated to a progesterone device or an implant containing progestogen according to: Experiment 1, 313 lactating cows received a new progesterone device (FertilCare 1200®, Vallée, Brazil); Experiment 2, 297 lactating cows received a new ear implant containing progestogen (Crestar®, MSD Animal Health, Brazil); Experiment 3, 214 cows received an ear implant containing progestogen (Crestar®, MSD Animal Health, Brazil) previously used for 8 days. In each experiment the animals were divided into 2 groups according to the permanence of progesterone device (P4) or implant containing progestogen (Pr): Exp1*P4-8D and Exp1 P4-9D; Exp2*PrNew-8D and Exp2*PrNew-9D; Exp3*PrUsed-8D and Exp3*PrUsed-9D. On D8 was held the withdrawal of devices / implants, associated to the treatment with 0.530 mg of PGF i.m. (Ciosin®, MSD Animal Health, Brazil), 1.0 mg of EC i.m. (E.C.P®, Zoetis, Brazil) and 300 IU eCG i.m. (Folligon®, MSD Animal Health, Brazil). The FTAI was performed 48 hours after device removal (D10) in all experiments. Pregnancy diagnosis was performed by ultrasonography (Mindray, DP2200vet, Brazil) 30 days after FTAI. Data were analyzed using PROC GLIMMIX of SAS (SAS ® 9.3 Institute Inc., Cary, NC, USA, 2003). In experiment 1, there was no difference in the exposure time to intravaginal P4 device on pregnancy rate [Exp1*P4-8D = 56% (87/156) vs. Exp1*P4-9D = 56% (88/157); P = 0.96]. In experiment 2, the exposure time of the New progestogen implant did not influence the pregnancy rate [Exp2*PrNew-8D = 60% (87/146) Exp2*PrNew-9D = 63% (95/151); P = 0.59]. In Experiment 3, was not verified difference on exposure time of Used progestogen implant on pregnancy rate [Exp3*PrUsed-8D = 47% (50/107) and Exp3*PrUsed-9D = 43% (46/107); P > 0.05]. The results from these experiments suggest that similar pregnancy rates to FTAI is obtained in lactating Nellore cows synchronized for 8 or 9 days with devices / implants containing progesterone or progestogens.

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A046 FTAI, FTET and AI

Equine corionic gonadotrophin (eCG) in beef cattle submitted to FTAI: a retrospective study

J.M. Trentin[1], R.O. Schenatto[1], L.B. de Araujo[2], M.F. Fiorenza[1], A.P. Baioco[2], T.G. Jacques[2], J.B.S. Casarin[2], A.P. Martini[2], G.A. Pessoa[1], M.I.B. Rubin[2]

[1]UFRGS, Porto Alegre; [2]UFSM, Santa Maria.

Keywords: bovine, fixed-time artificial insemination, reproduction.

Different doses of eCG (0, 300 IU and 400 IU) administered in lactating beef cows were evaluated on pregnancy rate (P/IA) and the occurrence of oestrus. Data were collected from 5590 TFAI in 2788 multiparous females and 2802 primiparous females from 2012 to2015 of 3 farms in the RS, Brazil. The protocol consisted in the application of 2.0 mg of estradiol benzoate (Gonadiol®, Zoetis or RIC-BE®, Agener Union, Brazil) IM and insertion of intravaginal progesterone device (P4; Primer 1g, Agener Union or DIB 1g, Zoetis, Brazil) in first day of the protocol (D0). After 9 days (D9) P4 device was removed and the animals received 0.5mg of D-cloprostenol IM (Prolise, Agener União, Brazil), or 12.5 mg of Dinoprost Tromethamine (Lutalyse, Zoetis, Brazil) and 1 mg of estradiol cypionate (ECP, Zoetis, Brazil)IM. Females of each lot /farm were classified by body condition score (BCS, 1 = thin to 5 = overweight) at D0 and distributed in groups: control (without eCG, n = 2239), 300 IU (n = 1689) and 400 IU (n = 1662). AI was performed 48h after removal of the P4 device in all female. The bases of the tail of 5084 cows were painted with ink stick marker (Raidl-Maxi, Dettingen/Erms, Germany) to identify the occurrence of oestrus. Females without marking at the time of TFAI were considered in oestrus. The pregnancy diagnosis was performed by ultrasonography 30 days after AI and BCS was evaluated. Statistical analysis was performed using the PROC GLIMMIX the SAS® 9.3 program. There was similarity between the sources of estrogen, progesterone or luteolitic agent. The occurrence of oestrus in the control, 300IU and 400IU was 48,8% (933/1913), 73,8% (1169/1584) e 76,4% (1212/1587) ($P < 0.0001$). The highest P/AI ($P < 0.0001$) was detected in cows that showed oestrus until the time of AI (64.2%, 2129/3314) compared with those who did not show oestrus (51.3%, 601/1170). Primiparous presented lower P/AI (41.8%, 1175/2802; $P = 0.003$) compared to multiparous (55.4%, 1519/2788). In primiparous it was observed lower P/IA in control (35%, 614/1756) and 300 IU (46.4% 228/491) compared to females treated with 400 IU (60.0%, 333/555) ($P < 0.0001$). In multiparous P/IA was lower ($P < 0.0001$) in the control (43.7%, 211/483) faced to 300 IU (53.5%, 641/1198) and 400 IU (58.9%, 653/1107) that were similar. The P/AI of all females was lower in control ($P < 0.0001$) (36.8%, 825/2239) compared to 300 IU (51.4%, 869/1689) or 400 IU (59.3%, 986 / 1662). Pregnancy in BCS <2.5 was lower in the control ($P = 0.0001$) (28.2%, 223/790) compared to 300 IU (36.5%, 287/786) or 400 IU (45.0% 359/797). Futhermore cows with 2.5-3.5 BCS also had lower P/IA ($P = 0.0002$) in the control (42.9%, 426/993), confronted to 300 IU (54.5%, 404/741) and 400 IU (63.5%, 475/748). In BCS > 3.75, P/AI was similar between the control (67.7%, 308/456), 300 IU (69.7%, 119/162) and 400 IU (67.5%, 79/117). Assigns to the eCG increased oestrus expression and P/AI rate in lactating Bos taurus cows. Moreover, the dose of 300 or 400 IU was similar in cows with 2.5-3.5 BCS.

A047 FTAI, FTET and AI

Pre-synchronization with persistant follicle in synchronization of ovulation protocols based on GnRH and PGF in lactating dairy cows

L.A.C.L. da Silva, I.Y.H. Martínez, L.M.S. Simoes, M.P. Bottino, G. Santos, T.T. de Almeida, A.P. Castro, J.N.S. Sales

Universidade Federal de Lavras, Lavras.

Keywords: pre-synchronization, progesterone, ovsynch.

The aim of the present study was to evaluate the pre-synchronization with progesterone device to induce persistence of the dominant follicle in TAI protocols based on GnRH and prostaglandin in lactating dairy cows. In the experiment, 344 lactating Girolanda cows were used, with 2,7 ± 0,1 births, 57,3 ± 0,8 days post-partum ranging from 30 to 96 days and body condition score ≥ 2 (1 to 5 scale), randomly assigned in, one of two treatments. Animals from the Double-Ov group (n = 183) received 100 mg of GnRH i.m. (Cystorelin®, Merial, Brazil) on d-17, 500 μg of Cloprostenol i.m. (Sincrocio®, Ouro Fino, Brazil) 7 days latter (d-10) and 100 mg of GnRH i.m. 3 days after (d-7), followed by Ovsynch protocol (GnRH on d0, PGF on d7, GnRH on d9) 7 days latter (d0). Cows from the P4-Ov group (n = 171) received on d-10 a new intravaginal progesterone device (Sincrogest®, Ouro Fino, Brazil). Ten days after (d0) Ovsynch protocol was initiated, with the intravaginal progesterone device removal on the d7. All cows were TAI 16 hours after the second dose of GnRH of Ovsynch protocol. In one subgroup (n = 56), ultrasound evaluations were performed on d0 and d10 to verify the follicular diameter and on d7 and d24 to establish the ovulation rate. Ultrasound exams were performed in all animals 30 and 60 days after TAI to evaluate pregnancy rate and embryo lost. All data were analyzed by GLIMMIX procedure of SAS. In the study, there was no ($P > 0.05$) effect of body condition score, postpartum days or lactation order for fertility variables. Furthermore, no differences were observed between the groups for the variables analyzed on the follicular dynamic; pre-synchronization rate (presence of follicles over 12mm on d0): Double-Ov 89,3% (25/28) vs P4-Ov 85,7% (24/28), (P = 0,69); presence of CL on d0: Double-Ov 53,5% (15/28) vs P4-Ov 32,1% (9/28), (P = 0,11); follicular diameter at 1st GnRH: Double-Ov 16 ± 0.97mm vs P4-Ov 18,4 ± 1.26mm, (P = 0,28); ovulation rate at 1st GnRH: Double-Ov 82,1% (23/28) vs P4-Ov 78,5% (22/28), (P = 0,32); follicular diameter at 2nd GnRH: Double-Ov 15,7 ± 0.92mm vs P4-Ov 17,9 ± .67mm, (P = 0,06); ovulation rate at 2nd GnRH: Double-Ov 92,8% (26/28) vs P4-Ov 96,4% (27/28), (P = 0,56) and CL diameter after AI: Double-Ov 25,6 ± 1.69mm vs P4-Ov 28,8 ± 1.37mm, (P = 0,13). There was no difference on pregnancy rate neither 30 days after TAI between Double-Ov [39,3% (70/178) and P4-Ov 41,6% (69/166) (P = 0,67)] nor 60 days after TAI between Double-Ov [35,9% (64/178) and P4-Ov 39,8% (66/166) (P = 047)]. No difference was found on pregnancy loss between 30 and 60 days of pregnancy [Double-Ov 8,6% (6/70) e P4-Ov 4,4% (3/69) (P = 0,32). In conclusion, pre-synchronization with progesterone device shows similar efficiency of the double ovsynch protocol in synchronization of ovulation and fertility of lactating dairy cows.

A048 FTAI, FTET and AI

Follicular dynamics in Nelore heifers treated with lecirelin acetate for ovulation resynchronization

T.R. Rigo Barreiros[1], C.R. Laurini[1], F.P. Vianna[2], L.A.R. Pegorari Júnior[1], J.C. Arevalo Junior[1], M.M.T. Hidalgo[1], H.G.R. Mendonça[3], W. Blaschi[1]

[1]Universidade Estadual do Norte do Paraná, Bandeirantes; [2]Agener União, São Paulo; [3]In Vitro Brasil, Mogi Mirim.

Keywords: GnRH, ovulation, embryo.

The aim of this trial was to evaluate the ovarian follicular dynamics in ressinchronization heifers with lecirelin acetate after FTET program. Forty Nelore cyclic heifers, BCS 3.25 (scale 1 to 5), 22 to 24 months age and 240 a 260 kg body weight were submitted to FTET program, in wich they recivied na intravaginal device with 1g progesterone (Primer®, Tecnopec, Brasil) and 2.0 mg estradiol benzoate (EB, Ric-BE®, Tecnopec, Brasil) im (D-10). Eight days later (D-2), the device was removed and 500 µg cloprostenol (Estron®, Tecnopec, Brasil), 10 mg de FSHp (Folltropin®, Bioniche, Canadá) and 1mg EB, im were given. Ten days later (D0), 85% (34/40) of heifers had CL after transrectal ultrasound scan (Myndray, 7.5 Mhz, China) and were divided in two groups (GnRH group, G-GnRH n = 17 and Control group, G-C,n = 17;) with or without IM application of 25µg of lecirelin acetate (Gestran Plus, ARSA, Argentina), respectively. Ultrasound examinations were performed every 12 hours after lecirelin application until the following three days to check the emergence of follicular wave. On Day 14th (D14), all animals reciveid 25µg of lecirelin acetate im and ultrasound exams were performed every 24 hours until the time of ovulation. Heifers were examined again by ultrasonography seven days after ovulation (D21) to measure the size of the CL. Statistical analyses were performed using Student`s t-test with a significance level of $P < 0.05$. There was no difference ($P = 0.93$) in diameter of the dominant follicle in D0 (G-GnRH: 9.2 ± 1.2 vs. G-C:9.0 ± 1.3 mm). The range for follicular wave emergence after the first application of lecirrelina acetate was lower ($P = 0.04$) in G-GnRH (1.5 ± 0.4 days) than G-C (1.9 ± 1.4 days). The diameter D14 of the dominant follicle was greater (11.3 ± 2.3 mm; $P = 0.015$) in the G-GnRH than G-C (8.5 ± 3.0mm). The synchronation and ovulation rates were similar ($P = 0.72$) between groups (G-C: 58.8% 10/17; G-GnRH: 70.5%, 12/17). The CL size was similar ($P = 0.14$) among the groups (G-C: 14.4 ± 2.8 mm; G-GnRH: 16.9 ± 4.4). In conclusion, the results are promising for the resynchronization to FTET with two applications of lecirrelina acetate.

A049 FTAI, FTET and AI

Resynchronization efficiency for FTET in Nelore cows treated with one or two applications of lecirelin acetate

W. Blaschi[1], C.R. Laurini[1], L.A.R. Pegorari Junior[1], J.C. Arevalo Junior[1], F.P. Vianna[2], A.R.G. Almeida[1], L.F.G. Monteiro[3], D. Gaitkoski[3], T.R. Rigo Barreiros[1]

[1]Universidade Estadual do Norte do Paraná - Campus Bandeirantes, Bandeirantes; [2]Agener União, São Paulo; [3]In Vitro Brasil, Mogi Mirim.

Keywords: embryo, GnRH, ovulation.

The aim of this study was to compare the ovulation resynchronization efficiency with one or two applications of lecirelin acetate. Nelore cows (n = 208), BCS 2.75 to 3.25 (scale 1 to 5), 45 to 60 days postpartum were submitted to FTET program, in wich they recivied an intravaginal device with 1.9g progesterone (CIDR®, Zoetis, Brasil) and 2.0 mg estradiol benzoate (Gonadiol®, Zoetis, Brasil) im (D-18). Nine days later, the device was removed and 12.5 mg dianprost (Lutalyse®, Zoetis, Brasil), 300 UI eCG (Novormon®, Zoetis, brasil) and 1mg estradiol cipionate (E.C.P., Zoetis, Brasil), im were given (D-9). The timed embryo transfer (FTET) was performed 18d after the begining of the hormonal treatment and animals were divided in two groups (GnRH group, G-GnRH, n = 108 and Control group, G-C,n = 100) with or without IM application of 25µg of lecirelin acetate (Gestran Plus®, ARSA, Argentina), respectively. On Day 14th (D14), all animals reciveid 25µg of lecirelin acetate im and ultrasound evaluation were performed to measure the size of the largest follicle. At 21 days after FTET (D21), pregnancy diagnosis was done by ultrassound evaluation, and nonpregnant with CL received FTET. Pregnancy diagnosis was performed 30 days later (D51). Statistical analyses were performed using Chi-square and Student`s t-test with a significance level of $P < 0.05$. The synchonization rate was similar ($P = 0.72$) in D0 [G-GnRH: 79.6% (86/108) and G-C: 84% (84/100)]. The conception and pregnancy rates (D21) were similar ($P = 0.95$) between groups [G-GnRH:56% (49/86) and G-C:52.3% (44/84)], and [G-GnRH:45.3% (49/108) and G-C:44.0% (44/100) ($P = 0.38$)]. On D14, the diameter of the dominant follicle was greater (12.3 ± 1.8 mm; $P < 0.001$) in the G-GnRH than G-C (10.5 ± 1.6mm). At lecirelin treatment (D21), the resynchronization rate was similar ($P = 0.62$) [G-GnRH: 67.7%, (40/59) and G-C: 76.7% (43/56)]. The conception and pregnancy rates at second FTET (D51) were similar among groups [G-GnRH: 42.5% (17/40) and G-C: 34.8% (15/43), ($P = 0.97$) and G-GnRH: 28.8%; (17/59) and G-C: 26.7% (15/56), ($P = 0.93$)]. The cumulative pregnancy rates were 59% (59/100) and G-GnRH: 61.1% (66/108); ($P = 0.86$). In conclusion the association of P4 synchronization program with the use lecirelin acetate used 14 days after first FTET allowed two services within 21 day of the bredding season. The resynchronization rate did not increase with the use of two applications of lecirelin acetate. Further, we regard the promising results by the increase in follicle size at the time of resynchronization.

A050 FTAI, FTET and AI

Swine parturition rate after two intra or post cervical inseminations with different intervals

A.F. Araujo, L.D.P. Oliveira, V.L. Silva, J.C. Ribeiro, A.S. Cezário, W.B.R. Santos, E.M.B. Oliveira, A.S. Camargos

IF Goiano Campus Morrinhos, Morrinhos.

Keywords: artificial insemination, pig, pregnancy.

