A001 TAI/FTET/AI

Use of Melengestrol Acetate in nutritional blocks for heifers under extensive pastures

G.Z. Mingoti[1,2], T.V. Neves[2,1], J.C.B. Silva[3], L.O.F. Oliveira[3], E. Nogueira[3]

[1]FMVA/Unesp - Faculdade de Medicina Veterinária de Araçatuba, Araçatuba, SP, Brasil; [2]FCAV/Unesp - Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, SP, Brasil; [3]EMBRAPA Pantanal, Corumbá, MS, Brasil.

The objective of this study was to evaluate the supply of Melengestrol Acetate (MGA®, Zoetis, Brazil) added in nutritional blocks (Tecnoblock®) to Nellore heifers kept under extensive management on the estrus and pregnancy rates after natural breeding and AI. The experiments were carried out at Pantanal, in Fazenda São Bento, Corumbá/MS, Brazil. In the experiment 1, 413 heifers with BCS 4.2±0.7 (1-9), age from 22 to 24 months, mean of 302 kg and no previous cyclicity (absence of CL in two evaluations with 11-day interval) were divided: T1-Control [supply of nutritional protein-energy blocks throughout the experiment (12 days)]; T2-BlockMGA (2.28g/day MGA for 12 days, added to the same block of T1); T3-Protein MGA (2.28g/day MGA for 12 days, added to dry supplement); and T4-Implant P4 [9 days with intravaginal device (Primer®, Agener União, Brazil) of 2nd use + 2 mg IM of BE (Gonadiol, Zoetis, Brazil) on the day of insertion of Primer]. At the end of treatments, the heifers were mated with bulls (1:33) in breeding season (BS) of 118 days. In the experiment 2, 301 heifers with BCS 3.8±0.4 were divided: T1-Control, T2-Block MGA for 12 days, T3-Block MGA for 12 days + application of 0.5 mg ECP (2 days after the end of supply of MGA). Heifers were inseminated after estrus observation for 10 days, and then mated with bulls in 90-day BS. The evaluation of cyclicity, presence of CL and pregnancy diagnosis (PD) were performed using ultrasound (DP 2200 VET, Mindray, China). Statistical analysis was performed by PROC GLIMMIX of the SAS followed by Tukey Test ($P<0.05$). In the experiment 1, the diameter of the dominant follicle at the end of treatments was similar among T2 (11.2mm), T3 (11.8mm) and T4 groups (11.2mm), which were greater ($P<0.0001$) than T1 (9.7mm). The daily estrus rate was similar ($P>0.05$) between T1 (1.92%) T2 (2.94%) and T4 (2.77%), which were higher ($P=0.032$) than T3 (1.02%). Pregnancy at 60 days of BS was higher ($P=0.008$) for T2 (57.84%) than for T1 (40.8%) and T4 (36.4%), but all of these groups were similar ($P>0.05$) to T3 (51.0%). There was no difference ($P=0.344$) between treatments in the final PD (70.95%, averaged). In experiment 2, the estrus rate in 10 days was higher ($P<0.0001$) in T2 (45.5%) and T3 (57.8%) compared to T1 (22.7%). There was no difference between groups ($P=0.86$) for the post-AI pregnancy (35.66%, averaged). The pregnancy rate at 60 days of BS of the T1 group (56.6%) was lower ($P=0.04$) than T3 (74.4%), but both did not differ ($P>0.05$) from T2 (67.7%). Pregnancy at the end of BS was similar ($P=0.757$) between groups (T1: 84.7%; T2: 89.1%; T3: 88.2%). The use of MGA added in nutritional blocks was satisfactory in heifers because it provided higher pregnancy rates at the beginning of BS, besides facilitating management in the supplement supply and in the corral, therefore it represents a new alternative of reproductive management in the conditions of extensive breeding.

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A002 TAI/FTET/AI

P4 serum concentration at the time of TAI in Nelore females treated with 50 vs. 100 mg of injectable P4 (short or long action) in the super precocious resynchronization protocol

B.M. Guerreiro[1], B.G. Freitas[1], M.H.A. Colli[2], R.G. Rezende[2], L. Penteado[2], W.A. Gonçales Junior[2], P.S. Baruselli[2]

[1]Ourofino Saúde Animal, Cravinhos, SP, Brasil; [2]VRA/FMVZ/USP - Departamento de Reprodução da FMVZ-USP, São Paulo, SP, Brazil.

