A001 TAI/FTET/AI

Pregnancy rates in beef heifers synchronized with the J-Synch protocol and inseminated with conventional or sexed semen

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Two experiments were performed to evaluate pregnancy rates in beef heifers synchronized with the J-Synch protocol and Fixed-time AI (FTAI) with sexed or non-sexed semen. In both experiments cycling Angus or Angus cross-bred heifers weighting 270 to 320 kg and with a body condition score of 2.5 to 3.5 (scale of 1 to 5) were randomly allocated to be inseminated with Ultra-Sexed 4M semen (4 million sperm per dose, Sexing Technologies, Argentina) or non-sexed (conventional) semen from two bulls (one bull in each experiment). All heifers received a progesterone (P4) device (DIB 0.5 g P4, Zoetis, Argentina) and 2 mg estradiol benzoate (Gonadiol, Zoetis) on Day 0. On Day 6 heifers in Experiment 1 received 500 µg of cloprostenol (PGF, Ciclase DL, Zoetis) and DIB removal and heifers in Experiment 2 also received 300 IU eCG (Novormon 5000, Zoetis) at the same time. All heifers were also tail-painted at the time of DIB removal and observed for signs of estrus (i.e. >30% of the tail-paint rubbed off). In Experiment 1, heifers with the tail-paint rubbed off by 72 h after DIB removal were FTAI at that time with either sexed or non-sexed semen. Those not showing estrus by 72 h received 100 µg of gonadorelin acetate (GnRH, Gonasyn gdr, Zoetis) at that time and were also FTAI with either sexed or non-sexed semen 12 h later (i.e. 84 h). In Experiment 2, FTAI was performed as is Experiment 1, except that estrus observation was recorded also at 60 h after DIB removal. Pregnancy was diagnosed by ultrasonography 30 days after FTAI. Data was analyzed by logistic regression. In Experiment 1, there were 57.9% (206/356) of heifers in estrus at 72 h and an overall pregnancy rate of 45.5% (82/180) for sexed semen and 62.5% (110/176) for conventional semen ($P < 0.01$). Furthermore, pregnancy rates were higher in heifers that showed estrus and were FTAI at 72 h (62.1%, 128/206) than those that didn't showed estrus and were FTAI at 84 h (42.7%, 64/150; $P<0.01$). In Experiment 2, there were 75.8% (185/244) of heifers in estrus but there were no differences in pregnancy rates between sexed semen (59.3%, 73/123) and conventional semen (67.7%, 82/121; $P=0.14$). Pregnancy rates in heifers FTAI with sexed semen tended to be ($P<0.09$) higher for those in heat at 60 h and FTAI at 72 h (71.4%, 30/42) than those in heat at 72 h and FTAI at the same time (53.8%, 28/52) and those not in heat and FTAI at 84 h (51.7%, 15/29). In heifers FTAI with conventional semen pregnancy rates were higher ($P<0.05$) in those in heat at 60 h and FTAI at 72 h (76.3%, 29/38) and those in heat and FTAI at 72 h (69.8%, 37/53) than in those not in heat and FTAI at 84 h (53.3%, 16/30). In conclusion, the combination of tail painting for estrus detection and FTAI can be successfully applied to inseminate beef heifers with sexed semen synchronized with a J-Synch protocol, and pregnancy rates in those heifers showing estrus are higher than in those not showing estrus.

A002 TAI/FTET/AI

Efficacy of a short protocol (6 days) using EB to induce ovulation compared with a conventional protocol using ECP on pregnancy rate in heifers

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The objective of the study was to evaluate the performance of a short FTAI protocol (long proestrous) combined with estradiol benzoate (EB) as inductor of ovulation compared to a conventional protocol using estradiol cypionate (ECP) on pregnancy rate in Bos taurus beef heifers. Three replicates of the experiment were conducted (A, n=68; B, n=63; C, n=57) totalizing 188 Aberdeen Angus heifers, with body condition score (BCS) range between 3 to 4 (1-5 scale) and 15 to 16 months old. On D0 ultrasonography (US; Honda HS 101V – 5 MHz) was performed to evaluate ovarian structures (OST): corpus luteum (68.6%) or follicles ≥10mm (31.4%); and determine BCS. All heifers were homogenously distributed based on theirs OST to two different groups: 1) 6D36EB (n=96) or 2) 7DECP (n=92). On that day all heifers received 2 mg of EB (Bioestrogen®, Biogénesis Bagó, Argentina) i.m. along with an intravaginal device containing 0,558 g of progesterone (IVD; Cronipres® Monodosis, Biogénesis Bagó, Argentina). The IVD were removed on D6 (6D36EB) or D7 (7DECP) and all heifers received an i.m. administration of 0,150 mg of D-Cloprostenol (Enzaprost® D-C, Biogénesis Bagó, Argentina). To induce ovulation: 1 mg of EB was administered 36 h after IVD withdrawal (6D36EB); while 0,5 mg of ECP (Croni-Cip®, Biogénesis Bagó, Argentina) was administered at IVD removal (7DECP). Time of AI was 72 h (6D36EB) or 48 h (7DECP) after IVD removal. FTAI was performed by one veterinarian (the same for all replicates) and semen from three bulls was used (one for each replicate). Pregnancy diagnosis was done by US between 40 and 44 days after FTAI. Pregnancy rate was analyzed by logistic regression (InfoStat, UNC, 2015. Argentina). There was no effect of Replicate, Bull, OST or their interactions (P>0,1). Non-statistical differences were observed for pregnancy rates between 6D36EB [55.2% (53/96)] and 7DECP [54.3% (50/92); P>0.1]. In conclusion, short IVD treatment (long proestrous) combined with EB for inducing ovulation (6D36EB protocol) achieved similar pregnancy rates than conventional FTAI protocol (7DECP).

A003 TAI/FTET/AI

Utilizing day 24 pregnancy associated glycoprotein (PAG) concentrations to diagnosis pregnancy in dairy cattle

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Dairy producers are limited to day 28 to 30 of gestation as the earliest time point for accurate pregnancy diagnosis due to the effectiveness of most ultrasound and chemical based methods, including pregnancy associated glycoproteins (PAG) tests. The objective of the current study was to determine if early gestation circulating PAG levels at day 24 could be used to diagnose pregnancy in dairy cattle undergoing embryo transfer. In vitro produced embryos were transferred into estrus synchronized Holstein × Gir crossbred cows and heifers on day 7 following ovulation. Experiment 1 utilized only cows (n=101) determined to be pregnant on day 24 of gestation following timed embryo transfer (TET) by (1) increased PAG concentration, (2) vascularized CL and (3) progesterone concentration >1 ng/ml. Crossbred heifers (n= 111) and cows (n=242) were used in experiment 2. In both experiments, blood was collected at day 24 for PAG analysis as well as day 31 for confirmation of pregnancy. Final pregnancy confirmation occurred on day 60 via transrectal ultrasonography. Serum concentrations of PAG were quantified using an in house PAG ELISA with polyclonal antibodies raised against PAGs expressed early in gestation. Following TET in experiment 1 of the 101 cows diagnosed as pregnant on day 24, 77 cows were identified as still pregnant on day 31 of gestation (77%) using ultrasound and PAG testing. Experiment 2 had an overall pregnancy rate at day 31 of 33.7% of total embryos transferred. Mean circulating PAG concentration at day 24 differed between animals identified as pregnant and non-pregnant by ultrasound at day 31 in both experiments (experiment 1, 2.9635± 0.262 ng/mL vs 0.94619± 0.168 ng/mL and experiment 2, 1.962 ± 0.261 ng/mL vs 0.707 ± 0.114 ng/mL). Concentration of PAG between pregnant and non-pregnant animals in experiment 1 and 2 was significant ($p \leq 0.06$). A predictive cutoff value for diagnosing pregnancy was identified at 2.50 ng/mL for 90% confidence using a ROC curve. Only animals that were pregnant at day 31 were analyzed in late embryo mortality analysis (heifers, n= 54; cows, n=159), defined as pregnancy loss between day 31 and 60. Between day 31 and 60, 39 (11 in experiment 1 and 28 in experiment 2) animals experienced late embryo mortality. Circulating concentrations of PAG were not significantly different at day 24 of gestation in animals that maintained pregnancy until day 60 than animals that lost pregnancy between day 31 and 60 (late embryo mortality, LEM) ($P > 0.10$); however, in experiment 2 the mean concentration of pregnant animals were numerically higher (2.043± 0.167 ng/mL) than animals that experienced LEM (1.327 ± 0.251 ng/mL). In summary, early gestation circulating PAG concentration may have application in diagnosing pregnancy at day 24 gestation and more work is needed to determine the potential of early gestation PAGs predicting embryonic loss in dairy cattle.

A004 TAI/FTET/AI

Pregnancy rates in timed artificial insemination in Nelore cows using estradiol benzoate as ovulation inducer associated with eCG or FSHp

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In different tropical areas of the world, as in the case of the Brazilian Amazon, beef production is made using zebu cattle (Bos taurus indicus) due to its greater resistance to the humid tropical climate and its adaption to grazing in extensive management systems (Baruselli, P.S. Animal Reproduction Science, v. 82-83, p. 479–86 2004). The participation of the Amazon region in the production of beef in Brazil, has been increasing year after year.In this respect, reproductive biotechnologies (RB) have been used and have significantly increased the CR through the use of protocols for Timed Artificial Insemination (TAI) which has proven efficient to ensure improvement of the sustainability of cattle ranching (Neves, K. A. L. Papers do NAEA, v. 330, p. 1-19, 2014). The use of gonadotropins could improve LH support and considering that in the literature there are still gaps with respect to the use of equine chorionic gonadotropin (eCG) and follicle stimulating hormone (FSHp), the aim of the present study was to test protocols of TAI using hormone EB as ovulation inducer, combined with eCG or FSHp in multiparous Nelore cows. Multiparous suckled Nelore cows (n= 559) at 40-60 days postpartum and average BCS of 3.17 (1-5 points scale, were used). Cows were kept on pasture (Brachiaria brizanhta var. Marandu) with ad libitum access to water and mineral supplement during the experimental period. On D0 all cows received a PRID (Sincrogest® Ouro Fino® 1g P4) and 2.0 mg i.m. EB (Gonadiol®; Intervet/Schering-Plough, Brazil). On D8 PRID were removed and administered 4.0mg of dinoprost tromethamine (Lutalyse® Pfizer® 4mg PGF2α) i.m and, in the same day, cows were assigned according BCS in groups EB-eCG (n= 279) and received 300 IU i.m. (Novormon®, Syntex, Buenos Ayres, Argentina) or EB-FSHp (n= 280) and received 10mg i.m. (Folltropin®, Bioniche, Canada). On D9 1mg of EB im (Gonadiol®; Intervet/Schering-Plough, Brazil) were administered. Insemination was performed 56h after PRID removal. Statistical analyses were performed using the Statistical Analysis Systems for Windows version 8.2 (SAS 2001). The Chi-square procedure was used to determine significant differences between groups. Treatment differences are considered significant at $P < 0.01$.To evaluate the diameter of largest follicle (LF), ovulatory follicle (OF) and ovulation (OV) rates the GLM procedure with SNK adjustment was used to determine significant differences among groups. The largest follicle, maximum diameter of the LF, maximum diameter of the ovulatory follicle, ovulation and interval P4 device removal to ovulation did not differ between groups (eCG =13,5mm, FSHp=12,6mm). In the present experiment the eCG treatment increased CR compared with FSHp (65.23% versus 48.57%) P=0,001. The use of eCG at the time of PRID removal in a TAI program improves the CR and these treatments may facilitate the application of genetic improvement programs more efficiently in Bos taurus indicus herds under Amazonian tropical conditions.

A005 TAI/FTET/AI

Effect of different gonadotropins on the final follicular growth and CL development in Nelore cows Submitted to FTAI protocols

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The aim of this study was to evaluate the effect of eCG, FSH or hCG on follicular growth rate, ovulatory follicle size, CL volume and circulating P4 concentration post ovulation, as well as the number of large and small luteal cells in cows submitted to protocol of FTAI. Sixteen non-lactating Nelore cows with body condition score (BCS) of 2.7 ± 0.4 (scale of 1 to 5) were used. At the beginning of the protocol (D0) all cows received 2 mg i.m. of estradiol benzoate (Gonadiol, Zoetis, Brazil), 25 mg i.m. of PGF2α (Lutalyse, Zoetis, Brazil), and an intravaginal P4 device (CIDR, Zoetis, Brazil). All cows received 25 mg i.m. of PGF2α on D7 and had CIDR removal + 25 mg i.m. PGF2α on D8. On D7 cows were randomly assigned into four groups: Control = No Gonadotropin treatment; eCG = 300 IU i.m. of eCG (Novormon, Zoetis, Brazil) on D7; FSH = 20 mg of FSH on D7, D8, and D9 (divided into two treatments of 10 mg i.m., 12 h apart; Folltropin-V, Bioniche, Canada); hCG = 200 IU i.m. of hCG (Chorulon, MSD, Brazil) on D7 and 100 IU i.m. of hCG on D8 and D9. Ultrasound examinations and blood sampling were performed daily until the seventh d post ovulation and on this day CL biopsies were performed for histological analysis. Two Latin squares were performed, totaling eight replicates. Data were analyzed by PROC GLIMMIX of SAS and the results are presented as least squares means ± SE following the group order Control, eCG, FSH, and hCG. As expected, there was no difference in follicle diameter (mm) on D7 (7.7 ± 0.3, 7.9 ± 0.3, 7.7 ± 0.3, 7.5 ± 0.3; P>0.05). However, on D10 the follicle diameter of the groups eCG, FSH and hCG were larger than Control (11.3±0.3, 12.5±0.3, 12.5±0.3, 12.6±0.3; P < 0.05) with a greater follicular growth rate between D7-10 (1.2±0.3; 1.5±0.3, 1.6±0.3, 1.7±0.3; P=0.03). Similarly, the diameter of the ovulatory follicle (12.9±0.3, 13.6±0.3, 13.6±0.3, 13.8±0.3; P<0.05) was smaller for Control, but seven d later, the CL volume (3876.1±261, 4529.6±256, 3797.4±308, 4443.7±278; P>0.05) and plasma P4 concentration (2.9±0.3, 3.6±0.3, 2.9±0.3, 3.5±0.3; P>0.05) were not different among groups. Nevertheless, the groups treated with gonadotropins had a greater number of large (224x107±610, 468x107±558, 586x107±588, 519x107±541; P < 0.01) and small luteal cells (238x108±688, 478x108±629, 484x108±717, 555x108±579; P < 0.01) than the Control group. In conclusion, all gonadotropin treatments, eCG, FSH, or hCG, were effective in increasing the follicular growth rate between D7-10 and consequently the follicular diameter on D10 and ovulatory follicle diameter. In addition, treatment with different gonadotropins increased the number of large and small luteal cells, however did not affect CL volume and P4 concentration.
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A006 TAI/FTET/AI

Addition of a second dose of Prostaglandin (PGF2α) to a timed AI protocol influences pre-ovulatory follicle and pregnancy per AI in anovular dairy cows

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Objectives were to determine the effects of a second PGF2α in a timed AI protocol on LH pulsatility, pre-ovulatory follicle characteristics, and pregnancy per AI (PAI) in anovular cows. In experiment 1, 56 Holstein cows had the estrous cycle synchronized to start the timed AI without a corpus luteum (CL). All cows were assigned to a synchronization protocol: d -11, 2 mg of estradiol (E2) benzoate and a progesterone (P4) insert; d -4, 25 mg of dinoprost; d -2, 1 mg of E2 cypionate and removal of the P4 insert. On d -11, cows were blocked by milk yield and parity and randomly assigned to 1PGF, 25 mg of dinoprost on d -4 and 5 mL of saline on d -2; or 2PGF, 25 mg of dinoprost on -4 and -2 d. Blood was sampled from d -11 to 0 and assayed for P4. Jugular catheters were placed and blood was sampled every 15-min from 1 h before to for 6 h after treatments, and every 2 h thereafter for 58 h. Plasma samples were assayed for concentrations of LH and PGF2α metabolite (PGFM). The pre-ovulatory follicle was aspirated on d 0 and fluid assayed for E2 and P4. In experiment 2, 454 lactating anovular Holstein cows (no CL on d -11 and -4) were randomly assigned to either 1PGF or 2PGF and subjected to timed AI. Pregnancy was diagnosed on d 58 after AI. Rectal temperature (RT) was measured on d 0 and 7, according to the average, the cows were classified as RT below (normothermic) or above 39.0oC (hyperthermic). Continuous data were analyzed by mixed models with the fixed effects of treatment, time, and interaction, and the random effects of block and cow nested within treatment. Categorical data were analyzed by logistic regression with a model that included the fixed effects of treatment, RT and interaction. Although both groups had subluteal concentrations of P4 between d-11 and d0, we detected a statistical difference between groups, the concentration of P4 from d-11 to 0 was greater (P=0.04) for 1PGF than 2PGF (0.59 vs. 0.45 ± 0.06 ng/mL). 2PGF increased (P<0.001) concentrations of PGFM in plasma (47.0 vs. 702.8 ± 25.1 pg/mL) starting immediately after treatment and lasted at least 6 h. 2PGF reduced (P=0.05) the number of LH pulses/6 h (4.5 vs. 3.9 ± 0.2). Relative to treatment, the beginning of LH surge (22.4 vs. 19.3 ± 2.1 h) and the hour when the peak of LH surge was detected (29.0 vs. 28.0 ± 1.8 h) did not differ between 1PGF and 2PGF, but duration of the surge was longer (P=0.04) for 2PGF than 1PGF (13.1 vs. 15.5 ± 0.8 h). Cows in 2PGF had larger (P=0.05) pre-ovulatory follicle diameter (12.3 vs. 14.4 ± 0.8 mm) with greater (P=0.02) estradiol concentration in the follicular fluid in all aspirated follicles (115 vs. 262 ± 39 ng/mL) or in estrogenic follicles (161 vs. 372.8 ± 28 ng/mL). 2PGF increased (P=0.04) ovulation after AI in all cows (75.3 vs. 83.1%). Also, in cows with RT≤39.0, 2PGF increased (P<0.03) PAI in all cows (15.7 vs. 30.7%) or synchronized cows (19.5 vs. 35.1%), but not in cows with RT>39.0 (all cows, 10.0 vs. 9.5%; synchronized cows, 14.8 vs. 12.2%). Treatment with a second dose of PGF2α improved PAI in normothermic anovular cows because of increased ovulation and improved pre-ovulatory follicle characteristics.

A007 TAI/FTET/AI

Vaginal temperature in Holstein cattle: Effect on productive and reproductive traits and genome contribution to thermotolerance

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The aim of the experiment was to evaluate vaginal temperature on productive and reproductive traits and potential genetic contribution to thermomtolerance. Lactating Holstein cows n = 641 (209 primíparous 36,9 ± 6,54 kg milk/d; 432 multíparous 43,9 ± 9,77 kg milk/d) had vaginal temperature monitored using thermometers, attached to an intravaginal device (CIDR® 1,9 g de P4, Zoetis, SP, Brasil) as part of a timed-AI protocol and recorded vaginal temperature every 10 minutes for 3 days. Ambient temperature and relative humidity were monitored using an external thermometer placed inside the barn. The data were analyzed with SAS 9.4 using Pearson correlation, ANOVA and logistic regression. Heat stress was calculated based on the percentage of time the cow spent with a vaginal temperature ≥39,1°C (PCT). Cows were classified using the 75th percentile threshold (HighPCT and LowPCT) for PCT and the median value for milk, which were different for primiparous and multiparous. There was a low correlation between THI and milk production with PCT (r=0,01) indicating a large variation in thermoregulation. Multiparous LowPCT (22,4 and 13,9%) and HighPCT (12,6 and 9,7%) significantly reduced P/AI on day 30 and 52 post-AI (P<0.01) and no interactions with parity, body condition score and THI were observed. Coat color and skin thickness did not influenced PCT.

Illumina® BovineSNP50 v2 genotypes were obtained for 467 cows (258 lactating cows and 209 heifers). Animals were distributed in 61 different contemporary groups and a total of 194,406 IVT records were obtained, with an average of 416 ± 50 measurements per animal (min = 133, max = 867). All animals had call rate (CR) greater than 90%. A total of 39,549 single nucleotide polymorphism (SNP) markers were selected for analysis with PLINK v.1.90. These markers presented a minimum CR of 95% and a minor allele frequency (MAF) of at least 5%. The 39,549 SNPs explained 32.9% of the variance in IVT, suggesting that genomic variation accounts for a substantial portion of the thermotolerance, but no individual loci contributing with 1% or more of the marked additive genetic variance, indicating that the trait is highly polygenic.

In summary, there is a large variability on how individual cows respond to heat stress, but a sub-population of animals is able maintain lower PCT under similar production and environmental conditions, which resulted in improved P/AI.

A008 TAI/FTET/AI

Reproductive efficiency of Nelore cows submitted to 7-d FTAI protocols initiated with estradiol benzoate or GnRH and with or without gnrh at the time of AI

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This study assessed the response of Nelore (*Bos indicus*) cows to 7-d fixed-time AI (FTAI) protocols using progesterone (P4) intravaginal device (IVD) and initiating with buserelin acetate (GnRH) or estradiol benzoate (EB). In addition, treatment with GnRH concomitant with FTAI was evaluated. A total of 820 cows (primiparous, multiparous and non-lactating) on pasture system was completely randomized assigned to four treatments. At the beginning of the protocol (D0) cows either received GnRH (G; 20.0 μg) or EB (B; 2.0 mg), and at the time of AI cows were treated with GnRH (G; 10.0 μg) or not treated (0), resulting in four groups: G0, GG, B0, and BG. Simultaneously with these treatments on D0, all cows received an intravaginal P4 device (1.0 g) that was removed 7 d later (D7). Also on D7, all cows were treated with sodium cloprostenol (PGF; 530 μg) and estradiol cypionate (EC; 0.5 mg). Cows from G0 and GG received eCG (300 IU) and an additional PGF on D6, whereas B0 and BG received the eCG treatment on D7. FTAI was performed on D9 by the same technician, and seven sires were used. All hormones were from Globalgen Vet Science, Jaboticabal, Brazil. Body condition score (BCS) was evaluated on D0, and at D7 all cows had chalk applied on their tailhead to evaluate estrous behavior at AI. Ovarian ultrasonography was performed on D0, D6, D7, D9, and 8 d after AI. Statistical analyses were performed using GLIMMIX and MIXED of SAS 9.3 (LSM ± SEM; $P \leq 0.05$). Overall pregnancy per AI (P/AI) was noteworthy (62.7%; 514/820), although there were no differences among groups [57.8 (122/205); 67.6 (144/208); 60.0 (128/207), and 58.0% (120/200); B0, BG, G0, and GG, respectively]. The BCS at the onset of the protocols was not different among groups (3.0 ± 0.28), and cows with BCS ≥ 3 had greater P/AI than cows with BCS < 3 [65.7 (354/533) vs. 55.7% (160/287)]. Non-lactating and multiparous cows had greater P/AI than primiparous [65.5^{a} (81/116) vs. 62.1^{a} (327/513) vs. 54.3%^{b} (106/191)]. More cows treated with GnRH on D0 were detected in estrus at the time of AI than cows receiving EB [66.7 (269/404) vs. 55.0% (227/411)], and cows detected in estrus had greater P/AI [(66.2 (344/496) vs. 51.3% (168/319)]. Furthermore, there was a tendency ($P < 0.10$) for treatment with GnRH at the time of AI to increase P/AI of cows not detected in estrus [from 46.2% (77/164) to 57.0% (91/155)]. Related to cows detected in estrus, there was no improvement on fertility due to GnRH treatment at the time of AI [(66.1 (171/244) vs. 66.4% (173/252), for not treated vs. GnRH-treated cows, respectively]. A greater percentage of cows ovulated at the onset of the protocol if treated with GnRH than EB [71.5 (83/114) vs. 28.6% (35/116)]. Follicle diameter on D7 was larger for cows from group GnRH than EB [(10.8 ± 0.2 (n = 61) vs. 9.6 ± 0.3 (n = 62)]; however, treatment did not affect follicle diameter at AI [12.8 ± 0.3 (n = 61) vs. 12.4 ± 0.2 (n = 65)]. Ovulation rates after AI were not different among treatments [93.1% (297/319)]. In conclusion, 7-d FTAI protocols initiating with GnRH or EB achieved similar and relatively high fertility in Nelore cows. Moreover, treatment with GnRH at AI tended to increase P/AI in cows not detected in estrus.

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A009 TAI/FTET/AI

Correlation between frozen-thawed semen viability and pregnancy rates after fixed-timed artificial insemination in cattle

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The aim of this study was to evaluate the relationship between results of laboratory analyses of frozen-thawed bovine semen and pregnancy rates in Nelore cows subjected to fixed timed artificial insemination (FTAI). Thirty-seven conventional semen straws from 16 Nelore and 3 Aberdeen Angus bulls with proven fertile were analyzed. Nelore cows (n=4,171) were subjected to FTAI in groups of 150 animals, according to the FTAI program established at the farm. All females were synchronized with the same FTAI protocol and were inseminated by a single team of technicians. For semen evaluations, straws were thawed at 37°C/30 seconds, evaluated by light microscopy for sperm morphology (DEF) and motility (MOT). Computer-assisted sperm analysis (CASA) was used to determine sperm kinetics by evaluating parameters defined by the software (MT, PM, VAP, VSL, LIN, STR). The integrity of spermatic membrane (MEMB) and mitochondrial function (MITO) were evaluated by flow cytometry. Results of semen analyses are shown as mean±SD, considering all 19 bulls analyzed. Morphologically abnormal sperm (DEF) were 12.7±6.5 %, MOT 45.3 ±6.6%. CASA results were: MT 39.6±11.8%, PM 29.8±9.1%, VAP 97.5±11.5 μm/s, VSL 80.3±9.1 μm/s, LIN 49.1±4.9%, STR 81.5±4.0% MEMB 44.4±11.4%, MITO 47.6±8.8%. Total pregnancy rate was 50.8±12.9%. The SPSS software, version 20.0 (IBM® Corporation, NY, USA) was used for the analysis of the variables, $P \leq 0.05$ was considered significant. Afterwards, a correlation between all variables using a dispersion diagram was performed by the hypothesis test (Pearson's correlation). A positive correlation was found between the variables sperm motility and progressive motility ($R = 0.940$, $P < 0.001$); path velocity and progressive velocity ($R = 0.869$, $P < 0.001$); linearity and straightness ($R = 0.928$, $P < 0.001$). However, there was no significant correlation between any variable of semen analysis and fertility outcome (pregnancy rate.)Cluster analysis was used, looking for the relationship between gestation results and combinations of laboratory analyzes, four good quality clusters were formed combining progressive motility, mitochondrial activity, and pregnancy rate. In conclusion, no single semen parameter influenced the results in terms of pregnancy rates. Results of semen analysis are not sufficient to predict the fertilizing capacity of frozen-thawed spermatozoa.

A010 TAI/FTET/AI

Daily ovarian dynamics in Nelore heifers and non-lactating multiparous cows submitted to progesterone (P4)-based FTAI protocols

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Three experiments were performed to understand ovarian dynamics of Nelore cows and heifers during P4-based FTAI protocols differing in: initial treatments to synchronize follicle waves, protocol lengths (5, 7, or 9 d), and final ovulation induction treatments. For Exp1, cows were assigned to the groups: EB-9-EC [n = 20; D0: 2 mg EB and an intravaginal device (IVD) with 1 g P4; D9: 0.5 mg estradiol cypionate (EC), 0.526 mg sodium cloprostenol (PGF), 300 IU eCG and IVD removal]; G-7-2-G [n = 19; D0: 20 µg buserelin acetate (GnRH) and IVD; D6: PGF and 300 IU eCG; D7: PGF and IVD withdrawal; D9: 10 µg GnRH]; or 5-EC-2-G (n = 20; D0: only IVD; D5: EC, PGF, eCG, and IVD withdrawal; D7: 10 µg GnRH). For Exp2, cows were assigned to protocols: EB-7-EC-2-G [n = 26; same protocol as EB-9-EC, but D9 treatments were performed on D7, and GnRH (10 µg) was given on D9]; or G-7-EC-2-G (n = 30; same protocol as G-7-2-G, but with EC on D7). For Exp3, heifers were assigned to protocols: EB-7-EC-2-G (n = 22; same protocol as EB-7-EC-2-G from Exp2); G-7-2-G (n = 22; same protocol as G-7-2-G from Exp1); or 5-EC-2-G (n = 22; same protocol as 5-EC-2-G from Exp1). Doses of EB (1.5 mg), eCG (200 IU) and the IVD (0.5 g P4) were different for Exp3. All hormones were from Globalgen Vet Science. Ovarian ultrasonography was performed daily from D0 until 4 d after IVD withdrawal. Continuous variables were analyzed using PROC MIXED and binomial variables using PROC GLIMMIX of SAS ($P \leq 0.05$; tendency = $0.05 < P < 0.1$). In Exp1, only G-7-2-G cows ovulated to treatment on D0 (40.2%) with earlier follicular wave emergence in G-7-2-G and 5-EC-2-G than EB-9-EC (0.9^{b}, 1.1^{b}, and 2.6^{a} d). Synchronization rate (SR) of follicular wave emergence and growth rate of the ovulatory follicle (GROF) was lower for 5-EC-2-G, compared to other groups (SR: 5-EC-2-G = 8.4^{b}, EB-9-EC = 95.9^{a}, and G-7-2-G = $87.7\%^{a}$; and GROF: 5-EC-2-G = 0.8^{b}, EB-9-EC = 1.2^{a}, and G-7-2-G = 1.2^{a} mm/d). Maximum diameter of the ovulatory follicle (DOF) was larger for G-7-2-G than 5-EC-2-G and tended to be larger than EB-9-EC (14.4^{a}, 12.9^{b}, and 13.1^{b}, mm). Ovulation rate and time to ovulation at end of the protocol was similar for all groups: 86.4% and 21.9 h. For Exp2, ovulation to treatments on D0 was greater in G-7-EC-2-G than EB-7-EC-2-G (39.5 vs 12.2%), although follicular wave emergence (2.4 d), SR (89.3%), GROF (1.1 mm/d), DOF (12.6 mm), ovulation rate (83.9%), and time to ovulation (23.6 h) at the end of the protocol did not differ between groups. In Exp3, ovulation rate to treatments on D0 was greater for G-7-2-G compared to other groups (65.2^{a}, 6.9^{b}, and $0.0\%^{b}$ for G-7-2-G, EB-7-EC-2-G, and 5-EC-2-G, respectively). For heifers treated with 5-EC-2-G, SR was lower (19.1^{b}, 95.8^{a}, and $75.7\%^{a}$; 5-EC-2-G, EB-7-EC-2-G, and G-7-2-G, respectively), and the DOF tended to be larger than EB-7-EC-2-G (13.4^{A}, 11.9^{B}, and 12.7 ± 0.5^{AB} mm; 5-EC-2-G, EB-7-EC-2-G, and G-7-2-G, respectively). Moreover, 5-EC-2-G ovulated earlier at the end of the protocol (13.0^{a}, 19.3^{b}, and 22.7^{b} h; 5-EC-2-G, EB-7-EC-2-G, and G-7-2-G, respectively). However, follicular wave emergence (2.2 d), GROF (1.1 mm/d) and ovulation rate at the end of the protocol (75.8%) did not differ among groups. In conclusion, each of these protocols has distinct ovarian dynamics and is promising for FTAI in beef cattle. Of particular interest, protocols initiated only with IVD did not synchronize follicle wave emergence but had a similar ovulation rate at the end.