This study aimed to compare the effect of intra and post cervical artificial insemination (AI) on the reproductive efficiency of swine, by evaluating the parturition rate. For the collection of semen, three males were used alternately and the ejaculated evaluated at the Laboratory of Semen. For insemination, were used only refrigerated ejaculates with normal appearance and motility greater than 70%. The homospermic doses had their 3 billion sperm concentration and volume (80 mL) standardized and were added the same industrialized diluent (MRA long conservation, Consuitec, Paulinia, Brazil). Estrus identification of the females was by using a male to detect estrus twice a day. Insemination of swine females were given in two ways: intra cervical (conventional) and post cervical. Animals, with two to five number of parturitions, were randomly distributed into three treatment groups, according to the type and interval of AIs: IC (n = 122) - intra cervical AI 12 and 24 hours after estrus detection; PC12 (n = 121) – post cervical AI after 12 and 24 hours after estrus detection; and PC24 (n = 121) – post cervical AI 12 and 36 hours after estrus detection. Pregnancies were confirmed by no return to estrus and by parturition at the end of pregnancy. For statistical analysis, data were submitted to ANOVA, considering parturition rates, number of parturitions, male, interaction parturition rate x number of parturitions and male. Means of each group were submitted to the Kruskal-Wallis test (SAS, 2008) at a significance level of 5%. There were no effect of number of parturitions and male used. Parturition rates observed in this study were: IC 89.95%, PC12 97.40% and PC24 95.60%. The three groups differed significantly ($P < 0.05$), with conventional AI (IC) presented the lowest parturition rate and post cervical AI PC12 the higher parturition rate. Both post cervical AI protocols of this study were superior compared to the intra cervical. The efficiency of post-cervical insemination consist in reduction of the loss of sperm by refluxing and phagocytosis, due to the smaller path traveled by the sperm cells to the oviduct, and due to the mechanical transposition of the cervix, major mechanical barrier to sperm transit. Regarding the intervals between inseminations, was observed that a 24-hour interval was too long, probably compromising the availability of viable sperm in the oviduct for fertilization. Unlike the results of this study, some authors states that when comparing the reproductive data of the intra cervical and post cervical inseminations some aspects are not significantly different, indicating that the post cervical insemination may have no effect on the potential of female fertility. That is, there may be factors as the choice of the matrix, sperm viability, environment, that can affect pregnancy in females by intra cervical insemination. In relation to the technique, the post-cervical AI had higher parturition rates than intra cervical insemination technique. Regarding the interval between inseminations, twice with 12 hours was the best protocol, with higher parturition rate.

A051 FTAI, FTET and AI

Pregnancy rate to FTAI of Crossbred heifers (*B. Indicus x B. Taurus*) submitted to protocols of 3 or 4 handling cattle

M.H.A. Colli[1], R.P.A. Carvalhaes[2], R.D. Mingoti[1], L.M. Vieira[1], R.G. Rezende[1], M.H. Santos[2], J.N.S. Sales[3], P.S. Baruselli[1]

[1]Universidade de São Paulo, São Paulo; [2]RPZ Assessoria, Sinop; [3]Universidade Federal de Lavras, Lavras.

Keywords: beef heifers, corpus luteum, FTAI.

The objective of the present study was to evaluate the pregnancy rate of Crossbred beef heifers (Nelore x Aberdeen Angus) using FTAI protocols of three (Day 0, Day 8 and D 10) or four (Day 1, Day 6, Day 8 and Day 10) handlings. A total of 367 nuliparous heifers, between 14 and 16 months old, from a commercial farm located in Nova Mutum/MT county, were homogeneously distributed according to the body condition score (3 handlings group = 3.75 ± 0.37; 4 handlings group = 3.83 ± 0.40) and presence of a corpus luteum (CL) in the beginning of protocol [with a CL; 3 handlings group = 40.6% (78/192); 4 handlings group 44% = (77/175). On 3 handlings group, in the beginning of FTAI (Day 0), the animals received 2.0 mg of EB i.m. (Gonadiol®, Zoetis, Brazil) associated to the treatment with 12.5 mg of PGF2α i.m. (Lutalyse®, Zoetis, Brazil) and the insertion of a P4 intravaginal device, previously used for 16 days (CIDR®, Zoetis, Brazil). On Day 8 was performed the intravaginal devices withdrawal associated to the treatment of 12.5 mg of PGF2α i.m., 1.0 mg of EC i.m. (E.C.P®, Zoetis, Brazil) and 300 IU of eCG i.m. (Novormon®, Zoetis, Brazil). On 4 handlings group, in the beginning of FTAI,on Day -1, the animals received 2.0 of EBi.m. and a P4 intravaginal device, previously used for 16 days (CIDR®, Zoetis, Brazil). On Day 6, the heifers received and injection of 12.5 mg of PGF2α i.m. (Lutalyse®, Zoetis, Brazil). On Day 8 the animals received 1.0 mg of EC (E.C.P®, Zoetis, Brazil) associated to the treatment with 300 IU of eCG. (Novormon®, Zoetis, Brasil) and the P4 device was removed. In both groups the FTAI was performed 48 hours after the P4 intraginal device removal (Day 10) by the same technician using semen batch of an unique bull. The pregnancy diagnosis was performed by ultrasound 30 days after FTAI (Mindray, DP2200vet, Brazil). The data were analyzed by PROC GLIMMIX of SAS (SAS® 9.3 Institute Inc., Cary, NC, USA, 2003). There was no interaction between number of managements and ciclicality on the pregnancy rate [3 handlings*With CL = 56.4% (44/78) *vs*. 4 handlings*With CL = 61.0% (47/77); 3 handlings*Without CL = 57.9% (66/114) *vs*. 4 handlings*Without CL = 57.1% (53/98); P = 0.45). It was not observed difference in the number of managements on the pregnancy rate [3 handlings = 57.3% (110/192) *vs*. 4 handlings = 57.1% (100/175); P = 0.93]. There was no difference of cyclicality on the pregnancy rate [With CL = 68.7% (91/155) *vs.* Without CL 56.1% (119/212); P = 0.63]. In this way, it is possible to obtain similar pregnancy rates in Crossbred heifers (Nelore x Aberdeen Angus) submitted to FTAI protocols independently of number of managements used [(3 handlings with PGF on D0 and D8) or (4 handlings with PGF on the 6)] according to the permanence of P4 device for eight or nine days, respectively.

Acknowledgments: RPZ Assessoria, Mafra Agropecuária S/A e Zoetis.

A052 FTAI, FTET and AI

Swine farrowing rate after 1, 2 or 3 inseminations

L.D.P. Oliveira, A.F. Araujo, V.L. Silva, J.C. Ribeiro, A.S. Cezário, W.B.R. Santos, E.M.B. Oliveira, A.S. Camargos

IF Goiano Campus Morrinhos, Morrinhos.

Keywords: artificial insemination, pig, parturition.

Some Brazilian farms have controversial opinions about the most appropriate intracervical artificial insemination (AI) protocol in swine. Each region adopts a different protocol. Most farmers use two inseminations protocol with 12-hours of interval. However, some farms use one AI and others use three AI with the same interval. This experiment aimed to compare the effects of one, two or three AI on the reproductive efficiency of swine by evaluating the farrowing rate and average number of piglets per litter. This experiment was carried on Gameleira commercial farm, located in Lagoa Dourada - MG, mesoregion Campo das Vertentes during the year of 2014. The city has latitude of S 20º54'52" and longitude of W 44º04'42".The city is situated in a mountainous region (70%) with tropical climate, characterized by hot humid summers and annual thermal average of 19.3ºC. In this experiment, 340 females were selected in reproductive age with regular estrous cycles and without history of disease. For the collection of semen, three males were used alternately and the ejaculated was evaluated in a laboratory. For AI, only refrigerated ejaculates with normal appearance and motility better than 70% were used. The doses had their sperm concentration standardized to 3 billion spermatozoa per dose and were added the same industrialized diluent (MRA long conservation, Consuitec, Paulinia, Brazil). Females in estrus were identified using a male to detect estrus twice daily. Sows were randomly distributed into three treatment groups, according to the number of AIs: C1 (n = 120) - AI 12 hours after estrus detection; C2 (n = 110) –AI 12 and 24 hours after estrus detection; and C3 (n = 110) –AI after 12, 24 and 36 hours after estrus detection. Pregnancies were confirmed by no return to estrus and by parturition at the end of pregnancy. Parturitions were monitored. For statistical analysis, the farrowing rate and average number of piglets per litter of each group were submitted to the Kruskal-Wallis test (SAS, 2008) at a significance level of 5%. Farrowing rates observed in this study were: C1 80.00%, C2 88.89% and C3 90.91%. C1 differed significantly ($P < 0.05$) to C2 and C3 groups, presenting lower farrowing rate. This study shows that more repetitions with 12-hour interval offers more availability of viable sperm in the oviduct for fertilization. The number of inseminations did not influence in the average number of piglets per litter (C1 11.20, C2 13.04 and C3 13.11, $P > 0.05$). In conclusion, increasing the number of AI to two or three within 12 hours improved farrowing rate.

A053 FTAI, FTET and AI

Effect of melengestrol acetate on cyclicity induction in *Bos taurus* heifers

A.P. Martini[1], C.E.P. Leonardi[2], L.B. de Araujo[1], N. Maciel[1], T.S. Balestrin[1], S.C. Muller[1], I. Claro Junior[3], M.I.B. Rubin[1], G.A. Pessoa[1]

[1]Laboratório de Embriologia Animal (Embryolab), DCGA, CCR, UFSM, Santa Maria; [2]University Of Saskatchewan, Saskatchewan; [3]ZOETIS Brasil, Campinas.

Keywords: bovine, pregnancy, TAI.

The aim was to compare the effect of progesterone on the estrus pre-synchronization protocol using intravaginal progesterone device (CIDR®, Zoetis, Brazil) or oral melengestrol acetate (MGA®Premix, Zoetis) on induction of estrous cyclicity and vaginal reaction in Bos taurus heifers. Prepubertal heifers (n = 245), Red and Aberdeen Angus, 18 months old and a body condition score of 2.74 ± 0.04 (1-5) were distributed randomly in three pre-synchronization groups: MGA (n = 84), uCIDR (n = 83) and CONTROL (n = 78). The MGA group was given 2500 mg daily of MGA mixed with mineral salt per heifer for 12 days (from D-26 to D-14). On D-24 a CIDR (previously used for 8 days) was inserted in the uCIDR group, and kept for 12 days (from D-24 to D-12). On D-12 0.6 mg of estradiol cypionate (ECP®, Zoetis) was injected im in MGA and uCIDR groups. CONTROL group was not administered any form of progesterone. On D0 uterus and ovaries were examined by transrectal ultrasound to observe the cyclicity, i.e. presence of corpus luteum. After ultrasound evaluation all heifers were injected with 2 mg of estradiol benzoate im (Gonadiol®, Zoetis) and a CIDR (previously used for 8 days) was inserted. On D7, 12.5mg of dinoprost tromethamine im (Lutalyse®, Zoetis) was given. The CIDR was removed on D9, and 0.6 mg of ECP and 200 IU of equine chorionic gonadotropin (eCG, Novormon®, Zoetis) were injected. The TAI was performed on D11 (48hr CIDR removal), and pregnancy diagnosis was performed on D41 (30 days after TAI). Data was analyzed using Proc Means, Proc Freq and Proc GLIMMIX on the statistical program SAS 9.3. The ciclicity rate after pre-synchronization was higher for MGA (79.7%, 67/84) and uCIDR (74.7%, 62/83) than CONTROL (7.7%, 6/78) ($P < 0.0001$). Estrous behavioral after pre-synchronization was higher for MGA (89.2%, 75/84) than uCIDR (78.3%, 65/83) and CONTROL (3.8%, 3/78) ($P < 0.0001$). Post-synchronization (D9) the number of heifers in heat was higher in MGA (91.6%, 77/84) than uCIDR (74.7%, 62/83) and CONTROL (57.7%, 45/78) ($P = 0.0007$). At the end of synchronization treatment (D9) more heifers with vaginitis were observed in the uCIDR group (16.9%, 14/83) than the other two groups (MGA = 4.76%, 4/84; CONTROL = 5.1%, 4/78) ($P = 0.003$). The pregnancy/AI was higher in heifers treated with MGA (69.04%, 58/84; $P = 0.002$) than uCIDR (50.6%, 42/83) and CONTROL (34.6%, 27/78). Also, the pregnancy rate in the end of the breeding season was higher in heifers treated with MGA (81%, 68/84, $P < 0.0001$) than uCIDR (67.5%, 56/83) and CONTROL (55.0%, 43/78). In conclusion, the pre-synchronization treatment with MGA was able to improve the estrous cyclicity and increase pregnancy rate after TAI and in the end of the breeding season in heifers. In addition, treatment with MGA may result in lower vaginitis in heifers than used progesterone intravaginal device.

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A054 FTAI, FTET and AI

Morphological evaluation of the corpus luteum and use of doppler ultrasound as pregnancy prediction tool for 20 days post TAI in crossbred cows

A.S. Rodrigues[1], M.A.A. Silva[2], T.O. Brandão[2], E.S. Santos[2], L.D.P. Maggitti Junior[2], E.R. Flores[2], J.B.R. da Silva[2], R.F. Bittencourt[2], M. Chalhoub[2], A.L. Ribeiro Filho[2]

[1]UFOB, Barra; [2]UFBA, Salvador.

Keywords: bovine, FTAI, pregnancy diagnosis.

This study aimed to compare morphological and functional characteristics of the corpus luteum (CL) between pregnant and non-pregnant cows and use ultrasonography (US) doppler as early indicator to pregnancy 20 days after (FTAI). To this end, 50 Holstein-Gyr crossbred cows were subjected to synchronization protocol that began in a random day called day zero (D0) by intravaginal device insertion with 1.0g of progesterone (P4) (Sincrogest®, Ouro-Fino, Sao Paulo, Brazil) and applying 2.0mg oestradiol benzoate (im) (Sincrodiol®, Ouro-Fino, Sao Paulo, Brazil). On D7, received 12.5 mg dinoprost tromethamine (im) (Lutalyse®, Zoetis, Sao Paulo, Brazil). On D9, the devices were removed and it was manipulated 300 IU eCG (im.) (Novormon®, Zooetis, Sao Paulo, Brazil) and 0.6 mg of estradiol cypionate (im) (ECP®, Pfizer, Sao Paulo, Brazil). On D11 was held TAI using cryopreserved semen from only one Girolando bull. The luteal parameters were measured 20 days after FTAI (Mindray Z5) to obtain diameter (DCL) and CL area (ACL) was used the B mode of US; and to determine the area of vascularization (VCL) and percentage vascularization area in CL (VCL%) was utilized the power flow mode of Doppler ultrasound. The images were classified based on the number of colored pixels and their distribution in the CL, being categorized into two groups: animals less than 20% VCL% were classified as negative predictive diagnosis (DPN), and animals with more than 30% were classified as positive predictive diagnosis (DPP). To assess the functionality of the CL, blood samples were collected by venipuncture coccygeal being determined the plasma concentration of P4 by using the chemiluminescence by Access immunoassay systems Progesterone, sensitivity 0.1ng /mL. Final pregnancy diagnosis (PG) was held by transrectal US 35 days after the IATFs, being classified as pregnants those in which there was visualization of the embryo with the presence of heartbeat. To compare the differences between the parameters of pregnant and non-pregnant cows was used the Student t test, $P < 0.05$. The degree of agreement between predictive and definitive diagnosis was established through the specificity, sensitivity and accuracy. The averages for DCL and ACL did not differ between the pregnant and non-pregnant groups. Regarding the VCL, VCL% and P4, the pregnant animals had on average, respectively, 0,34 ± 1.12cm^2, 36.14 ± 9.01% and 11.04 ± 4,32ng/ml, significantly higher than non-pregnant animals which had on average VCL 0.57 ± 0.36cm^2, VCL% 19.63 ± 10.53% and P4 5.19 ± 5.70ng/mL. The final DG showed that 88.8% of non-pregnant animals were detected in the predictive diagnosis, demonstrating a sensitivity of 91.3% and accuracy of 90%. In conclusion, doppler ultrassound in CL at 20 days post FTAI is a reliable method for performing diagnosis of early pregnancy in crossbred cows.

A055 FTAI, FTET and AI

The effect of different sources and concentrations of progesterone on pregnancy rate of Holstein cows submitted to TAI

L.M. Vieira[1], R.D. Mingoti[1], A.A. Teixeira[1], R.G. Rezende[1], J.C. Lemos Motta[1], M.H.A. Colli[1], L.G.M. Bragança[2], R.J. Carvalho[3], P.S. Baruselli[1]

[1]Departamento de Reprodução Animal, VRA-FMVZ-USP, São Paulo; [2]NEOGEN Reprodução Assistida, Ribeirão Preto; [3]Veterinário Autônomo, Carmo do Rio Claro.

Keywords: Holstein cows, progesterone, reused.

In order to evaluate the effect of different sources and concentrations of progesterone (P4) on pregnancy rate of Holstein (*Bos taurus*) lactating cows it was conducted a study with 354 animals. The cows were distributed homogeneously according to the body condition score (2.99 ± 0.03), days in milk (153 ± 6.01 days) and number of lactations (2,2 ± 0,04) and milk yield (32.2 ± 0.57 kg/milk/day), in three experimental groups: G1) intravaginal device containing 1.2 g of P4 (Fertilcare 1200®, Vallée S.A.); G2) intravaginal device containing 1.2 g of P4 previously used for 8 days (Fertilcare 1200®, Vallée S.A.); G3) intravaginal device containing 0.6 g of P4 (Fertilcare 600®, Vallée S.A.). On D0, the animals received a P4 intravaginal device and 2.0 mg of estradiol benzoate (Gonadiol®, MSD). On D8, the treatments with 500 µg of cloprostenol sodium (Ciosin®, MSD), 400 UI of eCG (Folligon®, MSD) and 1.0 mg of estradiol cypionate (ECP®, Zoetis) were administered simultaneously with P4 device withdrawal. The TAI was performed on D10, 48 hours after the P4 device removal. The pregnancy diagnosis was conducted by ultrasound examination 30 and 60 days after TAI. The data were analyzed by PROC GLIMMIX from SAS® (SAS 9.3 Institute Inc., Cary, NC, USA, 2003). No difference was detected between treatment groups on pregnancy rate on day 30 [G1 = 27.1% (33/122); G2 = 22.8% (26/114); G3 = 28.8% (34/118); P = 0,50]. In addition, there were no difference between experimental groups on pregnancy rate on day 60 [G1 = 21.3% (26/122); G2 = 17.5% (20/114); G3 = 25.4% (30/118); P = 0.30]. Therefore, the results suggest that the different sources and concentrations of P4 used in this study did not have effect on pregnancy rate of Holstein cows submitted to TAI protocol.