The E2 substitution by injectable P4, at the super precocious TAI protocol for ressincronization, can be an alternative for the induction of a follicular wave emergence on day 14 (Rezende, et al., 2016 SBTE). The aim of this study was to evaluate the effect of different injectable P4 sources (short or long action) and dosages on on dominant follicle diameter in Nellore females subjected to a super precocious TAI ressincronization protocol. For this, 234 Nellore females were used, as they were submitted to a first synchronization. Although there have been inseminated, the expected moment for the first TAI (48 hours after device removal), was considered as D0. On D14, the females received an intravaginal device containing 1 g of P4 (Sincrogest®, gold, Brazil) and were divided into four groups: G-A50, 50 mg IM of short action injectable P4 (Afisterone®, Hertape, Brasil) n = 67; G-A100, 100 mg IM of short action injectable P4 (Afisterone) n = 55; G-P4LA50, 50 mg IM of long action injectable P4 (Sincrogest injetável®, Ouro fino) n = 51; G-P4LA100, 100 mg IM of long action injectable P4 (Sincrogest) n = 61. After eight days from the distribution (D22), the P4 device was removed and the animals were subjected to ovarian ultrasound evaluation (DP2200®, Mindray, China), for measurement of the dominant follicle (DFD22). At this time, the animals received the TAI protocol which consisted of 0.530 mg IM sodium cloprostenol (Sincrocio®, Ouro fino, Brasil), 300 IU of eCG (SincroeCG®, Ouro fino, Brazil) and 0.5 mg of estradiol cypionate (SincroCp®, Ouro fino). After, 48h from the P4 device removal, the females were subjected to another ultrasound evaluation (DFD24), as well as, blood collection to determine serum P4 concentration dosage. The obtained data was analyzed by the GLIMMIX procedure of SAS®. There were no differences between treatments on DFD22: G-A50, 9.85 ± 3.04mm, n = 45; G-A100, 10.31 ± 2.79mm, n = 37; G-P4LA50, 10.85 ± 2.76mm, n = 39; G-P4LA100, 10.95 ± 2.83mm, n = 40, P = 0.29 and on DFD24: G-A50, 11.36 ± 2.76mm, n = 43; G-A100, 12.20 ± 3.22mm, n = 36; G-P4LA50, 11.96 ± 2.32mm, n = 35; G-P4LA100, 12.65 ± 3.11mm, n = 40, P = 0.24. There were also no differences on the serum P4 concentration between dosage and drug: G-A50, 0.60 ± 1.11ng/mL, n = 67; G-A100, 0.52 ± 0.71 ng/mL, n = 51; G-P4LA50, 0.43 ± 0.54 ng/mL, n = 55; G-P4LA100, 0.41 ± 0.63 ng/mL, n =61, P = 0.77. There WAS no drug*dosage interaction, P = 0.74 and difference between drugs (G-A50+ G-A100 vs G-P4LA50+ G-P4LA100); Afisterone: 0.56 ± 0.96 ng/mL, n = 118; Sincrogest: 0.42 ± 0.59 ng/mL, n = 116, P = 0.34. Both drugs and dosages used showed similar P4 serum concentration on D24 and dominant follicle diameter on D22 and D24, demonstrating the possibility using either drugs on the onset of superprecocious TAI ressincronization protocol.

A003 TAI/FTET/AI

Effect of the dose of eCG on pregnancy rate 30 and 60 days after TAI of Nellore (*Bos indicus*) heifers

A.R. Felisbino Neto[1], D.F.C. Souza[2], R.A. Campos[2], T.G.F. Alves[2], M.R. Bastos[3], B.G. Freitas[3], M.H.A. Colli[1], F.M. Elliff[1], R.D. Mingotti[1], P.S. Baruselli[1]

[1]VRA/FMVZ/USP - Departamento de Reprodução da FMVZ-USP, São Paulo, SP, Brazil; [2]Ferty+ Reprodução Animal; [3]Ourofino Saúde Animal, Cravinhos, SP, Brasil.