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A011 TAI/FTET/AI

Reproductive performance of Nelore heifers submitted to a 7-d P4-based FTAI protocol using either estradiol benzoate or GnRH at the beginning and with or without GnRH at the time of AI

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Reproductive variables were evaluated in Bos indicus heifers submitted to progesterone (P4)-based fixed-time AI (FTAI) protocols. We hypothesized that using buserelin acetate (GnRH) instead of estradiol benzoate (EB) at the start of a 7-d protocol would increase fertility in heifers. In addition, treatment with GnRH at the time of AI would also improve pregnancy per AI (P/AI). Therefore, 462 Nelore heifers [26.4 ± 2.0 mo old, body condition score of 2.9 ± 0.1 (5-point scale), and body weight of 299.2 ± 20.3 kg; mean ± SD], in a pasture system, were used. All heifers were evaluated by transrectal ultrasonography to determine presence of corpus luteum (CL), and heifers without CL were submitted to a protocol for induction of cyclicity based on insertion of a previously used intravaginal P4 device (D-24) followed by device withdrawal and estradiol cypionate (EC; 0.5 mg) administered i.m. (D-12). After 12 d (D0), heifers were assigned to four groups in a completely randomized design: B0 (n = 116), BG (n = 115), G0 (n = 115), and GG (n = 116). On D0, all heifers received an intravaginal P4 device (0.5 g) for 7 d and were treated with EB (1.5 mg; B) or GnRH (20 μg; G). On D7, concomitant with device withdrawal, heifers received cloprostenol sodium (PGF2α; 0.530 mg), EC (0.5 mg) and had the base of their tailhead painted with tail-chalk. Heifers from G groups also received an extra PGF2α and eCG (200 IU) treatment on D6, while B heifers received eCG on D7. At the time of AI (48 h after device withdrawal), only BG and GG groups received GnRH (10 μg), and all heifers were evaluated for estrus based on disappearance of the tail-chalk. Hormones used for synchronization were from Globalgen Vet Science, Jaboticabal, Brazil. Ultrasound evaluations were performed on D0, D6 and D7 to determine presence of CL, and on D7 and D9 for diameter of the dominant follicle (DF) and pre-ovulatory follicle (OF), respectively (~20% of the heifers from each group). Pregnancy diagnosis was performed 40 d after AI. Statistical analyses were performed by GLIMMIX and MIXED of SAS (LSM ± SEM; $P \leq 0.05$). At the beginning of the study, 50 heifers were cycling (detected with CL) and 412 were not. The protocol for induction of cyclicity resulted in 75.6% of heifers with a CL on D0. Independent of cyclicity all heifers underwent FTAI. Ovulation rate after D0 was greater in G than B heifers [71.2 (163/229) vs. 17.1% (39/228)]. The diameter of the DF at device withdrawal was larger in G than B [10.8 ± 2.8 (n = 38) vs. 9.5 ± 1.8 mm (n = 42)]. Despite that, the diameter of the OF was not influenced by treatment (11.8 ± 2.6 mm; n = 74). For heifers submitted to protocol for induction of cyclicity, overall percentage of heifers detected in estrus at the end of the FTAI protocol was 76.9%, resulting in greater estrus status for G than B groups [84.9 (174/205) vs. 68.9% (142/206)]. Regarding P/AI, there was no difference between heifers submitted or not to the cyclicity induction protocol. Therefore, data were combined, and there was no treatment effect (B0 = 50.9 vs. BG = 54.2 vs. G0 = 54.0 vs. GG = 60.4%). Estrus status and GnRH at FTAI did not influence fertility. In summary, the cyclicity induction protocol resulted in about 75% of heifers with CL at the onset of a FTAI protocol. Moreover, treatment with GnRH on D0 increased percentage of heifers with CL and DF size at device withdrawal, and increased percentage of heifers in estrus at FTAI but did not significantly alter P/AI compared to heifers treated with EB on D0.

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A012 TAI/FTET/AI

The administration of buserelin acetate at the moment of TAI in multiparous Nelore cows with low or absent estrous expression enhances the pregnancy per AI

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The objective was to evaluate the effect of the IM administration of GnRH (buserelin acetate) on the pregnancy per AI (P/AI) of Nelore (Bos indicus) females with low or absent estrous expression, submitted to a timed artificial insemination (TAI) hormonal protocol. A total of 315 multiparous (BCS=2.88±0.01) and 175 primiparous (BCS=3.06±0.02) cows, from a commercial farm located at Porto Murtinho city (MS state – Brazil) were enrolled in the study. At Day 0 (D0), all females received an ultrassound examination in order to check the presence of a corpus luteum (CL) and received: 0.530 mg IM sodium cloprostenol (PGF; Sincrocio, Ourofino Saude Animal – only when a CL was present), 2.0 mg IM estradiol benzoate (Sincrodiol, Ourofino Saude Animal) and an intravaginal progesterone releasing device, previously used during 8 days (Sincrogest dispositivo, Ourofino Saude Animal). At Day 8 (D8) the devices were removed and it was administered 1.0 mg IM estradiol cypionate (Sincrocp, Ourofino Saude Animal), 0.530 mg IM PGF and 300IU IM equine chorionic gonadotrophin (SincroeCG, Ourofino Saude Animal). At this moment, all cows were marked with a chalk (Raidl-Maxi; RAIDEX – Germany) at the tail head region. The TAI were performed 48 hours after P4 device removal (D10) using conventional semen. Previously to TAI, the estrous expression was checked, as total removal of the chalk mark was considered positive heat [61.8% (303/490) of positive heat] and females from this group were removed from the experiment. Cows that still had any chalk mark were considered as negative heat and were randomly alocatted in two groups: Control (no adicional treatment) and GnRH [administration of 10 µg IM buserelin acetate (Sincroforte, Ourofino Saude Animal) at TAI]. Data were analized using the GLIMMIX procedure of the SAS® 9.4 software. Similar P/AI was observed among sires (P=0.45) and no interaction sire*insemination technician (P=0.32) was found. However, there was an interaction treatment*category [Control x multiparous = 22.9%b(14/61), Control x primiparous = 25.0%b(8/32), GnRH x multiparous = 41.7%a(25/60), GnRH x primiparous = 17.6%b(6/34); P = 0.04). Still, there was an insemination technician effect (A = 19.6%b, B = 24.6%ab, C = 31.7%ab e D = 48.3%a; P=0.01). Thus, it is concluded that the administration of buserelin acetate at the moment of TAI is a considerable strategy to improve P/AI in multiparous Nelore cows that were negative for heat detection.

A013 TAI/FTET/AI

Can insemination difficulty at timed-AI affect reactivity and/or fertility of Brangus females?

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Temperament of cattle and stress caused by AI are less studied factors, but they can also affect reproductive programs. The objective of this study was to evaluate temperament (Te), chute exit period (ExP), AI difficulty AI (DifAI) and time for AI accomplishment (tAI) of Brangus heifers submitted to the same Timed-AI protocol. Management of 112 animals was monitored, being 28 cows and 84 heifers. For each animal, cattle reactivity was recorded from 1 to 5, according to behavioral characteristics (Te1 = very calm animals in the chute and Te5 = very temperamental) and time of chute exit at D9 (shortly after progesterone implant removal) and D11 (shortly after Timed-AI). In addition, on D11, tAI was recorded and the technician defined a score regarding to the difficulty of performing AI procedure (1 for mild, 2 for moderate and 3 for high degree of AI difficulty). Pregnancy rate (PR) were compared between groups using Fisher's exact test (P=0.05) in GraphPad INSTAT program. Overall PR was 43% for cows (12/28) and 43% for heifers (36/84). Hence data from these animals were analyzed togheter. No effect of BCS (2.5-2.75=29%, n=24; 3.0-3.5=49%, n=47; 3.75-4.0=44%, n=41; P=0.2830), nor of AI technician (technician1=45%, n=22; technician2=42%, n=59; technician3=41%, n=31; P = 0.9632) was observed. Similarly, no temperament effect on PR was observed in D9 (Te1=39%, n=79; Te2-3=51%, n=33; P=0.2352) or D11 (Te1=40%, n=92; Te2-3=53%, n=20; P = 0.3232). No Te4-5 animals were found since this farm adopts low stress cattle handling and selection for docility. Te1 animals left the chute more slowly (P<0.001) than Te2-3 animals, in both passages (D9 and D11). The mean ExP on D9 was 4:14±01:39sec for Te1 and 02:38±1:06sec for Te2-3. On D11, Te1=03:43±02:47sec and Te2-3=01:59±1:15sec in D11. When DifAI was analyzed, it was interesting to note a trend to greater (P=0.0799) PR in animals with lower difficulty in performing AI procedure (DifAI1=47%, n=78) compared to animals that presented moderate or high difficulty of AI (Df2e3=32%, n=34). Comparing these two groups, lower (P<0.001) time was necessary for completing AI procedure for DifAI1 (tAI=00:34:40±00:23:00min) than for DifAI2-3 (tAI=1:45:00±1:05:00min). However, difficulty of AI did not seem to influence the behavior of the animals, since no difference (P=0.5232) was observed in the percentage of Te1 (calm animals) for DifAI1 (85%) or DifAI2-3 (79%) group. The degree of difficulty in AI did not increase the reactivity of Brangus heifers, but in ANIMALS WITH GREATER DIFFICULTY IN INSEMINATION, LOWER PREGNANCY RATES CAN BE EXPECTED AFTER TIMED-AI.

A014 TAI/FTET/AI

Alternative of cost reduction in the execution of TAI in beef cattle: Preliminary results

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The objective of this study was to evaluate the use and cost of injectable progesterone in ovulation synchronization protocols. The experiment was carried out at Fazenda Santana (Valença-RJ), where 82 nulliparous Nellore heifers, 39% cyclic, with ages and average weights of 19 months and 315 kg, were randomly assigned to two groups: Control Group (n = 41) and P4i Group (n = 41) so that the groups had the same number of cyclic animals. The animals had ad libitum access to water and selective mineral supplementation. The treatments started on a random day of the estrus cycle of heifers, this day being considered Day Zero (D0) where heifers of the Control Group received an intravaginal device containing 1.9 g of progestogen (CIDR®, Zoetis, Brazil) and 2 mg im estradiol benzoate (SINCRODIOL®, Ourofino, Brazil). Eight days later (D8), the device was removed and 150 μg of cloprostenol im (VETEGLAN®, Hertape, Brazil), 1 mg of estradiol cypionate (ECP®, Zoetis, Brazil) and 300 IU of eCG (NOVORMON ®, Zoetis, Brazil). In the P4i Group, heifers received 150 mg of injectable progesterone im (SINCROGEST injectable® - Ouro Fino, Brazil) at D0 instead of the placement of the device. The other procedures and drug administrations were similar to the Control Group. In D8, heifers received an estrous identification sticker (BoviFlag) for evaluation of estrus manifestation. In both groups, the TAI was performed 48 hours after withdrawal of the progesterone device. Ultrasonographic examinations (Mindray DP-2200 Vet) were performed at the time of the TAI to measure the diameter of the dominant follicle (DFAI) and at D20 to evaluate ovulation rate by corpus luteum observation. The DFAI evaluation was performed by analysis of variance and the means were compared by the T test, with a significance level of 5%. Ovulation rates, estrus manifestation (EM) and number of females with presence of dominant follicle ≥ 8 mm in the TAI were analyzed using the chi-square test with significance level of 5%. The EM rate was higher in heifers of the Control Group [92% (35/38) for the Control Group and 67% (24/36) for the P4i Group; P = 0.006]. However, there was no difference between the experimental groups for the DFAI variables (Control Group - 10.2 ± 1.6mm and P4i Group - 10.9 ± 2.0mm, P = 0.08), ovulation rate - 82.9% (34/41) and P4i Group - 70.7% (29/41); P = 0.19] and presence of dominant follicle ≥8 mm in the FTAI [Control Group - 87.8% (36/41) and P4i Group - 87.8% (36/41); P = 1.0]. In the analysis of the cost of the hormones used, there was a 19.9% reduction with the use of injectable P4 (R$ 13.36). It is concluded that P4i presented similar results to intravaginal progesterone in the synchronization of ovulation of Nellore heifers and promoted a reduction in protocol cost. However, new studies with higher numbers of animals and use of different ovulation inducers are necessary to consolidate the hypothesis.

A015 TAI/FTET/AI

Amplitude of the LH peak after short and long protocol in Oeste Paulista sheeps during the breeding season

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Several opportunities have been identified as attractive for the expansion of sheep production in Brazil, with emphasis on genetic improvement through artificial insemination (AI). The genetic improvement can be facilitated by the use of estrus synchronization and ovulation for fixed-time artificial insemination (IATF). The aim of the present study was to study the LH surge and evaluate the pregnancy rate using a short (6 days) and long term progestagen protocol (12 days) followed by AI in sheep (Texel x Santa Inês) on Oeste Paulista, inside the breeding season. In the experiment 36 sheep were used (paternal lineage Texel-Te x maternal lineage Santa Inês-SI), aged between 24 and 48 months, and had an average body condition score of 3.0. The sheep were divided into two groups according to time of permanence of a 1st use progesterone release vaginal device (Easy-Breed CIDR®, Pfizer, Brazil). In the 6 day group (n = 18), at a random stage of the estrous cycle, the sheep received the insertion of the CIDR (D0). On the day of removal of the implant (D6), 0.075 mg of cloprostenol (Veteglan®, HertapeCalier, Brazil) and 300 UI of equine chorionic gonadotropin were administered intramuscularly (eCG, Novormon®, MSD Saúde Animal, Brazil). The 12 day group (n = 18) received the same protocol as the G-6; however the permanence of the CIDR was 12 days. Approximately 50 hours after removal of the CIDR, the sheep were inseminated with frozen semen at a fixed time by laparoscopy. The pregnancy diagnosis was performed 40 days after the artificial insemination. Blood samples were taken every 4 hours, 10 animals per group, to measure plasma concentrations of LH and progesterone through radioimmunoassay (RIA). The data for the LH surge were analyzed using the Kruskal-Wallis test and, in case of significant differences, the means were compared through the Student Newman Keuls (SNK). The chi-squared test was used for the pregnancy rate. All analyzes were performed in the BioEstat program 5.0 and the level of significance was 5% ($p < 0.05$). The amplitude of LH did not differ ($p > 0.05$) in the G-12 (45.31 ± 15.41 ng/mL) compared to the G-6 (36.81 ± 18.89 ng/mL). The LH surge occurred earlier ($p < 0.05$) in the G-12 (30.86 ± 8.86 h) when compared with the G-6 (43.11 ± 6.57 h) and the end of the peak was earlier in G-12 (34.86 ± 8.86 h) than the G-6 (46.22 ± 7.51 h). There were no differences ($p > 0.05$) in pregnancy rates between the groups G-6 61.11% and G-12 66.66%. It was concluded that the time of a permanence of progesterone implant influence the LH surge on the Oeste Paulista. The short protocol delays the start, occurrence and the end of the LH surge. There was no significant difference in the pregnancy rate between groups. Therefore, the use of short duration protocol during the breeding season allows the reuse of the implant reducing costs.

A016 TAI/FTET/AI

Effect of the delay at TAI in Nelore cows (*Bos indicus*) using low fertility bulls semen

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The objective of the present study was to evaluate the effect of delaying TAI on the pregnancy rate of Nelore cows (Bos indicus) inseminated with low fertility bulls' semen. The hypothesis of this experiment is that the delay of TAI using low fertility bulls' semen increases pregnancy rate. A total of 522 suckled Nellore cows (Bos indicus), from three differents farms in Jacarezinho – PR, Ribeirão Claro – PR and Paraíso das Águas – MS, were used. On a random day of the estrus cycle (D0) cows received 2 mg of estradiol benzoate i.m. (EB; Fertilcare Sincronização®, Vallée) and an intravaginal P4 device (1.2g of P4; Fertilcare 1200®, Vallée). On the eighth day of protocol (D8), the P4 device was removed, and of 300IU of equine corionic gonadotropin (eCG; Folligon®, MSD Saúde Animal), 0.530mg of cloprostenol sodium (PGF2α; Ciosin®, MSD Saúde Animal) and 1mg estradiol cipionate (EC; Fertilcare Ovulação®, Vallée) were administered. On the tenth day of protocol (D10), cows were allocated in two groups (G): G48h, inseminated 48 hours after P4 device removal; and G54h, inseminated 54 hours after P4 device removal. To every five cows that were inseminated in the morning (G48h), the next five were put aside to be inseminated on (G54h). Six Aberdeen Angus sires were used, three of them considered with high fertility and three with low fertility. The pregnancy diagnosis was done using ultrasonography (Mindray, DP10) 30 days after TAI. Data were analized using the GLIMMIX precedure of SAS. The semens' fertility influenced the pregnancy rate at TAI [high = 49.2% (128/260); low = 35.9% (94/262); P=0.002]. However, no effect was verified regarding the moment of TAI [48 hours = 41.4% (109/263); 54 hours = 43.6% (113/259); P=0.66] as well as fertility*moment interaction (P=0.55) on the pregnancy rate at TAI. Therefore, the delay in TAI with low fertility bulls did not increase pregnancy rate, not confirming the initial hypothesis of the present experiment.
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A017 TAI/FTET/AI

Evaluation of the performance and effectiveness of a semen extender (Prosêmen®) in fixed time artificial Insemination and *in vitro* embryo production

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The aim of the present study was to evaluate the effectiveness of a commercial extender (Prosêmen®, Prosêmen Indústria e Comércio de Produtos Veterinários, Cornélio Procópio, Paraná, Brazil) for commercial semen after thawing in a FTAI program, as well as to evaluate its efficiency in the IVEP. For better evaluation of the extender, the rate of oocyte fertilization and total and progressive sperm motility rates at different times after thawing were compared. For all the steps, two experimental groups were compared: control (CONT; without extender) versus extender (PROS). In the PROS group for each 0.5 µL ampoule, two straws (0.25 µL) of semen were diluted after thawing and packed into four straws for use. In the CONT group the semen was thawed in the same manner, but without the use of the extender. The performance and dilution efficacy (PROS) versus non-diluted (CONT) were compared in: a) pregnancy rate to FTAI; B) IVEP; C) rate of in vitro fertilization by counting the pronuclei in an epifluorescence microscope; D) Computer Assisted Sperm Analyzer (CASA) of total and progressive sperm motility at 0 hour, 10 minutes, 3, 6, 8 and 12 hours after thawing. Statistical analysis was performed by the Chi-square test for FTAI, IVEP and oocyte fertilization. Motility data were compared through analysis of variance and T-test and between the different moments after thawing, variance analysis was used with time-repeated measures. All statistical analyzes were performed in Minitab® statistical software 16.1.1 ($P \leq 0.05$). No difference was found in the pregnancy rate at FTAI (CONT 55.48% and PROS 52.11%, $p = 0.567$). In IVEP there was also no difference in cleavage rates (78.52% and 81.56%, $p = 0.147$), blastocysts (39.48% and 36.10%, $p = 0185$) and hatching (41.97% and 47.28%, $p = 0.228$) for CONT and PROS, respectively. There was no difference in the oocyte fertilization rate between groups (CONT 65.22% and PROS 61.76%, $p = 0.751$). The percentage of total and progressive motility were similar, with difference observed only after 3 hours of thawing with best results in PROS. However, after 6 hours of thawing the CONT group had best motility. Despite the difference in motility observed after 3 and 6 hours, there was no differences in the rate of oocyte fertilization, pregnancy rate at FTAI and IVEP when the extender was used. In conclusion, the use of the semen extender (Prosêmen®) demonstrated results similar to the group without extender in the biotechniques tested. Therefore, considering the fractionation of the semen straw, we suggest that the use of this extender can reduce the total number of straws, reducing the cost per pregnancy without affecting the efficiency of biotechniques.

A018 TAI/FTET/AI

Evaluation of mineral and vitamin supplementation (Adapter Kit MIN and VIT, Biogénesis Bagó) in improving fertility in primiparous Nelore

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The strategic supplementation of vitamins and minerals during the pre-IATF period has been associated with improved reproductive performance in beef cows. The lack of selenium, Zinc and Copper, can delay the development and entry of puberty into zebu females and consequently a delay in the genetic program of the properties. The objective of this study was to compare the use of mineral and vitamin supplementation (Adapter Kit MIN and VIT, Biogénesis Bagó) during the mating season in nelore primiparous animals (n = 376) in order to improve fertility. The experiment was conducted at Fazenda Agropecuária Farroupilha, in Paracatu-MG. The experimental groups were G1) 1 dose of Adapter® 20 before and another at the beginning of the IATF protocol (n = 196); G2) control (placebo, n = 180). In this way, the animals (n = 376) were randomly distributed between the groups. The hormonal protocol used was: D0 = progesterone intravaginal device insertion (Cronipres® Mono Dose with 1 g of P4 + application of 2 mg of BE (Bioestrogen®, Biogenesis Bagó, Brazil); D8.5 = Remove P4 device + application of 300 IU of eCG (Ecegon®, Biogenesis Bagó, Brazil), + 75 µg of D-Cloprostenol (PGF2α, Croniben®, Biogenesis Bagó, Brazil) + 1mg BE (Bioestrogen® , Biogenesis Bagó, Brazil). In the D10 the IATF was performed in the morning. Cyclicity rate and pregnancy rate (TP) were evaluated by ultrasonography (Mindray M5 Vet, with linear probe of 5.0 MHz). The evaluation of Prenhez was performed 30 and 60 days after IATF. The data were submitted to frequency analysis by PROC FREQ and logistic regression analysis by PROC LOGISTIC, using the program Statistical Analyzes System (SAS, 9.3), adopting Significance level of 5%. There was an increase in the rate of cyclicity at the D0 of the protocol (G1 = 56.6, G2 = 47.7 P = 0.04), at the pregnancy rate at 30 (G1 = 53.6%, G2 = 45.6% P = 0.03) in heifers of the treated group. There was also a higher rate of cyclicity in treated heifers that were empty at diagnosis (G1 = 62.6, G2 = 48.9 P = 0.01) as well as at the 60 day pregnancy rate (G1 = 52.1%, G2 = 43.9%, P = 0.04). Therefore, strategic supplementation with Adapter Kit (Biogénesis Bagó) 20 days before and at the beginning of the protocol was efficient in improving the cycling and the pregnancy rate to IATF of Nellore heifers.

A019 TAI/FTET/AI

Evaluation of mineral and vitamin supplementation (Kit Adaptador MIN and VIT, Biogénesis Bagó) in improving fertility in primiparous Nelore

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The strategic supplementation of vitamins and minerals during the pre-IATF period has been associated with improved reproductive performance in beef cows. The lack of selenium, Zinc and Copper occurs in most of the animals, throughout the national territory, especially in periods of higher metabolic growth and lactation. The objective of this study was to compare the use of mineral and vitamin supplementation (Adapter Kit MIN and VIT, Biogénesis Bagó) during the mating season in nelore primiparous animals (n = 532) in order to improve fertility increases. The experiment was conducted at Fazenda Agropecuária Farroupilha, in the municipality of Paracatu-MG. The experimental groups were G1) 1 dose of Adapter® 20 before and another at the beginning of the IATF protocol; G2) control (placebo). In this way, the animals (n = 532) were randomly distributed between the groups. The hormonal protocol used was: D0 = intravaginal progesterone device insertion (Cronipres® Mono Dose with 1 g of P4) + application of 2 mg of BE (Bioestrogen®, Biogenesis Bagó, Brazil); D8.5 = Remove P4 device + application of 300 IU of eCG (Ecegon®, Biogenesis Bagó, Brazil), + 75 μg of D-Cloprostenol (PGF2α, Croniben®, Biogenesis Bagó, Brazil) + 1mg BE (Bioestrogen® , Biogenesis Bagó, Brazil). In the D10 the IATF was performed in the morning. Cyclicity rate and pregnancy rate (TP) were evaluated by ultrasonography (Mindray M5 Vet, with linear probe of 5.0 MHz). The evaluation of Prenhez was performed 30 and 60 days after IATF. The data were submitted to frequency analysis by PROC FREQ and logistic regression analysis by PROC LOGISTIC, using the program Statistical Analyzes System (SAS, 9.3), adopting Significance level of 5%. There was no significant difference in the D0 cycling rate of the protocol (G1 = 52.4, G2 = 49.7), although gains in cycling were higher in the treated group. The pregnancy rate at 30 (G1 = 56.7%, G2 = 52%) and at 60 days (G1 = 56.1%, G2 = 50.3%) was higher in cows treated with Adaptaor Kit ($P < 0.05$). However, unlike other studies conducted, there was no difference in the rate of cyclicity in the supplemented cows that were evaluated for resynchronization at the 30 day diagnosis (G1 = 55.2%, G2 = 54.3%), which may be linked to low Rate of the treated group before the first supplementation. Cows receiving injectable supplementation of the adapter had a greater follicular diameter (G1 = 16.3 mm, G2 = 13.74 mm) evaluated at the time of FTAI ($P < 0.05$). TAI/FTET/AI

A020 TAI/FTET/AI

Evaluation of mineral and vitamin supplementation (Adapter Kit MIN and VIT, Biogénesis Bagó) in the improvement of fertility in embryo recipients

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The strategic supplementation of vitamins and minerals during the pre-TETF period has been associated with improved reproductive performance and rate of recovery in embryo recipient heifers. The lack of selenium, Zinc and Copper occurs in most of the animals, throughout the national territory, especially in periods of higher metabolic growth and lactation. The aim of this study was to compare the use of mineral and vitamin supplementation (Adapter Kit MIN and VIT, Biogénesis Bagó) during the next embryo transfer program in cross heifers (Indicus X Taurus) (n = 286) with To improve cyclicity and fertility. The experiment was conducted at the Paineiras farm, in the municipality of Mogi Mirim-SP. The experimental groups were G1) 1 dose of Adapter® 20 before and another at the beginning of the TETF protocol; G2) control (placebo). In this way, the animals (n = 286) were randomly distributed between the groups. The hormonal protocol used was: D0 = P4 intavaginal device insertion (Cronipres® Mono Dose with 1 g of P4)+ application of 2 mg of BE (Bioestrogen®, Biogenesis Bagó, Brazil); D8.5 = remove p4 device + application of 300 IU of eCG (Ecegon®, Biogenesis Bagó, Brazil), + 75 µg of D-Cloprostenol (PGF2α, Croniben®, Biogenesis Bagó, Brazil) + 1mg BE (Bioestrogen® , Biogenesis Bagó, Brazil). In D17 embryo transfer was performed in the morning. Cyclicity rate and pregnancy rate (TP) were evaluated by ultrasonography (Mindray M5 Vet, with linear probe of 5.0 MHz). The evaluation of Prenhez was performed 30 and 60 days after IATF. The data were submitted to frequency analysis by PROC FREQ and logistic regression analysis by PROC LOGISTIC, using the program Statistical Analyzes System (SAS, 9.3), adopting Significance level of 5%. There was no significant difference in the D0 cycling rate of the protocol (G1 = 53.5, G2 = 57.5). The rate of recovery for TETF was greater in the treated group (G1 = 86.4%, G2 = 81.3%), as well as the pregnancy rate 30 (G1 = 58.3%, G2 = 50.8%) and At 60 days after TETF (G1 = 55.1%, G2 = 44.2%). The cyclicity rate of empty heifers at diagnosis was greater in the supplemented group (G1 = 83.2%, G2 = 62.7). Therefore, strategic supplementation with Adapter Kit (Biogénesis Bagó) 20 days before and at the beginning of the protocol was efficient in improving the results of TETF protocols in cross heifers.