A056 FTAI, FTET and AI

ECG in Nelore cows: different commercial preparations and same pregnancy rate

L.C. Lechinoski, A.R. Felisbino Neto, L. Cappellesso, B.G. de Freitas, R.S. Ramos, M.L.G. Rezende, D.L. Furtado, C. Passarin, B.M. Guerreiro, M.R. Bastos

Ourofino Saúde Animal, Cravinhos.

Keywords: *Bos indicus*, eCG, FTAI.

The treatment with equine chorionic gonadotrofin (eCG) could stimulate the final follicular development, increasing the pregnancy per artificial insemination (P/AI), especially in low body condition score and anestrous cows (Baruselli et al., Anim Reprod, v.9, p.139-152, 2012). Considering the importance of this hormone to the increment of the reproductive efficiency, the present had the objective to compare the effect of the administration of 2 different commercial preparations of eCG on the P/AI of a timed artificial insemination (TAI) procotol in zebu beef cows. The experimente was conducted in two farms, located at the states of Pará and Mato Grosso (Brazil). A total of 635 Nelore cows with an average BCS = 2,76 ± 0,01 received 2 mg IM estradiol benzoate (Sincrodiol, Ourofino Saúde Animal) and an intravaginal progesterone releasing device (Sincrogest®, Ourofino Saúde Animal) at the beggining of the trial (D0). Eight days later (D8), the devices were removed and it was administered 1 mg IM estradiol cypionate (SincroCP, Ourofino Saúde Animal), 0,530 mg sodic cloprostenol (Sincrocio, Ourofino Saúde Animal) and females were randomly assigned in 2 experimental groups: SincroeCG [administration of 300 IU IM eCG (SincroeCG, Ourofino Saúde Animal)] and Company A [IM administration of 300 IU eCG from Company A (Novormon, Zoetis)]. All cows received TAI 48 hours after device removal. Ultrassound examinations were performed 30 days after TAI for pregnancy diagnosis. The results were analized using the procedure GLIMMIX of the SAS® 9.3 statistics software. There was no interaction BCS*treatment (P = 0,43). P/AI were similar among the different groups [SincroeCG = 46.3% (148/320) vs. Company A = 46.2% (145/315); P = 0.84]. Thus, it is concluded that P/AI was similar between SincroeCG and Company A groups.

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A057 FTAI, FTET and AI

Follicle dynamic of Girolando heifers synchronized with different P4 intravaginal devices (0,558g or 1.9g) maintained for 8 or 9 day

L.R. Peixoto, B.V. Rodrigues Rizoto de Mattos, T.S. Maia, L.M. Araújo, J. Melo Junior, D.C. Antonino, M.M. Soares, M. Oliveira, A.M. Teixeira, G.G. Macedo

UFU, Uberlandia.

Keywords: bovine, follicle, progesterone.

The aim of this study was to analyze the follicle dynamic of heifers in a protocol of ovulation synchronization using intravaginal device containing different P4 concentrations and different period of maintenance to determine if will be disparity between both. Cyclic Girolando heifers (n = 48) were randomized in one of four groups (factorial 2 x 2): Fertilcare8 (n = 12), Fertilcare9 (n = 12), CIDR8 (n = 12) e CIDR9 (n = 12). Groups Fertilcare8 and CIDR8 received a intravaginal P4 device [Fertilcare®(0.558g) and a second use CIDR (1.9g), respectively] and 2mg of estradiol benzoate (BE) i.m. (Gonadiol®; Zoetis, São Paulo, Brazil) on D0 of the TAI protocol . On D8, device was removed and administered 1mg of estradiol cypionate (EC) i.m. (ECP®; Zoetis, São Paulo, Brazil) and 0.5mg of sodic cloprostenol (Ciosin ®, São Paulo, Brazil). Groups Fertilcare9 and CIDR9 received a intravaginal P4 device [Fertilcare®(0.558g) and second use CIDR (1.9g), respectively] and 2mg of estradiol benzoate (BE) i.m. (Gonadiol®; Zoetis, São Paulo, Brazil) on D0. On D7, were injected with 0.5mg of sodic cloprostenol (Ciosin ®, São Paulo, Brazil)and on D9 device was removed and administered 1mg of estradiol cypionate (EC) i.m. (ECP®; Zoetis, São Paulo, Brazil). The heifers of all protocols were inseminated 48 hours after the devices was removed. Ovary scan by ultrasound were performed at time 0 (considering the moment of device removal), 24, 48, 60, 72, 84 and 96 h. Statistical analysis were performed using the proc GLIMMIX of SAS and data are presented by mean ± SE. Significance is considered when $P < 0.05$.There was similar between treatments (three managements vs four managements) when it was observed the largest dominant follicle (13.82 ± 0.51mm vs 14.25 ± 0.49 mm; $P > 0.05$), the ovulatory follicle diameter (12.58 ± 0.66 mm vs 13.21 ± 0.49 mm; $P > 0,05$) the percentage of ovulation by protocol (77.27% vs 95.40%; $P > 0.05$), the time of ovulation after removal of the device (74.82 ± 4.05 hours vs 80 ± 2.66 hours; $P > 0.05$) , follicle size at the time of withdrawal of progesterone device (9.56 ± 0.86 mm vs 10.79 ± 0,52; $P > 0.05$) , follicle size on artificial insemination (11.02 ± 0.69 mm vs 13.38 ± 0.62 mm; $P > 0.05$) and daily growth rate of each dominant follicle (0.95 ± 0.28 mm / day vs 1.29 ± 0.14 mm / day; $P > 0,05$) . Thus it is concluded that there was no statistical difference between the protocols of 3 managements or the 4 managements protocol when it was used the second use progesterone CIDR® and even when we used the progesterone single dose device Fertilcare® then both protocols being effective for ovulation synchronizing on heifers.

A058 FTAI, FTET and AI

Pregnancy rate following FTAI of Nelore (*Bos indicus*) cows submitted to protocols of 3 or 4 cattle handling with administration of PGF in different moments

R.P.A. Carvalhaes[1], M.H.A. Colli[2], T.T. de Almeida[3], R.D. Mingoti[2], L.M. Vieira[2], M.H. Santos[1], J.N.S. Sales[3], P.S. Baruselli[2]

[1]RPZ Assessoria, Sinop; [2]Universidade de São Paulo, São Paulo; [3]Universidade Federal de Lavras, Lavras.

Keywords: corpus luteum, lactating cows, FTAI.

The aim of this study was to evaluate the pregnancy rate of lactating Nelore cows using FTAI with P4 exposure during 8 or 9 days with 3 or 4 cattle handling. A total of 611 cows were used in two experiments. In each experiment the animals were distributed in two groups according to the BCS (2.86 ± 0.28), days postpartum (40 to 50 days) and presence of CL by ultrasound examination (US; Mindray®, DP-2200) on D0. In the experiment 1, the 8D-PGF-D8 group cows received 3 handlings protocol, with 8 days of P4 (CIDR®, Zoetis) and PGF im (Lutalyse®, Zoetis) on D8. The 8D-PGF-D0andD8 group the animals were submitted to the 8 days of P4 (CIDR®, Zoetis) protocol with PGF on D0 and D8. In the experiment 2, the 9D-PGF-D7 group received the 4 handling protocol with 9 days of P4 (CIDR®, Zoetis) with administration of PGF on D7. The 9D-PGF-D0andD9 group was treated with 3 handling protocol with 9 days of P4 (CIDR®, Zoetis) and administration of PGF on D0 and D9. In both experiments, on D0 animals received 2.0 mg of EB im (Gonadiol®, Zoetis) and an intravaginal P4 device (CIDR®, Zoetis). On D8 (8D-PGF-D8 and 8D-PGF-D0andD8) and D9 (9D-PGF-D7 and 9D-PGF-D0andD9) the P4 device was removed and the treatments with 1.0 mg of EC im (E.C.P®, Zoetis) and 300 IU of eCG im (Novormon®, Zoetis) were conducted. The FTAI was conducted 48 hours after the device removal in all groups. The pregnancy diagnostic was performed 30 days after FTAI by US. The data were analyzed by PROC GLIMMIX of SAS®. On experiment 1, no interaction (P = 0.53) between protocol and presence of CL on D0 on pregnancy rate was observed. The presence of CL on D0 was not different between groups [8D-PGF-D8 = 30% (47/159) and 8D = PGF-D0andD8 = 30% (49/163); P = 0.83]. The cows with CL presented similar pregnant rate than cows without CL on D0 of the protocol [With CL = 59% (57/96); Without CL 60% (136/226); P = 0.70]. Furthermore, no difference was observed on pregnancy rate between groups [8D-PGF-D8 = 57% (91/159) vs. 8D-PGF-D0andD8 = 63% (102/163); P = 0.53]. On experiment 2, there was no interaction (P = 0.94) between protocol and presence of CL on D0 on pregnancy rate. The presence of CL on D0 was similar between groups [9D-PGF-D7 = 28% (40/142) e 9D-PGF-D0andD9 = 30% (44/147); P = 0.41]. The animals with CL presented similar pregnancy rate than animals without CL on D0 of the protocol [With CL = 64% (54/84); Without CL 60% (122/205); P = 0.96]. No difference was detected on pregnancy rate between treatments [9D-PGF-D7 = 65% (92/142) vs. 9D-PGF-D0andD9 = 57%(84/147); P = 0,18]. In conclusion, the treatment with PGF on D0 did not increase the pregnancy rate on protocols with 3 handling cattle with 8 days of P4 exposure, independently of presence of CL on D0 (Exp. 1). In addition, the protocol with 4 handling and PGF on D7 presented similar pregnancy rate than protocols with 3 handling and PGF on D0 and D9 in protocols with 9 days of P4 exposure.

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A059 FTAI, FTET and AI

Circulating progesterone, follicular dynamics, and fertility in Holstein cows during reuse of intravaginal progesterone devices for fixed-time AI

L.F.E. Melo[1], A.B. Nascimento[2], J.N. Drum[1], C. Spies[1], P.L.J. Monteiro Junior[1], A.B. Prata[1], M.C. Wiltbank[3], R. Sartori[1]

[1]ESALQ/USP, Piracicaba; [2]ABS Global, Madison; [3]University of Wisconsin, Madison.

Keywords: hormone, implant, synchronization.

Autoclave processing, prior to reuse of 1.9g intravaginal progesterone (P4) devices, increases circulating P4 and may provide better endocrine environments for follicle development and oocytes during a FTAI protocol. Thhis study compared circulating P4, follicular dynamics and fertility during reuse of P4 devices for 8d, previously autoclaved or chemically disinfected in lactating Holstein cows submitted to an estradiol/P4-based FTAI protocol, combined with GnRH at the beginning of the protocol. For this study, 349 cows were used (123 primiparous and 226 multiparous) on two farms, averaging (Mean ± SD) 163.9 ± 141.9 days in milk; 35.7 ± 11.3 kg milk/d and body condition score 2.9 ± 0.5. Cows were randomly assigned to one of two treatment groups using a completely randomized design of treatments. On d-10 before AI, cows received reused devices (1.9g CIDR, Zoetis; previously used for 8d) that were disinfected either using autoclave (Aut; n = 177) or chemical disinfection (Dis; n = 172)], 2mg estradiol benzoate (Gonadiol; MSD), and 100μg GnRH (Fertagyl; MSD). On d-3, cows received 25mg PGF (Lutalyse; Zoetis) and a second PGF treatment on d-2 along with removal of the implant and treatment with 1mg estradiol cypionate (ECP; Zoetis). All cows received timed AI on d0. A subset of cows (n = 143) was evaluated by ultrasound on d-10, -9, -8, -7, -6, -3, -2, 0, and d5 to identify ovarian structures, and blood samples were collected on d-10, d-3 and d-2 for P4 concentrations by radioimmunoassay. Pregnancy diagnoses were performed at d32 and d60. Statistical analyses were performed using Proc-Mixed for continue variables and Proc-Glimmix of SAS 9.4 for binomial variables ($P < 0.10$). Treatments did not differ in P4 on d-10 or d-3 but P4 was greater on d-2 in Dis cows. Cows that ovulated to the treatments on d-10 had lower circulating P4 (ng/mL) on d-10 (2.0 vs. 3.1) but greater P4 on d-3 (4.0 vs. 2.4), associated with a greater proportion of cows having a CL on d-3 (100 vs. 40%). A greater proportion of ovulating cows on d-10 had a synchronized new follicular wave (97.9 vs. 63.2%) and earlier wave emergence (1.9 vs. 2.6d), resulting in a lower percentage of cows ovulating a persistent follicle (0.0 vs. 35.7%). More cows without CL on d-10 were in estrus on d0 compared to cows with CL on d-10. Treatment (type of P4 device), CL presence on d-10, and ovulation on d-10 did not affect fertility (pregnancy per AI; P/AI) to the protocol. However, P/AI on Farm A was greater than on Farm B at 32d (40.8 vs. 27.8%) and 60d (35.8 vs. 24.3%), independent of treatment. In conclusion, the use of P4 devices produced different circulating P4 patterns during the FTAI protocol but did not affect follicular dynamics, synchronization rate, or P/AI. However, presence of CL or ovulation at the beginning of the FTAI protocol affected several reproductive variables, such as time and synchronization of follicular wave emergence, proportion of cows in estrus at the end of the protocol and size of the ovulatory follicle.

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A060 FTAI, FTET and AI

Impact of estradiol cypionate prior to TAI and progesterone supplementation at initial diestrus on ovarian and fertility responses in beef cows

T. Martins[1], G. Pugliesi[1], J.P. Talamoni[2], J.R.G. Maio[3], G.P. Nogueira[4], M. Binelli[1]

[1]FMVZ USP, Sao Paulo; [2]UNICASTELO, Descalavado; [3]Ourofino, Ribeirao Preto; [4]FMVA-Unesp, Aracatuba.

Keywords: luteolysis, proestrus, progesterone.

In cattle, P4 supplementation (P4-Suppl) during early diestrus stimulates conceptus growth and the proportion of pregnant cows after AI (P/AI). Despite such beneficial effects, a proportion of P4-Suppl cows undergo reduction on luteal lifespan (early luteolysis). Therefore, hypothesized that estradiol (E2) supplementation during the proestrus decreases the incidence of early luteolysis and improves fertility response (P/AI) after to P4-Suppl. Suckled, multiparous (M; n = 643) and primiparous (P; n = 193) Nelore cows were synchronized using on D-10, P4 device (1.0g; Sincrogest) and 2 mg of estradiol benzoate (Sincrodiol). On D-2, P4 device was removed and 0.53 mg of PGF (Sincrocio) + 300 IU of eCG (SincroeCG) + ESTROTEC were used. On D0, cows were TAI concurrent with the injection of 10 mg of GnRH analogue (Sincroforte).The estrus expression was checked by using the ESTROTECT. Cows received 0 or 1.0 mg of estradiol cypionate (CP; Sincrocp) on D-2 and 0 or 150 mg of long acting P4 (Sincrogest) on D4. Largest follicle diameter at TAI (FD-TAI) and CL area were measured on days 0 and 4 by ultrasonography. On D15, the CL regression was evaluated by Color Doppler (n = 195) and P4 plasma concentrations was measured by RIA. Criteria for classifying cows that underwent luteolysis was a CL <2.0 cm2 and CL blood flow signals that covered ≤ 25% of total CL area or P4 <1.0 ng/mL. Data were analysed with SAS v.9.3 using PROC MIXED, GLIMMIX and Chi-square test (luteolysis). The CP increased (P < 0.001) the proportion of cows displaying estrous behavior [M: 53.4% (171/320) vs. 16.1% (52/323) and P: 31.3% (31/99) vs. 3.2% (3/94)] and P/AI [M: 51.6% (165/320) vs. 35.0% (113/323) and P: 40.4% (40/99) vs. 24.5% (23/94)]. The CP did not affect FD-TAI in M (CP: 12.19 vs. No-CP: 12.23 mm; SEM:0.10) and P (CP: 11.14 vs. No-CP: 11.25 mm; SEM:0.16) neither the proportion of cows with CL on D4 in M [CP: 87.2% (279/320) vs. No-CP: 84.3% (274/323)] and P [CP: 85.7% (42/49) vs. No-CP: 82.2% (37/45)]. On D4, the CP increased the CL area for M (1.26 vs. 1.16 cm2, SEM: 0.02; P < 0.01), whereas the increase was not significant for P (CP: 1.07 vs. No-CP: 0.95 cm2, SEM: 0.04; P = 0.13). On D15, P4-Suppl increased the proportion of cows that underwent luteolysis, but P4Suppl-induced early luteolysis was decreased by CP [CP: 6.4b% (3/47), CP+P4-Suppl: 8.3b% (4/48), No-CP: 8.0b% (4/50) and No-CP+P4-Suppl: 26.0a% (13/50); P < 0.05). This was confirmed by the proportion of cows showing P4 <1.0 ng/mL [CP: 2.1b% (1/47), CP+P4-Suppl: 4.17b% (2/48), No-CP: 8.0a,b,Y% (4/50) and No-CP+P4-Suppl: 20.0a,X% (10/50); a,b P < 0.05 and X,Y P ≤ 0.10). For animals not presenting early luteolysis, P4 concentrations from CP group was greater than those of remaining groups (CP: 6.14a, CP+P4-Suppl: 5.84a,b,X, No-CP: 4.95b,Y and No-CP+P4-Suppl: 5.84a,b,X ng/mL, SEM:0.20; a,b P < 0.05 and X,Y P ≤ 0.10). In conclusion, E2 supplementation at proestrus benefits fertility of both P4-Suppl and Non-Suppl cows and resolves P4-Suppl-induced early luteolysis.