Alternatives to improve the ovulation and pregnancy rates in heifers are desirable in timed artificial insemination (TAI) protocols. The present study aimed to evaluate the effect of different doses (0IU, 200 IU or 300IU) of equine chorionic gonadotrophin (eCG) on day 8 of the TAI protocol. A total of 398 Nellore (*Bos indicus*) heifers were used, aging 24.0±1.2 months, with escore de condição corporal (ECC) of 2.98±0.23 in 3 farms in the state of Mato Grosso. The heifers were presynchronized 24 days before the onset of the protocol with an intravaginal progesterone device (P4; Sincrogest®, Ourofino Saúde Animal, Cravinhos-SP, Brazil) of 4º use, and maintained during 12 days. When the device was removed, heifers received 0.5mg IM of EC (SincroCp®, Ourofino). After 12 days of removed, the TAI protocol was initiated (D0) with the administration of 2mg IM of EB (Sincrodiol®, Ourofino), 0.53mg IM of sodium Cloprostenol (PGF2α; Sincrocio®, Ourofino) and an intravaginal P4 device (Sincrogest®, Ourofino) of 2º use. As well as the P4 device removal (D8), 0.5mg IM of EC (SincroCp®, Ourofino) and 0.53mg IM of sodium Cloprostenol (PGF2α; Sincrocio®, Ourofino) were administered. At this moment, heifers were homogenously distributed to receive the IM treatments with eCG (Sincroecg® Ourofino): G1-0IU (n=141), G2-200IU (n=132) and G3-300IU (n=125). TAI was performed 48h after the device removed in all groups. In addition, ultrasound evaluations were performed in all animals (n=398) 10 days after TAI to verify ovulation rate and corpus luteum (CL) diameter and quantity, with 30 days to evaluate pregnancy rate and with 60 days to pregnancy loss. Statistical analysis were performed using PROC GLIMMIX of SAS® (v. 9.4). Groups G1 and G2 were significantly different ($P<0.05$) for total ovulation rate at the end of the protocol (79.43%^{b} and 90.15%^{a}), ovulation rate of animals without corpus luteum on beginning of protocol (51.02%^{b} and 84.75%^{a}), diameter of corpo lúteo 10 days after TAI (15.32^{b} ± 0.25 and 16.63^{a} ± 0.23) and pregnancy rate with 30 (32.62%^{b} and 42.42%^{a}) and 60 days after TAI (29.08%^{b} and 40.91%^{a}) respectively. Groups G1 and G3 were significantly different ($P<0.05$), on analyzis were equal the cited above with G1 e G2. Groups G2 and G3 did not differ for all the analyzed variables ($P>0.05$). In animals that had a corpus luteum at the beginning of the TAI protocol, the ovulation rate 10 days after TAI, double ovulation rate, pregnancy rate with 30 and 60 days after TAI, and pregnancy loss rate did not differ between all groups, showing that these animals do not need eCG. Through the present study, it was verified that it is possible to reduce the eCG dose to 200IU in TAI programs for Nellore (*Bos indicus*) heifers, without reducing the ovulation rate, corpus luteum diameter and pregnancy rate. No alterations were observed on quantity of double ovulations and pregnancy loss.

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A004 TAI/FTET/AI

Impact of rectal temperature, temperature-humidity-index and season of year on pregnancy per AI during a reproductive year of a commercial dairy herd

C.E.C. Consentini[1], R.D. Mingoti[2], R. Germano[2], A.H. Souza[3], P.S. Baruselli[2], R. Sartori[1]

[1]ESALQ/USP - Department of Animal Science, Luiz de Queiroz College of Agriculture of University of São Paulo, Piracicaba, Brazil; [2]FMVZ/USP - Department of Animal Reproduction, College of Veterinary and Animal Science of University of Sao Paulo, São Paulo, Brazil; [3]CEVA Saúde Animal Ltda, Paulínia, SP, Brasil.