A021 TAI/FTET/AI

Evaluation of the strategic use of GnRH (Gonaxal ®, Biogenesis Bagó) in the improvement of fertility in beef suclked cows

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Correct execution and manipulation of follicular development at the most appropriate times of the estrous cycle can generate better results in IATF protocols in beef cows. The objective of this study was to compare the Ovulation and Synchronization rate in fixed time artificial insemination (FTAI) and resynchronization protocols in nelore cows receiving strategic supplementation with Gonaxal® (Biogenesis Bagó). The experiment was conducted at Agropecuária Farroupilha Farm, in Paracatu City (Brazil) and São Paulo Farm in a city of Varjão de Minas. The experimental groups were G1) Control; G2) 1 dose of Gonaxal at the beginning of the IATF protocol; G3) 1 dose of Gonaxal at TAI moment; G4) 1 dose of Gonaxal at the beginning of the protocol and another dose at the FTAI moment. In this way, the animals (n = 1180) with and without corpus luteum at the beginning of the protocol were equaly distributed between the groups. The baseline hormonal protocol used was: D0 = Cronipres® Mono Dose intravaginal device with 1 g of Progesterone (P4)+ application of 2 mg of estradiol benzoate (EB) (Bioestrogen®, Biogenesis Bagó, Brazil); D8.5 = removed intravaginal device + application of 300 IU of eCG (Ecegon®, Biogenesis Bagó, Brazil), + 75 µg of D-Cloprostenol (PGF2α, Croniben®, Biogenesis Bagó, Brazil) + 1mg EB (Bioestrogen® , Biogenesis Bagó, Brazil). In the D10 the IATF was performed in the morning. Cyclicity rate and pregnancy rate (TP) were evaluated by ultrasonography (Mindray M5 Vet, with linear probe of 5.0 MHz). The evaluation of Pregnancy rates was performed 30 and 60 days after FTAI. The data were submitted to frequency analysis by PROC FREQ and logistic regression analysis by PROC LOGISTIC, using the program Statistical Analyzes System (SAS, 9.3), adopting a significance level of 5%. The pregnancy rate at 30 days (G1 = 51.5%, G2 = 57.7%, G3 = 62.9%, G4 = 64.7%) and at 60 days (G1 = 49%, G2 = G4 = 63.5%) was higher in treated cows receiving Gonaxal, mainly on day of FTAI ($P < 0.05$). There was no difference in follicular diameter, measured at the time of FTAI between the experimental groups (G1 = 15.2mm, G2 = 14.9mm, G3 = 16.1mm, G4 = 15.5mm). However, when ovulation rate was assessed, it was also higher in treated cows receiving Gonaxal, especially on day of FTAI ($P < 0.05$) (G1 = 82.3%, G2 = 87.2%, G3 = 89.6 G4 = 94.5%). Therefore, the strategic use of Gonaxal® (Biogénesis Bagó) in the FTAI protocols of beef suckled cows was efficient to improve the pregnancy rate; Especially when the cows receive at FTAI moment.

A022 TAI/FTET/AI

Evaluation of the pregnancy rates in primiparous buffaloes submitted to FTAI with refrigerated semen vs. frozen during the unfavorable breeding station

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The buffaloes present high incidence of anestrous during the unfavorable reproductive season, which increases the conception interval and, consequently, negatively affects the reproductive performance. To overcome these limitations, IATF protocols have been used, associated with ovulation synchronization, making this biotechnology applicable to the field. The objective was to compare the reproductive efficiency of milk buffaloes submitted to FTAI with refrigerated and frozen semen (diluted in Botu-Bov®). This experiment was carried out in Oliveira/MG, Brazil Latitude 20° 41'45" South and Longitude 44º 49' 37" West, in the period of March 2017. Semen collections were performed with artificial vagina, using 3 bulls following the parameters recommended by CBRA (2013). For this, 90 primiparous buffalo females with the following means: age 3.3 years; Weight 435.8 kg; ECC = 3.3 (1-5) and with 75.6 days postpartum were used. The buffaloes were randomly distributed into three groups: G1 (n = 30), G2 (n = 30) and G3 (n = 30), subdivided, half inseminated with refrigerated semen and half with frozen semen. The three groups were inseminated with semen of 1 bull each, and the ejaculate was fractionated in two aliquots (½ refrigerated/24hs and ½ frozen both with dose of 50x106 total SPTZ/dose). In the afternoon (T) D0 (14: 00hs), the animals received 2.0 mg im of BE (Estrogin®, Farmavet, SP, Brazil) and atrial implantation (CRESTAR® 3.0 mg P4, MSD, Brazil). In D9 (T) withdrawn from the implant and 400UI im eCG application (Folligon® 5000, MSD, Brazil) + 0.530 mg PGF2α Cloprostenol im (Sincrocio®, Ourofino, SP, Brazil). In D10 (T) applied 1.0 mg i.e. of BE (Estrogin®) and in D12 (8:00 hs) AI. Thirty days after AI, the animals were submitted to the diagnosis of gestation by ultrasonography. The results were submitted to the 5% chi-square test. The total pregnancy rate was 50.0% (45/90), 55.6^{a}% (25/45) and 44.4^{a}% (20/45) for refrigerated and frozen semen ($p>0.05$), respectively. It is concluded that the use of refrigerated semen in the IATF is one of the alternatives to improve the pregnancy rate during the unfavorable reproductive season.

A023 TAI/FTET/AI

Evaluation of morphological characteristics of corpus luteum from pregnant and non-pregnant cows after 20 days of FTAI (Fixed-time Artificial Insemination)

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The corpus luteum (CL) is a highly vascularized structure, which increases concomitantly with the production of P4 that follows ovulation and it leads an early identification of pregnant females. Thus, it was aimed to perform a morphological evaluation of the corpus luteum, 20 days after FTAI doing a correlation and identification of early pregnancy by Doppler Ultrasonography (USG). For that, 49 Nelore cows were used with a protocol for synchronization of estrus and ovulation, on the day labeled as day minus 10 (D-10) they received a new progesterone (P4) intravaginal device (CIDR®, Zoetis, São Paulo, Brazil) which contains 19,4 g of P4 associated with 2 mg of Estradiol Benzoate (GONADIOL®, Zoetis, São Paulo, Brasil) i.m. On the day minus 2 (D-2) this P4 device was removed following an administration of 12,5 mg of Dinoprost Tromethamine (PGF2α) (LUTALYSE®, Zoetis, São Paulo, Brazil) i.m and 300 UI of eCG i.m (eCG, NOVORMON ®, MSD Saúde Animal, São Paulo, Brazil). In addition, 48h to 54h after removal of the P4 device, these animals were inseminated using cryopreserved doses of a semen from a unique Nelore bull. The luteal parameters were measured 20 days after FTAI (Mindray Z5, Shenzhen, China) by USG on B-mode and Color Doppler in order to determine CL diameter (CLD cm), CL area (CLA cm2), CL volume (CLV) and the ratio of CL area (CLR %). Corpora luteal images were stored and analyzed using an USG (color Doppler mode). Following 34 days after FTAIs, the definite pregnancy diagnoses (PD) of the animals were performed using USG on B-mode having as a positive diagnosis (PD) the visualization of the embryo and its feasibility with the presence of heart beating. Statistical analysis was performed using the analysis of variance (ANOVA) and using Tukey test on Statistical Package for Social Science (SPSS, version 19) program ($p<0,05$). It was observed in the first line of outcomes that there was significant difference for all evaluated parameters, with the mean numbers of pregnant cows of CLD 1,87±0,24 cm, CLA 2,71±0,67cm², CLV 1,37±0,56 cm², CLR 50,77±20,90% and non-pregnant cows were ,50±0,29 cm, 1,75±0,73 cm², 0,51±0,54 cm², 24,57±21,47%, respectively. During the evaluation of pregnant and non-pregnant groups, it was detected the averages of 1,68±0,26 cm for CLD, 2,23±0,70 cm² for CLA, 0,96±0,55 cm² for CLV and 37,67±21,18% for the proportion of the vascularization area in relation to the total CL area. It was observed statistical difference ($P<0,05$) in all parameters among the experimental groups. In view of that, there is a significant difference among CL from pregnant and non-pregnant cows, it was concluded that possibly the USG color Doppler mode technique can be used for morphological evaluations of the CL of cows, showing differences between pregnant and non-pregnant cows, and can be used as a tool for early diagnosis at 20 days.

A024 TAI/FTET/AI

Evaluation of E2/P4 protocols with or without pre-synchronization

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The objective of this study was to compare if in protocols that initiate with GnRH+EB the pre-synchronization (PS) improve fertility. This study used a total of 665 lactating Holstein cows. At 31±0.56 DIM the cows were divided in 3 groups (d -28 of experimental design): (I.GnRH) an intravaginal P4 insert containing 1.9 g of P4 (CIDR, Zoetis, São Paulo, Brazil), 2.0 mg estradiol benzoate (EB, i.m.; 2.0 mL of Estrogin, Farmavet, São Paulo, SP, Brazil) and GnRH (i.m. 2.0 mL of Cystorelin®, Merial, SP, Brazil) on d -11, 25 mg (i.m.) dinoprost tromethamine (PGF; 5.0 mL of Lutalyse, Zoetis, Brazil) on d -4, CIDR withdrawal, 1.0 mg (i.m.) of estradiol cypionate (0.5 mL of E.C.P., Zoetis, Brazil) and PGF on d -2, and TAI on d 0; (II. PS + GnRH) a pre - synchronization beginning with CIDR insertion + EB at d -28, PGF+ECP and CIDR removal at d -21, and starting the same protocol as GnRH treatment at d -11; (III. PS + EB) the same protocol as "PS + GnRH", regardless without GnRH treatment at d-11.The PROC GLIMMIX was used to evaluate the binomial variables and PROC MIXED to evaluate continuous variables. Was considered significant when $P<0.05$ and trend when $P<0.1$. The proportion of cows with CL at d -28 not differ between treatments ($P = 0.23$). At d -11 there was a higher proportion of cows with CL in the PS groups (78.4% [326/416];$P < 0.01$), compared to cows not PS (60.6% [151/249]). However, the circulating P4 concentration not differ (no PS = 2.53±0.14 vs. PS = 2.76±0.11 ng/mL; $P=0.19$). There were differences in the distribution of classes of circulating P4 concentration at d -11, the group of not PS presented more cows with circulating P4 concentration <1.0 and ≥ 5.0 ng/mL, the group of PS there were more cows between 1.0 and 4.99 ng/mL. Ovulation of the protocol was not affected by treatment (88.4%; $P= 0.20$). There were no effects of treatment on P/AI at the 32d (GnRH = 38.2% [96/249], PS+GnRH = 42.1% [88/209], PS+EB = 40.6% [84/207]; $P = 0.68$), at 60d (GnRH = 31.7% [79/249], PS+GnRH = 35.9% [75/209], PS+EB = 32.4% [67/207]; $P = 0.61$) and on pregnancy loss between 32 and 60d (GnRH = 16.8% [17/96], PS+GnRH = 14.8% [13/88], PS+EB = 20.2% [147/84]; ($P = 0.64$). Analyzing only cows that ovulate to the protocol, no effect was observed on P/AI at 32, 60d and pregnancy loss. There were no effects of treatments and interactions between treatment and heat stress ($P = 0.78$), parity ($P = 0.84$), milk yield ($P = 0.81$), presence or absence of a CL on d -11 ($P = 0.22$), and circulating P4 concentration at d -11 ($P = 0.17$). There were effects these variables to reduce P/AI such as: cows with heat stress (≥ 39.1ºC; $P < 0.01$), lower BCS (< 2.75; $P <0.01$), multiparous compared to primiparous cows ($P < 0.01$), cows without compared to with a CL on d -11 ($P <0.01$) and circulating P4 concentration at d -11 ($P < 0.01$). A tendency of interaction ($P = 0.07$) between treatment and CL presence at d -28 was observed, in cows without CL at d -28 both PS treatments improve the P/AI (GnRH = 28% [35/125], PS+GnRH = 36.8% [42/114], PS+EB = 34.9% [38/109]) and in cows with CL the PS treatments decrease the P/AI compared to GnRH treatment (GnRH = 38.6% [34/88], PS+GnRH = 32.2% [19/59], PS+EB = 23.5% [16/68]). The circulating P4 concentration have a linear effect (higher P4 = higher P/AI; $P<0.01$) on P/AI at 32d. In conclusion, there was no effect of PS on P/AI. However, PS increased P/AI in cows that did not have a CL present at the beginning of the experiment. PS treatments can be used for animals that do not have a CL present in the postpartum period in order to improve P/AI.

A025 TAI/FTET/AI

Evaluation of sexed or conventional semen in Holstein cows in lactation submitted to TAI protocols

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The aim of this study was to evaluate the results of the use of sexed or conventional semen, from the same bull, in lactating cows submitted to TAI protocols based on GnRH + E2 / P4. All cows were synchronized with the following TAI protocol: 2mg estradiol benzoate im (Gonadiol®, Zoetis, SP, Brazil) + 100 mg gonadorelin diacetatetetrahydrate im (Cystorelin®, Merial, SP, Brazil) administered concomitantly with 1.9 mg P4 intravaginal device (CIDR®, Zoetis, SP, Brazil); In D-4, 25 mg of dinoprost i.m (Lutalyse®, Zoetis, SP, Brazil) was administered; In D-2, 25 mg of dinoprost i.m (Lutalyse®, Zoetis, SP, Brazil) + 1.0 mg i.m. estradiol cypionate (ECP, Zoetis, SP, Brazil); In D0 TAI. The ovaries of the animals were evaluated by ultrasonography on D-11 to determine the presence of CL and in D0 the diameter of the largest follicle and the rectal temperature were measured. In D-2 the animals had the base of the tail marked with a marker stick for evaluation of estrus expression performed at D0. Production lots were divided by parity, days postpartum and milk production. Six bulls were used, with 50% of the inseminations of each bull being sexed semen and 50% with conventional semen. The cows were randomly assigned to receive the IATF. Pregnancy diagnosis was performed on D30 and D59 after AI. The relation of the pregnancy rate between sexed and conventional semen was evaluated. In order to evaluate the binomial variables we used the PROC GLIMMIX of the SAS and the continuous ones the MIXED. Significance was considered when $P \leq 0.05$ and tendency when $0.05 < P \leq 0.10$].The mean AI to AI (193 x 197 ± 121), milk production (31 x 31.5 ± 7.1), number of inseminations (3.1 x 3.2 ± 1.7), ECC (3, 1 x 3.1 ± 0.3), temperature at D0 (38.8 x 38.8 ± 0.4); Conventional and sexed semen, respectively, were the same among treatments; As well as estrous expression of 94%. Conventional semen had a higher pregnancy rate at 30 days [Conv = 34.7% (176/506) vs. Sex = 24.2% (118/487); P <0.01) and at 60 days of gestation (Conv = 28.0% (141/506) vs. Sex = 19.4% (94/487); P <0.01] in relation to sexed semen. There was no difference in the loss of pregnancy [Conv = 19.9% (35/176) vs. Sex = 20.3% (24/118); P> 0.10]. Interaction between treatment and order was detected. There was no treatment effect between Primiparas at 30 days [Conv = 34.3% (50/146) vs. Sex = 30.6% (41/134); P = 0.50], but in the Multiparas, pregnancy at 30 days was lower when sexed semen was used [Conv = 35% (126/360) vs. Sex = 21.8% (77/353); P <0.01]. It was detected a bull's effect on pregnancy (P <0.01); Bull 01 (Conv = 26.9% (18/67) vs. Sex = 22.2% (14/63) P = 0.57); Bull 02 (Conv = 38.0% (41/108) vs. Sex = 24.0% (25/104) P = 0.02); Bull 03 (Conv = 21.0% (12/57) vs. Sex = 22.4% (13/58) P = 0.87); Bull 04 (Conv = 34.2% (38/111) vs. Sex = 20.4% (21/103) P = 0.02); Bull 05 (Conv = 46.3% (50/108) vs. Sex = 36.6% (37/101) P = 0.12); Bull 06 (Conv = 30.9% (17/55) vs. Sex = 13.7% (8/58) P = 0.04). The relation between sexed and conventional semen was higher in primiparous than in multiparous (89% in primiparous and 62% in multiparous), and this proportion was bull dependent and ranged from 40% to 106%.The detection of bulls with a higher rate between sexed and convencional semen would allow more intense use of sexed semen in lactating cows.

A026 TAI/FTET/AI

Evaluation of the J-Synch protocol associated with eCG and estrous detection in beef heifers

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The J-Synch protocol was developed for prolonging proestrus lenght, aiming to enhance follicular development, oestradiol concentration and promoting the ovulation of a larger follicle. The aim of this study was evaluate the J-Synch protocol associated with eCG and estrous detection. The experiment was carried out with 295 heifers Braford (Bos taurus x Bos indicus). The heifers were randomly allocated into one of two groups: ECP or J-Synch. On Day 0, all heifers received 2 mg of estradiol benzoate (Sincrodiol, Ourofino®, Cravinhos, Brazil) and an intravaginal device with 1 g of progesterone (Sincrogest, Ourofino®, Cravinhos, Brazil). The heifers in the ECP group received 500 µg of cloprostenol (Sincrocio, Ouro Fino®, Cravinhos, Brazil) on Day 7. On Day 9, the device was removed and the heifers received 1 mg of estradiol cypionate (SincroCP, Ouro Fino®, Cravinhos, Brazil) and 200 IU eCG (SincroECG, Ouro Fino®, Cravinhos, Brazil). Estrous detection was performed on Day 10 during an hour. The heifers in estrous (n=62) were inseminated 12 hours later and those not (n=84) were inseminated in fixed-time 48 hours after the progesterone device was removed. For heifers in the J-Synch group the progesterone device was removed on Day 6, and the heifers also received 500 µg cloprostenol and 250 IU eCG in the same day. Estrous detection was performed on Day 8 during an hour. The heifers standing estrus (n=39) were inseminated after 12 hours and those not (n=110) were inseminated in fixed-timed 72 hours after the device was removed. All heifers in J- Synch group received 10 µg GnRH (Sincroforte, Ourofino®, Cravinhos, Brazil) at the moment of insemination. The results were analyzed by Chi-square test. Overall pregnancy rate did not differ (P=0.68) between J-Synch (60.40%) and ECP groups (50.68%). In the ECP group, more heifers standing estrus before time of FTAI than J-Synch group (P=0.003). In the ECP group, the pregnancy rate was higher (P=0.001) for heifers demonstrating estrous (66.13%) than those not (39.28%). However, the same was not observed for heifers in the J-Synch protocol (P=0.58). Comparing only heifers demonstrating estrous, pregnancy rate was not different (P=0.83) between ECP and J-Synch groups. In conclusion, heifer in the J-Synch protocol had a pregnancy rate similar to heifer in the ECP protocol, and no difference was observed in the pregnancy rate for heifers demostrating estrous.

A027 TAI/FTET/AI

Animal temperament and difficulty of insemination on Timed-AI fertility of Nellore cows and heifers

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In order to investigate if stress caused by AI can affect a reproductive program, this study aimed to evaluate temperament (Te), chute exit period (ExP), AI difficulty (DifAI) and time for AI accomplishment (tAI) of Nelore females at Timed-AI. Management of 165 Nelore females was monitored, being 93 multiparous and 72 heifers. For each animal, cattle reactivity was recorded from 1 to 5, according to behavior characteristics (Te1 = very calm animals in the chute and Te5 = very temperamental animals) and time of chute exit both on D9 (shortly after progesterone implant removal) and on D11 (shortly after Timed-AI). In addition, on D11, time for AI accomplishment was recorded and the technician defined a score (1 to 3) regarding to the difficulty of performing AI procedure (1 for mild, 2 for moderate and 3 for high degree of AI difficulty). Only animals with BCS between 3 and 4 (between 1 to 5) were included in the study. The two AI technicians shifted between them at each 5 animals entering the chute. Pregnancy rate (PR) was compared between groups using Fisher's exact test (P=0.05) in GraphPad INSTAT program. Overall pregnancy rate (PR) was 40%, being 35% for multiparous and 46% for heifers (P = 0.09). No effect of BCS and AI technitian on PR was observed (P>0,05). No effect (P>0.05) of D9 temperament on PR was observed, neither for multiparous (Te2=36%, n=33; Te3=38%, n=44; Te4-5=25%, n=16), heifers (Te2=0 animals; Te3=50%, n=38; Te4-5=41%, n=34) nor for both categories assessed togheter (Te2=36%, n=33; Te3=44%, n=82; Te4-5=36%, n=50). Similarly, no effect (P>0.05) of D11 temperament on PR was observed, neither for multiparous (Te2=30%, n=27; Te3=43%, n=46; Te4-5=25%, n=20), heifers (Te2 = 0 animals; Te3=47%, n=17; Te4-5=45%, n=55) nor for both categories assessed togheter (Te2=30%, n=27; Te3=44%, n=63; Te4-5=40%, n=75). In all analyzes cited above, Te2 animals left the chute more slowly (P<0.001) than Te3 animals, and these were slower (P<0.001) than Te4-5 animals, in both passages (D9 and D11). The mean ExP of all females at D11 was 05:20±01:08sec for Te2 (n=27), 03:40±1:16sec for Te3 (n=63) and 02:43±00:55sec for Te4-5 (n=75). Assessing DifAI for multiparous and heifers together, a tendency for higher (P = 0.09) PR was observed in animals with lower difficulty in performing AI procedure (DifAI 1 = 42%, n = 143 A; DifAI 2-3 = 27%, n = 22 B). Comparing these two groups, lower (P <0.001) time was necessary for completing AI procedure for DifAI 1 (tAI=17:31±06:02sec) than for DifAI2-3 (tAI=30:10±15:45 sec). Spliting animals categories, the reduction observed in PR regarding to DifAI was only numerical (multiparous: DifAI1=37%, n=76; Dif2-3=29%, n=17; Heifers: DifAI1=48%, n=62; Dif2-3=20%, n=10). Animal behavior in the chute, assessed by reactivity and escape time, did not affect PR of Nelore females in this study, but those animals in which difficulty and/or time for AI accomplishment is higher, lower fertility at Timed-AI may be expected.

A028 TAI/FTET/AI

Dairy buffaloes present a similar pregnancy rate when submitted to be and P4 based protocol for FTAI during the breeding and non-breeding seasons

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The objective of the present study was to compare the pregnancy rate of dairy buffaloes submitted to BE and P4 based protocol for FTAI during the breeding (autumn and winter, n=359) and non-breeding (spring and summer; n=483) seasons. At a random stage of the estrous cycle (D0; afternoon, 16h), 842 buffaloes received an intravaginal progesterone device (0.5g of P4; Primer® Monodose, Agener União Saúde Animal, Brazil) and 2.0mg im of Estradiol Benzoate (BE; FertilCare® Sincronização, Vallée, Brazil). In D9 (16h), females received 0.53mg im of Cloprostenol sodium (PGF2α, Ciosin®, MSD Animal Health, Brazil) and 400IU im of eCG (Folligon®, MSD Animal Health), followed by P4 removal. After 24h (D10, 16h), the ovulation was induced by the injection of 1.0mg im of BE (FertilCare® Sincronização, Vallée). All animals were submitted to FTAI 64h after administration of $PGF_{2\alpha}$ (D12; morning, 8h). The pregnancy diagnosis was made 30 days later (D42; Mindray DP2200Vet). The pregnancy rate was analyzed by the GLIMMIX procedure of SAS®. There was no difference in the pregnancy rate of buffaloes submitted to FTAI during the breeding [45.1% (162/359)] and non-breeding [47.4% (229/483); P=0.51] seasons. In conclusion, dairy buffaloes present a similar pregnancy rate when submitted to BE and P4 based protocol for FTAI during the breeding and non-breeding seasons.

A029 TAI/FTET/AI

Comparison of two protocols to increase circulating progesterone concentration before timed artificial insemination in lactating dairy cows

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Two treatments designed to increase circulating progesterone concentration (P4) during preovulatory follicle development were compared. One treatment utilized 2 intravaginal P4 implants (CIDR) and the other utilized GnRH treatment at beginning of the protocol. Lactating Holstein cows were randomly assigned to receive time artificial insemination (TAI) following one of two treatments (n = 379 breedings): (GnRH) d-11 2mg of estradiol benzoate (EB, 2.0 mL of Estrogin®, Farmavet, SP-Brazil) + 100 µg of GnRH (2.0 mL of Cystorelin®, Merial, SP) + an intravaginal P4 insert containing 1.9 g of P4 (CIDR®, Zoetis, SP-Brazil); D -4 25 mg of PGF (5.0 mL of Lutalyse®, Zoetis, SP-Brazil); D-2 withdrawal of CIDR + PGF + 1mg ECP (0.5 mL of ECP®, Zoetis, SP-Brazil), d0 TAI; (2CIDR) d-11 2mg EB (Estrogin®, Farmavet, SP-Brazil) + 2CIDR; D-4 PGF (Lutalyse®, Zoetis, SP-Brazil) + removal of a CIDR; D-2 withdrawal of the remaining CIDR + PGF + 1mg ECP (ECP®, Zoetis, SP-Brazil), d0 TAI. Cows with temperature ≥39.1ºC at the time of TAI were considered in heat stress. The diagnosis of gestation was performed 30 days after AI, where pregnancy by insemination (P/AI) was calculated dividing the number of pregnant cows by the number of inseminated cows. The PROC GLIMMIX was used to evaluate the binomial variables and the PROC MIXED to evaluate the continuous variables, significance was considered when P <0.05 and tendency when P <0.1. There was no difference between treatments in P/AI (GnRH = 31.6% [65/206] vs. 2CIDR 33.0% [57/173]; P = 0.77). There was no interaction between treatment and parity order in P/AI (GnRH = Primiparous 35.1% [27/77]; Multiparous 29.5% [38/129] vs. 2CIDR = Primiparous 26.2% [16/61]; Multiparous 36.6% [41/112]; P = 0.11), presence of corpus luteum at the beginning of the protocol (GnRH = no CL 29.3% [22/75]; CL 32.8% [43/131] vs. 2CIDR = no CL 24.1% [13/54]; CL 40.0% [44/119]; (P=0.36), days in lactation (P = 0.68) and heat stress (GnRH = ≤39.1ºC 34.1% [56/164]; >39.1ºC 20.5% [8/39] vs. 2CIDR = ≤39.1ºC 36.0% [49/136]; >39.1ºC 21.6% [8/37]; P=0.92). Parity order (Primiparous = 31.2% [43/138] vs. Multiparous = 32.8% [79/241]; P= 0.74), days at lactation (P = 0.23) and presence of corpus luteum at the beginning of the protocol (no CL = 27.1% [35/129] vs. CL = 34.8% [87/250]; P=0.13) had no effect on P/AI, however, cows under heat stress presented lower P/AI (<39.1 = 34.8% vs. ≥39.1 = 21.1%; P = 0.02). Both protocols resulted in similar fertility, but probably due to different physiological changes, treatment with GnRH probably increased the proportion of cows with corpus luteum at the time of the first PGF and the protocol with 2 CIDR probably increased the concentration of progesterone in all cows.

A030 TAI/FTET/AI

Comparison of estradiol benzoate and cypionate in the induction of ovulation of Girolando cows submitted to timed artificial insemination

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Among the main esters used for timed artificial insemination (TAI) programs in bovine females, estradiol benzoate (EB) and estradiol cypionate (EC) are more frequently used because of their low cost. However, both are different in terms of use because they have different half-lives. In order to reduce the management in TAI protocols, the present study evaluated the follicular dynamics in dairy cows treated with EB or EC as inducers of ovulation. For this purpose, 59 Girolando cows, lactating, with a mean body condition score of 3.06±0.49 (1-5 scale) were used. On a random day of the estrous cycle, the animals received intravaginal implant containing 1g of progestogen (DIB®, Coopers, São Paulo, Brazil) and an intramuscular injection (im) of 2mg of EB, being this day considered D0. At D8, the implant was removed and 500µg of cloprostenol (CIOSIN®, Intervet Schering Plow Animal Health, Sao Paulo, Brazil) was administered in all females. Cows were then randomly allocated into two treatments: Group EB (n = 33) and Group EC (n = 26). The animals of the EC Group received 1mg of EC (im) (ECP®, Pfizer, São Paulo, Brazil) at the moment of implant removal, while the EB Group cows received 1mg of EB (im) (ESTROGIN® , Agroline, São Paulo, Brazil) 24 hours later (D9). After implant removal, ultrasound evaluations were performed every 12 hours up to ovulation. The following parameters were evaluated: ovulatory follicle diameter - OF (mm); Ovulation rate - OR (%), implant withdrawn / ovulation interval - WOI (hours) and pregnancy rate (PR). For statistical analysis, the chi-square test was used for OR and PR and the "T" test was used for OF and WOI, and a P value of 5% was considered as significant. The results for the groups EB and EC were, respectively: OF: 14.10 ± 0.60 mm and 13.42 ± 0.55 mm; OR: 89.47% and 74.41%; WOI: 68.52 ± 1.70 hours and 63.30 ± 2.05 hours and PR: 54.16% and 64.51%. There was no difference ($p>0.05$) between treatments for any of the parameters evaluated. The results of the present study corroborate those of França et al. (Rev. Bras. Anim. Saúde, v.16, n.4, p.958-965, 2015), who did not observe a difference between benzoate and estradiol cypionate in the synchronization of ovulation of Girolando cows. As Freitas et al. (Anim. Reprod., v.10, n.3, p.401, 2013), who also found no difference for both ovulation inducers in Holstein cows. The results of this study suggest that it is possible to substitute EB for EC in the TAI of Girolando cows, reducing management but maintaining the same efficiency.