A061 FTAI, FTET and AI

Effect of progesterone administration after TAI on the conceptus development and the pregnancy rate in lactating buffaloes

D.C. Souza[1], N.A.T. Carvalho[2], J.G. Soares[1], L.M. Vieira[1], A.M. Gonella-Diaza[1], A.P. Bonfim Neto[1], E.H. Madureira[1], P.C. Papa[1], M. Binelli[1], P.S. Baruselli[1]

[1]Departamento de Reprodução Animal, VRA-FMVZ-USP, Sao Paulo; [2]Unidade de Pesquisa e Desenvolvimento de Registro-polo Regional do D.S.A. do Vale do Ribeira/apta, Registro.

Keywords: P4, CL, pregnancy loss.

It was aim with this study increase the conceptus length and the pregnancy rate in lactating buffaloes through the P4 administration 3 or 6 days after TAI. For this, three experiments were performed. In the exp.1, the pattern of P4 release was measured on 8 ovariectomized buffaloes (crossover design) that received 300 or 600 mg (P300 or P600 group, respectively) of injectable P4 (iP4; Sincrogest Injetável®, Ourofino Agronegócio, Brazil). Blood samples were collected for the P4 dosages at -24, 0, 6, 12, 24, 48, 72, 96, 120, 144, 168, 192, 216 and 240 h after iP4 administration. In the exp.2, 24 buffaloes were subjected to the Ovsynch protocol (D0, GnRH; D7, PGF2α; D9, GnRH; D10, IATF) and evaluated by ultrasonography (Mindray DP2200Vet, China) in D13, when the females with CL presence were distributed into 3 groups: control (C, n = 8); P4D13 (n = 8; 300mg of iP4 in D13); P4D16 (n = 8; 300mg of iP4 in D16). In D26, the buffaloes were slaughtered, the genitals was removed and were measured the CL diameter (CLDs) and the CL weight (CLW) and the conceptus presence (CP) and the conceptus length (CoLe). Stained slides of luteal and endometrial tissue were examined by optical microscopy to determine the % of small and large luteal cells (SLC and LLC) and the number (GEn), area (AGEn) and perimeter (PGEn) of endometrial glands. In the exp.3, 337 buffaloes were subjected to the Ovsynch protocol and, as well as in the exp.2, the females with CL presence were divided into 3 groups (C, n = 89; P4D13, n = 92; P4D16, n = 93). The functionality (central vascularization - CV; and peripheral vascularization – PV; score 0-4) and the CL diameter (CLD) were evaluated in D17, D21 and D25 by ultrasonography in color Doppler mode (Mindray M5Vet; China). Furthermore, the pregnancy rates at the 30 (DG30) and 60 (DG60) days after TAI and pregnancy loss (PL; Mindray DP2200Vet) were evaluated. Data were analyzed using the GLIMMIX procedure of SAS®. The P4 levels were higher in P600 compared to P300 at all times after iP4 ($P_{treat} < 0.01$, $P_{time} = 0.04$, $P_{treat*time} = 0.18$). The P4 levels in P300 remained above 1 ng/mL for approximately 3 days, which was used as a criterion for the dosage of iP4 used in the exp.2 and exp.3. There were no differences between the groups for the variables evaluated in the exp.2: CLDs, CLW, CP, CoLe, SLC, LLC, GEn, AGEn and PGEn ($P > 0.05$). In exp.3, there was interaction treatment*time for the CV, PV and CLD ($P < 0.07$). There was a reduction of the CV, PV and CLD in P4D13 compared to C and P4D16 group as the evaluation moments. There were no difference between C, P4D13 and P4D16 groups for the DG30 (56.8 vs. 46.4 vs. 61.2%; $P = 0.13$) and for the PL (0.0 vs. 10.3 vs. 5.8%; $P = 0.73$). However, there were reduced pregnancy rates in DG60 for the P4D13 compared to C and P4D16 (41.7 vs. 56.8 vs. 57.7%; $P = 0.07$). It was conclude that the treatment with 300mg of iP4 in D13 or D16 of Ovsynch protocol did not increase the conceptus length and the pregnancy rate in lactating buffaloes submitted to TAI. Furthermore, the treatment with P4i three days after TAI reduced the central and the peripheral CL vascularization, the CL diameter and the pregnancy rate.

A062 FTAI, FTET and AI

Fertility in repeat-breeder Holstein (*Bos taurus*) cows submitted to hormonal treatment for induction of lactation - a retrospective study

R.J. Carvalho[1], R.D. Mingoti[2], B.M. Bayeux[2], R.G. Rezende[2], J.C. Lemos Motta[2], H.C. Pereira Junior[3], L.K.S. Pereira[3], P.S. Baruselli[2]

[1]Médico Veterinário Autônomo, Carmo do Rio Claro; [2]Departamento de Reprodução Animal, VRA-FMVZ-USP, São Paulo; [3]Fazenda Reunidas, Carmo do Rio Claro.

Keywords: induction of lactation, pregnancy rate, repeat-breeder.

The aim of the study was to evaluate fertility in repeat-breeder Holstein cows (*Bos taurus*) that remained nonpregnant at the end of the lactation period and were treated with a hormonal protocol for induction of lactation. Retrospective data from 50 Holstein with concluded lactations about reproductive and milk production were recorded. Those cows started one physiological lactation after calving (Group FL; n = 50; Number of lactations = 2.0 ± 0.1) and remained nonpregnant at the end of lactation, so had a new hormonal induced lactation (Group IL; n = 50; Number of lactations = 3.0 ± 0.1). The hormonal protocol to induce lactation consisted on bSTr (Boostin®, MSD, Brasil, 500 mg) administration on d 1, 8, 15 and 21 of protocol; two auricular device of Norgestomet (Crestar, MSD Animal Health) from day 1 to day 15; and 2 mL of estradiol valerate (MSD Animal Health) was administered from day 1 to day 13 with 2 days of interval between injections. On day 15, 16 e 17 of protocol was administered estradiol benzoate (5 mg/day; Gonadiol®, MSD Animal Health), dexamethasone (20 mg/day, Azium®, MSD Animal Health) and metoclopramide (100 mg/day; Plasil®). From day 21 (first milking) was given rBST every 14 days throughout lactation. The dry period (interval between physiological lactation and induced lactation) was 80,3 ± 7 days. Between both lactations (LF and IL) were compared service number per conception, TAI number, pregnancy rate, milk yield (daily and total, kg), lactation length (days) and production peak (kg). All data obtained in this study was statistically analyzed using the PROC GLIMMIX from SAS® (SAS 9.3 Institute Inc., Cary, NC, USA, 2003). It was observed a statistical difference among groups for service number per conception [LF = 5.28 ± 0.4; IL = 3.3 ± 0.33; (P = 0.04)]; pregnancy rate during lactation (LF = 0%; IL = 41,5%; P < 0.0001); lactation length (LF = 389 ± 14; IL = 269 ± 13 days; P < 0.0001) and milk yield during lactation (LF = 8484 ± 338; IL = 5778 ± 392 kg; P < 0.0001). There were no differences regarding daily milk yield (LF = 22.2 ± 0.68; IL = 20.9 ± 0.72 kg/day; P = 0.21) and milk yield peak (LF = 35.1 ± 1.2; IL = 32.5 ± 1.3 kg; P = 0.13). Therefore, induction of lactation can be used as a strategy to improve fertility of repeat-breeder Holstein cows, as well as, to improve milk yield and minimize economical loss due to reproductive failures.

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A063 FTAI, FTET and AI

Increasing of the P/AI with the use of a long-acting injectable progesterone 4 days after TAI in suckled multiparous and primiparous Nelore cows

M.S. Cova[1], L.C. Lechinoski[2], W.S.R. Romero[3], B.G. de Freitas[2], R.S. Ramos[2], B.A. Antunes[2], M.L.G. Rezende[2], R.D. Mingoti[4], M.R. Bastos[2]

[1]J.P. Assessoria Rural, Rolim de Moura; [2]Ourofino Saúde Animal, Cravinhos; [3]Médico-veterinário Fazenda Santa Rosa, Xinguara; [4]FMVZ/USP, Sao Paulo.

Keywords: *Bos indicus*, injectable progesterone, TAI.

Long-acting progesterone (P4) treatment four days after TAI (named P4-14 TAI protocol) increase the conception rate in Nelore cows with post-partum anestrus (Pugliesi et al., 2016). However, there is little information about the results of P4-14 TAI protocol in lactating-cows with unknown cyclicity status at the beginning of the TAI protocol. By this reason, this field trial aimed to evaluate the pregnancy per AI (P/AI) of P4-14 TAI protocol in Nelore lactating-cows. At the beginning of protocol (D0) 422 Nelore lactating-cows (326 multiparous and 96 primiparous), between 30 and 60 days post-partum, with an average BCS = 2.27 ± 0.04 and from two different commercial farms (Rondonia and Para, states of Brazil) received a new intravaginal P4 device (Sincrogest®, Ourofino Saúde Animal) and 2 mg intramuscular (IM) of estradiol benzoate (Sincrodiol, Ourofino Saúde Animal). After eight days (D8), the Sincrogest® were removed and the cows received 1 mg IM of estradiol cypionate (SincroCP, Ourofino Saúde Animal), 0,530 mg IM of sodium cloprostenol (Sincrocio®, Ourofino Saúde Animal) and 300 IU IM of eCG (SincroeCG, Ourofino Saúde Animal). All the cows were inseminated 48 hours after Sincrogest® has been removed (D10). Four days after insemination (D14) the cows were homogeneously allocated by BCS, inside each cohort, in two different groups: 1) Control group [n = 230 (172 multiparous and 58 primiparous); BCS = 2.27 ± 0.05; no additional treatment] and 2) P4-14 TAI protocol [n = 192 (154 multiparous and 38 primiparous); BCS = 2.28 ± 0.06; 150 mg IM of long-acting injectable progesterone (Sincrogest® injetável, Ourofino Saúde Animal)]. The pregnancy status of all cows was checked 30 days post-insemination by transrectal ultrasonography and no other ultrasound evaluation was performed. The statistical analysis was performed using the GLIMMIX procedure of SAS® (version 9.3). All explanatory variables were sequentially removed from the statistical model following the Wald criteria if $P > 0.20$. $P < 0.05$ was considered as significant. There was no interaction ($P = 0.34$) between the different farms and treatments and it was not observed effect ($P = 0.15$) among different farms on P/AI [Farm A = 49.1% (155/316) vs. Farm B = 57.5% (61/106)]. The P/AI of the Control group was 45.6% (105/230) and of the P4-14 TAI protocol was 57.8% (111/192, $P = 0.01$). In conclusion, the P4-14 TAI protocol increased 26.7% the conception rate in lactating Nelore cows between 30 and 60 days post-partum with unknown ciclicity on D0. Pugliesi et al. (Theriogenology, v.85, Issue 7, 2016) didn't find such difference when the cyclicity status on D0 was not considered, probably due to the higer BCS of the females (average of 3.7), which could indicate higher proportion of cyclic cows. However, when they considered only cows without a CL at D0, it was observed a 20% increase on the P/AI when females were treated with a long acting progesterone 4 days after TAI.

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A064 FTAI, FTET and AI

FTET: conception rate and loss in accordance with pregnancy category of recipient, seasonal and embryo development stage of Girolando breed

M.L. Defensor, F.L.A. Marques, M. Oliveira, R.M. Santos

Universidade Federal de Uberlândia, Uberlandia.

Keywords: embryo transfer, pregnancy, reproductive effciency.

This study aimed to evaluate the embryo transfer method at fixed time (FTET), the differences in conception rates and pregnancy losses between different categories animals, between seasons and between embryonic stages. The experiment was performed in a production of milk farm, located in the region of Uberlandia - MG, Dec / 2014 to Sep / 2015. Data were collected from 1,017 TETFs. The receptor (racial composition ranging from Holtein ½ to Holstein ¾) were divided into three categories, lactating cows (VL), n = 618, dry cows (VS), n = 44, and heifers (NOV), n = 355. The seasons were grouped into summer (spring and summer) and winter (winter and fall). The embryos, all with morphological quality grade 1, were gathered according to their stage of development, into two groups. Group 1: Initial and blastocyst and group 2: expanded blastocyst, blastocyst hatching and hatched blastocyst. The synchronization protocol of the receiving ovulation was used: D0: insertion of the intravaginal device of progesterone and intramuscular injection of 2.0 mg estradiol benzoate; D7: intramuscular injection of 0,526 mg of sodium cloprostenol; D9: intramuscular injection of 0,526 mg of sodium cloprostenol + 1 mg estradiol cypionate + removal of the intravaginal device; D18: + embryo transfer intramuscular injection of 0.1 mg gonadorelin. Pregnancy diagnosis was done with ultrasound 23 days after FTET. Positive animals in the diagnosis were examined again 60 days of pregnancy to confirm the pregnancy. Animals that were not pregnant, in the second evaluation were considered to pregnancy loss. Data were analyzed by logistic regression in MINITAB. Effect was detected ($P < 0.05$) in the animal category conception rate (NOV 46.2%, 33.8% and 36.4% VS VL) and pregnancy loss (9.2% NOV, 20, VL 8% and 20.0% VS). The season influenced ($P < 0.05$) the conception rate and tended ($P = 0.061$) to influence the pregnancy loss. In summer (n = 307), 33.2% of the animals became pregnant while in winter (n = 710) the percentage was 40.4%. The loss rate was 10.9% in summer and 17.5% for the winter. The category of the embryo did not affect ($P > 0.10$) the conception rate, but affected the loss of pregnancy ($P < 0.05$). The Group 1 of embryos (n = 216) resulted in 34.7% of pregnancy and group 2 (n = 801) 39.2%. In assessing the rates of pregnancy loss, group 1 lost 24.3% and group 2, 13.78%. We conclude that the three evaluated parameters influenced the conception rates and/or pregnancy loss. If used strategically, knowledge about such influences makes it possible to increase the conception rate and a reduction in pregnancy loss rate without increasing costs.

A065 FTAI, FTET and AI

Pregnancy rate in Nelore cows synchronized with new or used Fertilcare 1200® device submitted to TAI 48 or 54 hours after device removal

M.P. Viziack[1], R.W. Girotto[2], L.M. Vieira[1], M.H.A. Colli[1], R.D. Mingoti[1], R.G. Rezende[1], M.F. Sá Filho[3], P.S. Baruselli[1]

[1]Universidade de São Paulo, São Paulo; [2]RG Genética Avançada, Água Boa; [3]Alta Genetics, Uberaba.

Keywords: P4 concentration, Nelore cow, FTAI.

The aim was to evaluate the pregnancy rate in lactating Nelore cows (Bos indicus), submitted to the synchronization protocol of ovulation using intravaginal progesterone device release (P4; FertilCare®1200 with 1.2g of P4, Vallée, Brasil), new or previously used for eight days, submitted to TAI 48 or 54 hours after P4 device withdrawal. Therefore, were used 1044 Nelore cows were homogeneously distributed in four experimental groups: New-TAI 48 group (new FertilCare1200® device with TAI 48 hours; n = 258); New-TAI 54 group (new FertilCare1200® device with TAI 54 hours; n = 253); Used-TAI 48 group (FertilCare1200® device previously used for 8 days with TAI 48 hours; n = 277) and Used-TAI 54 group (FertilCare1200® device previously used for 8 days with TAI 54 hours; n = 256). All groups were given on Day 0, FertilCare 1200®, associated with the treatment with 2 mg of estradiol benzoate i.m. (FertilCare Sincronização®, Vallée, Brasil). On D8 the Fertilcare1200® device was removed, and 300 IU eCG i.m. (Folligon®, MSD Animal Health, Brazil), 0.530 mg of Cloprostenol Sodic i.m. (Ciosin®, MSD Animal Health, Brazil) and 1 mg of estradiol cypionate i.m.(E.C.P®, Zoetis Animal Health, Brazil) were administered. All cows were submitted to TAI 48 or 54 hours after the new or used P4 device withdrawal, according to the experimental group. Pregnancy diagnosis was performed by ultrasonography 30 days after TAI. For cows, treated with new P4 devices, the pregnancy rate was similar when TAI was performed 48 or 54 hours after device withdrawal [New-TAI 48ab = 44.6% (115/258) vs. New-TAI 54a = 52.7% (133/253)]. However, for used devices, the pregnancy rate was lower when TAI was carried 54 hours after P4 device withdrawal [Used-TAI 54b = 39.1 (100/256) vs. Used-TAI 48a = 50.5 (140/277); P = 0.004]. In conclusion the TAI can be performed 48 or 54 hours after device removal, however, for the used devices the TAI must be performed 48 hours after device withdrawal.

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A066 FTAI, FTET and AI

Dose of equine chorionic gonadotropin (300 or 400 IU) and time exposure (8 or 9 days) to progesterone device in FTAI protocols with suckled *Bos taurus* beef cows: impact on follicular growth

P.F. Velasquez[1], G.A. Pessoa[1], I. Roman[2], I. Claro Junior[3], C.C. Brauner[4], F.G. Leivas[2], D.S. Brum[2], M.N. Correa[4], M.I.B. Rubin[1], M.F. Sá Filho[5]

[1]Laboratório de Embriologia Animal (Embryolab), DCGA, CCR, UFSM, Santa Maria; [2]Biotech, Lab. Biotecnologia da Reprodução, Unipampa, Uruguaiana; [3]ZOETIS Brasil, Campinas; [4]Núcleo de Pesquisa, Ensino e Extensão Em Pecuária (nupeec), Pelotas; [5]Alta Genetics, Uberaba.

Keywords: beef cows, FTAI, follicular diameter.