The aim of this retrospective study was to evaluate the effect of rectal temperature (RT) at the time of artificial insemination (AI), temperature-humidity-index (THI), period of the day in which AI was performed, and season on fertility of lactating Holstein dairy cows. Data from 1508 AIs performed in 2014 from a commercial dairy herd located at the state of Minas Gerais, Brazil were compiled for the study. Out of the 1508 AIs, 398 were based on estrus observation and 1110 were fixed-time AIs (FTAI). In order to evaluate the impact of heat stress on fertility, RT at the time of AI was measured in all cows and daily THI was calculated. In addition, two periods of the day in which AI was performed were defined according to the RT of cows: LowerTemp, in which the average RT was 38.6°C ± 0.04 and AI occurring between 7:01 pm and 12:00 am; and HigherTemp, with average RT of 39.1°C ± 0.02 and AI being performed between 12:01 am and 7:00 pm. The season effect was also investigated, in which the hot season was from October to March and the cold season was from April to September. The statistical analyses were performed using PROC GLIMMIX of the SAS 9.4 ($P \leq 0.05$). There was no effect of method of AI (estrus vs. FTAI) on pregnancy per AI [P/AI; 26.1 (104/398) vs. 27.8% (309/1110), respectively; P = 0.58]. In addition, there was no interaction between AI strategy and season or THI (P = 0.36 and P = 0.4, respectively). Cows receiving ≥ 4 AIs had lower P/AI than cows receiving the first three postpartum AIs [18.2^{b} (89/490), 36.1^{a} (176/488), 30.2^{a} (93/308), and $24.8\%^{a}$ (55/222) for $\geq 4^{th}$, 1^{st}, 2^{nd} and 3^{rd} AI, respectively; P<39.1°C at AI had greater P/AI than cows with RT ≥ 39.1°C [29.3 (308/1051) vs. 22.8% (104/456); P = 0.04]. Regarding THI, cows inseminated during the days with THI ≤ 68 had higher fertility compared to cows inseminated when THI was>68 [30.3 (215/709) vs. 24.1% (182/754); P = 0.02]. There was a season effect on P/AI, in which during the cold season P/AI was, on average, higher than during the hot season [30.2 (246/815) vs. 24.1% (167/692); P = 0.006]. By analyzing a large number of animals and an entire year of insemination records, it was shown that variables associated with heat stress impact the fertility of lactating dairy cows. The factors that clearly decreased P/AI in this field study were higher THI, rectal temperature>39.1°C near the time of AI, and season.

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A005 TAI/FTET/AI

Different CIDR-based resynchronization protocols after embryo transfer in beef recipients submitted to early pregnancy diagnosis by Doppler ultrasonography

C.A.G. Pellegrino[1], I. Claro Júnior[2], M. Meneghetti[2], G.A. Ataíde Junior[3], J.G. Grázia[4], A.C. Nogueira[4], F. Gonçalves[2], F. Torres[2], J.L.M. Vasconcelos[5], G. Pugliesi[3]

[1]Prole Reprodução Animal Assistida, Belo Horizonte, MG, Brazil; [2]Zoetis São Paulo, SP, Brazil; [3]FMVZ/USP - Department of Animal Reproduction, University of São Paulo, Pirassununga, SP, Brazil; [4]Apoyar Biotech, Belo Horizonte, MG, Brazil; [5]UNESP - Departamento of Animal Science, Botucatu, SP, Brazil.