A031 TAI/FTET/AI

Correlations between plasma progesterone and ultrasonographic characteristics of the corpus luteum in fixed-time inseminated Nelore cows

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Ultrasound evaluation of the corpus luteum (CL) may be a practical and real-time method for determining luteal functionality in bovine females. The objective of this study was to evaluate the correlations between plasma progesterone concentrations (P4) and CL size and blood perfusion during its development, maintenance and regression in inseminated cows. For this purpose, Nelore cows (n = 22) had the ovulation synchronized by a hormonal protocol based on estradiol/P4 and were inseminated at fixed time (day 0; D0). Blood samples were collected and B-mode and Doppler ultrasonography (MyLab30 VetGold; Esaote) were performed at D8, 12, 15, 18 and 20. Plasma concentrations of P4 were measured by RIA. At each ultrasonographic examination, the size of CL and luteal cavity (diameter, area and volume) and blood perfusion (peripheral, total and vascularized area) were measured. Volume was estimated from the mean diameter considering the formula for a sphere (4/3 $\pi r3$) and the area was calculated by the tracing function. Pearson correlations were calculated between P4 concentrations and all variables of luteal size and blood perfusion for each day (SAS 9.2 program, SAS). The luteal cavity was observed in 55, 32, 23, 14 and 9% of the cows in the D8, 12, 15, 18 and 20, respectively. There was no difference in the proportion of the cavity in relation to the diameter (27.2 ± 1.8%), area (8.9 ± 1.0%) or CL volume (3.2 ± 0.6%) among D8, 12, 18 and 20. For the CL development phase (D8), significant correlations ($P < 0.05$) with P4 concentrations were observed only for the total area ($r = 0.767$), area without cavity ($r = 0.720$), total diameter ($r = 0.620$), vascularized luteal area ($r = 0.544$), and the cavity volume ($r = 0.212$), area ($r = 0.490$) and diameter ($r = 0.462$).In the medium and late diestrus (D12 and 15) only significant correlation ($P < 0.05$) was observed at D15 with total area and area without cavity ($r > 0.601$), diameter and total volume, and volume and diameter without cavity ($r > 0.434$). For the luteal regression phase (D18 and 20), only moderate correlation ($P < 0.05$) was observed at D18 for the area without cavity ($r = 0.478$) and high correlation ($P < 0.05$) on D20 with several variables (vascularized area [$r = 0.850$], peripheral and total blood perfusion [$r = 0.820$], area without cavity [$r = 0.775$], total area [$r = 0.762$], diameter and volume without cavity [$r > 0.712$], total volume [$r = 0.712$] and total diameter [$r = 0.688$]). However, when analyzed separately for pregnant and non-pregnant cows, significant correlations ($P < 0.05$) were only observed among the variables for the non-pregnant cows, which presented similar values in relation to the analysis with all cows (volume, area, diameter without cavity [$r > 0.735$], vascularized area, peripheral and total perfusion [$r > 0.658$]). In conclusion, CL area may be the best characteristic to evaluate luteal functionality during its development (D8), whereas after the maternal recognition period (D20 post-insemination) the blood perfusion evaluated by Doppler mode shows greater correlation than the luteal size end-points.

A032 TAI/FTET/AI

Productive and reproductive correlations that influence the pregnancy rate of 14 month old Nellore heifers submitted to 3 FTAI in 48 days using color Doppler ultrasonography

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The objective of this study was to evaluate the correlation between productive and reproductive characteristics during an IATF protocol in the fertility of 14-month-old Nellore heifers. The work was carried in a commercial farm in Camapuã. To that, 631 heifers aging 14.4±0.92 months, weighting 272.9±20.4kg and BCS 3.3±0.28 were submitted to the following TAI protocol: D-10, insertion of an auricular implant with 3mg of Norgestomet (Crestar®, MSD, Brazil) and 1mg of EB (Fertilcare Sincronização®, Vallée) IM. After 8 days (D-2) the implant was removed and 200IU of eCG (Folligon®, MSD), 0.265mg Cloprostenol Sodic (PGF; Ciosin®, MSD) and 0.5mg EC (Fertilcare Ovulação®, Vallée). The 1st TAI was performed 48h (D0) after implant removal. After 14d (D14), all inseminated heifers were resynchronized with an auricular implant and 50mg of P4 (Afisterone®, Hertape) IM. After 8d (D22), the pregnancy diagnosis was performed by ultrasonography (US) Color Doppler (M5vet®, Mindray). Heifers with an area of CL≥2cm² and/or ≥25% CL blood flow (BF) were diagnosed as pregnant and underwent implant removal without further treatment. Those diagnosed as non-pregnant (CL ≤ 2cm² and/or ≤ 25% of BF) underwent removal of the implant and treatment with 200IU of eCG, 0.265mg of PGF and 0.5mg of EC, with the 2nd IATF 48h after removal of the implant (D24). In D38 the heifers were submitted to the same resynchronization protocol, with a diagnosis of gestation of the 2nd IATF in D46 and the 3rd IATF in the D48. Heifers considered pregnant by US Doppler on D22 were reexamined by US B-mode on the D30 to verify the occurrence of false positive. False-positive heifers were inseminated for the second time on D48. Weight, BCS, and age at D0, and diameter of the largest follicle (DF) by US at D-2 and D0 were evaluated. The data were analyzed by the PROC CORR of SAS. The TAI pregnancy rate was 42.8% (270/631); 2nd TAI = 34.1% (107/314) and 3rd TAI = 34.3% (59/172). The false positive rate was 14.8% (47/317) and the pregnancy rate of these heifers for the second time inseminated in the D48 was 40.4% (19/47), increasing 2% in the pregnancy rate of D48 (3rd TAI + false positive, 35.6%, 78/219). The pregnancy rate at the end of the 48d breeding season was 72.1% (455/631). The diameter of the DF in D-2 was 9.22 ± 2.02 and on D0 10.59 ± 2.04 mm. There was a correlation of pregnancy 30d after TAI with weight (R^2 = 0.09, P = 0.03), age (R^2 = 0.07, P = 0.06), BCS (R^2 = 0.07, P=0,09, DFD0 (R^2 = 0.20, P <0.0001) and DFD-2 (R^2 = 0.11, P = 0.007). Moreover, negative correlation was observed between the incidence of false positive and weight (R^2 = -0.15, P = 0.009), age (R^2 = -0.10, P = 0.07), DFD0 (R^2 = -0, 15, P = 0.01) and DFD-2 (R 2 = -0.10, P = 0.10). It is concluded that it is possible to obtain pregnancy rates >70% in Nelore heifers at 14 months of age and that there is a positive correlation between weight, age, BCS, DFD0 and DFD-2 with the pregnancy rate 30d after FTAI and negative between Weight, age, DFD0, DFD-2 and the occurrence of false positives.

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A033 TAI/FTET/AI

Diagnosis of gestation through proteins associated with gestation in *Bos indicus* heifers

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Early diagnosis of pregnancy is essential for a better reproduction management, and of fundamental importance to economic viability of livestock farming, because, after the diagnosis is possible to use biotechnology of reproduction and reinseminate non pregnant animals in a short period of time. With the increasing rise of biotechnologies such as TAI (timed artificial insemination), embryo transfer (TE), or by implantation of embryos from IVF, also is necessary the improvement of pregnancy diagnostic techniques. Glycoproteins associated with pregnancy in cattle (bPAGs) or pregnancy specific protein B (bPSPB) are secreted primarily by Trophoblastic binucleated cells, and secreted by placental tissue, therefore, are direct indicators of pregnancy. The present work was carried out in a commercial cattle ranch located in the city of Barra de Guabiraba-PE (Lat 08°25'12", Long 35°39'29"), where 69 nulliparous Nellore heifers with equivalent weight and age, raised under grazing with mineral supplementation and water ad libitum, were subjected to the same protocol of TAI which consisted of 2 mg of Estradiol Benzoate (EB) IM and insertion of 1g of intravaginal Progesterone (P4) device in D0, removing the implant in D8, followed by an application of 300 IU of equine chorionic gonadotropin (eCG) and 150 µg of Prostaglandin (PGF[G1]). As ovulation inductor, 1 mg of Estradiol Cipionate (EC) was used and after 48 hours the AI was performed. On D25 after TAI, blood of all heifers were collected, centrifuged and serum obtained, identified, frozen and referred to laboratory where the test was carried out for detection of proteins associated with pregnancy by visual immunoassay method. At D32 after TAI, ultrasound examination was performed, as a gold test to validate the results obtained with the ELISA visual test (IDEXX®), which revealed 25 animals pregnant and 44 not pregnant. As results we had a 96% sensitivity (24/25) while the specificity was 100% (44/44). It was concluded that bPAGs pregnancy test using the ELISA visual Kit (IDEXX®), it is a practical test due to its quickness (20 minutes) and is a very good test based upon standards of Statistical Kappa Analysis specificity and sensitivity for diagnosis of pregnancy on the D25 after TAI in nulliparous Nellore heifers.

A034 TAI/FTET/AI

Diagnosis and early treatment of uterine infections to optimize implantation of ovulation synchronization protocols

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In order to improve reproductive efficiency, many dairy farms have adopted ovulation synchronization protocols and strategies to reduce the calving-to-conception interval. For the success of these protocols it is essential that, at the end of the voluntary waiting period, the cows present healthy uterus and free of infectious or inflammatory conditions. A hipótese foi que o diagnóstico precoce e tratamento das doenças uterinas reduzem o tempo destas vacas estarem aptas à reprodução e a taxa de descartes involuntários. The hypothesis was that the early diagnosis and treatment of uterine diseases decrease the time for cows are be able to reproduce and reducing involuntary culling. The objective of this study was to evaluate the effect of early diagnosis of uterine infections in postpartum dairy cows, such as retained placenta (RP), metritis and clinical endometritis associated with a single treatment of 3.3 mg/kg, IM, ceftiofur hydrochloride (Lactofur®, Ourofino Saude Animal, Brazil), on the interval between calving and release for reproductive management. A total of 168 calving (01/2015 - 12/2015) of Holstein and Girolando dairy cows from a farm in Uberlândia-MG under a semi-confinement system and three daily milking were followed. The animals were evaluated at the time between partum up to 7º DIM (M1), 10º-15º DIM (M2), 25º-35º DIM (M3) and then weekly until release for reproduction. A general physical examination and specific of the female genital tract was performed by transrectal palpation and ultrasonography, intrauterine fluid assessment (IUF), and vaginal discharge (metricheck). Cows diagnosed with RP, metritis and endometritis were treated and monitored weekly until complete macroscopic uterine involution (symmetric horns; no IUF; clean vaginal discharge). The prevalence of RP was 23.2% (39/168) and for metritis of 38.1% (64/168), with 24.4% (41/168) being mild metritis and without the presence of severe metritis or death. The prevalence of clinical endometritis was 33.3% (56/168). The protocol allowed to release 96.4% (162/168) of the cows for breeding in 40.6 ± 16.2 DIM (95%C.I.- 38.1-43.1). There was a significant difference between days of release for reproduction in the presence or absence of RP (45.5 ± 17.8 versus 39.2 ± 15.4), metritis (47.6 ± 20.3 versus 36.6 ± 11.5), and clinical endometritis (57.6 ± 18.0 versus 33.0 ± 6.8). It was concluded that the implantation of an early diagnosis to uterine diseases and the single treatment with ceftiofur hydrochloride was efficient in reducing involuntary culling and the time of the dairy cows to be able to reproduce.

A035 TAI/FTET/AI

Different doses of equine chorionic gonadotropin in FTAI protocol on *Bos taurus* beef heifers: impact on ovarian response, occurrence of estrus and pregnancy rate

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This study evaluated the effect of different doses (200, 300 or 400 IU) of equine chorionic gonadotrophin (eCG) in FTAI protocols on follicular growth, occurrence of estrus and pregnancy rate in *Bos taurus* beef heifers (Angus, Brangus and Braford). Were utilized 1080 heifers, 24 months old and a body condition score of 2.90 ± 0.02 (1-extremely thin and 5-obese) from 8 commercial beef farms located in two distinct regions of Rio Grande do Sul State, Brazil At the onset of the synchronization protocol (D0), heifers were evaluated in cyclicity (CLD0) and received an intravaginal P4 device (CIDR®, Zoetis, Campinas, SP, Brazil) and 2 mg of estradiol benzoate IM (Gonadiol®, Zoetis, Brazil). On Day 7, were administrated 12.5 mg of dinoprost tromethamine IM (Lutalyse®, Zoetis, Brazil) and on Day 9 (D9), the P4 device was removed and administered 0.5mg of estradiol cypionate IM (E.C.P.®, Zoetis, Brazil). At this moment, heifers were homogeneous distribution by ovarian cyclicity in to three treatments: 200 IU (n=387), 300 IU (n=357) or 400 IU (n=336) of eCG. The females had their tail-heads painted with chalk paint (Raidl-Maxi, Raidex GmbH, Dettingen / Erms, Germany) at the time of removed of P4 device. Females without mark at the time of AI were considered as displayed estrous. The FTAI was 48h later P4 device removal (D11). Additionally, a sample of heifers (n=213) the evaluated in D9 and D11 of largest follicle diameter (LF) and on day 17 the corpus luteum (CL) diameter was measured. The pregnancy diagnosis was evaluated on day 41. Statistical analyses were performed using the GLIMMIX procedure SAS, the averages were compared by Tukey-Kramer test ($P<0.05$). The eCG treatment did not influence the follicular growth (1.52mm/day, 1.40mm/day, 1.75mm/day; P=0.22); LF diameter in D11 (13.41mm±0.29, 13.10mm±0.34, 13.57mm±0.38; P=0.79); estrus occurrence (86.5%±1.73, 84.8%±1.89, 84.8%±1.96; P=0.92); pregnancy rates (52.2%±2.54, 49.77%±2.63, 51.48%±2.73; P=0.46) and CL diameter (18.60±0.57, 17.92±0.67 and 18.93±0.5; P=0.29), respectively, for to dose 200, 300 and 400 IU. This study shows that eCG reduction dose to 200 IU can be used in IATF programs in Bos taurus heifers, without detriment to ovarian response, estrus and pregnancy rate. Acknowledgment: Zoetis Brasil, PPGCA/Unipampa, CAPES, Agrop. Pitangueira, Estância Renascer, Santa Camila, Âncora, Posto Branco, Baviera e Fepagro.

A036 TAI/FTET/AI

Follicular dynamics in Nelore heifers subjected to TAI protocol using Primer® PR or Primer® Monodose

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This study aimed to evaluate the dynamics of follicular growth in 14 to 16 months old Nelore heifers, synchronized with two different intravaginal P4 device releasers (P4DR). Twenty one Nelore heifers were used (BCS=3,65), distributed in two different experimental groups, G1) Primer® Monodose (0.5g of progesterone, Agener União – Saúde Animal, São Paulo, SP; n=10), and G2) Primer® PR (0.36g of progesterone, Agener União; n=11). All heifers received a norgestomet ear device (Crestar®, MSD Saúde Animal, São Paulo, SP), followed by IM treatment of cloprostenol (0,150 mg of D-clorprostenol, PROLISE®, Agener União) on D-8; on D-1, heifers received cloprostenol treatment (PROLISE®, Agener União) and the ear device was removed. On D0, they received P4DR and 2 mg of EB (RIC-BE®, Agener União). On D8, the P4DR was removed and heifers were treated with 0.6 mg of Estradiol Cipionate, 200 IU of eCG (Folligon, MSD) and cloprostenol (PROLISE®, Agener União). From D0 to D8, transrectal ultrasonography (Mindray® DP-2200Vet) was performed every 24 hours to evaluate the emergence of a new wave of follicular growth using 7.5 MHz frequence. After P4DR removal (D8 to D13) ultrasonography evaluations were made every 12 hours until ovulation time. Variables analyzed in this study: emergence and dispersion of new wave of follicular growth, DF diameter on D8 and D10, follicular growth rate during treatment (beginning of the wave until P4DR removal), ovulation rate and ovulation time. Data were analyzed by GLIMMIX procedure of SAS. It was observed that there was no difference for the day of emergence of new wave of follicular growth (3.8 ± 0.1 for G1 and 3.7 ± 0.2 days for G2; P = 0.76). The DF diameter on D8 was 7.4 ± 0.3 mm for G1 and 7.8 ± 0.4 mm for G2 (P = 0.56). On D10, the DF diameter was 9.5 ± 0.5 mm for G1 and 9.7 ± 0.5 mm for G2 (P = 0.64). The follicular growth rate was 0.88 ± 0.04 mm for G1 and 0.89 ± 0.06 mm for G2 (P= 0.92). Ovulation rate was 80% (8/10) for G1 and 91% (10/11) for G2 (P=0.52). Ovulation happened, on average, 75 ± 2.0 hours after P4DR removal for G1 and 78 ± 3.7 hours for G2 (P = 0.51). It was not observed any difference within groups for no one of the variables analyzed. It is possible to conclude that the use of PRIMER® PR is an alternative to the PRIMER® Monodose to synchronize ovulation in Nelore heifers.
Acknowledgments: Agener União – Saúde Animal.

A037 TAI/FTET/AI

Immunohistochemical distribution of estrogen receptor alpha (ERα) in the uterus of sows under different hormonal protocols

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The use of fixed-time artificial insemination (FTAI) in sows aims to minimize errors, labor related to estrus detection,estrus cycle variation, interval of ovulation (KNOX, Theriogenology, v.75, p.308-19, 2011), and semen doses per sow in each estrous,consequently, decreasing production cost. Studies on effects of the exogenous ovarian stimulation in sows are scarce and many questions of the possible effects of its use remain unanswered. The uterus is one of the most affected organs under the influence of steroidal hormones. The hormonal changes are regulated by estrogen, mainly ERα and progesterone receptors (Sukjumlong et al., 2009). The distribution of these receptors in the uterus could be related to the ideal environment for the embryo development. The aim of this study was to evaluate the effects of different FTAI protocols on the distribution and quantification of ERα in the uterus of sows using immunohistochemistry (IHC). Thirty-eight sows were randomly assigned into groups: control, eCG (eCG IM 600UI at weaning), GnRH56h (600UI eCG IM at weaning, 50 mcg GnRH IM 56h after eCG) and GnRH80h (600UI eCG IM at weaning, 50 mcg GnRH IM 80h after the eCG). At day 6.5 after AI, animals were euthanised and samples of the uterus were fixed in 10% neutral buffered formalin for 48 hours and routinely processed for histology/IHC. Tissue sections were incubated with a primary antibody (ERα, #SC-7207, rabbit polyclonal, 1:200, Santa Cruz Biotechnology, Dallas, TX, USA) for 1 hour, followed by secondary antibody incubation with UV LP HRP polymer (Thermo Fisher Scientific, Fremont, California, USA) for 15 minutes, and visualized using a chromogen complex 3, 3'-diaminobenzidine. For each section, 10 randomly selected high power fields (400x) of the following areas of the uterus were examined for nuclear immunolabeling: superficial epithelium, endometrial stroma, endometrial glands and myometrium. The IHC reactivity was scored as follows: (-) absent, (+) ≤ 30% of nuclear immunolabeling in each area; (++) 31-60% of nuclear immunolabeling in each area, (+++) > 60% of nuclear immunolabeling in each area. Data were analyzed by One-way ANOVA and Tukey test ($P \leq 0.5$). The results are written as mean ± SD as follows for control, eCG, GnRH56h and GnRH80h groups, respectively: superficial epithelium (0.33 ± 0.16, 0.22 ± 0.14, 0.20 ± 0.13 and 0.50 ± 0.26 (P=0.66); endometrial stroma (1.1 ± 0.35, 1.55 ± 0.57, 1.6 ± 0.4, 1.5 ± 0.34) (P=0.78); endometrial glands (1.77 ± 0.49, 2.44 ± 0.37, 2.00 ± 0.33, 2.3 ± 0.30) (P=0.61), and myometrium (0.33 ± 0.16, 0.66 ± 0.16, 0.60 ± 0.16; 0.7 ± 0.15 (P= 0.39). No significant differences were observed among experimental groups for any of the evaluated uterine areas. The estrus cycle synchronization using the proposed AI protocols does not interfere with distribution of ERα in the uterus 6.5 days after AI.

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A038 TAI/FTET/AI

Effect of prostaglandin administration at the moment of TAI in dairy buffalo submitted to the synchronization of ovulation during the non-breeding season: Preliminary results

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It was evaluated the effect of prostaglandin administration ($PGF_{2\alpha}$) at the moment of FTAI in dairy buffalo submitted to the synchronization of ovulation during the non-breeding season (spring to summer; 24º 26' 15" South and 47º 48' 45" West). The hypothesis is that $PGF_{2\alpha}$ administration at the moment of FTAI increases the synchronization of ovulation, as well as ovulation rate. At random stage of the estrous cycle (D0), 27 dairy buffalo received an intravaginal progesterone device (P4; Sincrogest®, Ourofino Agronegócio, Brazil) and 2mg im of estradiol benzoate (EB, Benzoato HC®, Hertape Calier Saúde Animal S.A., Brazil). In D9, the animals received 0.53mg im of $PGF_{2\alpha}$ (sodium cloprostenol, Sincrocio®, Ourofino Agronegócio, Brazil) and 400IU im of eCG (Folligon®, MSD Saúde Animal, Brazil), followed by P4 removal. After 24h (D10), the ovulation was induced by the application of 1mg im of EB (Benzoato HC®) and 32h later, all buffalo were subjected to FTAI (D11). The animals were submitted to ultrasonographic examinations (Mindray DP2200Vet, China) in D0 to check ovarian activity, in D9 and D10 to measure the follicular diameter (Ø) and from D11 to D14 (12/12h for 60h) to check the moment of ovulation and the ovulatory follicle Ø (OF). The buffalo which present follicles < 9mm in D10 (n=4) were removed from the experiment. The remaining females were divided according to weight, calving number, days postpartum, body condition score, ovarian activity and the largest follicle Ø verified in D10 into two groups: Control (n=11) and $PGF_{2\alpha}$ (n=12). The buffalo of the $PGF_{2\alpha}$ group received 0.53mg im of $PG_{F2\alpha}$ (Sincrocio®, Ourofino Agronegócio, Brazil) at the moment of FTAI. In D19 and D41, the animals were submitted to ultrasonographic examinations (Mindray DP2200Vet) for the measurement of CL Ø and to access the pregnancy rate, respectively. The statistical analysis was performed by GLIMMIX of the SAS®. There was no difference between the experimental groups (Control vs. $PGF_{2\alpha}$) for the analyzed variables: OF Ø (15.4±0.5 vs.14.9±0.6 mm; P=0.52); moment of ovulation (76.7±2.4 vs. 74.7±2.0 h, P=0.58); ovulation rate [81.8% (9/11) vs. 91.7% (11/12); P=0.46]; CL Ø (18.7±0.6 vs. 17.6±0.7 mm; P=0.29) and pregnancy rate [45.4% (5/11) vs. 58.3% (7/12); P=0.55]. According to the conditions of the present study, it was concluded that the $PGF_{2\alpha}$ administration at the moment of FTAI does not increases the synchronization of ovulation and the ovulation rate in dairy buffalo during the non-breeding season. New studies are needed to assess the pregnancy rate.

A039 TAI/FTET/AI

Effect of the application of gonatoreline at the time of FTET

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The objective of this study was to evaluate the effect of the application of gonadorelin at the time of FTET on conception rates at 30 (DG30), at 60 (DG60) days of gestation and at gestational losses (PGest) in PIVE's embryo recipients. It were evaluated 1,311 FTET performed in 11 commercial farms, located in the Uberlândia-MG region, from July / 2015 to July / 2016. The recipients were randomly divided into two groups: Control (n = 624): without gonadorelin and treated (n = 687): application of 0.1mg gonadorelin at the time of FTET. We also analyzed the effects of variables categorized into: FTET seasons (summer, winter, autumn and spring), farms (1 to 11), laboratory (1 to 3), recipient breed (nellore, girolando and undefined race), embryo breed (girolando, gir and nelore), embryo stage (initial blastocyst, blastocyst, expanded blastocyst, hatching blastocyst and hatched blastocyst), ovarium structures (compact CL, cavity CL and CL plus dominant follicle), CL quality (1, 2 and 3) and type of estrus (natural or protocol), and the interactions. The synchronization protocol used was: D0: intravaginal progesterone device (CIDR®, Zoetis, São Paulo-SP) and intramuscular application of 2.0 mg of estradiol benzoate (Sincrodiol®, Ourofino, Cravinhos- SP); D7: intramuscular application of 0.526mg sodium cloprostenol (Sincrocio®, Ourofino, Cravinhos-SP); D9: intramuscular application of 0.526mg sodium cloprostenol (Sincrocio®, Ourofino, Cravinhos-SP) + 1mg of estradiol cypionate (E.C.P.®, Zoetis, São Paulo-SP) + withdrawal of the intravaginal device; D18: TE + intramuscular application of 0.1mg gonadorelin (Fertagyl®, MSD, Cruzeiro-SP) or not. The data were evaluated by multivariate logistic regression using the GLIMMIX procedure of SAS version 9.2. In the final logistic regression model, some variables were removed based on the Wald criterion for P> 0.20. The interaction effects were not detected. The effects of treatment was detected on DG30 (40 vs. 45%, P = 0.03), DG60 (37 vs. 43%, P = 0.01) and tendency on PGest (7 vs. 4%, P = 0, 09). The season affected DG30 (P = 0.04) and DG60 (P = 0.01). Farm effect was detected in DG30 (ranging from 33 to 67%, P <0.0001) and DG60 (ranging from 31 to 67%, P <0.0001). It was also detected tendency of effect of recipient category on DG30 (P = 0.06; ranging from 40% up to 47%) and DG60 (P = 0.06: ranging from 38% up to 47%). It was concluded that Fertagyl® treatment at FTET increased the conception rate in both DG30 and DG60 and the farm has a strong effect on the success of FTET.

A040 TAI/FTET/AI

Effect of body condition and application of PGF-2α on day zero of the IATF protocol in crossbred buffaloes

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The objective of this work was to evaluate the efficiency of the use of PGF-2α (d-Cloprostenol) at the beginning of the protocol of artificial insemination at fixed time (IATF) in buffaloes. The experiment was carried out at the Rotak farm, located in the municipality of Viseu, State of Pará, during the period from December 2016 to January 2017, an unfavorable season in the region. Composed of 104 mongrel animals of the Murrah and Mediterranean breeds, suitable for breeding, and divided into two groups. In group 1 (G1), with 48 females with a mean body condition score (ECC) of 2.72 ± 0.2, a 4-treatment protocol, received 0.15 mg of PGF on day zero (D0) (IMP), intravenous progesterone (P4) device of nomodose (Primer®, Tecnopec, São Paulo, Brazil), and 2 mg of Estradiol Benzoate - BE (Sincrodiol®, Ouro Fino, São Paulo, Brazil) of form IMP; On the 9th day (D9) the P4 implant was withdrawn and 400 IU of equine chorionic gonadotrophin - eCG (Sincro eCG®, Ouro Fino, São Paulo, Brazil) and 2 mL of PGF-2α (Sincio®, Gold Fino, São Paulo, Brazil) both via IMP; On day 11 (D11), 0.025 mg of gonadotrophin releasing hormone - GnRH (Gestran Plus®, Tecnopec, São Paulo, Brazil) was applied and on day twelve (D12) the IATF was performed. In G2, with 56 buffaloes and ECC of 2.96 ± 0.2, they received the same G1 protocol, without application of d-Cloprostenol at day zero (D0). The statistical analysis of variance (ANOVA) and Tukey's test were used, adopting the significance level of 5%. The G1 pregnancy rate was 27% (13/48) and G2 was 44% (25/56). A statistically significant difference was observed between the groups ($P < 0.05$) and it could be observed that the treatment without prostaglandin At the beginning of the protocol was more effective. Of the buffaloes with ECC <2.75, 28% (21/73) were involved and those with ECC> 2.75 were 54% (17/31) ($P < 0.05$), showing that ECC influenced the rate of Final pregnancy Therefore, the use of d-Cloprostenol at the beginning of the protocol in the unfavorable season did not increase the pregnancy rate and the ECC of the buffaloes was determinant in the results.

A041 TAI/FTET/AI

Effect of equine chorionic gonadotrophin on follicular and luteal functionality in Murrah buffaloes cows submitted to TAI protocols

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The objective of this study was to evaluate the effect of equine chorionic gonadotrophin (eCG) on follicular and luteal development and vascularization and on plasma concentration of progesterone during a TAI protocol in Murrah buffaloes cows. Twenty Murrah buffaloes cows were randomly divided into two groups, group with eCG (WITH ECG, n = 20) and group without eCG (WITHOUT ECG, n = 20), in a cross-over design. On the first day of the hormonal protocol (Day 0), cows received an intravaginal P4 device (Sincrogest, Ourofino, Cravinhos, SP, Brazil) plus 2.0 mg/IM of estradiol benzoate (Sincrodiol, Ourofino, Cravinhos, SP, Brazil). On Day 9, the P4 device was removed, all cows received 0.150 mg/IM of PGF2a (Croniben, Biogéneses Bagó, Buenos Aires, Argentina), and 400 IU/IM of eCG (Folligon, MSD Saúde Animal São Paulo, SP, Brazil) was administered in the animals of WITH ECG group. On Day 11, all cows received 10 µg/IM of buserelin acetate (Sincroforte, Ourofino, Carvinhos, SP, Brazil). After the intravaginal P4 device withdrawal, color Doppler ultrasonography was performed daily, using 7.5 MHz linear transducer, 1.4 KHz PRF and 75 Mz wall filter, until day 16 to evaluate the development and irrigation of the dominant follicle up to ovulation and the luteal development and irrigation during luteogenesis, and thereafter every 3 days until day 32 to evaluate the luteal development and irrigation during luteogenesis and luteolysis. Simultaneously with ultrasonography, blood samples were collected to measure a plasmatic P4 concentration by radioimmunoassay. For statistical analysis, analysis of variance (ANOVA) was used to evaluate the means of the variables between the groups and Pearson's correlations, considering $p < 0.05$. Considering ovulation as day 0, the WITH ECG group presented greater follicle perimeter irrigation (16.93 ± 0.7 mm and 13.54 ± 0.5 mm, p = 0.018, 11.05 ± 0.4 mm and 9.77 ± 0.5 mm, p = 0.03) and also a higher percentage of the follicle perimeter irrigation (40.55 ± 0.5% and 33.11 ± 0.5%, p = 0.025, 28.27 ± 0.55% and 22.52 ± 0.47%, p = 0.03) on days -1 and -2, respectively. The WITH ECG group showed a greater diameter of CL on day 3 (16.03 ± 0.39 mm and 14.053 ± 0.39 mm, p = 0.00092), as well as higher CL irrigated area on days 1 (64.6 ± 2.1 mm^2 and 50.59 ± 4.11 mm^2, p = 0.008), 2 (94.15 ± 4.13 mm^2 and 70.63 ± 2.77 mm^2, p = 0) , 3 (115.9 ± 5.02 mm^2 and 90.76 ± 3.03 mm^2, p = 0.0084), 7 (135.9 ± 5.34 mm^2 and 115.3 ± 4.06 mm^2 , P = 0.0048) and 11 (137.1 ± 4.62 mm^2 and 114.2 ± 4.09 mm^2, p = 0.0037). Plasmatic progesterone concentration was higher in the WITH ECG group on days 3 (2.52 ± 0.37 ng/mL and 2.27 ± 0.23 ng/mL, p = 0.048), 7 (4.33 ± 0, 59 ng/mL and 3.09 ± 0.35 ng/mL, p = 0.0054) and 11 (4.45 ± 0.37 ng/mL and 3.28 ± 0.24 ng/mL, p = 0.0063). Positive correlations were observed between CL diameter and irrigation with plasmatic P4 concentration (0.52 and 0.75, $p < 0.0001$, respectively), as well as between the size of the follicle and the size of CL (0.54, $p < 0.0001$) between follicle size and CL irrigation (0.55, $p < 0.0001$), between follicle irrigation and CL size (0.78, $P < 0.0001$), between follicle irrigation and CL irrigation (0.64, $p < 0.0001$) and between follicle irrigation and plasmatic P4 concentration (0.59, $p < 0.0001$). Therefore, the use of eCG during TAI protocol in Murrah buffaloes cows favors follicle irrigation, increasing CL´s size and irrigation, raising plasmatic P4 concentrations, presenting potential to obtain better reproductive rates in buffaloes herds.