This study aimed to evaluate the effect of dose (300 vs. 400 IU) of eCG (Novormon®, Zoetis), exposure time to intravaginal progesterone device (P4; 8d vs. 9d) and body condition score (BCS) in follicular growth and estrus expression in beef cows. This study used 1171 Bos taurus cows (Hereford and Angus) or crossbreed (Braford and Brangus), primiparous and multiparous suckling, at 45 ± 15d postpartum and ECC average of 2.8 ± 0.02 (Grade 1 to 5; 1-thin, 5-obese) from five farms in three distinct regions of Rio Grande do Sul. At the beginning (D-1) of the protocol all the cows were subjected to reproductive exam, and ovaries evaluated by ultrasound (US) to determine the cyclicality. The cows were divided into two treatments: 9d (D-1; n = 591) or 8d (D0; n = 580) stay P4 (CIDR®, Zoetis) associated to 2mg of estradiol benzoate (IM) (Gonadiol®, Zoetis). On day 8, CIDR was removed and administered IM 12.5 mg of dinoprost tromethamine (Lutalyse®, Zoetis) and 1 mg estradiol cypionate IM (E.C.P.®, Zoetis). At this time, the cows are again distributed with the same follicular diameter (FD) in two treatments to receive 300 IU (n = 605) or 400 IU (n = 566) of the eCG. Females had the base of the tail painted with marker stick (Raidl-Maxi, Germany) in the withdrawal of P4 as estrus detection method. All females were subjected to TAI 48h after P4 remove using frozen semen from 24 bulls. Two straws of each frozen lot were evaluated and only a lot with a minimum progressive motility of 35% after thawing was used. The females without ink on tail base at the time of TAI were considered in estrus. Additionally, the FD at the time of withdrawal of P4 and TAI were mensured in 657 cows [8d-300UI (n = 162), 8d-400UI (n = 159), 9d-300UI (n = 174) and 9d-400UI (n = 162)]. US to evaluate cyclicity (D-1) and FD were performed with rectal linear transducer (5-10Mhz, Mindray DP2200, Shenzhen, China). The females were also categorized according to the low BCS [2.75 ≤ (n = 375)] or high BCS [≥3.00 (n = 282)]. Data were analyzed using PROC GLIMMIX SAS. The dose of eCG did not influence the occurrence of estrus. Females with a high BCS had higher (P < 0, 0001) estrus expression (78.4%) than low BCS (59.0%). The most FD (P < 0.0001) in the withdrawal of P4 (9.9 ± 0.2 vs. 9.2 ± 0.1 mm) and TAI (12.6 ± 0.2 vs. 11.8 ± 0.2 mm) was the 9d group vs 8d, respectively. No difference was found in follicular growth rate by time exposure at progesterone device. The dose of eCG no influence on the FD at TAI and follicular growth rate. There was no interaction between the BCS class and the duration of treatment with P4 (P = 0.2124). Cows with BCS ≥ 3.00 had higher FD at remove of P4 with 9d (10.54 ± 0.3 mm) compared to 8d (9.33 ± 0.3 mm; P < 0.0001). However, those cows with BCS ≤2.75 the FD was similar at moment of remove P4 when remained for 9d (9.12 ± 0.3 mm) or 8d (8.59 ± 0.3 mm, P = 0.11). The FD at the time of AI was also higher in the cows with BCS ≥ 3.00 was 13.0 ± 0.5 mm whereas BCS ≤2.75 group was 11.3 ± 0.5 mm (P < 0.0001). Follicular growth rate was lower (P = 0.03) in cows with BCS ≤2.75 (1.25 ± 0.2 mm/d) compared to cows with BCS ≥3.00 (1.5 ± 0.2 mm/d). We conclude that the BCS affects the expression of estrus and FD on TAI programs. There was no difference between the doses of 300 or 400 IU of eCG in estrus expression and follicular growth.

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A067 FTAI, FTET and AI

Analysis of pregnancy rates obtained through fixed-time artificial insemination considering preovulatory follicle diameter

M.C. Piva[1], M.A.G.F. Santos[1], D.A.S. dos Santos[1], A.A. Fidelis[1], I. Pivato[2]

[1]UPIS, Brasilia; [2]UNB, Brasilia.

Keywords: cattle, biotechnology, fertility.

Fixed time artificial insemination (AI) is a widely used tool that enhances results in the beef cattle production chain. Among other factors that may influence the cows' pregnancy rates, the size of the preovulatory follicle is a factor that correlates strongly with pregnancy results. Natalia Castro et al. (2015) found a significant increase in pregnancy rates for Nelore cows when dividing them into 4 groups to be inseminated at 4 different moments, according to the preovulatory follicle (POF) diameter. The aim of this study was to evaluate the pregnancy rates of Nelore cows in a fixed-time AI protocol divided into two blocks, according to the POF diameter. In total, 571 animals were used in this study: 375 lactating cows (average body condition score: 2.52) and 196 heifers (2.48). On day 0, all cows received an intravaginal progesterone implant (1,9g progesterone) associated with 2 mg of estradiol benzoate. On day 7, all animals received 500 µg D-cloprostenol. On day 9, 1 mg of estradiol cypionate and 300 IU eCG were injected and the intravaginal implant was removed. 48h after removal of the progesterone implant, cows were randomly separated into two groups: control (n = 270) and follicle measurement group (n = 301). Sonographic evaluation of the follicle measurement group was performed on day 11 at 8:00 am and the insemination time was established according to POF diameter: cows with POF ≥14 mm were inseminated at 8:00 am (n = 61) and cows with POF <14 mm were inseminated at 6:00 pm (n = 240). The control group was inseminated at 9:30 am on the same day. Pregnancy diagnosis was performed through an ultrasound exam 36 days after AI. Statistical analysis used Prophet 5.0 software. Average POF diameter and pregnancy rates were submitted to variance analysis with the Kruskal-Wallis test. When comparing the control group with the follicle measurement group, there was no significant variation in pregnancy rates for lactating cows (control = 56,7% (97/171); follicle measurement = 56,8% (116/204)). For heifers the results were statistically similar, with a pregnancy rate of 43,4% (31/97) in the control group and 32% (43/99) in the follicle measurement group. The use of POF diameter analysis under the conditions of this experiment did not provide significant gain in pregnancy rate results when compared to traditional fixed-time AI.

A068 FTAI, FTET and AI

Sonographic and serologic exams for early diagnostic of pregnancy: preliminary results

C.R.B. Guimarães[1], M.R. Mendonça[1], C.A.C. Fernandes[1], J.A.D. Garcia[1], E.S. Caixeta[1], J.P. Neves[1], J.H.M. Viana[1], M.P. Palhão[2]

[1]UNIFENAS, Alfenas; [2]EMBRAPA, Juiz de Fora.

Keywords: Color Doppler, pags, embryo recipients.

The study was designed to relate sonographic and serologic exams performed for early (20 to 30d) diagnostic of pregnancy of bovine embryo recipients. Hundred-twenty (n = 120) recipients were synchronized (estrous = D0) and timed embryo transferred (TET, around D7) of fresh in vitro embryos (Biotran IVEP Lab LTDA). For Experiment 1 (n = 46), pregnancy diagnostic was performed on D21 by detecting CL blood flow with Color Doppler ultrasound (Guimaraes et al., Theriogenology 2015) and by serologic search of the Pregnancy-Associated Glycoproteins (PAGs, IDEXX Visual Pregnancy Test, IDEXX Laboratories Inc.). For experiment 2 (n = 30), performed on day 25, the ultrasound visualization of uterine contents and also PAGs serology were used to detect pregnancy. Lastly, PAGs serology was performed on D30 of the experiment 3. In all experiments, the ultrasonund diagnostic of gestational vesicle was performed on day 30 (DG30) and it was considered the "GOLD" standart. The PROC FREQ procedure was used to test the agreement of diagnostic methods of each experiment with DG30. Serologic diagnostic had dramatically improved (6.3 to 100%) its sensitivity (correct detection of non-pregnant recipients) from D21 to D25 and it was kept high on D30 (100%). However, the specificity (correct detection of pregnant recipients) of the test had shown only little changes 86.7, 84.6 and 81.8%, for D21, 25 and 30, respectively. These data have shown possible increase of serum concentrations of PAGs after day 20. The sonographic exams also change its sensitivity (100 and 88.2%) and specificity (53.3 and 92.3%), respectively, for D21 and D25. Doppler technology has proved its potential to detect non-pregnant animals on day 21, but the specificity is highly related to the pregnancy rate of the herd, and it was low (34.8%, 16/46) in experiment 1. Uterine gestational contents could be visualized most of the time on day 25, however, the sensitivity of 88.2% was due to two pregnant recipients in which the contents were not visualized. These animals were serologic positive for PAG's. Opposite situation occurred on day 30, where uterine ultrasound has detected pregnancy lost and PAG serology was still positive. The conclusion is that serologic pregnancy test has higher accuracy after day 21 (93.3 and 90.9%, for day 25 and 30, respectively) and sonographic diagnostic gradually improve its accuracy from day 21 to 25 (69.6 and 90.0%, respectively). Additionally, on day 25, combination of both methods (PAG and ultrasound) can improve the overall accuracy (96.7%) on pregnancy diagnostic of bovine recipients. Serum PAGs levels after pregnancy lost can reduce the specificity of the serologic test.

Acknowledgments: Biotran, FAPEMIG e CnPQ.

A069 FTAI, FTET and AI

Compared DIB monodose and CIDR in pregnancy rate early Nelore heifers submitted to TAI

E.R. Carvalho[1], A.D.P. Rodrigues[2], I. Claro Junior[1], J.L.M. Vasconcelos[2]

[1]ZOETIS, São Paulo; [2]UNESP, Botucatu.

Keywords: CIDR, DIB0,5, TAI.

Introduction Nelore heifers at breeding at 14 months of age has become a strategy to increase productivity on cow/calves farms in Brazil. Some factors such as weight, genetics, cyclicity and the type of protocol can affect results. This study aimed to evaluate the pregnancy rate in early Nelore heifers will TAI synchronized with different devices progesterone (P4). The studies were conducted in three different farms (A, B and C) in the state of Mato Grosso, totaling 860 heifers with an average age of 15.1 ± 2.1 months. All animals were previously induced into cyclicity device with P4 and then TAI (Rodrigues, 2014). In D0 protocol heifers were randomized to receive the following treatments: 1) CIDR: CIDR 1st use; 2)CIDR4: 3rd or 4th CIDR use; 3)DIB0,5N: DIB0,5 and 4)DIB0,5 DIB0,5 (Zoetis, SP, Brazil), plus 2.0 mg of estradiol benzoate im (2.0 ml Gonadiol®, Zoetis, SP, Brazil) in; D7 in the administration of 12.5 mg im PGF2a (2.5 mL Lutalyse®, Zoetis, SP, Brazil); D9 removal of the device with application of 0.5 mg of cypionate im estradiol (0.3 mL ECP®, Zoetis, SP, Brazil) and 1.0ml of Novormon (200IU of eCG, Novromon, Zoetis, Brazil) in treatments CIDR1 and DIB0,5N only; IA at the D11. On the farm C the heifers were treated in resynchronization (2ªIATF). Cyclicity was evaluated in heifers 472 12 days after induction/begin TAI protocol, where 54,0% had CL presence on ultrasound. Pregnancy diagnosis was confirmed 30 days after TAI. Pregnancy/IA (P/AI) was determined by dividing the number of pregnant cows for the total inseminated cows. Random variables were analyzed with PROC GLIMMIX the SAS program. Interactions with P > 0.2 were removals the initial model. There were no interactions between farms, lots, bulls or inseminator in P/IA. There was no interaction between cyclicity and treatments on P/AI heifers with presence of CL had similar pregnancy than without CL (39.2% 85/217, 91/255 35.7%, respectively).The P/IA in heifers treatments CIDR1, CIDR3 and DIB0,5N (78/214:36.4%, 84/125:39.0% and 61/208:44.3%, respectively) were similar and higher than in treatment DIB0,5 (61/208:29.3%). It follows that the early P/IA in Nelore heifers synchronized with DIB0,5 or CIDR are similar, however synchronization with new P4 devices requires the addition of eCG to the protocol.

A070 FTAI, FTET and AI

Analysis of perception of risk factors for public health in the use of hormones in assisted reproduction programs in cattle

G.Z. Mingoti[1], D.L. Jimenez Filho[1], A. Ferraudo[1], B.C.S. Leão[1], N.A.S. Rocha-Frigoni[1], E. Nogueira[2], I.S. Dutra[1]

[1]UNESP, Aracatuba; [2]EMBRAPA Pantanal, Corumba.

Keywords: hormone, reproductive biotechnology, occupational risk.

In recent years, there has been a marked increase in hormonal protocols application for assisted reproduction programs in cattle. Because of this frequent use of exogenous hormones, it is essential for practitioners to have technical knowledge for the proper use of these substances, respecting grace periods for consumption of meat and milk, as well as take care to handle these drugs. The purpose of this study was to analyze the knowledge and the risk perception of cattle farmers and veterinarians on the use of hormones used in assisted reproduction programs in cattle and to determine the possible occupational hazards. The method used in this study was participatory research through personal interviews to collect data. A total of 65 farmers and 40 veterinarians were interviewed in 50 municipalities from 10 Brazilian states (SC, PR, SP, MG, MS, MT, GO, RO, AC and RR). For grouping and analyzing data related to risk perception in the use of hormones in the reproductive assisted programs, it was considered the following socioeconomic factors: schooling, number of animals and reproductive biotechnologies used in the farm, time of use of the biotechnologies and time in the activity. The variables of perception of risk factors were: veterinary care, the knowledge of the grace period of at least two hormones used on the property, training on the handling of hormones, use of personal protective equipment (PPE) for manipulation of hormones and knowledge of the group of people who should not manipulate hormones. The correspondence between socioeconomic factors and risk perception was assessed by analysis of multiple correspondence and frequency, using Statistica 7 software. All of the interviewed farmers said that the stores do not require veterinary prescription for the sale of hormones. The grace period is unknown for 69.2% of farmers and 65% of veterinarians. The use of PPE (usually only gloves) is adopted by 56.9% of farmers and 92.5% of veterinarians. The group of people who should not manipulate hormones was known for 21.5% of farmers and 62.5% of veterinarians. Regarding the cattle farmers, there was a positive association between the socioeconomic factors "has higher formation" and "less than 5 years of time in the activity" with the risk factor variable "is aware of the group of people who should not manipulate hormones" ($P < 0.01$). Among veterinarians, there was a positive association between the socioeconomic factor "over 11 years of time in the activity" with the risk factor variable "know the grace period" ($P = 0.04$). Other associations found between the risk factors were "do not know health risks" with "doe not guide the assistants on the occupational hazards" ($P < 0.01$) and "doe not guide the assistants on the use of PPE" ($P < 0.001$). It is concluded that there is a lack of information between breeders and veterinarians about the grace period of hormones, on the importance of using PPE when handling the drugs and the group of people who should not manipulate hormones, indicating greater vulnerability in matters of professional health.

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A071 FTAI, FTET and AI

Dose of equine chorionic gonadotropin (300 or 400 IU) and length of stay (8 or 9 days) progesterone device in FTAI protocols with suckled *Bos taurus* beef cows: impact on the occurrence of estrus and pregnancy rate

I. Roman[1], F.G. Leivas[1], G.W. Carloto[1], G.A. Pessoa[2], C.C. Brauner[3], L.B. Farias[3], M.I.B. Rubin[2], I. Claro Junior[4], D.S. Brum[1], M.F. Sá Filho[5]

[1]Biotech, Lab. de Biotecnologia da Reprodução, UNIPAMPA, Uruguaiana; [2]Laboratório de Embriologia Animal (Embryolab), DCGA, CCR, UFSM, Santa Maria; [3]Núcleo de Pesquisa, Ensino e Extensão em Pecuária (NUPEEC), Pelotas; [4]ZOETIS Brasil, Campinas; [5]Alta Genetics do Brasil, Uberaba.

Keywords: eCG, TAI, *Bos taurus*.

This study evaluated the use of different doses (300 or 400 IU) of equine chorionic gonadotrophin (eCG) in FTAI protocols of 8 or 9 days of progesterone device treatment (P4) on the occurrence of estrus and pregnancy rates in suckled bos taurus beef cows. Were used 1171 cows with a body condition score of 2.81 ± 0.48 (scale of 1 to 5), from six commercial farms located in three different regions of the Rio Grande do Sul state, Brazil and maintained in native pasture. At the beginning of the protocol cows were divided into two treatments: 9d (D-1, n = 591) or 8d (D0, n = 580) of progesterone device treatment (P4, CIDR®, Zoetis, Brazil) associated with 2mg Estradiol Benzoate (IM; Gonadiol®, Zoetis, Brazil). On day 8, CIDR was removed and administered IM 12.5 mg of DinoprostTromethamine (Lutalyse®, Zoetis, Brazil) and 1 mg Estradiol Cypionate IM (E.C.P.®, Zoetis, Brazil). At this time, the cows were randomized with homogeneous distribution in two treatments: 300 IU (n = 605) or 400 IU (n = 566) of eCG (Novormon®, Zoetis), making a total of 4 groups D8300IU (n = 303), D8400IU (n = 277), D9300IU (n = 302) e D9400IU (n = 289). The TAI was performed 48 hours after removal of P4. Although females were the base of the tail painted with ink stick (Raidl-Maxi, Raidex GmbH, Dettingen/Erms, Germany) at the time of the withdrawal of P4 device. Females who did not have ink at the time of FTAI were considered in estrus. Statistical analyses were performed using the GLIMMIX procedure of SAS. There was interaction between the length of stay device P4 and eCG dose (P = 0.66). When eCG dose was 300 IU, the treated cows for 8 days (60.4%) had lower estrus occurrence than treated cows for 9 days (70.8%). Female treated with 400 IU of eCG, irrespective of length of stay device P4 had intermediate rates (D8 = 66.8% e D9 = 68.9%). Regarding pregnancy rate had interaction trend (P = 0.10) between length of stay device P4 and eCG dose [D8-300IU (40.3%), D8-400IU (45.9%), D9-300IU (45.0%) e D9-400IU (42.2%)]. In conclusion, female treated with P4 for 8 days and 300 IU of eCG had reduced the estrus occurrence e trend to reduce pregnancy rate.