The present study aimed to compare different progesterone (P4)-based strategies for early resynchronization of ovulation after timed embryo transfer (TET) in recipients beef cows. Suckling Nelore cows (n= 211) were submitted to a TET protocol and received an *in vitro* produced embryo on D7 (D0= expected ovulation). On D13, all cows received a new P4 intravaginal device (CIDR, Zoetis, SP, Brazil) and were randomly split in three groups: 1CIDR group (no additional treatment), 2CIDR group (one additional CIDR) and CIDR+P4 group (treatment with 100mg of injectable P4 [Afisterone, Hertape Calier, SP, Brazil]). On D22, the P4 devices were withdraw and cows were evaluated by transrectal Doppler ultrasonography (Z5, Mindray). Cows where luteolysis was detected (CL with ≤25% of color signals indicating blood perfusion in the luteal area) were diagnosed as non-pregnant and received 1mg of estradiol cypionate (ECP, Zoetis), 25 mg of dinoprost trometamide (Lutalyse, Zoetis) and 300 IU of eCG (Novormon, Zoetis). On D31, non-pregnant cows were evaluated and those with a large palpable CL received a fresh *in vitro* produced embryo. Pregnancy diagnosis by detection of embryo or fetus was performed between 40-80 days of pregnancy. Quantitative data were evaluated by ANOVA followed by SNK test using PROC MIXED procedure, and binomial data by logistic regression using PROC GLIMMIX of SAS. Pregnancy rates on D22 were different ($P<0.05$) among treatment groups (43.8%^{B} [32/73] for 1CIDR; 57.5%^{A} [42/73] for 2CIDR; and 53.9%^{AB} [35/65] for 1CIDR+P4). However, pregnancy loss between D22 and D80 was greater ($P<0.05$) in the 2CIDR group (45.3%^{A} [19/42]) than in the 1CIDR (16.5%^{B} [5/32]), which consequently resulted in no difference ($P>0.1$) on pregnancy rates on D80 (37% [27/73] for 1CIDR; 31.5% [23/73] for 2CIDR; and 38.5% [25/65] for 1CIDR+P4). For non-pregnant cows on D22, the dominant follicle diameter was greater ($P<0.05$) in the 1CIDR (12.1±2.1mm) and 1CIDR+P4 (12.4±1.8mm) groups than in 2CIDR group (9.9±1.8mm). The utilization rate of cows at the second TET was greater ($P<0.05$) for 1CIDR (87.8% [36/41]) and 1CIDR+P4 (83.3% [25/30]) groups than 2CIDR group (71.0% [22/31]). Although pregnancy rate after second TET did not differ ($P>0.1$) amomng groups (48.7% [38/78]), the final pregnancy rate considering first and second TET was different (63.0%^{A} [46/73] for 1CIDR; 43.8%^{B} [32/73] for 2CIDR; and 53.9%^{AB} [35/65] for 1CIDR+P4). In conclusion, the use of one CIDR without additional treatment with P4 at D13 for resynchronization of ovulation associated with early detection of non-pregnant cows at D22 by Doppler results in desirable pregnancy and utilization rates and allows a 24d-interval between TETs in beef cattle.

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A006 TAI/FTET/AI

Effect of different doses of eCG (300UI vs 400UI) on the pregnancy rate of primiparous Nellore cows (*Bos indicus*) submitted to FTAI

L.A. Abreu[1], B.L.C. Catussi[1], F.B. Santos[2], M.H.A. Colli[1], R.D. Mingoti[1], L. Penteado[2], M. Ribeiro Júnior[3], R.C.P. Silva[3], M.O. Marques[3], P.S. Baruselli[1]

[1]Departamento de Reprodução Animal, FMVZ/USP, São Paulo, SP, Brasil; [2]Firmasa Tecnologia Para Pecuária Ltda, Londrina, Paraná, Brasil; [3]GeraEmbryo Reprodução Bovina, Cornélio Procópio, Paraná, Brasil.

The objective of this study was to evaluate the use of different doses of eCG on the conception rate of primiparous cows submitted to FTAI. A total of 439 Nellore (*Bos indicus*) females were used, from two commercial farms located in the state of Mato Grosso do Sul - Brazil; [Farm A (n=135) and Farm B (n=304)]. All cows received the same synchronization protocol for follicular wave emergence, luteolysis and ovulation, differing only on the eCG dose. On a random day of the estrus cycle (D0), cows received an intravaginal device with 0.6g of P4 (Fertilcare 600®, MSD, São Paulo, Brazil) and 1mg of estradiol benzoate via i.m (Fertilcare Synchronization®, MSD, São Paulo, Brazil). In D8, the device was removed and 0.265mg Cloprostenol Sodium (Ciosin®, MSD) and 0.5mg estradiol cypionate (Fertilcare Ovulation®, MSD) were administered, both via i.m. The primiparous were homogeneously subdivided by BCS (1 to 5) into two groups: G-300 [300 IU of eCG (Folligon®, MSD, São Paulo, Brazil); n= 232; BCS= 2.89 ± 0.02]; G-400 [400 IU of eCG (Folligon®, MSD, São Paulo, Brazil); n= 207; BCS= 2.91 ± 0.02]. The FTAI was performed 48 hours after the device was removed and the pregnancy diagnosis was performed 30 days after FTAI by ultrasonography (Aloka SSD 500, Tokyo, Japan). The obtained data were analyzed by logistic regression through PROC GLIMMIX of SAS®. Cows in G-300 and G-400 had similar means of BCS (2.89 ± 0.02 vs 2.91 ± 0.02; P= 0.37), respectively, showing the pre-treatment homogeneity. There was no difference in the pregnancy rate between treatments [G-300= 55% (124/232); G-400= 53% (108/207); P= 0.80], and neither among the farms [Farm A= 38.5% (52/135); Farm B= 59.2% (180/304); P=0.27]. However, there was a group*farm interaction (P= 0.02), where on farm A the G-400 had a higher pregnancy rate [G-300= 33.8% (27/80)^{b}; G-400= 45.5% (25/55)^{ab}], however, in farm B, the G-300 presented a higher rate [G-300= 68.3% (97/152)^{a}; G-400= 54.6% (83/152)^{ab}]. Also, no differences were verified between pregnancy rate and BCS*group interaction (P= 0.77). It was found that in the farm with inferior results, the dose of 400 IU of eCG increased the pregnancy rate to FTAI in Nellore primiparous. It is concluded that the dose of eCG recommended to increase conception rate in Nellore primiparous cows is variable according to the farm.