A042 TAI/FTET/AI

Effect of long-acting injectable progesterone on the induction of puberty and pregnancy rate of Nelore heifers submitted to FTAI

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The objective of this study was to evaluate the effect of long-acting injectable P4 on the induction of puberty and pregnancy rate of Nelore heifers submitted to FTAI. Nelore heifers (n=457) with 22.1±3.5 months and 294±25.6 kg were classified by ultrasonography on D-22 in pubertal (i.e. with CL, PB, n=232) or prepubertal (i.e. absence of CL; PP, n=225), and received 150 mg of long-acting P4 (iP4; im, Sincrogest Injetável®, Ouro Fino) or not (NoiP4), making a factorial arrangement 2x2. On D-12, only heifers treated with iP4 received 150 μg of D-cloprostenol (PGF, i.m, Croniben®, Biogenesis Bagó) and 1 mg of estradiol benzoate (i.m, EB; Bioestrogen®, Biogenesis Bagó). On D0, presence of CL was evaluated and all heifers were synchronized according to the J-Synch protocol: D0: intravaginal release P4 device (1 g, Cronipres Monodose®, Biogenesis Bagó) + 2 mg EB and 75 μg PGF; D6: removal of the P4 device + 150 μg PGF. Animals detected in estrus at 48 hours after implant removal were inseminated 12 h after or at fixed time on D9 with application of 10.5 μg of GnRH analogue (i.m., Gonaxal®, Biogenesis Bagó). The pregnancy diagnostic was performed 30 days after FTAI. The data were analyzed using the PROC GLIMMIX (SAS, 9.3). There was interaction ($P < 0.01$) between iP4 and pubertal status on the presence of CL in D0. The PP-NoiP4 group had a lower proportion of CL in D0 (16.9% [22/137]) than the PP-iP4 group (73.7% [99/143]). PB heifers presented higher proportions of CL on D0 (iP4: 93.8% [83/89] and NoiP4: 86.7% [76/88]), independent of iP4 treatment. There was interaction ($P<0.01$) between iP4 and pubertal status on the expression of estrus. The PP-iP4 group (23.2% [33/143]) had higher estrus expression than PP-NoiP4 group (6.5% [9/137]) and similar to PB heifers treated (22, 4% [20/89]) or not with iP4 (23.2% [21/88]). There was no interaction ($P > 0.10$) between iP4 and pubertal status on the pregnancy rate. However, the pregnancy rate of the PP-NoiP4 group (38.6% [52/137]) was numerically lower than the PP-iP4 group (45.1% [63/143]), which was similar to PB heifers (NoiP4: 48.9% [44/88] and iP4: 48.7% [44/89]). A second analysis was performed considering the 4 groups: PB: heifers with CL on D-22 and/or D0, regardless of treated or not with iP4; PP-NoiP4: heifers without CL on D-22 and D0, not treated with iP4; PP-iP40: heifers without CL on D-22 did not respond to iP4 on D0 and PP-iP41: heifers without CL on D-22 responded to iP4 and presented CL on D0. In this analysis, there was a group effect ($P < 0.01$) on the pregnancy rate. The PP-iP41 group had a higher pregnancy rate (50.5% [50/99]) than the PP-iP40 group (29.6% [13/44]) and PP-NoiP4 (33.9% [39/115]). Response to treatment with iP4 (PP-iP41 group) guaranteed pregnancy rate similar to PB heifers (50.8% [101/199]). In conclusion, pre-synchronization with long-acting P4 in pre-puberal heifers induces puberty and allows a pregnancy rate similar to heifers that are already puberal at the beginning of the protocol.

Acknowledgment: Biogenesis Bagó, Ouro Fino, Rancharia Farm, Santa Helena Farm e São Paulo Farm.

A043 TAI/FTET/AI

Effect of Fosfosal® supplementation on pregnancy rate at FTAI of suckled Nelore cows

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The objective of the present study was to evaluate the effect of Fosfosal® (Virbac, São Paulo – SP, Brasil) treatment during a fixed time aritificial insemination (FTAI) protocol on pregnancy rate of suckled Nellore cows. For this experiment, 752 cows were used (542 multiparous and 210 primiparous), from four commercial beef farms located on the state of Paraná - BR. All the animals were evaluate for body condition score (BCS) on the beginning of the experiment. The females were submitted to fixed time artificial insemination (FTAI), using the same protocol, except for the administration or not of Fosfosal® on Day 0 (D0). Briefly, the FTAI protocol was done with intramuscular administration of 2 mg of EB (Fertilcare Sincronização®, MSD, São Paulo, Brasil) and insertion of an intravaginal device impregnated with progesterone (Fertilcare 1200®, MSD) on D0. On the eighth day, (D8) the intravaginal device was removed and cows received administration of 0.530 mg of PGF2α (Ciosin®, MSD), 300 IU of eCG (Folligon®, MSD), 1 mg of EC (Fertilcare Ovulação®, MSD). The FTAl insemination was done 48 hours after the intravaginal device removal, on the tenth day (D10). The cows were divided in two of both groups: Control Group: received no further treatment and; Treated Group: received the treatment with 15 ml of Fosfosal® on D0 of the FTAI protocol. The animals were homogeneously allocated in groups according to BCS and category. The pregnancy diagnosis was done using transrectal ultrasonography (Mindray DP10VET) thirty days after the FTAI. The results were analyzed using the PROC GLIMMIX (Statistical Analysis System, version 9.3, Institute, Inc.: Cary, NC, USA, 2003). It was observed positive effect of Fosfosal® supplementation on pregnancy rate [Treated = 52% (195/374) vs. Control = 45% (170/374) (P= 0.043)]. There was no interaction between categories*treatment [Treated Multiparous: 52% (140/269) and Treated Primiparous: 50% (55/109) vs. Control Multiparous: 46% (126/273) and Control Primiparous: 44% (44/101) P = 0.98]. It was observed a farm effect (P = 0.007) but not an interaction Treatment*Farm (P=0.67). According to the experimental data, it is possible to conclude that Fosfosal® suplementation improved pregnancy rates at FTAI in suckled multiparous and primiparous Nellore cows.

Acknowledgements: Virbac Animal Health and Firmasa.

A044 TAI/FTET/AI

Effect of supplementation of long-term progesterone in the conception and in gestational loss of Nellore females submitted to TAI

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The objective of this study was to evaluate the effect of long - acting progesterone supplementation on the conception and gestational loss of Nellore females submitted to TAI. The experiment was carried out at Fazenda Remon located in Porto Real, in the state of Rio de Janeiro, during the period from November 2016 to May 2017. A total of 528 Nellore females (cows and heifers) were used with a minimum 30 days post-partum period and a maximum of 120 days, kept in *Brachiaria decumbes* pasture, with water and mineral salt *ad libitum*. Ovulation synchronization was initiated on a random day of the oestrous cycle (D0) and an intravaginal progesterone device (Primer®, Tecnopec, São Paulo, Brazil) was added to the application of 2.0 mg of estradiol benzoate (Fertilcare®, Vallée SA), intramuscularly. The device was maintained for 8 days and 500 μg of cloprostenol (Ciosin®, MSD Saúde Animal, São Paulo, Brazil) + 400 IU of equine chorionic gonadotrophin (Folligon®, MSD Saúde Animal, São Paulo , Brazil) were administered both intramuscularly (D8). One day after (D9), 1mg of Estradiol Benzoate (Fertilcare®, Vallée S.A) was given intramuscularly. Two days after the device removal (D10), Fixed Time Artificial Insemination was performed. After the TAI, the animals were divided into three groups: experimental group 1 (EG 1; n = 178), experimental group 2 (EG 2; n = 163) and control group (CG; n = 187). Females were distributed so that each group had the same proportion of nulliparous, primiparous and multiparous females, as well as cyclic and acyclic animals. Experimental group 1 and experimental group 2 were supplemented with 150 mg of long-acting injectable progesterone (Sincrogest LA®, Ourofino, Uberaba / MG, Brazil) in a single dose, and experimental group 1 animals in D15 (5 Days after TAI) and experimental group 2 animals on D21 (11 days after TAI). The animals in the control group did not receive any type of progesterone supplementation. The pregnancy diagnosis (PD) and gestational loss (GL) were evaluated by rectal palpation using transrectal ultrasonography (Mindray D2200 vet). The PD was performed 39 days after insemination and GL evaluated from 39 days to 90 days after TAI. The variable conception rate and loss of gestation were analyzed by the non-parametric chi-square method ($\chi 2$), using the PROC FREQ function of the statistical program SAS® (SAS, 2009). The conception rates were 47% (83/178) 42% (68/163) and 41% (76/187), respectively, for EG1, EG2 and CG. No difference was observed between the treatments ($p = 0.47$). The gestational loss was 6.58% (CG), 2.41% (EG1) and 5.88% (EG2). No statistical difference was observed ($p = 0.19$). It was concluded that long-acting injectable progesterone supplementation, 5 or 11 days after TAI, does not alter the conception rate or gestational loss in Nellore females.

A045 TAI/FTET/AI

Effect of chute exit velocity on pregnancy rate to FTAI of Nellore females

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The objective of the present study was to evaluate the effect of chute exit velocity at the beginning of the TAI protocol on pregnancy rate of Nelore females. Data were collected from two breeding seasons (2013/2014 and 2014/2015) in a commercial farm located in Piranhas, Goiás, Brazil. The study evaluated 2785 females (2067 suckled cows and 718 heifers) subjected to TAI. On Day 0 (D0) animals received an intravaginal device containing 1.9g of P4 (CIDR®, Zoetis Animal Health, São Paulo, Brazil), followed by administration of 2mg of EB (Gonadiol®, Zoetis); on day 7, animals received 12.5mg of Dinoprost Tromethamine (Lutalyse® Zoetis); on day 9 the P4 device was removed and 1mg of EC (ECP®, Zoetis) and 300 IU of eCG (Novormon®, Zoetis) were administered. TAI occurred 48h after P4 device removal. The animals were evaluated as to the exit velocity, which occurred on D0 of the TAI protocol, in three different classifications: Walking, Trotting and Running. Pregnancy data were analyzed using the PROC GLIMMIX and frequency exit velocity data were analyzed using Qui-Square of PROC FREQ and PROC GENMOD of SAS (Statistical Analysis System, version 9.3 Institute Inc., Cary, NC, USA, 2003). Frequency of exit velocity differed (P< 0.0001) between categories [Cows: Walking = 22%B (455/2067); Trotting = 56%A (1158/2067) and Running = 22%B (454/2067) vs. Heifers: Walking = 17%E (122/718); Trotting = 46%C (332/718) and Running = 37 %D (264/718)]. Interaction category*velocity was observed in relation to the pregnancy rate to FTAI (P<0.0001), thus, categories were analyzed separately. Heifers did not present difference on pregnancy rate to TAI regarding the exit velocity [Walking = 48.4% (59/122); Trotting = 47.6% (158/332) and Running = 48,8% (129/264); P = 0.95]. However, there was effect of the exit velocity on pregnancy rate to TAI for cows [Walking = 66.4%A (302/455); Trotting = 62.7 AB (726/1158) and Running = 57.9%B (263/454); P = 0.04]. Based on these analyses, it is possible to conclude that cows with lower chute exit velocity at the beginning of TAI protocol (D0) presented higher pregnancy rate to TAI. However, no effect was observed of chute exit velocity rate on pregnancy rate to TAI of Nelore heifers.
Acknowledgement: Cria Fértil.

A046 TAI/FTET/AI

Effect of different reproductive biotechnologies (AI, ET-*in vivo* and ET-*in vitro*) on reproductive performance of Holstein females

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The objective of this study was to evaluate the effect of different artificial reproductive technologies (ART) on indicators of reproductive performance of lactating Holstein cows. The conception rate (CRt) for IA and gestational rate (GRt) for ET and IVF at 30 and 60 days, birth rate (BRt), pregnancy loss rate between 30 and 60 days (PLRt) and between 60 days and birth (PLBRt) were studied in cows receiving AI (8382), ET (6381) and IVF (1503) at Agrindus Farm from 2013 to 2015. The variables gestation length (GL), retained placenta (RP), birth weight (BW), weight at weaning (WW) and age at first conception (AFC) of the calves were analyzed in a subgroup of animals (AI = 471, ET = 429 and IVF = 57). The data were analyzed by the PROC GENMOD and PROC GLIMMIX of SAS. CRt and GRt at 30 days had no effect of year (P = 0.363) and no interaction ART*year (P = 0.393). However, there was effect of ART (AI = 31.7%(2655/8382)B, ET = 39.3%(2510/6381)A and FIV = 27.5%(413/1503)C; P < 0.0001]. A similar result was observed for CRt and GRt at 60 days [AI = 23.9%(2000/8382)B, ET = 29.0%(1851/6381)A and IVF = 19.6%(295/1503)C; P < 0.0001]. The PLRt did not differ in ART (P = 0.175) and there was no ART*year interaction (P = 0.07), but there was effect of year [2013 = 24.4%(426/1746)B, 2014 = 23.7%(438/1849)C and 2015 = 28.6%(568/1983)A; P = 0.0369]. There was ART*year interaction for PLBRt [2013: AI = 18.99%(116/611)C, ET = 20.90%(125/598)BC and IVF = 20.72%(23/111)BC; 2014: AI = 20.94%(151/721)BC, ET = 24.83%(146/588)BC and IVF = 32.35%(33/102)B; 2015: AI = 23.95%(160/668)A, ET = 26.62%(177/665)A and IVF = 21.95%(18/82)C; P < 0.0001]. The GL did not differ between ART (AI = 275.9±0.2; ET = 274.6±0.3 and IVF = 275.9±0.9 days; P = 0.61). Still, there was no effect of year (P = 0.64) and no ART*year interaction (P = 0.96). Also, RP was similar among ART (IA = 17.6%(83/471), ET = 19.1%(82/429) and IVF = 24.6%(14/57); P = 0.91), and there was no effect of year (P = 0.08) and no ART*year interaction (P = 0.35). The BW differed according to ART (AI = 40.1±0.1AB, ET = 39.8±0.1B and IVF = 40.8±0.3A kg; P = 0.0098), however, there wasn't effect of year (P = 0.15) and ART*year interaction (P = 0.71). There was ART*year interaction for WW (P = 0.0016). The AFC differed for ART (AI = 469.2±4.3A, ET = 466.1±4.9B and IVF = 488.8±15.0A days; P < 0.0001). There was difference on results for CRt and GRt at 30 and 60 days between ART, PLRt between years and PLBRt in both. There was not difference for GL and RP, but there was for BW and AFC between ART and for WW between ART and years.

A047 TAI/FTET/AI

Effect of different progesterone intravaginal devices for estrus synchronization on pregnancy rates of ewes

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The objective of this study was to compare two different intravaginal progestagens devices effect on estrus synchronization, and pregnancy rates on cyclic ewes. The experiment was conducted in january 2017, in a farm in the São Francisco de Assis, Rio Grande do Sul/Brazil. The ewes were non-lactating Australian Merino sheep (n=42), with body condition score of 2,5 (scale 1 to 5: 1-lean, 5-obese). The synchronization protocol started on an unspecific day of estrous (D0). Ewes were randomly assigned into different experimental groups: sponge group (SG – 62.5mg of medroxyprogesterone acetate, Purifarma, São Paulo, SP, Brazil; n=23) and Primer PR® group (PrG– 0.36g of progesterone; PRIMER PR®, Tecnopec, São Paulo/SP, Brazil; n=19). After intravaginal device implantation, ewes received 0.037mg of D-cloprostenol IM (PROLISE®, Tecnopec, São Paulo/SP, Brazil). The devices were removed 12 days (D12) after implantation and 200 UI of equine chorionic gonadotrophin were administered (Folligon®, MSD, São Paulo/SP, Brazil). Right after the end of the protocol ewes had estrus behavior. Four fertile rams (soundness breeding examination) were kept with the females by D19 (1 ram per 12,5 females). The mattings were identified by the presence of paint on their back from the chest of the ram. Forty days following matting, the pregnancy diagnosis was made by transabdominal ultrassonography (5MHz, Medisono P3. Wilmington, USA). Statistical analysis was performed using PROC GLIMMIX of SAS (SAS 9.3). There was no difference on pregnancy rate between treatments [SG = 60.87% (14/23) and PrG = 57.89% (11/19), P=0.40]. Some cases of vaginitis were observed in SG (~40%), while there were observed no signs of vaginitis in the PrG. In conclusion, both devices were effective for estrus synchronization, providing similar pregnancy percentage. However the Primer PR® device showed to be safer and no reactions on vaginal mucosa were noted.
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A048 TAI/FTET/AI

Effect of ECP on the incidence of estrus in spayed cows and on fertility in timed AI Cows

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Several studies has demonstrated that cows that display estrus before timed artificial insemination (TAI) are more likely to become pregnant. However, the most used ovulation inducer in Brasil are the estradiol esters, that artificially may induce cows to display estrus. In this study, two experiments were performed to evaluate the effects of ECP in cows. The objectives of this study were to evaluate: 1) the incidence of estrus in spayed cows treated with ECP, and 2) the effect TAI protocol without ECP. The Experiment 1 was performed with 14 spayed cows in a cross-over design that were randomly distributed into 2 experimental Groups: ECP Group (n=14) that received a hormonal protocol (2 mL of BE + CIDR insertion on D0 / 2 mL of PGF2 alfa on D7 / 0,5 mL of ECP + CIDR removal on D9), and Group CTL (n=14) that received similar protocol, but instead ECP, cows were injected with saline solution (NaCl 0,9 %). Estrotect devices were used and cows were observed 4 times a day to detect the moment of the estrus. The interval betweeen replicates were 30 d. Spayed cows treated with ECP displayed more estrus (85,7%, 12/14) than cows treated with Saline (0%, 0/14; P < 0,001). Cows displayed estrus 46 h after ECP treatment. In Experiment 2, 94 Nelore cows, between 30 and 60 d postpartum, 2.5 – 3.5 of BCS, were randomly separated into 2 Groups. ECP-GnRH Group (EG Group, n=47) that were given the same protocol as Experiment 1, excepted that all cows were given 300 UI of eCG on Day 9. Moreover, cows that do not display estrus between CIDR removal and TAI, were given 2,5 mL of GnRH (Gonaxal®, Biogénesis Bagó, Buenos Aires, Argentina). The remaining cows were enrolled into GnRH Group (n=47), that received similar treatment as EG Group, however, no ECP was given on Day 9. Stick marker was used to identify cows that display estrus. Cows from EG Group displayed more estrus (57,4%, 27/47) than cows from GnRH group (31,9%, 15/47; P<0,01). However, no difference (P = 0.5) on P/AI was detected between EG (57,4%, 27/47) and GnRH groups (63,8%, 30/47). In conclusion, the injection of ECP at removal of progesterone insert increase the estrus audreydetection, however, the fertility of the TAI protocols was not affected in comparison with cows that did not received ECP.

A049 TAI/FTET/AI

Effect of time of permanence (7 vs. 8) of different intravaginal progesterone devices (PRIMER® Multidose or Monodose) on conception rate of dairy cows

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The establishment of a systemized reproductive program in dairy farms can enable the use of reproductive biotechnologies on the property. The present study evaluated the use of two different intravaginal P4 devices (PRIMER® Monodose, containing 0.5g of P4 and PRIMER® Multidose, containing 1.0g of P4, Agener União – Saúde Animal, São Paulo, Brazil) and the permanence of the devices (7 or 8 days) on pregnancy rate to TAI. For this study, 505 lactating Holstein cows were distributed into four experimental groups (2 x 2 factorial): Group P8 MONO (8-day protocol with PRIMER® Monodose – n=120); Group P8 MULTI (8-day protocol with PRIMER® Multidose – n=130); Group P7 MONO (7-day protocol with PRIMER® Monodose – n=126); Group P7 MULTI (7-day protocol with PRIMER® Multidose – n=129). Cows from the P8 MONO group received the PRIMER® Monodose and 2mg of EB (RIC-BE®, Agener União – Saúde Animal) on D0, after 8 days (D8) the PRIMER® was removed and cows received 2mL of PGF2α (Estron® 0.2435mg Agener União – Saúde Animal) and 1mg of EC (ECP®, Zoetis, São Paulo, Brasil). Cows from the P8 MULTI group received the PRIMER® Multidose, followed by the same treatment as the P8 MONO group. Cows from the P7 MONO group received the PRIMER® Monodose and 2mg of EB on D1, after 7 days (D8) the PRIMER® was removed and cows received 2mL of PGF and 1mg of EC. Cows from the P7 MULTI group received the PRIMER® Multidose, followed by the same treatment as the P8 MULTI group. All cows were inseminated on the same day (D10), 48h after device removal. Transrectal ultrasonography was used to determine pregnancy rate 30 days after TAI. Data were analyzed by logistic regression (PROC GLIMMIX from SAS). There was no permanence*device interaction (P=0.2966). The pregnancy rate did not differ (P=0.554) between groups [P8 MONO – 27% (33/120); P8 MULTI – 24% (31/130); P7 MONO – 26% (33/126); P7 MULTI – 28% (35/129)]. Analyzing all animals, the permanence of the devices (7 or 8 days) did not influence (P = 0.723) pregnancy rate [27% (68/255) vs 25% (64/250)]. Also, use of different P4 devices (PRIMER® Monodose or Multidose) has no effect (P = 0.792) on pregnancy rate [26% (66/259) and 27% (66/246)]. In conclusion, neither the permanence of the P4 device (7 vs. 8) nor the type of device (PRIMER Monodose® or PRIMER Multidose®) influenced the pregnancy rate of lactating Holstein cows. Therefoe, the 7-day protocol can be used in dairy farms as an alternative to the 8-day protocol, concentrating reproductive managements to two days on the week, instead of three days on the week, simplifying the farms' management and the reproductive schedule.
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A050 TAI/FTET/AI

Effect of treatment with long-acting injectable progesterone on the embryo receptor rate of pregnancy

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The objective of the present study was to verify if the use of long-acting injectable P4 LA (Sincrogest® Ourofino - Saúde Animal, Ribeirão Preto, SP) results in increased pregnancy rate in receivers of in vitro produced embryo. A group of 817 animals was synchronized. At Day -10 all animals received an intravaginal P4 device (0.5g of P4) and administration of 2mg of Estradiol Benzoate (EB); on Day -2 the P4 device was removed and 0.530mg of PGF2α was administered; On Day -1, 1 mg of EB was administered. The animals were randomly assigned to one of three experimental groups: Group 1 (CONTROL; n = 169), Group 2 (P4LAD4; n = 201) and Group 3 (P4LAD7; n = 181). The CONTROL group received an in vitro produced embryo on D7, without any further treatment. The P4LAD4 group received 150mg of P4LA (Sincrogest® Ourofino) on D4 and on D7 the ET. The P4LAD7 group received 150mg of P4LA (Sincrogest® Ourofino) at the same moment as the ET, on D7. Together with the ET, ultrasonography evaluation was performed to evaluate the diameter of the CL (DCL). Pregnancy diagnosis was done using ultrasonography on days 30 and 60 of the synchronization protocol. Data were analyzed using the PROC GLIMMIX procedure of SAS. The utilization rate of the ET protocol was of 69.89% (571/817). Pregnancy rates did not differ between CONTROL, P4LAD4 and P4LAD7 groups at 30 days [41.4% (70/168); 42.3% (89/201); 41.2% (80/181); P = 0.4115], 60 dias [36.3% (61/168); 39.8% (80/201); 38.1% (69/181); P = 0.4859] and did not influence pregnancy loss [5.4% (9/168); 4.5% (9/201); 6.1% (11/181); P = 0.7258]. No interaction between treatment with P4 and DCL on pregnancy rate at 30 days (P = 0.1682), 60 days (P = 0.3543) and pregnancy loss (P = 0.6121) was observed. Despite each treatment, the DCL did not influence the pregnancy rate at 30 days [(≤18mm= 43.9% (72/164); >18mm = 43.3% (167/386); P = 0.8712], 60 days [(≤18mm = 36.0% (59/164); >18mm = 39.1% (151/386); P = 0.5175] and pregnancy loss [(≤18mm = 7.9% (13/164); >18mm = 4.1% (16/386); P = 0.0897]. Therefore, administration of P4LA on days 4 or 7 of the ET synchronization protocol had no effect on conception rate of receivers of in vitro produced embryos.

A051 TAI/FTET/AI

Effects of progesterone supplementation after the use of fixed time artificial insemination at the pregnancy rate in Nellore cows

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This study aimed to evaluate the effects of using progesterone supplementation in order to increase the pregnancy rate in Nellore cows. The research was developed out of the Center for Reproductive Biotechnology (BIOTEC) and conducted during the months of January-April, 2016 in Maringa-Paraná. Eighty-eight adult Nellore female cows, after 30 and 60 days postpartum, body scale of 3 (scale 1-5). These cows were kept in pasture (Brachiaria brizantha) having access to water and mineral supplementation. The cows were randomized into two groups, A and B. Group A cows did not receive hormonal supplementation, Group B cows received hormonal supplementation using an intravaginal device, dosed at 1.9g of progesterone (CIDR®) from the 14th to the 22nd day after Fixed Time Artificial Insemination (FTAI). The Group B cows were synchronized using the following protocol: Day 0 (D0) the cows received an intravaginal progesterone device (CIDR®) plus 2 mg estradiol benzoate (Gonadiol®, im, Syntex SA). Day 7 (D7) the cows received 2ml of prostaglandin (Sincrocio® Ouro Fino Animal Health) at the day 9 the cows received (ECG®, Novormon, Pfizer / Animal Health) and 0.4ml of Estradiol Cypionate (ECP®, Pfizer Animal Health) where the intravaginal progesterone implant was also withdrawn; and two days after the removal of the intravaginal progesterone device. Day 11 (D11), two days after the removal of the intravaginal progesterone device for FTAI, was performed, using frozen semen from a proven Aberdeen Angus bull. Pregnancy rate (DG) was performed 30 days after the FTAI with the aid of an ALOKA SSD500 ultrasound device and probe of 5.0 MHZ.
The data was analyzed by the PROC GENMOD procedure of the statistical program SAS (2000) version 8.01 and using binomial distribution and identity link function. One can observe that progesterone supplementation from day 14 to day 22 after FTAI, did not change the gestation rate ($P > 0.05$) in Nellore cows. Group 1 showed a gestation rate of 52.27%, not significant difference. Group 2, a gestation rate of 54.54%. Although some authors (KENYON, A. G. Animal Reproduction Science, v.136, n.4, p.223-30, 2013) have observed that there is no difference in the gestation rate, progesterone supplementation has become effective in favor of the expansion and rate of embryo elongation, were shown to be larger and with higher secretion of proteins, making than more mature and functional. With the data obtained in this research project concluded that progesterone supplementation from day 14 to day 22 did not change the gestation rate in Nellore females in Fixed Time Artificial Insemination (FTAI).

A052 TAI/FTET/AI

Effect of human chorionic gonadotrophin administration 2 days after insemination on progesterone concentration and conception rate in lactating dairy cows

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The aim of this study was to examine the effect of a single administration of human chorionic gonadotrophin (hCG) during the establishment of the corpus luteum (CL) on progesterone (P4) concentration and conception rate in lactating dairy cows. Postpartum spring-calving lactating dairy cows (n=800; mean (± SD) days in milk and parity were 78.5 ± 16.7 and 2.3 ± 0.8, respectively) on three farms were enrolled in the study. All cows underwent the same fixed-time artificial insemination (FTAI) protocol involving a 7-day progesterone-releasing intravaginal device with gonadotrophin-releasing hormone (GnRH) administration at device insertion, prostaglandin at device removal followed by GnRH 56 h later and AI 16 h after the second GnRH injection. Cows were blocked on days postpartum, body condition score (BCS), and parity and randomly assigned to receive either 3000 IU of hCG 2 days after FTAI or no further treatment (Control). Blood samples were collected on Day 7 and Day 14 post estrus by coccygeal venipuncture on a subset of 202 cows to measure serum P4 concentration. Pregnancy was diagnosed by ultrasonography approximately 30 and 70 days after FTAI. The effect of the independent variables on conception rate was determined using a logistic regression model in the GLIMMIX procedure of SAS (SAS Institute Inc., Cary, NC) with cow treated as a random effect, and the effect of treatment on P4 concentrations was determined using the Mixed procedure of SAS. Administration of hCG lead to an increase in P4 concentrations on Day 7 ($P < 0.05$) and Day 14 ($P < 0.01$) compared to the Control. Conception rate at 30 days after FTAI (CR1) was affected by treatment, farm, BCS, and calving to service interval. Overall, administration of hCG decreased CR1 (46.3% vs. Control 55.1%; $P = 0.02$). Among cows that did not become pregnant following AI (CR1), a higher proportion of Control cows exhibited a short repeat interval (≤ 17 d; 8.6%; $P < 0.05$) than cows treated with hCG (2.8%). In addition, 21-day pregnancy rate (59.6% vs. 52.0%; $P = 0.05$) and 42-day pregnancy rate (78.3% vs. 71.9%; $P = 0.06$) were greater in the Control than in hCG-treated cows. The overall incidence of embryo loss between Day 30 and 70 was 10.7% and was not affected by treatment ($P = 0.4$). In conclusion, administration of hCG two days after FTAI increased circulating P4 concentrations, but did not result in an improvement in reproductive performance.