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A072 FTAI, FTET and AI

Follicular dynamics of Nelore cows submitted to resynchronization 14 days after TAI using injectable P4 for synchronization of follicular wave

R.G. Rezende[1], B.G. de Freitas[1], R.D. Mingoti[1], M.H.A. Colli[1], M.F. Sá Filho[2], J.B.P. Carvalho[3], J.C. Lemos Motta[1], G.G. Macedo[4], L.M. Vieira[1], P.S. Baruselli[1]

[1]Universidade de São Paulo, São Paulo; [2]Alta Genetics, Uberaba; [3]Polo Regional Agencia Paulista dos Agronegocios, Pindamonhangaba; [4]Universidade Federal de Uberlandia, Uberlandia.

Keywords: TAI, resynchronization, progesterone.

Treatment with estrogen in the resynchronization protocol induced premature regression of the CL and committed the conception rate when administered 13 days after TAI (Vieira et al., 2015 SBTE). The aim of this study was to evaluate the follicular dynamics in Nelore cows submitted to treatment only with progesterone on day 14 (D14) after TAI for synchronization of a new wave of follicular growth from the regression of the dominant follicle dependent LH. The animals were randomly distributed into 4 groups: 1) Control (n = 11): without hormone treatment; 2) Device P4 (n = 10): an intravaginal device containing only 1.0 g of P4 (DP4) (CronipressMonodose®, Biogenesis Bagó, Brazil); 3) P4-200 (n = 11): DP4 associated with 200mg injectable progesterone IM (Progestar®, Syntex - Argentina) and 4) P4-100 (n = 9): DP4 associated with 100mg injectable P4 IM (Afisterone®, Hertape-Calier, Brazil). All the animals had their ovaries scanned by ultrasound (Mindray®, DP-2200Vet) and mapped to determine the timing of the emergence of a new follicular wave from D14 to D22, each 24 hours, the data were analyzed with PROC GLM and Bartley test of software SAS 9.3. No significant differences were observed between the control groups (P = 0,02), DP4, P4-200 and P4-100 for: rate of emergence of new wave of follicular growth (82% vs 50% vs 73% vs 72%), emergency day of the new wave follicular (16.8 ± 0.54 vs 15.6 ± 0.67 vs 16.8 ± 0.52 vs 17.1 ± 0.26 days; P = 0.2) and diameter of the dominant follicle on the withdrawal of DP4 (8.7 vs 9.6 vs 10.6 vs 10.24 mm). The P4-100 group had numerically lower dispersion of the emergence of a new follicular wave. These results are indicative of what is possible resynchronization 14 days of TAI only whith progesterone in Nellore cows. The adoption of this resynchronization methodology can reduce the interval between TAI and considerably increase the service rate.

A073 FTAI, FTET and AI

Impact of the use of vaccines and reproductive cyclicity of induction of pregnancy in the TAI cutting *Bos taurus* heifers

H. Fernandes Pinto[1], G.W. Carloto[1], C.I.I.U.F. Machado[1], B.N. Ribas[1], D.S. Brum[1], A.P. Martini[2], G.A. Pessoa[2], M.I.B. Rubin[2], M.F. Sá Filho[3], F.G. Leivas[1]

[1]Biotech, Lab. Biotecnologia da Reprodução, UNIPAMPA, Uruguaiana; [2]Laboratório de Embriologia Animal (Embryolab), DCGA, CCR, UFSM, Santa Maria; [3]Alta Genetics do Brasil, Uberaba.

Keywords: induction of cyclicity, reproductive vaccines, heifers.

This study evaluated the effect of induction of cyclicity and reproductive vaccines in pregnancy rate and pregnancy loss in cutting taurine beef heifers at 30, 90 and 120 days after TAI. 913 heifers were used (20-26 months) reised extensively in the RS state. Fifty days prior to breeding season all heifers were evaluated and classified as cyclic (CL presence; n = 551) and acyclic (without no presence of CL, NCL, n = 361). With the animals in the NCL group divided into 2: subjected to cyclicity induction protocol (NCL / P4 n = 188) or not (NCL / NP4, n = 173). Each group was randomly assigned to receive reproduction vaccines (Vac; n = 460) or not (NVAC; n = 452. The cyclicity induction protocol consisted of inserting an intravaginal device containing 1g of P4 (Cronipress Mono Dose M24, Biogénesis Bagó Tobago, SP, BR) for ten days. After the withdraw was administered 0.5mg / CE IM (Croni-CIP, Biogénesis Bagó, SP, BR). On this day the group CL / Vac (n = 280) , NCL / P4 / Vac (n = 93) and NCL / NP4 / Vac (n = 84) received the first dose of reproductive vaccines (Bioabortogen H and Bioleptogen, Biogenésis Bagó, SP, BR). In D-10 began the TAI protocol with the insertion of an intravaginal device containing 1g of P4 (Cronipress Mono Dose M24, Biogénesis Bagó, SP, BR), associated with 2mg / IM BE (Bioestrogen, Biogénesis Bagó, SP , BR) and 0.15mg / IM D-cloprostenol (Croniben, Biogénesis Bagó, SP, BR) and the second dosis of vaccines. In the D-2, P4 device was removed and dministered 300 IU / eCG IM (Ecegon, Biogénesis Bagó, SP, BR), 0.5mg / EC IM (Croni-CIP, Biogenesis Bagó, SP, BR) and 0.15mg / IM D-cloprostenol (Croniben, Biogénesis Bagó, SP, BR). The TAI was performed after 48 hours and the breeding season followed until 90 days were completed with natural mating or resynchronization. Pregnancy diagnosis performed at 30, 90 and 120 days after TAI. Data were compared between groups by Chi-square test ($P < 0.05$). The pregnancy rate in relation to cyclicality of induction were similar between groups NCL / P4 (44.6%, 78.1% and 80.8%) and NCL / NP4 (38.1%, 75.7% and 79 , 1%), respectively at 30, 90 and 120 days. Regarding the pregnancy loss acyclic heifers, there were no differences between groups NCL / P4 / Vac (43.0%, 77.4% and 82.7%), NCL / P4 / NVAC (46.3%, 78.9% and 78.9%), NCL / NP4 / Vac (42.5%, 78.1% and 78.1%), NCL / NP4 / NVAC (33.7%, 73.2% and 80.2%). Although the pregnancy rate in cyclic and acyclic heifers vaccinated was similar (Vac: 49.0%, 81.7% and 83.5%, vs 47.3% NVAC, 80.7% and 81.8%), the pregnancy loss was lower from 30 to 120 days in the group that received the vaccine 8.4% (19/207) compared to the group that did not receive vaccines 15.42% (33/181). Therefore, the induction of cyclicity in acyclic heifers before breeding season did not influence the pregnancy rate, however the use of reproductive vaccines before TAI program, reduced pregnancy loss from 30 to 120 days.

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A074 FTAI, FTET and AI

Impact of sire fertility in timed artificial insemination breeding programs

R.O. Schenatto[1], J.M. Trentin[1], J.B.S. Casarin[2], M.F. Fiorenza[1], L.B. de Araujo[2], T.S. Balestrin[2], N. Maciel[2], A.P. Martini[2], G.A. Pessoa[1], M.I.B. Rubin[2]

[1]Universidade Federal do Rio Grande do Sul, Porto Alegre; [2]UFSM, Santa Maria.

Keywords: artificial insemination, semen, pregnancy.

Timed artificial insemination (timed AI) programs provide an organized approach to enhance the use of AI and to improve reproductive efficiency in cattle, allowing large-scale use of sires with ability to enhance desirable characteristics for each herd. Data from 5.793 TAI in Bos taurus or crossbreds cows during four years (2012-2015) in five herds in the central region of Rio Grande do Sul were used in this study. The first day (D0) of synchronization protocol was performed using 2.0 mg of estradiol benzoate IM (Gonadiol®, Zoetis or RIC -BE®, Agener União, Brazil) and inserted an intravaginal P4 device (Primer 1g, Agener União or DIB 1g, Zoetis, Brazil). On day nine (D9) the P4 device was removed and inject 0.5mg of D-cloprostenol IM (Prolise, Agener União, Brazil) or 12.5 mg of Dinoprost Tromethamine (Lutalyse, Zoetis, Brazil) and 1 mg of estradiol cypionate IM (ECP, Zoetis, Brazil). Cows were timed-inseminated by two experienced AI technicians 48 hours after removal. All cows were examined by transrectal ultrasonography 30 days after timed AI. Detection of an embryonic vesicle with viable embryo (presence of heartbeat) was used as an indicator of pregnancy. Sires (Bos taurus and crossbred) (n = 25) was equally distributed across lots of TAI. Only sires with more 50 AI were included in analysis. The analysis of the bulls in pregnancy/AI was performed using mixed model of the PROC GLM of SAS 9.3®. Were considered fixed effects: racial group (Bos taurus or crossbred), body condition score, progesterone device (new or used), inseminator, bull and birth order (nulliparous, primiparous and multiparous). Random effects were: farm, lot and year. It was not verified bull breed effect on P/AI rates. The average P/AI was 52.7%. Only 52% (13/25) of the sires remained above and 48% (12/25) below the average of P/AI. The bull with lower performance achieved pregnancy rate of 39.4% and the bull with the highest pregnancy rate was 85.4%. The P/IA in sires with low (n = 12) and high (n = 13) performance was 44.2 ± 1.1% and 60.6 ± 2.9%, respectively ($P < 0.0001$). Selecting bulls with better performance in TAI programs is recommended. Furthermore, research should be conducted to standardize laboratory tests to accurately identify bulls that have higher performance in TAI programs.

A075 FTAI, FTET and AI

Supplement use of mineral sodium glycerophosphate injection, and sodium phosphate monosodium selenite during the protocol of ovulation timing in females Nelore design

G.G. Macedo[1], B.S. Lima[2], R.W. Girotto[3], L.R. Peixoto[1], J.L.B. Leite Neto[3], A.A. Schneider[3], A.G. Silva[3], G. Pastre[2], L. Durel[2], T.S. Maia[1]

[1]UFU, Uberlandia; [2]Virbac, Jurubatuba; [3]RG Genetica, Água Boa.

Keywords: TAI, mineral supplements, nutrition.

Phosphorus deficiency is one of the most serious problems of Nutrition in Ruminants. High levels of iron and aluminium are common in Brazilian pastures, forming insoluble complexes with phosphorus and thus accentuating Phosphorus deficiency in cattle. The low dietary supply of phosphorus to cows may increase the incidence of irregular oestrus cycles, follicular cysts and the degree of anoestrus. The aim of this study was to evaluate the effect of supplementation with a injectable formulation of sodium glycerophosphate (1.40 g / 10mL), monosodium phosphate (1.2 g / 10mL) and sodium selenite (0.024 g / 10 mL) (Fosfosal®, Virbac Animal Health, Brazil) on reproductive performances of Nelore heifers and cows submitted to FTAI.
The work has been carried out in three commercial farms of beef cattle in the state of Mato Grosso, Brazil. The experimental group consisted in 809 Nelore females, including 266 heifers (24 month old on the average, average BCS = 2.97 ± SD), 253 primiparous cows (BCS = 2.56 ± SD) and 290 multiparous cows (BCS = 3.16 ± 0.39). Animals were then randomly allocated into two groups, control (CON, n = 404) or treatment (FOS, n = 405). All animals underwent the following protocol of synchronization of ovulation and FTAI: Day D0 - insertion of intravaginal P4 device (DIB®, Zoetis, Brazil), injection 2.0 mg estradiol benzoate i.m. (Gonadiol®, Zoetis, Brazil) and; Day D8 – P4 device removal, injection of 300 IU eCG i.m. (Folligon®, MSD, Brazil), 1.0 mg i.m. estradiol cipionate (ECP®, Zoetis, Brazil), 0.500 mg i.m. cloprostenol (Ciosin®, MSD, Brazil); Day D10 - IA. Animals of the FOS group where also dosed with 10 mL Fosfosal® i.m. on day D0 and on D8. Conception rate after first AI (CR-1) was the main criteria on of this study. Data were analyzed using proc GLIMMIX SAS and considered significant when $P < 0.05$. There was no interaction of treatment with bull, batch of semen palette and inseminator. There was an interaction between treatment and category ($P = 0.04983$). The multiparous females showed greater conception / IA (Control = 62%a; Fosfosal® = 62% a), followed by heifers (Control = 56% b; Fosfosal® = 61% a) and primiparous (Control = 47% b; Fosfosal® = 53% ab). Injectable Phosphorus supplementation of heifers and primiparous cows at the beginning of the oestrus cycle synchronisation protocol and 8 days later, results in numerically higher conception rates in treated animals, around 10% and 15% more for heifers and primiparous, respectively the groups treated with Fosfosal®. Supplemented primiparous cows conception rates was similar to those observed in adult cows. Injectable Glycerophosphate, sodium Phosphate and Monosodium Selenite suplementation should be considered when FTAI is applied in heifer and primiparous Nelore cattle.

A076 FTAI, FTET and AI

Pregnancy rate of Nelore cows submitted to resynchronization starting 14 or 22 days after prior FTAI

L. Penteado[1], R.G. Rezende[2], R.D. Mingoti[2], M.H.A. Colli[2], M.F. Sá Filho[3], F.B. Santos[2], J.C. Lemos Motta[2], B.M. Bayeux[2], L.M. Vieira[2], P.S. Baruselli[2]

[1]FIRMASA, Londrina; [2]Universidade de São Paulo, São Paulo; [3]Alta Genetics, Uberaba.

Keywords: early resynchronization, pregnancy rate, TAI.

The objective of this study was to evaluate the pregnancy rate of cows resynchronized 14 vs 22 days after FTAI. In this study (experiment 1), 244 lactating Nelore cows receiving the first FTAI (Day 0) were submitted to two resynchronization programs Resync-14 Group (BCS = 3.0; N = 118) and Resync-22 Group (BCS = 3.0, N = 126). In the Resync-14 Group at day 14 was conducted insertion of intravaginal progesterone device (DP4) associated to the treatment with 100 mg injectable P4 (Afisterone, HertapeCalier). On day 22, the pregnancy diagnosis (PD) was conducted by CL functionality, using the ultrasound Collor Doppler mode (Mindray M5Vet, DPS Brazil). Cows that had CL with low or absence of blood flow were considered as pregnant. These animals had the DP4 removed and 150 µg of D-cloprostenol (VeteglanLuteolítico, HertapeCalier), 1 mg EC (cypionate HC, HertapeCalier) and 300 IU of eCG were administrated. The FTAI was performed 48 hours after DP4 removal (Day 24). The cows that were considered pregnant by the Collor Doppler pregnancy diagnosis were evaluated 8 days after to measure the amount of false positives. In the Resync-22 Group the insertion of DP4 was conducted at day 22, followed by administration of 2 mg of EB (HC benzoate, HertapeCalier). On day 30 the DP4 was removed, and PD was performed by ultrasound B-mode (Myndray, M5 VET, DPS Brazil). Animals with negative PD were treated with 150 g of D-cloprostenol (VeteglanLuteolítico, HertapeCalier), 1 mg of EC i.m. (HC cypionate, HertapeCalier) and 300 IU eCG i.m. (Folligon®, MSD Animal Health). The FTAI was performed 48 hours after DP4 removal. In experiment 2, it was evaluated the pregnancy rate of resynchronized cows 14 days prior FTAI. A total of 448 lactating Nellore and Crossbred cows (1/2 Nelore vs Angus; BCS = 3), was synchronized and inseminated at fixed time (Day 0). On day 14 the animals received the same methodology used in the Resync-14 Group and they were inseminated at fixed time on Day 24. Statistical analyzes were performed using PROC GLIMIX SAS 9.3. In experiment 1, no difference was observed between Resync-14 and Ressinch-22 groups ($P > 0.05$), respectively: conception rate to first FTAI (53 vs 48%), conception rate to resynchronization (51 vs 56%) and cumulative pregnancy rate in 24 (75% - 89/118) and 32 (77% - 97/126) days of the breeding season. The percentage of false positives in the pregnancy diagnosis at 22 days was 4.55%. In experiment 2, the conception rate to first FTAI, conception rate to resynchronization and the cumulative pregnancy rate was 49%, 51%, 75% respectively. These results suggest that the FTAI resynchronization program every 24 days can be used widely and effectively in beef cattle farms.

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A077 FTAI, FTET and AI

Heat score accessed with aid of tail-chalk influences pregnancy rate of suckled *Bos indicus* beef cows subjected to P4/estradiol TAI-based protocols

K.C. Silva[1], W.B. Rodrigues[2], A.S. Silva[3], J.C. Borges[2], U.P.G. Abreu[2], D.S.N. Batista[2], N.A. Anache[1], A.O. Bezerra[1], J. do Prado Jara[3], E. Nogueira[2]

[1]Universidade Federal de Mato Grosso do Sul, Campo Grande; [2]EMBRAPA Cpap, Corumbá; [3]Gênesis Tecnologia e Reprodução Animal, Campo Grande.

Keywords: follicular diameter, inducers, heat detection.