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A007 TAI/FTET/AI

Efficiency of different TAI protocols according to treatment with GnRH at the onset of the protocol and with double dose of PGF-2α at the removal of the P4 device

J. Sepúlveda[1], E.D.F. Souza[2], M.P. Viziack[3], R.D. Mingoti[3], P.S. Baruselli[3]

[1]Bovinos Virtual, México; [2]Ouro Fino Saúde Animal, Cravinhos, SP, Brazil; [3]Departamento de Reprodução Animal, FMVZ/USP, São Paulo, SP, Brazil.

The objective of this study was to evaluate the treatment with GnRH at the onset of the TAI protocol and with double dose of PGF-2α at the removal of the P4 device on conception rate in Holstein cows (*Bos taurus*). The study was developed by *Bovinos Virtual* Company, in Mexico. The study used a completely randomized design in factorial arrangement 2x2. A total of 691 cows were submitted to the experimental groups: G1 – control (n=173); G2 – intramuscular application of 0.01mg of GnRH (2.5mL of Sincroforte®, Ourofino, Brazil) on D-10 (n=199); G3 – intramuscular application of 1.052mg of sodium cloprostenol (PGF-2α; 4mL of Sincrocio®, Ourofino, Brazil) on D-2 (n=166) and G4 – intramuscular application of 0.01mg of GnRH on D-10 and 1.052mg of PGF-2α on D-2 (n=153). The TAI protocol consisted on the intramuscular application of 2mg of EB on D-10 (2mL of Sincrodiol®, Ourofino, Brazil) and insertion of an intravaginal device of 1g of P4 (Sincrogest®, Ourofino, Brazil). On D-2 the device was removed and 0.526mg of PGF-2α (2mL of Sincrocio®, Ourofino, Brazil) and 1mg of EC (1mL of SincroCP®, Ourofino, Brazil) were applied. On D0, TAI was performed. Ultrasound examinations were performed on D-3 to check the presence of corpus luteum and on D30 and D60 to determine the pregnancy rate and the gestational loss (between 30 and 60 days after TAI). Information about time of year, temperature and humidity were collected to calculate temperature and humidity indexes (THI), based on historical average on the region. The data were analyzed by PROC GLIMMIX of SAS. There was no bull effect (P=0.18). There was no interaction GnRH*PGF-2α (P=0.57), and no effect of GnRH on D-10 (P=0.29) and of double dose of PGF-2α on D-2 (P=0.77) on the pregnancy rate on D30. There was effect of GnRH on D-10 on the corpus luteum rate on D-3 [EB=65.5% (207/316) vs. EB+GnRH=79.1% (261/330); P<0.001]. There was no effect of heat stress (THI) at TAI moment on the pregnancy rate on D30 (P=0.39). There was a tendency of interaction GnRH*THI on pregnancy rate on D30 [EB=33.3% (51/153) vs. EB+GnRH=43.4% (76/175); P=0.09]. In conclusion, the treatment with GnRH at the onset of the protocol and with double dose of PGF-2α at the removal of the P4 device did not increase the conception rate in lactating Holstein cows. However, during heat stress period there was a tendency to improve the pregnancy rate when 0.01mg of GnRH was applied at the onset of the TAI protocol.