A053 TAI/FTET/AI

Efficiency of PRIMER® PR vs. Primer® Monodose in TAI protocols of Nelore heifers

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Willing to compare the efficiency of different intravaginal P4 releaser device, pregnancy per AI (P/AI), and the diameter of the dominant follicle (DF) on the day of P4 device removal were evaluated in 14 (Experiment 1) and 24 months (m) old (Experiment 2) Nelore heifers subjected to TAI. Each age group was distributed in two experimental groups. In Experiment 1, Group 1) 14m old Nelore heifers (n=169) received a conventional intravaginal device, PRIMER® Monodose (Agener União – Saúde Animal, São Paulo-SP) containing 0.5g of progesterone and Group 2) 14m old Nelore heifers (n=153) received a smaller device, made for small ruminant, PRIMER® PR (Agener União) containing 0.36g of progesterone on D0. In Experiment 2, Group 1) 24m old Nelore heifers (n=210) received PRIMER® Monodose device and Group 2) 24m old Nelore heifers (n=196) received PRIMER® PR device on D0. On both experiments, all heifers received the relative P4 device for each group on D0 and 2mg of EB (RIC-BE®, Agener União), on D8 all P4 devices were removed and all animals received 0.5mg of Estradiol Cipionate, 200 IU of eCG and 0.53mg of PGF2α (ESTRON®, Agener União). On D10 all heifers were subjected to TAI. On D8 a subgroup of heifers from Experiment 1 were evaluated by ultrasonography (Mindray M5) to measure the DF [PRIMER® Monodose (n=92) and PRIMER® PR (n=87)]. To obtain the DF measurements, the mean of the diameters obtained by ultrasound images and the standard deviation were calculated. On D30 all heifers were checked for pregnancy using ultrasonography. Data were analyzed by GLIMMIX procedure of SAS. In Experiment 1, P/AI was 43% (72/169) for PRIMER® Monodose and 38% (58/153) for PRIMER® PR (P=0.392). In Experiment 2, P/AI was 42% (89/210) for animals that received the PRIMER® Monodose device, and 52% (101/196) for animals that received PRIMER® PR device (P=0.066). The diameter of DF was 8.3 ± 0.3mm for heifers from the PRIMER® Monodose group and 9.4 ± 0.3mm for heifers from the PRIMER® PR group (P=0.0002). Since heifers treated with PRIMER® PR presented a greater DF diameter on D8, similar P/AI for both 14 and 24 m old heifers, and considering the lower discomfort caused by the small ruminant P4 device, it is possible to conclude that the use of PRIMER® PR is as an alternative to the use of PRIMER® Monodose on Nelore heifers.
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A054 TAI/FTET/AI

Reproductive efficiency of Nelore cows submitted to three different reproductive strategies in a 64 days breeding season

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This study aimed to evaluate the reproductive efficiency of Nelore cows submitted to three different TAI programs in a 64 days breeding season (BS). The programs were conducted in a commercial farm located in Camapuã-MS, Brazil. A total of 1,505 multiparous Nelore cows were treated for TAI and then homogenously allocated into one of three groups according to the subsequent treatments, resynchronization or bull exposure: 1TAI+NS = one TAI followed by natural service (NS) until the end of the BS (n = 450); 2TAI+NS = two subsequent TAI with 32d interval between AIs followed by NS until the end of the BS (n = 300); and 3TAI = three subsequent TAI with 32d interval between AIs (n = 755). For TAI, cows received an intravaginal device with 1 g progesterone (P4; Cronipres® Mono Dose M-24, Biogénesis Bagó, Curitiba, Brazil) and were treated with 2.0 mg estradiol benzoate (EB; Bioestrogen®, Biogénesis Bagó) IM on Day -10. On Day -2, the device was removed and cows were treated with 300 IU eCG (Novormon®, Zoetis, São Paulo, Brazil), 1.0 mg estradiol cypionate (EC; ECP®, Zoetis) and 112.5 µg D-cloprostenol (PGF; Croniben®, Biogénesis Bagó) IM. All cows were inseminated 48h after the P4 device removal (Day 0). On Day 22, cows from groups 2TAI+NS and 3TAI were resynchronized with the insertion of a P4 device and 1.0 mg EB IM. On Day 30, they were submitted to ultrasonography evaluation (Chison 9300VET, Kylumax, Brazil) for pregnancy diagnosis. Non-pregnant cows went through device removal, received 300 IU eCG, 1.0 mg EC and 112.5 µg PGF IM and were TAI 24h later (48h after P4 device removal; Day 32). Pregnant cows, just have the P4 device removed with no further treatment. On Day 54, cows from group 3TAI were resynchronized with the same protocol to receive a third TAI on day 64. Cows from groups 1TAI+NS and 2TAI+NS were exposed to clean-up bulls (1 bull per 25 cows) 15d after the last TAI. Statistical analysis was performed using GLIMMIX procedure of SAS 9.3. Pregnancy rate after the first TAI was similar between groups [1TAI+NS = 64.0% (288/450); 2TAI+NS = 66.0% (198/300); 3TAI = 65.4% (494/755); P = 0.83]. Pregnancy rate was also similar after the second TAI: [2TAI+NS = 43.1% (44/102); 3TAI = 37.5% (98/261); P = 0.33]. Pregnancy rate for third TAI (group 3TAI) and NS (groups with NS after TAI) until the final pregnancy diagnosis was also similar [1TAI+NS = 36.4% (59/162); 2TAI+NS = 36.2% (21/58) and 3TAI = 43,9% (72/164); P = 0.28] The overall pregnancy rate at end of the BS was different within groups [1TAI+NS = 77.1% (347/450)b; 2TAI+NS = 87.7% (263/300)a; 3TAI= 87.8% (663/755)a; P = 0.0001]. In conclusion, the use of two TAI followed by NS or three consecutive TAI with 32 d interval between AIs were more efficient (greater pregnancy rate) then one TAI followed by NS. Moreover, the program with three TAI enables the establishment of a 64 days BS, without the use of bulls (AI of all cows in all services), what may also allow greater genetic gain.
Credits: Farm Engano and CNPq 152030/2016-6.

A055 TAI/FTET/AI

Effect of busereline acetate (GNRH) on the fertility in Jersolando (Holstein X Jersey) Heifers submitted to lactation induction protocol

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The present studies' objective was to evaluate the effect of busereline acetate (GNRH) on fertility of Jersolando (Holstein x Jersey) heifers submitted to lactation induction protocol (IL). The effect of the presence of non-ovulatory follicles (NOF), cyclicity rate (RtCyc) and pregnancy rate after three TAIs in heifers submitted to hormonal treatment for IL was verified. The experiment was conducted in Itararé/SP – Brazil, with 106 crossbred heifers (½ Jersey x ½ Holstein), aged 34.7±0.5 months, live weight (LW) of 439.3±5.7kg and BCS=3.05±0.03. On D-20, the hormonal protocol for IL begun on all females (500mg of bSTr (Boostin®, MSD, SP, Brazil)on D-20, -13, -6 and 0; 30mg/heif/d of BE (SincroBE®, Ourofino, Brazil) and 300mg/heif/d of P4 (Sincrogest injetável®, Ourofino, Brazil) IM from D-20 to -13; 20mg/heif/d of BE (SincroBE®) from D-12 to -6; 0.530mg/heif of PGF (SincroCIO®, Ourofino, Brazil) on D-5; 40mg/heif/d of dexametasone (Cortiflan®, Ourofino, Brazil) from D-2 to 0; 5 min daily massage of the teats and udder from D-4 to -1; milking starting on D0; after the onset of lactation, heifers received 500mg of bSTr (Boostin®) every 14d). On D15 US was used in order to evaluate the presence of CL and NOF. On this moment, heifers were divided in two groups: 1) Control (N=53): heifers that did not receive any treatment; 2) GnRH (n=53): treatment with 5mL (0.021mg) of busereline acetate (Sincroforte®). A second US was done 30 days after the first evaluation (D45) and the first TAI was on D80. The same TAI protocol was used for both groups [D0: 2mg of estradiol benzoate (Sincrodiol®); 0.530mg of Cloprostenol sodium (PGF2α; Sincrocio®); 0.01mg of busereline acetate (GNRH; Sincroforte®); and insertion of P4 device (1g of P4; Sincrogest®, Ourofino, Brazil)]. Eight days later the P4 device was removed, associated with administration of 1mg of estradiol cipionate (SincroCP®, Ourofino, Brazil); 0.530mg of Cloprostenol sodium (Sincrocio®) and 400IU of eCG (SincroeCG®, Ourofino, Brazil)]. The TAIs were done 48 hours after the removal of the P4 device, using conventional semen. Two resynchronizations were carried out after early pregnancy diagnosis (30 days after TAI). Data were analyzed using the PROC GLIMMIX of SAS v9.4. The RtCyc 15 days after the first milking was 7.5% (8/106) and the NOF rate was 32.1% (34/106). No interaction between time*GNRH treatment (P=0.20) and GNRH treatment effect (P = 0.12) were observed on the presence of NOF. However, time effect on the decrease of NOF was observed (D15 = 32.1% (34/106); D45 = 10.4% (11/106); P = 0.0003). No interaction was observed between time*GNRH treatment (P=0.80) and GNRH treatment effect (P=0.77) on the RtCyc. Moreover, effect of time on RtCyc was observed (D15 = 7.3% (8/106); D45 = 50.0% (53/106); P = 0.0001). Pregnancy rate to 1st, 2nd and 3rd TAI was 48.9% (45/92) 45.7% (21/46) and 31.3% (5/16), respectively, resulting in na accumulated pregnancy rate of umo out76.1% (70/92). In conclusion, the treatment with GNRH 15 days after the initiation of lactation was not effective to increase the fertility of Jersolanda (Holstein vs. Jersey) heifers submitted to the lactation induction protocol. The induction of lactation protocol can be used as a strategy to boost fertility in crossbred heifers. Also, it can increase milk yield and minimize economic losses referent to reproductive failures.

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A056 TAI/FTET/AI

Progesterone pre-exposition to ovulation synchronization protocol increases follicular diameter and pregnancy rate in suckled *Bos indicus* cows

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The objective was to evaluate the effect of pre-exposition of injectable progesterone to timed artificial insemination (TAI) protocol on follicular growth and pregnancy rate of suckled-anestrus Bos Indicus cows. Suckled-anestrus Nelore cows (n=681; 325 primiparous and 356 multiparous), at 30-60 days postpartum and body condition score of 2.72±0.01 (scale of 1 – 5) were used. Ten days before TAI protocol (D-10), cows were divided into 3 experimental groups (Control group, P4 group and P4GnRH group). In the Control group, cows received 2 mg of estradiol benzoate (Sincrodiol®, Ouro Fino, Brazil) and a progesterone intravaginal device (Sincrogest®, Ouro Fino, Brazil). On day 8 (D8), the progesterone device was removed and cows received 500µg of Cloprostenol (Sincrocio®, Ouro Fino, Brazil), 300 IU of eCG (SincroeCG®, Ouro Fino, Brazil) and 1 mg of estradiol cypionate (SincroCP, Ouro Fino, Brazil). On the P4 group, cows received 150mg of injectable progesterone (Sincrogest Injetável®, Ouro Fino, Brazil) on D-10 and were submitted to the same synchronization protocol as the Control group. On the P4GnRH group, cows received the same treatment as the P4 group associated to the administration of 10µg of buserelin (Sincroforte®, Ouro Fino, Brazil) on D0. In a subgroup (n=420; 176 primiparous and 244 multiparous), ultrasound exams were performed to evaluate the diameter of the largest follicle (D0, D8 and D10), for evaluation of ovulation rate (presence of CL on D24 ipsilateral to largest follicle on D10) and diameter of the corpus luteum (D24). Pregnancy diagnosis was 30 d after TAI. Statistical analyses were performed by GLIMMIX procedure of SAS and the continuous variables were presented by mean ± standard error. The diameter of the largest follicle (LF) on D10 (P=0.21), follicular growth rate (P=0.34) and ovulation rate [Control 78.2% (104/133), P4 80.3% (110/137) and P4GnRH 75.2% (106/141); P=0,61] were similar among experimental groups. However, there was difference among groups for the LF on D0 [Control (10.9±0.2mm)b, P4 (12.7±0.3mm)a and P4GnRH (12.6±0.3mm)a; P=0.001], LF on D8 [Control 0% (9.7±0.2mm)b, P4 (10.4±0.2mm)a and P4GnRH (9.9±0.2mm)ab; P=0.05], presence of the CL on D8 [Control 0% (0/136)b, P4 0% (0/140)b and P4GnRH 26.4% (38/144)a; P=0.001], diameter of the CL on D24 [Control (19.7±0.4mm)ab, P4 (20.1±0.4mm)a and P4GnRH (18.5±0.4mm)b; P=0.001] and pregnancy rate [Control 35.0% (78/223)b, P4 45.9% (105/229)a and P4GnRH 40.6% (93/229)ab]. In conclusion, the pre-exposition to progesterone on TAI protocol increased diameter of the LF on D0 and D8 without interfering on the ovulation rate. Furthermore, such exposure increases the pregnancy rate in suckled-anestrus Nelore cows.

Support: Ouro Fino Saúde Animal and FAPEMIG.

A057 TAI/FTET/AI

Factors that affect pregnancy rate to TAI and to natural breeding of 14 months old Nelore heifers

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Two experiments were conducted with the objective of studying the factors that affect the pregnancy rate of 14 months old Nelore heifers submitted to TAI (study 1; E1; n=404) and natural breeding (E2; n = 893; bull:heifer ratio was 1:30). For TAI, heifers received a Norgestomet device (Crestar, MSD, São Paulo, Brasil) and 2mg of EB (Gonadiol, MSD) on D0, followed by device removal and treatment with 0.3mg of EC (ECP, Zoetis, São Paulo, Brasil), 0,530mg of Cloprostenol sodium (Ciosin, MSD) and 300IU of eCG (Novormon, Zoetis) on D9 and TAI on D11. On both studies, gynecological evaluation was performed to determine presence of CL and uterus score (USC; A = uterine horns diameter > 2cm; B = uterine horns with diameter between 1.5 and 2cm; and C = uterine horns with diameter < 1.5cm) on D-10 and D0 of the breeding season (BS), loin eye area (LEA), subcutaneous fat thickness (SCFT), daily average weigh gain (DAWG), withers height (hWIT) and the diameter of the largest follicle (DF). Pregnancy diagnosis was performed by ultrasonography 30 (E1 and E2) and 50 days (E2) after TAI or bull exposure. Data was analyzed by logistic regression (PROC GLIMMIX from SAS). On E1, none of the heifers subjected to TAI was cycling or had an A USC on the beginning of the BS. The pregnancy rate was higher on heifers with USC B [41.1% (122/297)] comparing to USC C heifers [17.8% (19/107); P=0.0005]. Pregnancy probability was higher for animals with greater SCFT (R2 = 0.208; P = 0.005) and DAWG (R2 = 0.168; P = 0.0007). The LEA (R2 = 0.115; P = 0.13) and hWIT (R2 = 0.309; P = 0.28) characteristics did not affect pregnancy rate. On E2, the cyclicity rate of heifers exposed to natural breeding was 5.3% (47/893) at the beginning of the BS. There was no difference (P=0.22) on pregnancy rate according to cyclicity on 30 days of BS [Cycling=27.7% (13/47) and Anestrous=9.9% (84/846)]. However, pregnancy rate on 50 days of BS differed [Cycling=53.2% (25/47) and Anestrous=13.4% (113/846); P>0.0001]. Pregnancy rate on 30 days of BS did not differ according to USC (P=0.2) [A=40.0% (10/25); B=12.4% (80/647) and C=3.2% (7/221)]. However, there was a difference (P<0,0001) on pregnancy rate on 50 days of BS according to USC [A=64,0% (16/25)a; B=17,9% (116/647)b and C=3,2% (7/221)c]. The pregnancy probability was not influenced by SCFT (R2 = 0.096; P = 0.42) and LEA (R2 = 0.061; P = 0.61). DAWG positively influenced the probability of cyclicity (R2 = 0.263; P < 0.0001) and pregnancy (R2 = 0.093; P = 0.005). hWIT negatively influenced pregnancy probability (R2 = -0.082; P = 0.03) and did not have effect on cyclicity probability (R2 = -0.062; P = 0.1). Pregnancy probability increased according to DF (R2 = 0.117; P = 0.0004). Thus, it was possible to verify that heifers with higher SCFT and DAWG had greater pregnancy probability to TAI. Heifers submitted to natural breeding with higher DAWG and DF and smaller hWIT had greater probability to become pregnant. Further, pregnancy rates to TAI and natural breeding were higher on heifers with greater USC.

Credits: Farms Nelore Jandaia, São Geraldo, Terra Boa, Agroandorinha, Martendal, Agropeva, Marca OB and CNPq 152030/2016-6.

A058 TAI/FTET/AI

Follicular and luteal function of crossbred cows with different circulating concentrations of progesterone during synchronization of ovulation in an TAI protocol

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Due to the lack of information on the impact of serum P4 concentration during ovulation synchronization in crossbred dairy cows, the objective of this work was to study the effect of different circulating concentration of P4 at the time of ovulation synchronization in a TAI protocol under follicular dynamics and characteristics of the corpus luteum (CL). For this, 12 crossbred cows with a mean BCS of 3.07±0.38 were submitted to a pre-synchronization protocol to guarantee that all animals had CL in the beginning of the protocol, ensuring the presence of this structure by transrectal ultrasonography (US). Subsequently on Day 0 (D0), all the animals received a CIDR® device (Zoetis, São Paulo, Brazil) in association with 2mg of GONADIOL® (Zoetis, São Paulo, Brasil) administrated instramuscularly (IM) and half of them were treated with 12.5mg of LUTALYSE® (Zoetis, São Paulo, Brazil) (IM). On D8 the CIDR devices were removed and then 12.5mg of LUTALYSE (IM) and 1mg of ECP® (Zoetis, São Paulo, Brazil) (IM) were administered. At this time, the females were splitted into two groups based on the treatment with PGF2α at D0: group w/CL (n=6) and group W/O CL (n=6). The animals underwent evaluation of the follicular dynamics and vascularization using B-mode and color Doppler US (Mindray Z5, Shenzhen, China), the exams took place every 12 hours from D8 until ovulation. Also, blood samples were collected to determine the serum pre-ovulatory P4 concentration (D0, D8 and D10 of the protocol). On D24 of the protocol, the morphological and functional characteristics of the CL were evaluated through color Doppler and B mode US, and blood samples were collected to measure the serum P4 concentration. The data were analyzed using the ANOVA procedure and the Tukey test in SPSS, $P < 0.05$. The follicular diameters on D10 were 8.78 ± 2.04 and 13.12 ± 3.52 mm for the groups w/ CL and w/o CL respectively, the pre-ovulatory follicle diameter 9.48 ± 2.12 (w/ CL) and 13.66 ± 2.58 mm (w/o CL) and in the vascularized area of the wall of the pre-ovulatory follicle 0.09 ± 0.04 (w/ CL) and 0.18 ± 0.09cm² (w/o CL). The concentrations of P4 were 1.72 ± 1.16ng / mL (w/o CL) and 7.56 ± 3.70ng / mL (w/ CL) on D8. Females of the group w/ CL had a smaller diameter (17.66 ± 1.89 and 23.25 ± 4.46mm) and vascularized area (0.82 ± 0.29 and 1.21 ± 0.27cm²) of CL in D24 compared to females in the group w/o CL group, respectively. The serum P4 concentration on D24 did not differ between groups. In conclusion, high concentrations of P4 at the time of ovulation synchronization negatively impacted on the diameter, and follicular and luteal vascularization of crossbred cows.

A059 TAI/FTET/AI

Twin pregnancy increases gestational loss in Nelore heifers submitted to FTAI

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The present study aimed to compare the maintenance of single or twin pregnancies between 30 and 60 days, and, between 60 days and calving, in Nelore heifers (*Bos taurus indicus*) submitted to FTAI. A total of 953 pubertal Nelore heifers (CL detection on Day 0) aging from 22 to 26 months received an auricular ear implant containing 3mg of Norgestomet (Crestar, MSD Animal Health, Brazil) associated with 2mg of Estradiol Benzoate IM (Estrogin, Biofarm, Brazil) on Day 0. On Day 8, the device was removed and 0.265mg of Cloprostenol Sodium (Ciosin, MSD, Brazil), 300IU of eCG (Novormon, Zoetis, Brazil) and 0.5mg of Estradiol Cypionate (ECP, Zoetis, Brazil) were administrated intramuscularly. The FTAI was performed by the same inseminator 48 hours after device withdrawal (Day 10). Ultrasonography (Aloka SSD 500, Tokyo, Japan) was performed 30 days after AI (Day 40) to determine pregnancy rate and the frequency of single or twin pregnancies. The animals were divided into 2 groups: Single Gestation Group (SGG) and Twin Gestation Group (TGG). Pregnancy loss between 30 and 60 days was established as the absence of fetus(es) or presence of dead fetus(es) on Day 70-ultrasonography examination on previous pregnant heifers. Moreover, the pregnancy loss between 60 days and parturition was defined as the visual detection of placenta prior to the predicted calving date (292 days after FTAI) and/or no calving until 60 days after this prediction. The results were analyzed by PROC GLIMMIX the SAS® (Statistical Analysis System, version 9.3 Institute Inc., Cary, NC, USA, 2003). The pregnancy rate on Day 40 was 50.2% (478/953). The gestational status verified was: SGG=93.3% (446/478) and TGG=6.7% (32/478). The maintenance of the pregnancy between 30 and 60 days after the FTAI was greater (P=0.03) in the SGG (96.4%; 430/446) than in the TGG (65.6%; 21/32). Pregnancy loss between 30 and 60 days was lower (P <0.001) in SGG (3.6%; 16/446) than in TGG (34.4%; 11/32). Similarly, pregnancy loss between 60 days after FTAI and calving was lower (P<0.0001) in SGG (11.6%; 50/430) than in TGG (71.4%; 15/21). Therefore, we concluded that gestational loss after FTAI was higher in Nelore heifers holding twin pregnancies when compared to heifers presenting single fetus gestation.
Acknowledgments: HoRa Agronegócio e Virbac Animal Health.

A060 TAI/FTET/AI

Immunization against IBR, BVD, leptospirosis and campilobacteriosis (Bovigen® Repro Total SE) increases conception rate and decreases embryo loss of Nelore cows under TAI program

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This study aimed to evaluate the effect of immunization against IBR, BVD, leptospirosis and campylobacteriosis on the pregnancy rate and embryo loss of Nelore cows submitted to TAI. Nelore cows (n = 323; BCS = 2,78 ± 0,12) were used, from a comercial farm under pasture conditions without history of vaccination against the reffered desease. Females underwent to ultrasound (D-21) assessment to confirm the absence of gestation were divided into two groups based on BCS, as follows: Control (n = 156) - animals that received no vaccination and Vaccinated (n = 167) - 5 mL i.m. of the Bovigen® Repro Total SE vaccine (Virbac Animal Health, Brazil). Vaccinated group received on D0, a second dose of the reproductive vaccine and a TAI protocol was started in all 323 females with an intravaginal P4 device (Sincrogest®, Ourofino, SP, Brazil) introduced and injected i.m. 2 mg EB (Sincrodiol®, Ourofino, SP, Brazil). On D8, P4 device was removed and injected 500µg i.m. sodium cloprostenol (Sincrocio®, Ourofino, SP, Brazil), 1 mg of ECP i.m. (E.C.P.®, Zoetis, SP, Brasil) and 300 IU of eCG (Novormon®, Intervet, SP, Brasil). Females were inseminated 48 h after P4 removal and on D13 was injected 150 mg of P4 i.m. IM (Sincrogest, Ourofino, SP, Brasil). Pregnancy diagnosis and embryo loss exam was performed by ultrasonography (Chison 9300 vet, Kylumax – Indaiatuba/SP) on D40 and D77. Statistical analysis was performed with proc GLIMMIX of SAS, considering significance when $p<0.05$. Pregnant cows on D40 detected without fetus or even fetus with no heart beats were considered with pregnancy loss. However, on D40 there was not difference ($p = 0.1083$) between control and vaccinated [46.15% (72/156) vs. 54.49% (91/167)]. On the other hand, pregnancy was higher for vaccinated on D77 [control = 41.67% (65/156) vs. vaccinated = 53.89% (90/167); $p = 0.0285$)]. Control group showed higher pregnancy loss between 30 and 67 days after AI [control = 9.72% (7/72) vs. Vaccinated = 1.1% (1/91); $p = 0.0372$]. Thus, data suggests that immunization with Bovigen® Repro Total SE (IBR, BVD, leptospirosis and campylobacteriosis) lean Nelore cows under grazing conditions in Central Brazil, never vaccinated for these diseases, provided greater pregnancy at 67 days probably due to the fact that the immunized animals showed less embryonic loss. Complementary studies are underway to evaluate the seroprevalence of these diseases.

A061 TAI/FTET/AI

Early induction of luteolysis in FTAI protocols increases fertility in beef cows

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Complete luteolysis is essential for pregnancy success in beef cows submitted to FTAI protocols. The objective of this study was to evaluate the effect of PGF administration on Day 7 compared to Day 8 of a FTAI protocol on serum P4 concentration, estrus behavior, ovulatory follicle (OF) diameter, and pregnancy per AI (P/AI). A total of 469 non-lactating Angus cows (with CL, n= 359 or without CL, n= 110), BCS 2.9±0.2 (1 to 5 scale), maintained on pasture were used. Cows received a 1g progesterone-releasing intravaginal device (Reproneo; GlobalGen, Brazil) and 2mg of estradiol benzoate i.m. (Syncrogen; GlobalGen, Brazil) on Day 0. On Day 7, animals were randomly allocated into two groups. Cows were treated with 500mcg sodium cloprostenol, i.m. (Inducio; GlobalGen, Brazil), on Day 7 (PGF7, n= 238) or on Day 8 (PGF8, n= 231). P4 devices were removed and 0.5mg of estradiol cypionate, i.m. (Cipion; GlobalGen, Brazil) was injected in all females on Day 8. FTAI was performed 48 to 52 h after P4 device removal. Females had sacral region painted with appropriate paint (TELL TAIL, GEA, New Zealand) on Day 8 to detect expression of estrus. Transrectal ultrasonography (7.5 MHz linear transducer, MediSono P3V, USA) was performed on Day 0 to detect presence of CL, on Day 10 to measure OF diameter, and on Day 40 to diagnose pregnancy. Blood samples were collected on Days 8 and 10 to measure P4 serum concentration by radioimmunoassay. Estrus behavior and pregnancy rate were analyzed as binary outcomes using logistic regression (Proc GLIMMIX, SAS). OF diameter and P4 concentration were submitted to analysis of variance (Proc GLIMMIX, SAS). The estrus manifestation was greater (Odds ratio= 2.9; P = 0.0002) in females of PGF7 group (91.6%; 218/238) than PGF8 (78.8%; 182/231). The P/AI of cows that exhibited estrus was 60.2% (241/400) vs. 39.1% (27/69), resulting in higher chance (Odds ratio= 2.4) of pregnancy associated with estrus behavior (P = 0.0014). OF diameter did not differ (P = 0.0881) between PGF7 (11.7mm) and PGF8 (11.3mm). The P/AI was higher (P = 0.0034) for PGF7 group (63.9%, 152/238) vs. PGF8 (50.2%, 116/231). In group PGF7, P4 on Day 8 did not differ between pregnant (1.7ng/ml) and non-pregnant (1.9ng/ml) females. However, group PGF8 pregnant females had lower P4 concentration (2.6ng/ml) on Day 8 (P = 0.0005) than non-pregnant (3.4 ng/ml) females. On Day 10, P4 did not differ between treatments (PGF7 = 0.11ng/ml vs. PGF8= 0.09ng/ml) and did not affect fertility (P= 0.2515). According to results, OF diameter and P4 concentration on Day 10 were not influenced by the day of PGF administration, however, earlier PGF injection resulted in higher estrus behavior and increased fertility.

A062 TAI/FTET/AI

Influence of vaccination against reproductive diseases and use of streptomycin in the pregnancy rate and gestational loss of buffaloes submitted to FTAI in the state of Amapá, Amazon, Brazil

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The objective was to evaluate the effects of vaccination against IBR/BVD/ Leptospirosis and the use of streptomycin in the pregnancy rate and gestational loss of buffaloes submitted to Artificial Insemination at Fixed Time, extensively created in floodplain area in the state of Amapá, Amazonia, Brazil. Eighty pluriparous buffaloes with (ECC) 2.94 ± 0.43 were used. The animals were divided into two groups: Treated Group (GT) with 43 animals and Control Group (CG) with 54 animals. The GT group received the application of streptomycin (Estreptomax®, OuroFino Saúde Animal, Brazil) at D9 of the IATF protocol at a dose of 10 mg / kg intramuscularly, plus a vaccine against IBR/BVD/ Leptospirosis (Poliguard®, Vallée, Montevideo , Uruguay) at the 5 mL dose subcutaneously. A second dose of the IBR/BVD/ Leptospirosis vaccine (Poliguard®, Vallée, Montevideo, Uruguay) was reapplied 30 days after inseminations. The Control- (CG) group received no treatment. The GT and GC were submitted to the same estrus synchrony protocol: {day zero [D0] in the afternoon 2.0mg estradiol Benzoate (BE) by IMP (Sincrodiol®, OuroFino Saúde Animal, São Paulo, Brazil), insertion Of intravaginal progesterone-P4 mono-dose device (Primer®, Tecnopec, São Paulo, Brazil); (D9) and P4 + 0.5 mg of prostaglandin (PGF2α) by IMP (Sincrocio®, OuroFino Saúde Animal, São Paulo, Brazil) + 400 IU of equine chorionic gonadotrophin - eCG by the IMP pathway (SincroeCG®, OuroFino Saúde Animal, Brazil); Day 11 (D11) in the afternoon 25µg of gonadotrophin releasing hormone - GnRH by IMP (Gestran Plus®, Tecnopec, São Paulo, Brazil) and day 12 (D12) morning IATF. The diagnosis of gestation was performed 30 and 90 days after inseminations. The chi-square test was used to evaluate the pregnancy rate. Fisher's exact test was used with 5% significance ($p < 0.05$) for gestational loss. The overall pregnancy rate was 37.11%, the GT pregnancy rate was 41.87% and the GC was 33.33%, and did not differ statistically ($P > 0.05$). The gestational loss rate was 11.11% in GT and 22.22% CG, with no difference ($P > 0.05$). There was no significant difference between the groups, thus, streptomycin and vaccination had no influence on pregnancy rate or embryo losses.