It is known that cows that express estrus submitted to TAI protocols, have better pregnancy rates (Borges et al. 2011). So the goal was to test alternative to visual estrus observation, evaluating the effect of estrus expression with the assistance of tail-chalk on pregnancy rates and the pre-ovulatory follicle diameter in beef cows submitted to TAI protocols with use of two ovulation inducers: estradiol benzoate (EB) and estradiol cypionate (ECP). 3830 multiparous or primiparous cows in early post-partum were submitted to TAI protocols and evaluated for estrus expression at the time of TAI, in 4 properties in MS (Planalto and Pantanal). The animals received 2 mg EB (RIC-BE®, Agener Union, Brazil) and an intravaginal device with 1 g of P4 (Primer®, Agener Union, Brazil), in random day of the estrous cycle (Day 0). On Day 8, the animals were divided into two treatments: BE (n = 1624) P4 device removal and application of hormones in the afternoon D8 - 1mg of BE; and ECP (n = 2206) P4 device removal and application of hormones in the morning D8 - 1 mg of estradiol cypionate - (ECP®, Zoetis, Brazil), and all yet received 150µg of d-cloprostenol (Prolise®, Arsa, Argentina) and 300 IU eCG (Folligon® 5000 IU, MSD, São Paulo, Brazil). At the time of P4 removal, all cows were painted in sacral region with tail-chalk (Raidex-Maxi; RAIDEX GmbH, Dettingen / Erms, Germany). On day 10, 44 and 50 hours (for BE and ECP) after implant removal, the cows received bulls semen with known fertility distributed in the treatments, and a subset (n = 300) had preovulatory follicle measured at TAI. The estrus expression, evaluated at TAI was classified in scores according to paint removal on sacral region (ESCT): 1 - no paint removal = without estrus expression; 2 - poor paint removal = low estrus expression; 3 - total paint removal = high expression of estrus. Pregnancy diagnosis was performed 35 days after TAI by ultrasound. Data were analyzed by PROC GLIMMIX of SAS (SAS / STAT® 9.2). There was a difference in pregnancy for IA according to the paint scores (ESCT) (1 (n = 995) = 40.0%c; 2 (n = 709) = 49.7%b; 3 (n = 2126) = 60.9%a; $P < 0.001$), but there was no difference between inducers (BE = 53.8%; ECP = 53.1%; $P = 0.46$), neither interaction between inducers and ESCT ($P = 0.41$), however there was a difference between bulls ($P < 0.001$). A difference was found in preovulatory follicle diameter (cm) at TAI according to the ESCT (1 = 1.05b; 2 = 1.13 b; 3 = 1.38 a; $P < 0.001$), nevertheless there was no difference between inducers (BE = 1.20 cm; ECP = 1.29 cm; $P = 0.33$). Therefore, the use of estrus evaluation scores (ESCT) with tail-chalk at TAI, is a simple strategy, inexpensive and useful to identify cows with greater estrus expression and consequently betters pregnancy in TAI. That strategy provides the basis for further studies of pregnancy increase in cows with low estrus expression in TAI protocols.

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A078 FTAI, FTET and AI

Efficiency of post FTAI manegement in lacting beef cows

W.B. Rodrigues[1], J. do Prado Jara [2], J.C. Borges[3], L.O.F. Oliveira[3], U.P.G. Abreu[3], D.S.N. Batista[3], N.A. Anache[4], K.C. Silva[4], A.O. Bezerra[4], E. Nogueira[3]

[1]Fundect EMBRAPA CPAP, Campo Grande; [2]UNIDERP Anhanguera, Campo Grande; [3]EMBRAPA CPAP, Corumbá; [4]UFMS, Campo Grande.

Keywords: resynchronization, heat detection, crossbreed.

The study aimed evaluate the effectiveness of TAI post reproductive management in lacting beef cows. Were inseminated at fixed time, 607 Nellore multiparous with 45 days postpartum, calved in November and inseminated with 5 Angus bulls in January 2015 in MS state farm. In the first TAI the animals were synchronized with the following protocol: insertt of an intravaginal P4 device (Cronipress® Mono Dose M-24, Biogenesis Bagó, Paraná, Brazil)) and 2.0 mg im of estradiol benzoate (Estrogin, Biofarm, São Paulo, Brazil) on Day 8, P4 was removed and cows received application 1.125 µg of d-cloprostenol (Prolise, Tecnopec, São Paulo, Brazil), and 1 mg im of estradiol cypionate (ECP; Zoetis) and 300 UI eCG (Novormon; Zoetis) were administered. The TAI was performed on Day 10, 48 h after P4 withdrawal. In post FTAI were used 4 treatments: T1- control (N = 161) cows were only mated with Nelore bulls for seventy-five days; T2-OBSERVATION (n = 132) heat detection within 15 to 25 days after FTAI, and AI following the scheme proposed by Trimberger. RESINC22- T3 (n = 157) - 22 days after FTAI, all animals received the insertion of P4 vaginal device (Cronipress) and 1 mg estradiol benzoate (Estrogin, Biofarm, São Paulo, Brazil) .On Day 30, the pregnancy diagnosis was performed and the Cronipress was removed. The nonpregnant females also received 1.125 µg of d-cloprostenol, 0.5 mg im ECP and 300 UI eCG. The FTAI was performed on Day 32, 48 h after P4 withdrawal; T4 RESINC30 (n = 157)- Resynchronization after pregnancy diagnosis by ultrasound thirty days after the first FTAI, where the nonpregnant females, received the same protocol in the 1st FTAI. IN T2, T3 and T4 gropus, cows were mated with Nelore bulls after the second AI until end of breeding season (seventy-five days). Pregnancy diagnosis was performed 35 days after TAI by ultrasound. Data were analyzed by PROC GLIMMIX SAS (SAS / STAT® 9.2). The pregnancy rate for TAI did not differ between groups (54.6%, 53.0%, 59.2% and 51.6% for T1, T2, T3 and T4, respectively; P = 0.66), as well as no effect of groups in the second TAI (T3 = 45.31%, T4 = 46.05%, P = 0.63) and in pregnancy rates at the end of the breeding season (86.33%, 86.36% 78.98% and 81.52% for T1, T2, T3 and T4, respectively; P = 0.43). At T2, only 25 cows (18.9%) were observed estrus and 20 (80%; 20/25) became pregnant. The percentage of embryonic losses at the end of the breeding season did not differ between groups (4.54%, 1.47%, 5.37% and 7.40% for T1, T2, T3 and T4, respectively, P > 0.05). We conclude that resynchronization programs with 22 or 30 days offer the largest number of products from artificial insemination. The final pregnancy rate is similar to the four managements, only differentiating the quality of calves produced by Insemination.

A079 FTAI, FTET and AI

Impact of season on LH surge profile and fertility in synchronized dairy cows treated with different GnRH analogs (Gonadorelin vs. Buserelin)

A.H. Souza[1], R. Armengol-Gelonch[2], J.M. Mallo[3], D. Ponté[3], A. Jimenez[1], A. Valenza[1]

[1]Ceva Saúde Animal - R&D, Libourne; [2]Departamento de Ciència Animal, Escola Tècnica Superior D'engenyeria Agrària, Lleida; [3]Lleidavet Veterinary Clinic, Lleida.

Keywords: heat stress, GnRH, dairy cow.

Our aim was to assess if season could alter the GnRH-induced LH surge profile in dairy cows receiving two different GnRH analogs. We also wanted to evaluate pregnancy per AI (P/AI) results during warm and cool seasons and whether the type of GnRH would influence P/AI results in synchronized cows. Cows were housed in a free-stall facility in a commercial dairy in Southeast Spain, in which THI index is normally above 70 during warmer months of the year. In Experiment 1, dairy cows at 108.2 ± 2.3 DIM, producing 41.5 ± 0.3 kg/day were randomized to receive: Ovarelin® i.m. (OVA; 2.0 mL, 100 mg of gonadorelin diacetate tetrahydrate; Ceva Animal Health, France) or Receptal® i.m. (REC; 2.5 mL, 10 mcg of buserelin diacetate; MSD, Germany) during warmer season (July to August 2014; n = 32 cows; OVA = 16 and REC = 16) and cooler season (September to November 2014; n = 27 cows; OVA = 14 and REC = 13). Cows were either at proestrus or diestrus (D7 of the cycle) at GnRH treatment. In Experiment 1, blood samples were collected at hour 0 (just before GnRH treatment) at 30 min, 1h and then hourly until 5h post-GnRH. In Experiment 2, cows were synchronized with a modified G-6-G protocol and randomized to receive either OVA (n = 350) or REC (n = 335) throughout the synchronization program. Data was analyzed with the proc GLIMMIX of SAS (9.3). In Experiment 1, peak LH concentrations (ng/mL) were not affected by season (Cool = 6.8 ± 0.4 vs Warm = 6.1 ± 0.4; P = 0.22) or type of GnRH (OVA = 6.2 ± 0.4 vs REC = 6.7 ± 0.4; P = 0.37). Interestingly, the area under the curve (AUC) of LH release (ng/ml*time) was significantly lower during warmer months (Cool = 20.3 ± 1.2 vs Warm = 16.9 ± 1.1; P = 0.04), with no interactions between GnRH type and season in terms of LH peak or AUC. In Experiment 2, P/AI results was largely affected by season (Cool = 44.4% vs Warm = 33.0%; P < 0.01); but was similar for cows receiving either GnRH product (OVA = 41.4% vs REC = 36.1%; P = 0.18), with no detectable interactions between GnRH type and season (P = 0.29). In conclusion, cows during warm season had reduced AUC of LH release following a GnRH treatment as well as reduced P/AI in synchronized cows, and these results were unrelated to type of GnRH. Thus, strategies to avoid heat stress in dairy cows will likely improve the GnRH-induced LH release during synchronization programs.

A080 FTAI, FTET and AI

Use of Color-Doppler ultrasonography to improve selection of higher fertility beef recipient cows for embryo transfer

G. Pugliesi[1], J.C.B. Silva[2], T. Nishimura[3], D. Miyai[3], L.A. Silva[3], M. Binelli[1]

[1]Universidade de São Paulo, Pirassununga; [2]Embryo Sys, Ourofino; [3]FZEA, Universidade de São Paulo, Pirassununga.

Keywords: blood flow, *in vitro* fertilization, pregnacy.

Diagnosis of corpus luteum (CL) function by rectal palpation or gray-scale ultrasonography has been widely used for recipient selection for embryo transfer (ET), but these strategies may result in ET within a non-receptivity uterus due to presence of a non- or low-functinal CL not detected by these exams. We aimed to retrospectively study the impact of luteal size and blood flow evaluated by Color-Doppler ultrasonography at the time of ET on pregnancy rates (P/ET) of recipients in a commercial program. Crossbred beef recipients (n = 329) had the estrous cycle synchronized by an estradiol/progesterone based protocol for timed-ET. On Day −1, Nelore donor cows were submitted to an *ovum pick-up* procedure and viable aspirated oocytes were *in vitro* fertilized (IVF) on Day 0 (day of the expected estrus of recipients). On Days 4 and 7, the CL area and proportion of colored signals of blood flow in recipient cows were evaluated by a single operator using two Color-Doppler ultrasound instruments (MyLab30 Vet Gold, Esaote, São Paulo, Brazil or M5 Mindray, São Paulo, Brazil) with a similar setting, allowing a detection of blood flow ≥ 5.4 m/s. Cows that did not ovulate or with a non-functional CL (<25% of blood flow) on Days 4 and 7, or with any other reproductive issue were not used (n = 74). From the non-selected cows, 9.5% (n = 7/74) were not used because CL was present (averaged CL area on Days 4 and 7 respectively: 1.12 and 2.55 cm^2) but was not functional (< 25% of blood flow). On Day 7, cows with a functional CL received by a transcervical procedure a fresh (n = 222) or a devitrified (n = 33) embryo, placed in the uterine horn ipsilateral to the CL. Data from 10 cows were not recorded or two CLs were detected and they were excluded from the analyses. Considering only the evaluation performed on Day 7, cows were retrospectively split in two subgroups according to the CL size (Small [< 3cm2] or Large [≥3cm2]) and three subgroups according to luteal signals of blood flow (Low [≤40%], Medium [45 to 50%] or High [≥55%]). Pregnancy was detected on Days 42-45 by transrectal ultrasonography and P/ET was analyzed by logistic regression using the PROC Glimmix from SAS software, considering the effects of body condition score, type of embryo, cow's category (suckling or non-suckling), CL size, CL blood flow and their interactions. Only the significant factors based on Wald's criterion (P < 0.2) remained in the final model. Although a numeric increase in P/ET was observed in cows with large CL (55.7%,108/194) compared to small CL (47.1%, 24/51), a effect of CL size was not detected (P > 0.1). Only CL blood flow category affected the P/ET (P = 0.1). This reflected a progressive increase (P < 0.05) in P/ET associated with the CL blood flow category (Low, 45.1%^{B}, [37/82]; Medium, 55.9%^{AB} [57/102]; and High, 62.3%^{A} [38/61]). In conclusion, the presence of a CL with high vascularization (≥55% of luteal blood flow) at the moment of ET increases the P/ET in recipient cows receiving IVF Nelore embryos. Therefore, the use of color-Doppler ultrasonography as a non-invasive and real-time tool to estimate the luteal activity is a potential and innovative strategy for selection of high receptive cows in IVF/Timed-ET programs.

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A081 FTAI, FTET and AI

Effect of estradiol cipyonate on time of ovulation, luteal function and pregnancy rate in protocols for FTAI in beef cattle

D. Bosolasco[1], R. Núñez Olivera[1], F. Cuadro[1], A. Meikle[2], A. Menchaca[1]

[1]Fundacion Irauy, Montevideo; [2]Facultad de Veterinaria, Udelar, Montevideo.

Keywords: FTAI, progesterone concentration, pregnancy rate.

The objective was to determine the effect of different doses of estradiol cypionate on ovulation time, progesterone concentration (P4) and pregnancy rate in fixed-time AI (FTAI). Experiment 1, was carried out in 45 multiparous Hereford cows, with 60-70 days postpartum, body condition score (BCS) 3.3 ± 0.4 (1 to 8 scale) in anestrus. All females received an intravaginal progesterone device with (0.5g DIB, Syntex, Argentina) for 7 days and 2 mg of estradiol benzoate (Gonadiol, Syntex) im at began. One dose of 500 µg of sodium cloprostenol (Ciclace DL, Syntex) and 400 IU equine chorionic gonadotropin (Novormon, Syntex) im at the device removal. In that moment were divided into three experimental groups (n = 15 per group) according to BCS and randomly distributed, 1 mg or 0.5 mg to receive ECP (Cipiosyn, Syntex) at DIB removal or not, to receive ECP. Ovaries were monitored by ultrasonography,(WED-9618V, Well.D, China), every 12 h from removal DIB until ovulation, and every 24 h after ovulation and for 14 days. Daily blood samples were taken from DIB removal at the Day 14 after ovulation. Calves received nose plates for 10 days. In Experiment 2, pregnancy rate was determined as compared to only two experimental groups treated with ECP described in Experiment 1. Multiparous crossbreed Hereford and Angus cows (n = 4.156), with ≈ 60-90 days postpartum, 92.2% (3835/4156) in anestrus were divided into two groups to receive 1 mg (n = 2044) or 0.5 mg of ECP (n = 2112) at DIB removal. Insemination was done at 46-50 h or between 52-56 h of DIB removal (FTAI AM and PM, respectively) in both groups, blocked by animals, insemination time, technicians, bull and semen. Statistical analysis was performed by GLMM. In Experiment 1, ovulation rate (ovulated/treated) was similar between the groups, however, there was a tendency (P = 0.06) between cows receiving (93.3%, 28/30) vs. those did not receive ECP (73.3%, 11/15). The interval between DIB removal and ovulation was higher with 0.5 mg or not received ECP (66.7 ± 2.5h and 69.1 ± 2.9h, respectively) than 1 mg (58.7 ± 2.7h) (P < 0.05). Cows that received ECP and ovulated (ECP 0.5 mg; n = 15 and ECP 1 mg; n = 13) had higher P4 concentrations during first two weeks after ovulation (6.3 ± 0.2 and 6.5 ± 0.2 ng/mL) compared to cows that did not receive ECP and that ovulated (n = 11) (5.3 ± 0.3 ng/mL) with a significant effect on days 13 and 14 (P < 0.05). In Experiment 2, pregnancy rate was greaterin cows that received 0.5 mg compared to 1 mg ECP (60.4% vs. 50.4%, 1227/2112, 1031/2044 respectively; P < 0.01). There was interaction between dose of ECP and insemination time, with 1 mg pregnancy rate was higher with FTAI in AM (54.0%, 564/1045) vs. PM (46.7%, 467/999; P < 0.01). However, with 0.5 mg of ECP no differences were found in performing FTAI AM (61.1%, 645/1056) vs. PM (59.8%, 632/1056). The administration of ECP enhances ovulatory rate in Bos taurus beef cattle in anestrus. When early weaning by nose plates was used, administration of 0.5 mg instead of 1 mg ECP resulted in higher pregnancy rate for inseminations all day along.

A082 FTAI, FTET and AI

Economic impact of artificial insemination and fixed-time AI in dairy herd in acre state

B.P. Carvalho, C.Pinho de Sá, F.A. Cavalcante, J.M. Carneiro Junior, M.M.A. Bayma

EMBRAPA Acre, Rio Branco.

Keywords: dairy cattle, economic impact, acre state.

In the last years, the Artificial Insemination (AI) has been used leading to satisfactory results in dairy farms in Acre, Brazil (Carvalho, Animal Reproduction, v.12, p.649, 2015). However, for effective implementation of a technique, it is necessary not only technical, but also economic feasibility. The aim of this study was to evaluate the economic impact of using AI associated with Fixed-Time AI (FTAI) protocol in a dairy herd consisting of 83 dairy cows, in Feijó City, Acre. The AI and FTAI economic impact was estimated by the economic surplus method (Avila et al., 2008). This methodology compares the effect of the adoption of a technology to the practices and methods that were used previously. The economic benefits are calculated based on the gains generated by the technological innovation discounted of additional costs. For the calculation, two scenarios in the same herd were compared: 1) natural breeding using 1 bull over 12 months with the lactating dairy cows and 2) AI and FTAI for 12 months. In both scenarios it was calculated the interval between parturitions (IBP),% of lactating cows (% LC) and pregnancy rate (PR), maintaining the same animals and conditions of management and feeding. The results for IBP, PR and % LC in scenario 1 and 2 were 18.8 and 14.5 months, 58% and 77% and 47% and 62%, respectively, showing an effective improvement in reproduction effieciency using AI and FTAI. In scenario 1, the cost per pregnancy was R$14.30. In order to reach this value, it was used the bull purchase cost [R$ 5,000.00, subtracted R$ 2,200,00; which is the sale price for slaughter after 5 years of service; divided by the productive life (5 years)]. Additionally, it was included in this amount the maintenance cost of the bull in pasture, medicines and mineral supplements. In scenario 2, the cost per pregnancy was R$ 96.02, of which 10% were related to the equivalent depreciation cost of the nitrogen cylinder (shared community cylinder with 10 producers); semen (R$ 18.00 per dose); liquid nitrogen (R$ 25.00/month); material for IA (R$ 260.00/year); hormones used in FTAI (R$ 20.00 per protocol) and technical costs to perform the sync (R$ 100.00/month). The introduction of AI and FTAI, meant an additional cost of R$ 4,339.27. However, using this technique, it was possible to increase from 47 to 62 percent of the cows in lactation, yielding 12 more pregnancies, resulting in a subsequent crop over 12 lactating cows. This represents an increase of 13,140 liters of milk in a year (12 lactations of ~ 270 days; 3 liters/cow/day) and therefore an increase of R$ 13,140.00 in income (milk price = R$ 1.00). In addition, at the end of weaning, the producer will have 12 calves more for sale, a total of R$ 7,800.00 in local values. Thus, it is concluded that the AI technique associated with TAI, generates an annual positive economic impact of R $ 16,600.73 from the 2nd year, since it may increase the number of dairy cows in the next season, allowing a relatively quick payback over the investment made. Furthermore, it is expected that the results of the present study can aid producers from Acre to take decisions for the adoption of AI and TAI, and thereby, genetically improve their herds in a sustainable and efficient way.

A083 FTAI, FTET and AI

GnRH application in cows with low or no estrus expression evaluated with tail-chalk increases the pregnancy rate in beef cows submitted to TAI

E. Nogueira[1], W.B. Rodrigues[1], A.S. Silva[2], J.C. Borges[1], K.C. Silva[3], N.A. Anache[3], A.O. Bezerra[3], B.C.S. Leão[4], N.A.S. Rocha-Frigoni[4], G.Z. Mingoti[5]

[1]EMBRAPA CPAP, Corumba; [2]Genesis Tecnologia e Reproducão Animal, Campo Grande; [3]UFMS-Mestrado CIVET, Campo Grande; [4]Centro Universitario Católico Salesiano, Aracatuba; [5]Laboratorio de Fisiologia da Reprodução- FMVA/UNESP, Aracatuba.

Keywords: tail-chalk, GnRH, heat.

The objective was to evaluate the GnRH application in cows with low or poor estrus expression evaluated using tail chalk removal Score (ESCT) to increase TAI pregnancy rates. Nelore multiparous and primiparous cows (n = 1750) in MS Planalto (ECC (1-6): 3.67) and Pantanal (ECC (1-6): 2.90) who had ESCT 1 and 2 at TAI were randomly distributed in two treatments: control or GnRH (100 of gonadorelin at TAI- Fertagyl®, MSD, São Paulo, Brazil). The animals were evaluated in random day of the estrous cycle (D0) and received intravaginal P4 device (Cronipress® Mono Dose M-24, Biogenesis Bagó, Paraná, Brazil) and administration of 2 mg EB (Estrogin, Biofarm, São Paulo, Brazil). On Day 8, the implant was removed and cows treated with 1 mg cypionate estradiol- (ECP®, Zoetis, Brazil), 150µg of D-cloprostenol (Prolise®, Arsa, Argentina) and 300 IU eCG (5000 IU Folligon®, MSD , Sao Paulo, Brazil). At the time of P4 removal, all cows were painted in sacral region with tail-chalk (Raidex-Maxi; RAIDEX GmbH, Dettingen / Erms, Germany). On 10, 50 hours after implant removal, cows were inseminated. The estrus expression, evaluated at the time of TAI, was classified according to Silva et al. (Animal Reproduction, 2016): 1- without estrus expression;. 2 = low heat expression; 3 high heat expression. In half of the cows ESCT 1 and 2 was applied GnRH at TAI (GRRH 1 and GNRH2). The other half of the cows with ESCT 1 and 2, was assigned control group, and was applied 1 ml of saline. The follicle diameter was evaluated in 300 cows at FTAI. The pregnancy diagnosis was performed 35 days after TAI ultrasound. Data were analyzed by PROC GLIMMIX SAS (SAS / STAT® 9.2). There was difference in diameter (cm) of the preovulatory follicle at TAI according to ESCT (1,02c = 1; 2 = 1.14 b, 3 = 1.44a; $P < 0.001$). The pregnancy per AI (P/AI) in animals ESCT3 was 46,4% e 59,6% in Pantanal and Planalto, respectively ($P < 0,001$). There was a difference in P/AI according ESCT in the Control animals (Control1-23.45%b; Control2-39.5%a $P < 0.05$), but this difference did not exist in animals that received GnRH (GnRH1-52,0%; GnRH2- 49.3%; $P = 0,97$). When evaluated together groups that received GnRH or did not (control), results demonstrated the positive effect of GnRH application at TAI (Control (n = 369) - 36.0% b; GnRH (n = 415) - 50.3% a; $P < 0.001$). The local influenced PAI ($P < 0.001$) and there was interaction between treatment and location ($P = 0.010$) (Control x Pantanal- 35.1%b; control x Planalto- 37.0% b; GnRH x Pantanal- 41.7% b; GnRH x Planalto- 61.6% a). In conclusion, the use of GnRH application in cows with low ESCT is a simple strategy, low cost to raise the TAI pregnancy rates in lacting beef cows.

A084 FTAI, FTET and AI

Assessment of an estrous synchronization protocol for fixed-time artificial insemination in dairy goats

F.R. Saravia[1], F. Dorado[2], J.F. Cox[1]

[1]Faculty of Veterinary Sciences, Universidad de Concepción, Chillán; [2]Faculty of Veterinary Medicine, Universidad de Cordoba, Cordoba.

Keywords: FTAI, PGF2a, goat.

Fixed-time procedures for artificial insemination (FTAI) could simplify reproductive programs and increase their utilization. This study was aimed to assess the terminal follicular development, ovulation and reproductive performance after FTAI of a protocol based on progesterone and PGF2α combined to estradiol to induce ovulation in dairy goats in and out the breeding season. In the first part of the study, during the breeding season, 17 non-lactating Saanen, BCS 2.5-3.0, and under a feeding program were treated with progesterone (CIDR G, Pfizer, Chile) for 6 days and cloprostenol (0.125 mg, im, Ciclase, Syntex, Chile) at device removal. At that moment, were allocated at random into an eCG Group (300 IU im Novormon, Syntex; n = 8), and a untreated Control Group (n = 9). Ovulations were induced by estradiol (0.2 mg im Estradiol Benzoato [BE], Syntex, Chile) 24 h after CIDR. Follicles ≥4 mm in diameter at 24 h after CIDR, at ovulation and CL 10 days after ovulation were measured by transrectal US (10 MHz-probe, Honda 2100 Vet) and registered on individual charts whereas the moment of ovulations was detected by assessing ovaries each 8 h since 48 h after CIDR (average period between the last time a follicle was observed and its disappearance). The interval to ovulation was considered as the period between the CIDR removal and ovulation. The follicular dynamics, ovulation and CL development was assessed again in another group similarly treated with eCG and BE (n = 8) during the anestrous. In a second part, 121 lactating Saanen goats in a BCS 2.5-3.0 were synchronized with the protocol plus 300 IU eCG (67 during and 54 out of the breeding season) and were inseminated with frozen-thawed commercial semen from the same males. Pregnancy rate was assessed by US 35 days after AI and kidding performance at 150 ± 8 days in pregnant goats. Descriptive and parametric and non-parametric statistics were carried out using the STATISTICA 10.1 (StatSoft Inc, Tulsa, OK, USA). Results show that eCG goats exhibited similar ovarian performance compared to Control goats in terms of follicle numbers after CIDR (2.9 vs. 2.4) at ovulation (2.5 vs. 2.7) and CLs after ovulation (1.6 vs. 2.0), follicle and CL diameters at the same moments (5.8 ± 0.26 vs. 6.4 ± 0.23; $P > 0.05$; 6.6 ± 0.28 vs. 7.1 ± 0.24 and 12.5 ± 0.52 vs. 11.4 ± 0.37 mean ± SEM mm; $P > 0.05$) and ovulation rate (both 100%) but differed in the interval to ($P = 0.016$) and the grouping of ovulations ($P < 0.001$; 58.5 ± 0,54 vs. 62,6 ± 1.35 h respectively). Also eCG goats had similar ovarian performance compared to eCG goats during anestrus in all markers considered ($P > 0.10$). When reproductive performance was evaluated, no differences were found between FTAI during the breeding season vs. anestrus in pregnancy rate (52.2% vs. 53.7%), kidding rate (91.4% vs. 82.8%) or prolificacy (2.2 vs. 1.9 kids). Collective results suggest that the protocol may allow an adequate control of ovulations to be used for FTAI in dairy goats.

A085 FTAI, FTET and AI

Productive and reproductive profile of dairy farms from Realeza, Paraná, Brazil

A. Pinto-Neto[1], N.L. Santos Junior[1], F. Skoniesky[1], M.F. Mota[1], A.C. Martinez[2], L.S. Merlini[3], R.C. Berber[4]

[1]Universidade Federal da Fronteira Sul - UFFS, Realeza; [2]Universidade Estadual de Maringá, Maringá; [3]Autônomo, Maringá; [4]Universidade Federal do Mato Grosso, Sinop.

Keywords: cattle, milk production, subsistence production.

Realeza, located in southwestern Paraná, has approximately 540 milk producers with 11,000 animals, with the majority in family production system. In this sense, the present study aimed to evaluate the productive and reproductive profile of the dairy farms from Realeza, Parana, Brazil. Therefore, 255 milk producers responded to a questionnaire during the period from November/2014 to August/2015. Data were analyzed by ANOVA, the means were compared by Duncan test, using the SAS. Of the 255 dairy farms it was found that family labor is prevalent in 96% (244/255) and in 4% (11/255) there was at least one employee to assist in performing the tasks. The average milk production (liters/cow) was similar in properties ($P > 0.05$). Of all animals, 45.1% (3571/7917) were undefined. As to the size of the properties, 91.76% are until 50 hectares. The area of farm affects milk production per cow ($P < 0.05$), but it cannot be said that the increase in the farm size would lead to an increase in production of milk liters per cow ($P > 0.05$). Milk production is the main activity in 67.8% of the properties, and the diversification of production systems with the integration of grain and milk production was observed in 52% (132/255) of the properties. As to biotechnologies of reproduction applied to cattle, 36.1% of the properties just used the AI, and 6.3% AI was associated with NM. All semen used came from AI centers and 12.0% were using sexed semen. The milk production (liters/day and liters/cow) was higher in herds using IA to herds using NM ($P < 0.05$). From the properties that used AI, 29.63% had inseminator in the property and the bull remained with the cows in 68.1% of the properties. In 98.1% of the properties, the bull has never been evaluated and in 1.8% the producers made this evaluation at least once. In addition, only 23.3% of the owners have shown interest in making the andrological exam for free and 76.6% have no interest in having this test done. The farms from Realeza are characterized by having family labor, less technical training, whose reproductive and productive profile of their herds need to be improved. In addition, the integration of agricultural activities was also detected as better security conditions and economic returns of farmers. Thus, the diagnosis of this study will form the basis for implementing more efficient productive strategies.

A086 FTAI, FTET and AI

Effect of different progesterone sources on the induction of puberty and reproductive performance in Nelore heifers

K.M. Lemes, M. Maturana Filho, T. Santin, M.A. Silva, E.C.C. Celeghini, E.H. Madureira

Laboratório de Farmacologia e Endocrinologia da Reprodução Animal (LFER), Departamento de Reprodução, Pirassununga.

Keywords: puberty, cyclicity, FTAI.

We aimed to study the effect of different progesterone (P4) sources administration on the induction of puberty and reproductive performance in Nelore heifers. A total of 166 prepubertal heifers were evaluated by ultrasonography (Model M5 VET; Mindray®), 7 to 10 days apart before the start of the induction protocol. Only heifers that did not have a corpus luteum (CL) in both evaluations were used in the experiment. Heifers used showed 14.67 ± 0.08 months of age, body condition score (BCS) 5.12 ± 0.05 (1 = emaciated and 9 = obese) and body weight of 240.95 ± 2.31kg. The animals were randomly assigned in each group: control (CT, no treatment, n = 57), P4 injectable (IN; Sincrogest® Injectable, Ourofino Animal Health, n = 56) and P4 as intravaginal device (ID; Sincrogest®, Ourofino Animal Health, n = 53). At the beginning of the induction protocol (D0), the IN group received 150mg of P4 intramuscularly (IM) as well the ID group received an intravaginal device that had been previously used for 18 days (third use). Ten days (D10) after treatment, the intravaginal devices were removed from the ID group, and the treatment groups received 1 mg IM of estradiol benzoate (Bioestrogen®, Biogénesis Bagó Animal Health) and 150µg IM of D-cloprostenol (Croniben®, Biogénesis Bagó Animal Health). Twelve days after ovulation induction (D22), all animals were submitted to fixed time artificial insemination (FTAI) protocols. At the start of protocol, all animals received an intravaginal device containing 1g of P4 (Cronipress® Single Use M-24, Biogénesis Bagó Animal Health) and 2mg IM of estradiol benzoate (Bioestrogen®, Biogénesis Bagó Animal Health). At Day 8.5, the intravaginal devices were removed and were administered 1 mg IM of estradiol benzoate (Bioestrogen®, Biogénesis Bagó Animal Health), 150µg IM of D-cloprostenol (Croniben®, Biogénesis Bagó Animal Health) and 300 IU IM of equine chorionic gonadotropin (eCG, Ecegon®, Biogénesis Bagó Animal Health). All females were fixed time inseminated at 36 hours after the removal of intravaginal devices. The pregnancy diagnosis was performed by transrectal ultrassonography 30 days after FTAI. All variables were analyzed using PROC GLIMMIX of SAS 9.3. For induction of puberty, there was a group effect ($P < 0.0001$), with the IN (71.42%) and ID (58.49%) groups statistically higher compared to CT group (8.77%), and no significant difference ($P > 0.05$) was observed between IN and ID groups. For the pregnancy rates, a group effect was observed ($P = 0.02$), where the IN group (41.84%) was higher than the CT group (17.54%), and a difference tended to be significant ($P = 0.09$) between the IN and ID group (26.41%), with no difference between ID and CT groups. In conclusion, the P4 administration may be an effective strategy to improve the puberty induction in prepubertal Nelore heifers, as well there are signs of improvement in pregnancy rates in FTAI protocols, suggesting that studies with larger numbers of animals are needed.

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A087 FTAI, FTET and AI

The time of beginning resynchronization of ovulation protocol changes the pregnancy rate in dairy cattle

M.S. Caixeta[1], L.S. Amorim[2], T.M. Miyauchi[2], J.R. Ribeiro[2], T.A. Miyauchi[3], C.A.C. Fernandes[3], A.C.S. Figueiredo[3]

[1]UFA, Machado; [2]BIOTRAN Ltda, Alfenas; [3]Dept. de Reprodução Animal Universidade de Alfenas, Alfenas.

Keywords: bovine, resynchronisation, progesterone.

The resynchronization protocols in cows before the diagnosis of pregnancy, ie with known pregnancy has been mainly used in beef cattle (Sá Filho et al, 2014),), along with artificial insemination protocols Fixed Time (FTAI). In dairy cattle, this type of protocol has not yet been widely applied. The aim of this study was to evaluate the efficiency and endocrine disorders on resynchronization protocols in dairy cattle, started at different times after the last insemination. 86 Holstein cows were used, submitted to the following protocols FTAI: D0- insert intravaginal progesterone implant (IVP) and application of 2 mg of estradiol benzoate (EB), D8 - removal of the implant and applying 0, 5 mg sodium cloprostenol, D9 - application of 0.1 mg Lecirelin and D10 - IATF.. The animals were randomly divided into two groups, G1 (n = 43) where the resynchronization protocol began 20 to 21 days after the last insemination (D 20-21) and G2 (n = 43), where the same protocol was initiated 24 to 25 days after the last insemination (D34-35). In both groups, eight days after the start of the resynchronization protocol, the IVPwas removed and the diagnosis of pregnancy wasaccessed. In pregnant females there was no other procedure. Those that are not pregnant, as well as blood samples for progesterone concentration (P4) was measured the diameter of the largest follicle and verified the existence of corpus luteum (CL). It has also been applied 0.5 mg of sodium cloprostenol. One day later 0.1 mg Lecirelin and 2nd FTAI was taken the next day. It were assessed between groups the pregnancy rate in both FTAIs, the diameter of the largest follicle and the serum progesterone concentration at the end of resynchronization protocol. The data were submitted to ANOVA and compared by Student test. The pregnancy rate and% of cows with CL were compared using Fisher's exact test. There was no difference in pregnancy rate in the 1stFTAI ($P > 0.05$). The pregnancy rate in resynchronization (2nd IATF) was higher in G2 (46.3 and 31.4% - $P < 0.05$). The mean follicular diameter was greater in the group G1 cows (16.3 +3.8 and 12.1 +2.7 mm - $P < 0.05$). A higher percentage of cows in G2exhibited CL at the end of resynchronization protocol (93.0 and 60.5%-$P < 0.05$). In G2 group [P4] at end of the protocol was higher (2.8+1.1 e 1,7+0.8 ng/mL, $P < 0.05$). In conclusion, when the resynchronization protocol starts 20 to 21 days after FTAI the P4 concentration during the second Protocol will be lower, , which can impair fertility as noted.

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