A063 TAI/FTET/AI

Fixed-time artificial insemination in buffaloes raised extensively in swamp of the state of Amapá

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We evaluated the FTAI in buffaloes raised extensively. Thus, the influence of the body condition score, the insemination period, the semen used and the protocols used in the pregnancy rate of buffaloes was verified. The work was carried out at the Motogeral farm, municipality of Itaubal in the state of Amapá, ground of native pastures in a floodplain region, the FTAI were in the low tide of the Amazon River between September 2016 and January 2017. 138 buffaloes were used, selected for Choice of protocol by ECC and presence of the corpus luteum. The first phase was performed in the months of September / October, 56 females with 3.5 ± 0.6 ECC, received the following protocol. In the D0 (the afternoon) intravaginal Progesterone (Sincrogest®) 3rd use device plus 2.0 ml of estradiol Benzoate IM (Sincrodiol®); D9 (the afternoon) withdrawal from the device + 2.0ml PGF2α (Synchroci®) + 400UI eCG (SincroeCG®); D11 (in the afternoon) 1.0ml of GnRH (Gestran Plus®) and in D12, FTAI in the morning. The second phase was performed in the months of November to January 2017, 34 females with ECC = 3.59 ± 0.7 received the protocol called (ovsynch-plus), in the D0 (the afternoon) single-use progesterone intravaginal device (monodose Primer) plus 1.0 ml of GnRH (Gestran Plus®); D9 (the afternoon) withdrawn from the device and application of 2.0ml PGF2α Sincrocio®; D11 (in the afternoon) 1.0ml GnRH Gestran Plus®; D12 (in the morning) FTAI. Other 48 buffaloes with ECC = 3.09 ± 0.95 received the protocol called (ovsynch-plus) except for the application of 400UI (2.0ml) eCG (SincroeCG®) in D9. After 30 days of the inseminations, a diagnosis of gestation was performed using the Mindray D2200 vet device. The data were evaluated through specialized SAS software (2009) and the chi-square statistical test with significance level of 5%. Of the 138 buffaloes, 57 (41.3%) were pregnant. At the FTAI in September / October, 44.6% (25/56) became pregnant. At the FTAI of November 2016 / January 2017, the pregnancy rate with the protocol called ovsynch-plus was 55.88% (19/34) and the rate in buffaloes with ovsynch-plus plus eCG was 27.08% (13/48). This lower pregnancy rate is explained by the decrease in body condition and the beginning of floods (January) in the region. There was no statistical difference in the body condition score, and the use of national or imported semen. There was a difference ($P < 0.05$) between the protocols used. We conclude that the period from September to January, in this region is a favorable season for FTAI, however, to avoid the onset of floods, and that the ovsynch-plus protocol proved to be satisfactory.

A064 TAI/FTET/AI

Epidemiological survey based on the prevention of endometritis in mares donating embryos in the state of Pernambuco

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Uterine infections are the most common cause of infertility in mares. In general uterine lesions result from ascending infection infectious agents introduced during manipulations such as artificial insemination, embryo transfer or postpartum. The objective of this work was to do an epidemiological survey from cases sent to our laboratory and guide the veterinarians to minimize these problems. Twenty one mares were examined by rectal palpation and ultrasound, all with a history of infertility or negative embryo transfer flush. Uterine cytology and microbiological samples were collected. For that, sterile swab was used (PROVAR®). Then, a microscope slide smear harvested from the endometrial surface was prepared, and swabs were placed, immediately sealed, identified, chilled and sent to LABRAPE from UFRPE/UAG for further processing. From the 21 mares collect, 6 showed no clinical signs (28.5%) by rectal palpation or ultrasound examination, while the remaining 15 mares (71.4%) presented some type of disfunction such as presence of intrauterine fluid or vaginal discharge. Nineteen (90,4%) of the samples had cytological findings and microbiological tests positive demonstrating a high correlation between these techniques. The microorganism presented most often was Streptococcus spp., being seen in 6 cultures (6/21 - 28.5%), followed by Staphylococcus spp (5/21 - 23.8%), Enterobacter SP and Coccus bacillus (4/21 - 19.0% each) and 2 isolates of Klebsiella sp (9.5%). Fungi were isolated in 9 out of 21 samples analysed (42.8%). Aspergillus spp (4/9 - 44.4%), Candida (2/9-22.2%), and there is still the development of other genres like Curvalaria spp, Cladosporium spp. and Zygomices spp. all with percentage of 11.1% (1/9) each. Mixed fungal and bacterial infections were recorded on 6 samples (28.5%). The rate of fungal infection were considered very high above standards and during epidemiological questionnaires with the veterinarians, were detected 2 important risk factors: history of uterine treatments without achieving bacteriological examination and/or culture, in addition to repeated flushes uninterrupted for embryo collection. The indiscriminate use of antibiotics is associated with reduction of immunity that leads to an increased incidence of these infections. It is important to stress the necessity for agent identification and knowledge of drug susceptibility in order to achieve effectiveness in the therapy employed. The results of this study demonstrate the high rate of fungal infections in embryo transfer donors mares and the need of good practice in the field in order to minimize economic losses and improving reproductive efficiency in equine livestock.

A065 TAI/FTET/AI

Improved conception results following GnRH treatment on day 2 of progesterone and estradiol-based synchronization protocols in high producing dairy cows

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The objective of this study was to study the possibility of improving conception results (P/AI) with a GnRH treatment given at different times at the beginning of progesterone + estradiol-based protocols in high producing dairy cows. Holstein cows (n = 871) from two commercial herds in Brazil, with daily production of 33.2 ± 4.8 kg at 170.1 ± 11.2 DIM were enrolled at 1st post-partum AI or when found open at pregnancy diagnosis. Cows were randomly allocated one of the following timed AI protocols: 1) EBP4: D0 = 2mg of EB (estradiol benzoate, Biofarm) + progesterone device insertion P4 (PRID®, Ceva), D7 = PGF2a (Veteglan®, Hertape), D9 = 1mg ECP (Cipionato-HC, Hertape) + PGF2a (Veteglan®, Ceva) plus PRID removal, D11 = TAI, approximately 48h after PRID removal; 2) EBG0: similar protocol, with the addition of a GnRH (Cystorelin, Merial) on day 0 (D0); 3) EBG2: similar protocol, with the addition of a GnRH on day 2 (D2). Pregnancy diagnosis by ultrasound was performed 30 days post AI. Statistical analysis were performed with the Glimmix procedure of SAS, 9.4. Cows in EBG2 had greater conception results compared to EBP4 cows (38.2% vs 28.7%; $P<0.05$). Cows in EBG0 had intermediate conception results (34,5%). In addition, there was no interaction between type of protocol and parity ($P=0.11$) or type of protocol and farm ($P=0.79$). These findings suggest a positive effect when associating GnRH 2 days after EB in progesterone-based timed AI protocols, likely related to improved synchrony of follicular emergence in cows responding either to EB or GnRH. Acknowledgements: Ceva.

A066 TAI/FTET/AI

Morphometry and lutein endocrinology Heifers of Nelore supplemented with sunflower seed

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The influence of nutrition on reproductive performance is a topic that has generated interest in researchers and especially lipid supplementation. Studies using a diet supplemented with polyunsaturated fatty acids (PUFAs), found in seeds such as sunflower and linseed, indicate benefits for reproductive functions, such as: altered follicular development, increased progesterone concentration, improved embryo quality and decreased Luteolytic signals during maternal recognition of gestation. The objective of this study was to evaluate the luteal development and plasma concentration of progesterone in Nelore heifers supplemented with sunflower seeds. Thirty animals aged 2 to 3 years, with a body condition score of 2.5 to 3.5 (1 to 5), were used in Brachiaria decumbens pasture, with water and mineral salt ad libitum. Before initiating ultrasonographic evaluations of the reproductive tract, heifers were divided into two groups, where they received: 1.7 kg / day of food supplement with 40% of soybean meal and 60% of sunflower seed (GT group: N = 15) or 1.7 kg / day feed supplement containing 53% soybean meal and 47% corn (Control Group, GC: n = 15) for 60 days. Immediately after this period the heifers had ovulation synchronized with hormonal protocol of IATF (artificial insemination at fixed time), 3 passages with implant placement at D0 and withdrawal at D8. From the D10, an ultrasound (US) examination of the ovaries and blood collection was performed to monitor the development of the corpus luteum (CL) and plasma progesterone concentration (P4), every 48 hours, for 26 days. Analysis of variance was used followed by the Tukey test when there was difference, using a significance level of 5% ($P < 0.05$). There was no difference ($P > 0.05$) in the CL diameter between the groups studied, with the maximum diameter in the GT 17.61 mm observed on day 10 and the GC 19.51 mm on day 12. The supplementation also did not influence the production of progesterone which reached its maximum concentration in D12 (7.07 ng / mL) in GC and D14 (6.5 ng / mL) in GT. It was concluded that the diet with sunflower seed did not affect the morphology or functionality of CL, since there was no difference in progesterone diameter or plasma concentration. FAPESP (2015/24007-0).

A067 TAI/FTET/AI

New strategies to improve pregnancy rate at TAI using sex-sorted semen

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Two experiments was conduced to define strategies to optimize pregnancy rate in suckled Nelore cows to TAI with sex-sorted semen. Cows receiveid the same TAI protocol in both experiments (2mg of EB + intravaginal P4 device on D0; device was removed and PGF2α + 300IU of eCG + 1mg of EC were adminstered on D8 and cows were inseminated on D11). Cows' handling was done at end of the day (5:00-7:00pm), and TAI was done on the morning of D11 (5:00-7:00am; 60 hours after P4 device removal). In experiment 1 (n=796), three Nelore bulls had their semen sex-sorted for females. The same ejaculate of each bull was distributed following experimental groups: 1) Conventional, frozen semen without sexing with 20x106 of sptz; 2) Legacy, sex-sorted semen with 2,1x106 of sptz (previous sexing methodology); 3) Sex-Ultra 2, sex-sorted semen with 2,1x106 of sptz (current sexing methodology); 4) Sex-Ultra 4, sex-sorted semen with 2,1x106 of sptz (current sexing methodology with enhanced concentration). The data were analyzed using the PROC GLIMMIX procedure of SAS version 9.3. There was no difference in the pregnancy rate among bulls (P=0.15), among farms (P=0.46) and no interaction bull*group (P=0.84) and farm*group (P=0.95). However, there was difference in pregnancy rate to TAI according to the used method [Conventional=56.2%a (112/199), Legacy 2.1=28.2%c (58/206), Ultra 2.1=37,6%bc (72/191) and Ultra 4.0=43.0%b (86/200); P<0.0001]. In experiment 2 (n=613), three Angus bulls had their semen sex-sorted for males. The same ejaculate of each bull was distributed to the following experimental groups: 1) Conventional, frozen semen without sexing with 20x106 of sptz; 2) Sex-Ultra: 4.0x106 of sptz; 3) Sex-Ultra Pure: 4.0x106 of sptz (with removal of dead sptz). A subgroup of 431 cows had the base of their tail painted for detection of estrus between P4 device removal and TAI. There was no difference in the pregnancy rate between bulls (P=0.12). There was farm effect (P=0.03), however, there as no farm*group interaction (P=0.61) and bull*group interaction (P=0.40). The pregnancy rate was similar between the experimental groups [Convencional=51.2% (107/209), Sex-Ultra: 4.0=42.0% (84/200), Sex-Ultra Pure=43.1% (88/204); P=0.10]. In the subgroup, there was difference in the pregnancy rate according to the estrus manifestation [Estrus=52.6% (161/306) vs No estrus=32.8% (41/125); P<0.0001). Furthermore, there was an interaction method (sex-sorted vs non sex-sorted) and estrus manifestation (P=0.0002). Decreased pregnancy rate to TAI was observed with sex-sorted semen only in cows tqhat did not present estrus. In cows presented estrus, this difference was not observed. It was conclued that sex-sorted semen Ultra with 4.0x x106 of sptz had higher pregnancy rate than Legacy with 2.1x106 of sptz. Cows that presented estrus had the same pregnancy rate at TAI when inseminated with conventional semen or sex-sorted semen. Acknowledgments: Sexing Technologies.

A068 TAI/FTET/AI

Young Nelore Heifers treated with Fertilcare 600® or Crestar® have similar pregnancy rates following TAI

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The aim of this study was to evaluate the effect of using Fertilcare 600® or Crestar® on the diameter of the dominant follicle (DF), the occurrence of estrus and pregnancy per AI (P/AI) of young beef heifers treated for TAI. A total of 271 Nelore heifers aging 12-16m old (average 14,9±0,07), with average body weight (BW) 273.0±1.3kg, average BCS 2.97±0.01 (1-5 point scale), and average uterine maturity 2,37±0,04 (1-4 scale) from two commercial farms in Rondonópolis and Apiacás, MT State, Brazil were used. Heifers had at least 240kg and were treated with the same protocol of synchronization of follicular wave emergence and ovulation for TAI, except for the use different sources of progesterone (P4) or progestin at the onset of treatment. Briefly, at random days of the estrous cycle (D0) all heifers received 1mg estradiol benzoate (Fertilcare Sincronização®, MSD, São Paulo, Brasil) IM and were homogenously distributed (BCS, BW and age) to receive one intravaginal device containing 0,6g P4 (Fertilcare 600®, MSD) or one progestin ear implant containing 3mg norgestomet (Crestar®, MSD). On D8, the device/implant was removed and 0.265mg Sodium Cloprostenol (Ciosin®, MSD), 200IU eCG (Folligon®, MSD) and 0.5mg estradiol cypionate (Fertilcare Ovulação®, MSD) 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 done by a single veterinary 48h after device removal (sheaths 3W, WTA, Cravinhos, Brazil), concomitant with estrus determination and measurement of the diameter of the DF by ultrasonography on D10. Semen of one Aberdeen Angus and one Senepol bull was homogenously distributed between groups. Diagnosis of P/IA was performed 45d after TAI (Mindray DP2200VET). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). Effect of bull (P=0.02) and farm (P=0.02) was observed. Heifers that showed estrus were older (15.1±0.1 vs 14.8±0.1; P=0.03) and heavier (275.7±1.6 vs 268.0±2.0; P=0.04) than those without estrus demonstration. The proportion of heifers with CL on D0 [3.8% (5/133) and 1.5% (2/138); P=0.45] and the grade of uterine maturity on D0 (2.41±0.07 and 2.32±0.06; P=0.50) were similar in heifers treated with Crestar® and Fertilcare 600®, respectively, evidencing the adequate balance between groups at the onset of treatment. Greater (P=0.02) rate of estrus demonstration on D10 was observed in heifers treated with Crestar® and Fertilcare 600® [71.2% (94/132)] than Fertilcare 600® [56.5% (78/138)]. However, similar diameter of the DF on D10 (10.0±0.1 and 10.0±0.1; P=0,72) was detected. P/IA tended to be greater (P=0.06) in heifers treated with P4-releasing intravaginal device Fertilcare 600® [39.9% (55/138)], compared with those treated with norgestomet ear implant, Crestar® [31.6% (42/133)]. In conclusion, both devices Crestar® and Fertilcare 600® can be used for TAI in young Nelore heifers with similar P/IA.
Credits: Farms São José and São João, CNPq152030/2016-6.

A069 TAI/FTET/AI

Treatment with GnRH (Gonaxal®) at AI increases pregnancy rate of nelore cyclic heifers that showed or not estrus during the TAI protocol, with greater impact in those without estrus demonstration

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The aim of this study was to evaluate the effect of using GnRH at AI on pregnancy per AI (P/AI) of cyclic beef heifers that showed or not estrus during TAI protocol. A total of 790 Nelore heifers aging 16-20m old, with average body weight (BW) 304.3±1.8kg and average BCS 3.10±0.01 (1-5 point scale) from two commercial farms in Nova Bandeirantes and Apiacás, MT State, Brazil were used. Heifers had uterine maturity and were treated with the same protocol of synchronization of follicular wave emergence and ovulation for TAI, except for the use or not of GnRH at AI. Briefly, at random days of the estrous cycle (D0) heifers received a Cronipres® Mono Dose intravaginal device with 1g P4 (Biogénesis Bagó, Curitiba, Brazil), 1mg estradiol benzoate (Bioestrogen®, Biogénesis Bagó) and 75 µgD-Cloprostenol (PGF2α, Croniben®, Biogénesis Bagó) IM. On D8, device was removed and 75µg D-Cloprostenol, 200IU eCG (Ecegon®, Biogénesis Bagó) and 0.5mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó) IM were given. Also on D8 heifers were painted with chalk on their tailheads, and removal of chalk was used as an indication of estrus. TAI was done by a single veterinary 48h after device removal (sheaths 3W, WTA, Cravinhos, Brazil), concomitant with estrus determination and measurement of the diameter of the dominant follicle (DF) by ultrasonography on D10. At that time, heifers that showed or not estrus were homogenously allocated (BCS, BW and age) to receive or not 10.5µg buserelin acetate (GnRH; Gonaxal®; Biogénesis Bagó), in a 2x2 factorial design. Semen of four Aberdeen Angus bulls was equally distributed between groups. Diagnosis of P/IA was done 45d after TAI (Mindray DP2200VET). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). Effect of bull (P=0.006), estrus (P=0.02), GnRH (P<0.0001) and interaction estrus*GnRH (P=0.02) was observed. The proportion of heifers with CL on D0 [60.6% (206/340) and 64.8% (259/400); P=0.32], showing estrus on D0 [65.6% (240/366) and 66.3% (281/424); P=0.83] and the diameter of the DF on D10 (12.2 ± 0.1 and 12.0 ± 0.1; P=0.17) were similar for heifers treated or not with GnRH, respectively, evidencing the adequate balance between groups before GnRH treatment. Heifers showing estrus had greater BCS (3.13±0.01 vs 3.06±0.02; P=0.002), BW (307.6±1.6 vs 299.6±1.9; P=0.001) and diameter of the DF on D10 (12.6±0.1 vs 11.1±0.1; P=0.001) than those without estrus, regardless of GnRH treatment. P/IA increased when GnRH was given on D10 in heifers with and without estrus demonstration verified on D10 [No estrus No GnRH=29.5% (41/139), No estrus+GnRH=51.2% (63/123), Estrus No GnRH=45.6% (128/281), Estrus+GnRH=51.9% (123/237); P<0.0001]. Thus, the administration of GnRH at AI increases P/IA of Nelore heifers that had showed or not estrus during TAI protocol, with greater impact in those without estrus demonstration. Thus, it can be used as a tool to optimize TAI outcomes. Credits: Farms Beira Rio and São João, CNPq 152030/2016-6.

A070 TAI/FTET/AI

Treatment with GnRH (Gonaxal®) at AI increases pregnancy rate of Nelore primiparous cows that showed or not estrus during the TAI protocol

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The aim of this study was to evaluate the effect of using GnRH at AI on pregnancy rates of primiparous beef cows that showed or not estrus at the end of the TAI protocol. A total of 703 Nelore primiparous cows with average body weight 341.8 ± 2.6 kg and average BCS 2.79 ± 0.01 (1-5 point scale) from two commercial farms in Nova Bandeirantes, Mato Grosso State, Brazil were used herein. All cows were treated with the same protocol of synchronization of follicular wave emergence and ovulation for TAI, except for the administration or not of GnRH at AI. Briefly, at random days of the estrous cycle (D0) all cows received a Cronipres® Mono Dose intravaginal device containing 1g P4 (Biogénesis Bagó, Curitiba, Brazil) and 2mg estradiol benzoate (Bioestrogen®, Biogénesis Bagó) IM. On D8, the device was removed and 150µg D-Cloprostenol, 300IU eCG (Ecegon®, Biogénesis Bagó) and 1mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó) were administered IM. Also on D8 cows were painted with chalk on their tailheads, and removal of chalk was used as an indicator of estrus. TAI was performed by a single veterinarian 48h after device withdrawal (sheaths 3W, WTA, Cravinhos, Brazil), concomitant with estrous detection by visual analysis of tail-paint score, and measurement of the diameter of the dominant follicle (DF) by ultrasonography on D10. At that time, cows that have or have not showed estrus were randomly blocked by BCS and body weight to receive or not 10.5µg buserelin acetate (GnRH; Gonaxal®; Biogénesis Bagó), following a 2x2 factorial arrangement of treatments. Semen of one Nelore and three Aberdeen Angus bulls were homogenously used among groups. Pregnancy diagnosis was performed by ultrasonography 45d after TAI (Mindray DP2200VET) to determine pregnancy per AI (P/AI). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). Effects of bull (P=0.06), farm (P=0.04), estrus (P=0.06), and GnRH (P=0.03) were observed. There was no interaction estrus*GnRH (P=0.80). The proportion of cows with CL on D0 [10.3% (38/304) and 8.4% (25/299); P=0.08], cows showing estrus on D0 [56.5% (200/354) and 53.9% (188/349); P=0.57] and the diameter of the DF on D10 (12.4±0.1 and 12.2±0.1; P=0.10) were similar for cows treated or not with GnRH, respectively, evidencing the adequate balance between groups before GnRH treatment. Cows that showed estrus had greater cyclicity (presence of CL) on D0 (13.7% vs 6.9%; P=0.02) and greater diameter of the DF on D10 (12.8±0.1 vs 11.8±0.1; P<0.001) than those not detected in estrus, regardless of GnRH treatment. P/IA increased (P=0.03) when GnRH was administered on D10 in both primiparous with estrus [(No GnRH=49.2% (91/185), GnRH=58.3% (116/199)] and without detected estrus [No GnRH=45.9% (73/159) vs GnRH=52.6% (80/152)]. Thus, the administration of GnRH at AI increases P/IA of Nelore primiparous cows that had showed or not estrus during the TAI protocol and can be used as a potential tool to optimize TAI outcomes. Credits: Farms Beira Rio and Vitória, CNPq 152030/2016-6.

A071 TAI/FTET/AI

Can female body condition influence the "bull effect" at Timed-AI ?

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It is well known that cow body condition score (BCS) affects pregnancy rate (PR). In addition, our group have repeatedly demonstrated the semen influence on reproductive program outcomes ("bull effect"). However, analyzing the present field data, some observations have brought us questions not yet raised. Thus, this study aimed to evaluate if different sires present same reproductive performance regardless cow body condition at Timed-AI. Hence, data of Timed-AI from 596 Nelore multiparous cows, between 45 and 55 days postpartum, were analyzed. All cows received same hormonal protocol with intravaginal progesterone implant for 9 days, being eCG and PGF2α applied on D9 (day of implant removal). Timed-AI was performed on D11. Only animals presenting BCS between 2.75 and 4 (in the evaluation of 1 to 5) were included in the study. The two AI technicians shift between them at each 5 animals entering the chute. Semen of 4 Angus bulls were balanced distributed among cows. Data of PR were compared between groups using Fisher's exact test (P = 0.05) in GraphPad INSTAT program. Overall PR was 45% and no effect of BCS on PR was observed (P>0.05). Cows with BCS between 2.75 and 3.0 (BCS 1 group) presented 44% pregnancy (n = 234), animals with BCS between 3.25 and 3.5 (BCS 2) presented 46% (n = 270) and cows presenting BCS between 3.75 and 4.0 (BCS 3; n = 92) presented PR = 43%. Bulls 2 and 4 presented similar PR (P>0.05), independent of BCS group (Bull2: BCS1=40%, n=55; BCS2=31%, n=71; BCS3=44%, n=25; Bull4: BCS1=32%, n=65; BCS2=42%, n=60; BCS3=36%, n=25). Bull 3 presented higher (P<0,05) PR than other bulls, independent of BCS group (BCS1=62%, n=55; BCS2=58%, n=73; BCS3=59%, n=22; P>0,05). However, bull 1 presented a statistical trend (P=0,0976) for lower PR in fattest cows (BCS1=44%, n=59AB; BCS2=52%, n=66A; BCS3=35%, n=20B). We believe this is the first time that has been addressed the possibility of "bull effect" being influenced by cow's BCS. Thus, we want to share the thought that animals with greater fat deposition may present hormonal and ovulatory alterations (either by delaying or advancing ovulation), or alterations in uterine environment, which may, in turn, favor one or another type of semen.

A072 TAI/FTET/AI

Pregnancy and embryo mortality of Holstein cows treated with ECG before or after TAI

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The objective of this study was to compare pregnancy per artificial insemination (P/AI) and embryo mortality (EM) of cows treated with eCG 3 days before or after TAI. A total of 963 Holstein dairy cows, primiparous (n = 427) and multiparous (n = 563) (mean±SD 2.0±1.1 lactations, 159.5±122.8 DIM, 3.3±2.6 previous AI, 29.5±9.5 daily milk yield) from 2 dairy herds (Farm 1, n = 414, Águas da Prata-SP, Farm 2, n = 549, São João Batista do Glória-MG). At random day of the estrous cycle (D-10), cows received two intravaginal devices containing 1.9 g of P4 (iP4, CIDR®, Zoetis, São Paulo, SP, Brazil) and 2 mg of estradiol benzoate (EB, Gonadiol®), im. Seven days later, on D-3, 25 mg of PGF2α (Lutalyse®) were administered and the cows were allocated in one of three treatment: Control (n = 357), cows were not treated; eCG-pre (n = 304), cows received 400 IU of eCG (Novormon®) i.m; and eCG-post (n = 302), cows were not treated on D-3, however, they received 400 IU of eCG, i.m., 3 days after TAI (D+3). On D-2, the iP4 were removed and the cows received 1.0 mg of estradiol cypionate (EC, E.C.P.), i.m. TAI was performed on D0. The P/AI was determined by transrectal ultrasonography (7.5 MHz linear transducer, Mindray DP 2200 vet, Mindray, China), 30 (P/AI 30) and 60 days (P/AI 60) after TAI. Pregnant cows at 30 days but not pregnant at 60 days after TAI were considered to be affected by EM. The data were analyzed using the Glimmix procedure of program SAS 9.3. It was considered statistical difference when $P \leq 0.05$ and tendency when $P > 0.05$ and ≤ 0.10. Results for groups Control, eCG-pre and eCG-post were, respectively: P/AI 30 - 28.6 (102/357), 31.9 (97/304) and 31.5% (95/302) (P = 0.43); P/AI 60 - 26.1 (93/357), 29.9 (91/304) and 28.5% (86/302) (P = 0.40); EM - 8.8 (9/102), 6.2 (6/97) and 9.5% (9/95) (P = 0.27). The results between Farms 1 and 2 were, respectively: P/AI 30 - 35.3 (146/414) vs. 27.0% (148/549) (P = 0.01); P/AI 60 - 30.7 (127/114) vs. 26.1 (143/549) (P < 0.01); EM - 13.0 (19/146) vs. 3.4% (5/148) (P = 0.25). The only result that tended to present interaction between treatments (Control, eCG-pre and eCG-post) and farms (1 and 2) was P/AI 60: Farm 1 - 29.4 (50/170)ab, 37.1 (46/124)a and 25.8% (31/120)ab; Farm 2 - 23.0 (43/187)b, 25.0 (45/180)b and 30.2% (55/182)ab (P = 0.08). It was concluded that treatment with 400 IU of eCG 3 days before or after TAI does not influence P/AI 30 and EM. In contrast, the eCG-post-treat was the only one able to keep the P/AI close to the highest levels on both farms. Acknowledgments: State of São Paulo Research Support Foundation - FAPESP (processes 2014/00739-9 and 2015/02551-0).

A073 TAI/FTET/AI

Pre-synchronization by persistent dominant follicle induction using a progesterone device in GnRH-based synchronization of ovulation protocols in lactating dairy cows

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The objective was to evaluate the pre-synchronization by persistent dominant follicle induction using a progesterone device prior to the Ovsynch (Persynch) compared to the Double-Ovsynch (Double-Ov) protocol in lactating dairy cows. Lactating crossbred Holstein x Gyr (n=440) dairy cows were randomly assigned to one of two groups: (I) Double-Ov (n=228), 10 µg of GnRH (Day -17), 7 d later 500 µg of PGF2α (Day -10) and GnRH 3 days later (Day -7) followed by the Ovsynch protocol 7 d later (GnRH on Day 0, PGF on Day 7, GnRH on Day 9); (II) Persynch (n=212), cows received a progesterone (P4) intravaginal device (Day -10), 10d later (day 0) they were started on the Ovsynch protocol, and P4-device withdrawal on Day 7. All cows were inseminated 15 to 20 hours after the second GnRH of the Ovsynch protocol and pregnancy diagnosis was performed 30 and 60 d after AI. In a subgroup (n=102), ultrasound exams were performed on days 0, 7, 9 and 24 of the experimental period and blood samples were collected (n=44) on days 0, 7 and 24 for progesterone assays. Pre-synchronization rates [presence of follicles > 12mm on D0, Double-Ov 94.2% (49/52) and Persynch 92.0% (46/50); P=0.66], follicular diameter at the first GnRH (Double-Ov 17.2 ± 0.7mm and Persynch 18.6 ± 0.9mm; P=0.28), ovulation rate to the first GnRH [Double-Ov 86.3% (44/51) and Persynch 81.2% (39/48); P=0.50], synchronization rate [Double-Ov 84.6% (44/52) and Persynch 86.0% (43/50); P=0.84], follicular diameter at the second GnRH (Double-Ov 17.5 ± 0.6mm and Persynch 18.0 ± 0.5mm; P=0.48), ovulation rate to the second GnRH [Double-Ov 90.9% (40/44) and Persynch 86.0% (37/43); P=0.48] and CL diameter on D24 (Double-Ov 27.9 ± 0.7mm and Persynch 29.4 ± 0.9mm; P=0.19) were similar between treatments. More (P=0.03) Cls were present on D0 in the Double-Ov (57.7%, 30/52) compared to Persynch (36.0%, 18/50). Furthermore, pregnancy rates at 30 (P=0.85) and 60 (P=0.41) days after AI were similar between Double-Ov (39.0%, 89/228 and 34.8%, 79/227, respectively) and Persynch (40.1%, 85/212 and 38.7%, 82/212, respectively). Pregnancy losses from 30 to 60 days after AI were also similar (P=0.13) between Double-Ov (7.9%, 7/88) and Persynch (3.5%, 3/85). Percentage of cows with P4 < 1 ng/ml on D0 [Double-Ov 13.6% (3/22) and Persynch 5.0% (1/20); P=0.37], P4 > 1 ng/ml on D7 [Double-Ov 77.3% (17/22) and Persynch 95.0% (19/20); P=0.14] and concentration of P4 on D24 (Double-Ov 4.7 ± 0.6 and Persynch 5.9 ± 0.9; P=0.84) did not differ between groups. In conclusion, pre-synchronization by persistent dominant follicle induction using progesterone device prior to the Ovsynch protocol yielded patterns of follicular growth and regression, and fertility like those of the Double Ovsynch protocol in lactating crossbred dairy cows.
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A074 TAI/FTET/AI

Relation of the serum concentration of the anti-mullerian hormone (AMH) with the pregnancy rate of ovine female

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The objectives of this study were to determine the plasma concentration of the anti-mullerian hormone (AMH) could be detected in the plasma of prepubertal White Dorper ewe lambs and to evaluate their relationship with pregnancy rate at first breeding. The experiment was carried out at the Sheep and Goat Production and Research Center (LAPOC), from the Experimental Farm of Canguiri, Federal University of Paraná (UFPR), from August to December 2015. Twenty nine White Dorper ewes lambs from 120±5 days old, weighing 28±5 kg and body condition score (ECC) 3±0.4 were evaluated. Pre-pubertal ewes were evaluated at 120, 150, and 180 days of age for AMH concentrations and presence of ovulation by videolaparoscopy (Olympus®, Brazil) after IM administration of 600 IU eCG (Novormon®, Zoetis, Brazil). The results were submitted to the Kruskall Wallis test ($P < 0.05$). The correlations between the variables: ovulation occurrence, plasma concentration of AMH and pregnancy rate were evaluated by Spearman correlation (ρ).The results of the present study demonstrated that the plasma concentration of AMH can be detected in 89% of prepubertal ewe lambs. The concentration of AMH was directly related to the presence of ovulation in response to eCG administration at 120 days of age ($p=0.50$; $P<0.50$) and in the total evaluation period ($p=0.42$; $P<0.50$; 120 days+150 days+180 days), but there was no significant correlation for ages 150 and 180 days ($p=0.36$; $P>0.05$, $p=0.17$; $P>0.05$, respectively). The animals that ev The animals that ovulated demonstrated greater than twice the AMH concentrations (133 ± 32 pg / ml) higher than the non-ovulated animals (60 ± 9.2 pg / ml; $P < 0.05$). At 13 months of age, the ewe lambs were synchronized using intravaginal progesterone-releasing devices (CIDR® - Zoetis, Brazil) for seven days, followed by IM administration of cloprostenol sodium (Sincrocio®, Ouro Fino, Brazil) in the day of removal of the device, and then, the ewes were subjected at mating. The animals became pregnant at the first opportunity of mating (n= 9) showed AMH concentration and pregnancy rate corresponding to 99 ± 20 pg / ml and 52.6%, respectively. For the animals that underwent a second attempt (n=8), the AMH concentrations corresponded to 46 ± 12 pg / ml and a 36% pregnancy rate ($P < 0.05$). The pregnancy rate at the first mating was correlated with a concentration of AMH. At 120 and 150 days of age, no significant correlations were found ($P>0.05$), however at 180 days, it was observed that the animals that presented the highest (99±20 pg/ml) concentrations of AMH were also those that became pregnant at first mating ($p=0.66$, $P < 0.05$). It was concluded that the plasma concentration of AMH can be detected in the pre-pubertal period of White Dorper ewe lambs and can be a good parameter to predict fertility.

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A075 TAI/FTET/AI

Supplementation with protected FAT in the dairy buffalo cows pregnancy rate

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The objective of this study was to evaluate the effect of supplementation with rumen-protected fat source (RPF, palm oil) on the pregnancy rate of dairy buffalo cows submitted to FTAI. The experiment was carried out at the Ouro Negro farm (Bandeirantes-MS) and 80 Murrah buffalo cows were used in the postpartum mean weight of 595 ± 57.6 kg, aged 3 to 8 years and divided in two treatments: CONTR (control (N = 43) - animals received supplementation according to Paul and Lal (2010), to meet the requirement of daily nutrients for maintenance of lactating buffalo cows and GORD (fat; n = 37) - animals received the same diet CONTR, added with 150 g / animal / day rumen-protected fat (ENERFAT® - Kemin). The animals were under rotational grazing of Panicum maximum cv. Mombasa and received supplements in the morning after milking along with the feed (2 kg / animal / day), the supplementation initiated 15 days postpartum and extended until the diagnosis of gestation. The animals were allocated in the experimental treatments according to the date of birth. The females were submitted to the following hormonal protocol: on day 0 (D0) intravaginal progesterone device (P4) was inserted and applied 2 mg of Estradiol Benzoate (BE). On day 9 (D9), the P4 devices were withdrawn concomitantly with the application of Prostaglandin (PGF2α) and Equine Chorionic Gonadotrophin (eCG). On day 10 (D10) Estradiol Benzoate (BE) was applied. On day 12 (D12), FTAI was performed in the morning. After 30 days, the DG was performed with ultrasonography, and the empty were resynchronized and submitted to a new FTAI, totalizing 101 inseminations (80 1st FTAI and 21 Resync). The variables included in the model were treatment, animal category, inseminator, days in lactation and milk production, and when not significant, excluded. For pregnancy rate, a binomial distribution was used (pregnant and empty), using PROC LOGISTIC of the statistical package SAS (SAS Institute Inc., Cary, NC, USA) in a completely randomized design. There was no effect (P> 0.05) of supplementation on the pregnancy rate in the 1st FTAI (53.5% CONTR vs. 62.1% GORD), as well as on resynchronization (66.6% CONTR vs. 55, 5% GORD), as well as in the total pregnancy of FTAI (1st FTAI and Ressinc). It is concluded that supplementation with 150g of rumen-protected fat in the diet does not alter the pregnancy rate of dairy buffalo cows.

A076 TAI/FTET/AI

Cold semen: An alternative for FTAI protocols

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The use of Insemination Ar in Brazil, although it has grown in the last years, is far behind when compared to developed countries like USA, Canada, New Zealand. It is estimated that only 12% of the Brazilian herd capable of breeding is inseminated (ASBIA, 2014). One of the disadvantages in the use of FTAI is the great variability in the results. An alternative that could be used to improve these indexes would be to use cooled semen in FTAI protocols (VISHWANATH & SHANNON, 2000). Thus, the present study compared the FTAI protocol pregnancy rates using cold and frozen semen. Cows were randomly assigned to 2 groups: cooled (n = 232) and frozen (n = 227). The cows were examined with US and evaluated their cyclicity, using only reproductively healthy and cyclic cows. The FTAI protocol used was the recommended by (BARUSELLI et al., 2002) with the application of eCG 300 IU and ECP 5mg, IM, in the D8. The sperm collection was carried out 24 hours before the AI date. The semen used in this experiment was obtained from bulls of the Aberden Angus breed (Bos taurus taurus; n = 2) healthy (as recommended by CBRA). A semen pool was made from the bulls to remove the individual effect of the animals. The bulls were kept in similar food and sanitary conditions. After collection the semen in botucrio® extender adjusting the volume to the sperm concentration of 60x106 spermatozoa/mL with progressive motility.This procedure was performed in the 2 experimental groups. Progressive motility and vigor were performed by an experienced evaluator under optical microscopy. Soon after the semen was packed in 0.5cc pallets and divided into the experimental groups. The semen for freezing was placed in an SE compact TK freezing machine where the standard freezing curve recommended by the manufacturer was performed. Soon after the pallets were immersed in liquid N2 for later storage. The semen of cooled group was kept in a refrigerator at 5°C/24h. A total of 459 cows were inseminated. The cows presented an average of 4 years old and a body condition score (ECC) of 2.6 ± 0.3 and weighed an average of 352.2 ± 41.5 kg. The data were analyzed statistically through the program GraphPad Prism 5. The comparison between the groups was performed using the t test for data unpaired with the Welch's correction. There was no variation and influence of the variables age, weight and ECC in the experimental groups. Inseminations were randomly performed by the same inseminator. There was a difference ($P < 0.05$) in the pregnancy rate of FTAI with cooled semen (59.91%, 139/227) was to compare FTAI with frozen semen (49.77%, 113/227). Thus IATF with cooled semen increases pregnancy rates and is an alternative to be analyzed in the use of artificial insemination.

A077 TAI/FTET/AI

Nelore bovine female temperament and its implications in pregnancy rates in FTAI programs

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The Brazilian national beef herd is mainly composed of Nellore cows (Bos taurus indicus), which are characterized by a more reactive and aggressive temperament compared to Bos taurus taurus (CAFE et al., 2011). More reactivity females present a lower reproductive performance (BURDICK et al., 2011). The objective of this study was to correlate the effect of Nellore cow's behavioral reactivity, During the Fixed Timed Artificial Insemination (FTAI) procedure, with pregnancy rates. There were used 403 multiparous Nelore cows from Beef Unit of the Administrative Campus Fernando Costa, University of São Paulo, located in Pirassununga, São Paulo, Brazil. The FTAI protocol was performed as describes: on day zero (D0) an intravaginal progesterone device (Cronipress Monoset®, Biogenesis Bagó, Curitiba, Paraná, Brazil) associated with intramuscular (IM) administration of 2mg of estradiol benzoate (Bioestrogen®, Biogenesis Bagó); After 8 days (D8), the devices were removed and were injected IM 2mL of Cloprostenol Sodium (Croniben®, Biogenesis Bagó), 300 IU of eCG (Ecegon®, Biogenesis Bagó) and 1mL of Estradiol Cypionate (Cronicip®, Biogenesis Bagó); after 48h (D10) the artificial insemination was performed. The cow's Body Condition Score (BCS) was evaluated at the beginning of the FTAI protocol and later at the days of the gestation diagnosis at 30, 60 and 90 days after AI. The first method used to evaluate the animal's reactivity was the Composite Reactivity Score (CRS) by visual observation of the animal restrained in the cattle chute, based on movement, breathing, mooing and kicking, where the animals were classified as calm, normal and reactive. The second method was the Exit Velocity Test (EV), classifying the cows as slow, normal and fast. The statistical analysis used was the chi-square test to determine the pregnancy rate, considering 5% the level of significance. According to CRS, calm animals had a higher conception rate (P = 0.02) compared to normal (58.10% vs. 52.80%) and reactive (58.10% vs. 45.52%) animals, these presented the worst results. For EV, there was no difference (P = 0.47) at the conception rate, which was 53.3%, 51.82% and 50.00% for the slow, normal and fast classification, respectively. Therefore the EV evaluation was not efficient to demonstrate differences on pregnancy rate (P = 0.47). The conclusion of the study was that the use of CRS was efficient to evaluate differences on pregnancy rates of cows in FTAI protocols and to show that more reactivity animals present a lower pregnancy rate compared to normal or calm animals. This methodology can be used for a genetic selection of less reactivity animals, providing improvements in the management and greater fertility on FTAI programs. Consequently, the adoption of this methodology increases efficiency and profitability in the breeding programs in Nellore beef herd farms.

A078 TAI/FTET/AI

The color Doppler use on monitoring of the equine endometrites

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The objective of this study was to characterize the uterine vascular perfusion by color Doppler ultrasonography in mares undergoing a phytotherapeutic treatment for bacterial endometritis. Mangalarga Marchador and crossbred mares (N=20) presenting endometritis, confirmed through microbiological, cytological and B mode ultrasonography, were used. The vascular perfusion of the uterus was subjectively estimated considering the percentage of color Doppler signals present in the mesometrium, myometrium and endometrium, in longitudinal section of the uterine and transverse body of the uterine horns. The animals were randomly allocated into two groups: c- control group (n = 10) and t - treated group (n = 10) with phytotherapeutic solution Fitoclean® (Organnact Animal Health, Paraná, Brazil). In both groups, uterine culture, antibiogram, endometrial cytology and B mode and color Doppler ultrasonography were performed at T1 (immediately before the treatment), T2 (24h after treatment) and T3 (48h after treatment). For statistical analysis, the Anova test was used to compare the means obtained in the different periods between treated and control group and Chi Square for the evaluation of the Fitoclean® effect on results of the uterine culture, citology and B mode ultrasonography. In the control group, mean values and standard deviation of vascularization at moments T1, T2 and T3 were 75.56 ± 22.28%, 51.67 ± 21.51% and 53.75 ± 14.08%, respectively, while in the treated group were in T1, T2 and T3 69.50 ± 14.99%, 39.00 ± 15.24% and 32.00 ± 16.19%, respectively. No statical difference ($p>0.05$) on vascularization between control and treated groups in the differents moments. The mean values found in T1 in the control and treated groups were significantly higher ($P<0.01$) than those obtained at moments T2 and T3. Regarding the uterine samples, in the control group, at the time T1, 70% (7/10) presented positive culture, cytology and presence of intrauterine fluid. T2, 50% (5/10) identified bacterial growth with intrauterine fluid and 100% (10/10) presented positive cytology; In T3, the results were similar to T2, with one mare showing negative cytology. In the treated group, in T1t, 90% (9/10) presented bacterial growth with positive cytology and presence of intrauterine fluid; In T2, 80% (8/10) of the uterine samples detected bacterial presence, positive cytology and intrauterine fluid; At the time T3, 80% (8/10) identified bacterial growth, 100% (10/10) presented positive cytology and 70% (7/10) with presence of intrauterine fluid. There was no statistical difference ($p = 0.2$). We can conclude that there was no relationship between uterine color Doppler findings and the results of traditional exams used to diagnose endometritis.

A079 TAI/FTET/AI

Use of estrodial benzoate or cypionate at the time of progesterone device removal on estrus expression, ovulation, and fertility in high producing cows

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Estradiol cypionate (ECP) is commonly used in progesterone-based (P4) synchronization protocols to induce ovulation. However, in P4-based programs with 9d, around 30% of dairy cows anticipate estrus and are inseminated before the scheduled time of AI. Thus, we studied the feasibility of replacing ECP by estradiol benzoate (EB) to induce ovulation in 9d progesterone programs. Holstein cows (n = 556) kept in a freestall in Southern Brazil, producing 39.2 ± 4.1 kg at 160.4 ± 10.2 DIM were synchronized after the voluntary waiting period or when detected open after pregnancy diagnosis. Cows were randomly allocated to receive one of the two timed AI protocols, as follows: 1) 9P4ECP: D0 = 2mg of EB (Estrogin, Biofarm) + P4 device insertion (PRID®, Ceva), D7 = PGF2a (Veteglan®, Hertape), D9 = 1mg ECP (Cipionato-HC, Hertape) + PGF2a (Veteglan®, Ceva) and PRID removal, D11 = TAI, approximately 48h after PRID removal; 2) 9P4EB: D0 = 2mg of EB (Estrogin, Biofarm) + P4 device insertion (PRID®, Ceva), D7 = PGF2a (Veteglan®, Hertape), D9 = 1mg EB + PGF2a (Veteglan®, Ceva) and PRID removal, D10 = TAI, approximately 36h after PRID removal. Estrus behavior was recorded by activity meters (SRC®), and pregnancy diagnosis was performed by ultrasound 30 days after AI. Only cows detected in estrus by the activity meter were inseminated. All statistical analyses were performed with the proc Glimmix of SAS, 9.4. A greater proportion of cows in 9P4BE were detected in estrus and bred (9P4EB = 90.8% vs 9P4ECP = 73.3%; $P<0.05$). In addition, estrus behavior was more concentrated around 12 and 24h after device removal in 9P4EB compared to 9P4ECP (76.3% vs 49.1%; $P<0.05$). Conception results were similar between groups (9P4EB = 44.3% vs 9P4ECP = 42.2%; $P=0.84$). However, because of the greater proportion of cows bred in 9P4BE, the final pregnancy rate was greater in 9P4EB (40.2% vs 30.9%; $P<0.05$). In conclusion, treatment with EB, besides increasing proportion of cows detected in estrus, caused a greater concentration in estrus behavior without affecting conception rate, ultimately increasing pregnancy rate results (% estrus detection x % conception). Acknowledgments: Ceva.

A080 TAI/FTET/AI

Using pregnancy associated glycoproteins (PAGS) to understand sire effect on pregnancy loss in Nelore beef cows

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Understanding the causes of embryonic mortality (EM) is fundamental to developing management strategies that decrease economic loss in cattle. Though late EM (after day 28 of gestation) represents a smaller proportion of reproductive failure compared to early gestation EM (~10% vs ~35 %), economic consequences are reported to be disproportionately greater due to delayed conception date which limits cow productivity. Placental insufficiency is considered to be a major cause of late EM and bovine pregnancy-associated glycoproteins (PAG) have been used as a marker of placental function. Although the functional role of PAG is unclear, it has been shown that many factors affect PAG concentrations including pregnancy stage, breed, parity, sire and fetal sex. Limited data have been reported on sire effects on PAG concentration, however, based on the influence sire has on placental development, we were interested in this potential relationship. The objectives of this study were to determine how sire used for FTAI influences embryonic loss rate and PAG concentration at day 30. Postpartum Nelore beef cows (n= 736) were artificially inseminated using 6 Angus sires at a fixed time (Day 0) after synchronization of ovulation. Pregnancy diagnosis by ultrasound was performed and serum samples were collected on day 30. Serum concentrations of PAG were quantified using an in house PAG ELISA with antibodies raised against PAGs expressed early in gestation. The SAS PROC MIXED procedure (version 9.4; SAS Institute, Cary, NC, USA) was used for data analysis. Overall pregnancy rate at day 30 was 53.75 % and late EM was 6.21%. Mean concentration of PAG of pregnant cows at day 30 was 8.81±0.24 ng/ml, and cows that maintained a pregnancy from days 30 to 100 of gestations had significantly (p=0.004) higher circulating concentrations of PAG on day 30 compared with cows that did not maintain a pregnancy until day 100 (8.98±0.25 ng/ml vs 5.95±1.02 ng/ml). Although there was variation in sire conception rate to FTAI, there was no linear relationship between sire pregnancy rate and circulating concentrations of PAG (Sire 1 – 51.56%, 7.72 ng/ml; Sire 2 – 49.17%, 8.96 ng/ml; Sire 3 – 55.28%, 8.81 ng/ml; Sire 4 – 55.28%, 10.14 ng/ml; Sire 5 – 55.28%, 8.42 ng/ml and sire 6 – 35.29%, 9.52 ng/ml). Then, sires were classified according to percentage on total embryonic mortality between days 30 and 100 as high embryonic loss (sire 1 - 20%; sire 2 - 28% and sire 3 - 24%) or low embryonic loss (sire 4 – 16%; sire 5 - 4% and sire 6 - 8%). After removing all cows that lost pregnancy after day 30, pregnancies by sires classified as high embryonic loss had lower PAG compared to pregnancies by low embryonic loss sires (8.5±0.35 ng/ml vs 9.48±0.36 ng/ml; p=0.0562). In summary, PAG concentration was driven by the ability of pregnancy maintenance and by sire used at FTAI. Exploring this relationship might be interesting to improve sire fertility in regard to late embryonic loss.

A081 TAI/FTET/AI

The use of the J-Synch protocol in non-lactating beef cows associated to estrous detection

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The J-Synch protocol was developed aiming to increase the proestrus lenght in beef heifers. The association of this protocol with estrus detection and anticipation of the moment of AI may increase the pregnancy rate by avoiding asynchrony between AI and ovulation. The aim of this study was to evaluate the use of J-Synch protocol in non-lactating beef cows associated to estrus detection and anticipation of the AI. The study was carried out with 116 cows Angus non-lactating beef cows (Bos taurus). On Day 0, all animals received 2 mg of estradiol benzoate (Sincrodiol, Ouro Fino®, Cravinhos, Brazil) and an intravaginal device with 1 g of progesterone (Sincrogest, Ouro Fino®, Cravinhos, Brazil). On Day 6, the progesterone device was removed and animals received 500 µg of cloprostenol (Sincrocio, Ouro Fino®, Cravinhos, Brazil). Estrus detection was performed on Day 8 during an hour. Cows in estrus were inseminated 12 hours later and those not were inseminated in fixed-timed 72 hours after the progesterone device was removed. All cows received 10 µg of GnRH (Sincroforte, Ouro Fino®, Cravinhos, Brazil) at the moment of insemination. The insemination was performed with semen from four sires with known fertility. The pregnancy diagnosis was performed 30 days after AI. The results were analyzed by Chi-square test. The overall pregnancy rate was 57.7% (67/49). The rate of pregnancy did not differ between the cows demonstrating estrous (72.7%) or inseminated in fixed time (54.2%) (P=0.15). However, it must be considered that study involved 116 cows. The use of a higher number of animals could to demonstrate difference between insemination groups. In conclusion, more studies are needed to clarify results of association estrus observation with J-Synch protocol. Nevertheless, the JSynch protocol demonstrated a satisfactory result in non-lactating cows.

A082 TAI/FTET/AI

Bovigen® Repro Total SE vaccination increases conception rate on FTAI Nelore heifers

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The objective of the present experiment was to evaluate the effect of Bovigen® Repro Total SE vaccine on conception rate of Nelore heifers (*Bos taurus indicus*) on 30 and 60 days after fixed timed artificial insemination (FTAI). The hypothesis was that vaccination, prior to FTAI, would increase conception rate and reduce gestational loss between 30 and 60 days of gestation, when compared to a non-vaccinated control group. A total of 759 Nelore heifers without prior vaccination for IBR, BVD and Leptospirosis underwent ultrasound cyclicity assessment (Aloka SSD 500, Tokyo, Japan) and 459 pubertal heifers were selected for FTAI. These 459 heifers were divided into one of two groups: Control (non-vaccinated) and Vaccinated (two IM doses of Bovigen® Repro Total SE, Virbac Animal Health, São Paulo, Brazil), the animals were randomized using the body condition score as a balancing factor between groups. The animals in the control group received no vaccination at any time, while the Vaccinated Group received the first dose of the reproductive vaccine 25 days before the onset of the FTAI protocol (Day -25; at the time of ultrasonography) and the second dose on the onset of the FTAI protocol (Day 0). All animals received an auricular ear implant with 3mg of Norgestomet (Crestar, MSD, Brazil) and 2mg of Estradiol Benzoate IM (Estrogin, Biofarm, Brazil) on Day 0. After 8 days (Day 8), the device was removed and 0.265mg of Cloprostenol Sodium (Ciosin, MSD, Brazil), 300IU of eCG (Novormon, Zoetis, Brazil) and 0.5mg of Estradiol Cypionate (ECP, Zoetis, Brazil) were administrated IM. The FTAI was performed by the same technician 48 hours after device withdrawal (Day 10) with the same semen batch in all females. Ultrasound evaluations were performed 30 and 60 days after FTAI (Days 40 and 70, respectively) to determine conception rate and gestational loss on each group. Gestational loss was considered as the absence of fetus or the presence of a dead fetus on Day 70, when the heifer was pregnant on Day 40. Data were analyzed using SAS® (Statistical Software Analysis, version 9.3 Institute Inc., Cary, NC, USA, 2003). The 30-day conception rate was lower (P = 0.02) on the Control (42.5%; 96/226) than on the Vaccinated Group (50.2%; 117/233) and remained (P = 0.03) at 60 days after FTAI [Control: 42.0% (95/226) vs Vaccinated Group: 48.5% (113/233)]. The gestational loss between 30 and 60 days did not differ (P = 0.20) among groups [Control (1.0%; 1/96) and Vaccinated (3.4%; 4/117)]. Thus, we concluded that the Bovigen® Repro Total SE vaccine was efficient to increase conception rate at 30 and 60 days post-FTAI in Nelore beef heifers, but no effects upon early pregnancy loss were observed.

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A083 TAI/FTET/AI

Vaccination against reproductive diseases (IBR and BVD) does not interfere with the pregnancy rate and losses of *Bos indicus* cows submitted to TAI

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The objective of this study was to evaluate the effect of vaccination against bovine herpesvirus-1 (BoHV-1) and bovine viral diarrhea virus (BVDV) on the pregnancy rate and losses of *Bos indicus* cows submitted to ovulation synchronization protocol based on progesterone (P4) and estradiol (E2). In the study, 400 lactanting Nelore cows with average body condition score of 2.83±0.01 (1 to 5 scale) and postpartum between 30 and 60 days were used. On the random day of estrus cycle (D0), cows received 2mg of estradiol benzoate (EB; RIC-BE®, Tecnopec, Brazil) and a P4 intravaginal device (Primer®, Tecnopec, Brazil). On day 8 (D8), the P4 device was removed and the cows received 500mg of Cloprostenol (Estron®, Tecnopec, Brazil), 300 IU of eCG (Folligon®, MSD, Brazil) and 1mg of estradiol cypionate (ECP® , Zoetis, Brazil). After 48 hours, the cows were submitted to TAI. On D0, the cows were randomly allocated to one of two treatments (Control group and Vaccine group). In the Control group, the cows received 2 mL of saline solution by the subcutaneous route and in the Vaccine group, the cows received 2 mL intramuscular of the reproductive vaccine (Cattle Master 4, Zoetis, Brazil) on the D0 and D38. In a subgroup of animals (n = 40), blood samples were collected concomitantly with the administration of the treatments to evaluate the presence of BoHV-1 and BVDV (antibody) by the serum neutralization method. Ultrasonography was performed on D38, D70 and D120 for pregnancy diagnosis and evaluation of pregnancy losses. Statistical analysis was performed using the GLIMMIX SAS procedure. The prevalence of BoHV-1 was 70.0% (14/20) for both groups on D0 and 70.0% (14/20) for the Control group and 85.0% (17/20) for Vaccine group on D38. The prevalence of BVDV antibodies was 80.0% (16/20) for Control group and 75.0% (15/20) for Vaccine group on D0 and 100.0% (20/20) for both groups on D38. In addition, the immunization of the animals did not interfere on the pregnancy rate at 28 days [Control group 64.5% (129/200), Vaccine group 56.6% (112/198); P=0.27], at 60 days [Control group 63.0% (126/200), Vaccine group 55.3% (109/197); P=0.29] and at 110 days of gestation [Control group 61.4% (116/189), Vaccine group 55.3% (104/188); P=0.29]. Also, there was no difference between the groups for pregnancy losses between 28 and 60 days of gestation [Control group 2.3% (3/129) and Vaccine group 2.7% (3/112); P=0.88] and between 28 and 110 days of gestation [Control group 3.3% (4/120) and Vaccine group 2.8% (3/107); P=0.62]. In conclusion, vaccinating cows against bovine herpesvirus-1 (BoHV-1) and bovine viral diarrhea virus (BVDV) does not increase fertility and does not reduce pregnancy losses in *Bos indicus* cows submitted to TAI.

Support: FAPEMIG.

A084 TAI/FTET/AI

Luteal vascularization as a tool for early pregnancy diagnosis in sheep is more efficient from day 17 post-insemination

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The objective of the present study was to determine the efficiency of luteal vascularization assessment using color Doppler ultrasonography (US) as a tool for predictive pregnancy diagnosis and at which moment post-insemination this evaluation is more efficient. Adult Santa Inês ewes (n=28) with an average age, body weight, and body condition score of 3.0±1.2 years, 44.6±5.4Kg, and 3.0±0.2, respectively, were used. The animals were submitted to a FTAI protocol as previously described by Balaro et al. (Domest Anim Endocrinol, v.54, p.10, 2016). The AI (D0) was performed 56h alter sponge withdrawal using commercial frozen-thawed semen. Luteal vascularization was assessed by color Doppler US (PRF: 1.0 KHz, WF: 75 KHz) from D12 to D20 using a portable device equipped with a 7.5 MHz transducer. Luteal vascularization was classified using a subjective scale ranging from 1 to 4 (Bragança et al. Animal Reproduction, v.13, p.587, 2016). Females bearing a CL with vascularization graded as 2 or superior was presumably considered as pregnant. Pregnancy was confirmed at D30 by visualization of embryonic vesicle using B-Mode US and data was compared with predictive diagnoses performed from D12 to D20. The efficiency of color Doppler US was evaluated by calculating the percentage of false negative (FN) and false positive (FP) results and also sensitivity (SENS), specificity (SPEC), negative (NPV) and positive (PPV) predictive values, and accuracy (AC) of the technique. At D30, 11 females were confirmed as pregnant and 17 as non-pregnant. As expected, use of color Doppler from D12 to D14 was unfeasible to predict non-pregnant animals because all animals still had vascularized CL (pre-luteolysis period), and thus they were all considered as pregnant. From D15 to D17 the number of FP results progressively decreased, increasing the values observed for SPEC, PPV, and AC (SPEC=18%; PPV=44%; AC=50%; FP=50% for D15; SPEC=47%; PPV=55%; AC=68%; FP=32% for D16; SPEC=76%; PPV=73%; AC=86%; FP=14% for D17). Results did not change from D17 to D20. In The present study, four FP results remained until D20. However, CL in these 4 animals kept a vascularization grade equal or superior than 2 until D20, suggesting that failure to predict non-pregnant animals was due to early embryo lost from D20 to D30 and not due to technique limitation. It was not observed FN results, thus SENS and NPV remained constant from D15 to D20 (SENS=1, NPV=1). The present results demonstrated the efficiency of color Doppler US as a tool for early identification of non-pregnant animals from D15. However, due to occurrence of FP results, best results was observed were observed from D17. Acknowledgments: FAPERJ for financially support the project and provide scholarship for EKNA and FZB.