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A008 TAI/FTET/AI

A novel and safe strategy for resynchronization using estradiol 14 days after timed-AI in beef heifers

I.G. Motta[1], C.C. Rocha[1], D.Z. Bissinoto[2,1], G.A. Ataide Junior[1], G.D. Melo[1], B.S. Lafuente[1], M.R. Bastos[3], K.M. Lemes[4], Ed H. Madureira[1], G. Pugliesi[1]

[1]USP/FMVZ - Universidade de São Paulo, Faculdade de Medicina Veterinária e Zootecnia, Pirassununga, SP, Brasil; [2]FZEA - Faculdade de Engenharia de Alimentos e Zootecnia, Pirassununga, SP, Brasil; [3]Ourofino Saúde Animal, Cravinhos, SP, Brasil; [4]Boehringer-Ingelheim, Campinas, SP, Brasil.

We aimed to evaluate the use of estradiol benzoate (BE) or 17β-estradiol (E2) associated with progesterone (P4) for resynchronization at 14 days post-TAI and its effect on the maintenance of pregnancy in beef heifers. In Exp1, Nelore heifers of 16-18 months were synchronized for TAI (D0). On D14, the animals received an intravaginal device of P4 (1g, Sincrogest, Ourofino Saúde Animal, Cravinhos, SP) and were split in three groups: control (C) (no treatment; n=17), BE (1mg BE, Sincrodiol, Ourofino; n=17), and E2+P4 (1mg E2 + 9mg P4, Betaproginn, Boehringer-Ingelheim, Campinas, SP, n=18). Ultrasonography evaluations (B/Doppler modes) were performed daily from D14 to D22 for measurement of follicles, area and blood perfusion of corpus luteum. On D22, devices were removed and pregnancy diagnosis (DG) was made by luteolysis detection, as reported by Pugliesi et al. (Biol Reprod, 4: 1-12, 2014). Non-pregnant (NP) heifers received 1mg of estradiol cypionate (SincroCP, Ourofino), 500µg of sodium cloprostenol (Sincrocio, Ourofino) and 200 UI of eCG (SincroeCG, Ourofino) on D22, and a second TAI was performed on D24. In Exp2, 919 Nelore and NeloreXAngus heifers were submitted to TAI and resynchronized as done in Exp1. Presence of a viable embryo was evaluated on D28 (Exp1) and D37-67 (Exp2) after first TAI, and 43-47 days after second TAI (Exp2). Data were evaluated by ANOVA (PROC MIXED), Fisher's exact test or logistic regression (PROC GLIMMIX) of SAS. In Exp1, follicular emergence in the BE group occurred only on days 3 to 5 after treatment, while in the others it was spread. However, follicular emergence (days) and dominant follicle diameter (mm) on D22 in NP heifers did not differ (P>0.1) between the C (2.8±0.6 and 11.9±0.9), BE (4±0.5 and 10.9±0.6) and E2+P4 (2.4±0.6 and 12.3±0.5). Luteolysis (days) occurred earlier (P=0.03) in the BE (18.6 ± 0.5) and E2+P4 (19.1 ± 0.5) groups than in C group (20.6 ± 0.4). In Exp1, pregnancy rate (PR) was similar (P>0.1) between the C, BE and E2 + P4 groups in DG22, (67.3%) and D28 (63.4%). In Exp 2, FD diameter (mm) on D22 did not differ (P>0.1) among groups: C (11.9±1.8), BE (11.2±1.8) and E2+P4 (11.5±1.8). PR did not differ (P>0.1) among the C, BE and E2+P4 groups at DG22 (53.2% [165/310], 53.6% [163/304] and 48.8% [149/305],) and D37-67 post-TAI (44.3% [98/221], 43.2% [96/222], and 44.9% [97/216], respectively). Pregnancy loss was similar (P>0.1) among C (18.3% [22/120]), BE (17.2% [20/116]), and E2+P4 (16.4% [19/116]). The PR for resynchronized heifers was 39.8% (49/123) for C, 47.8% (55/115) for BE and 44.5% (57/128) for E2+P4 group (P>0.1). We conclude that administration of 1 mg of BE or 1mg of E2+9mg of P4 at 14 days post-TAI does not compromise pregnancy maintenance and anticipates luteolysis in non-pregnant heifers. This strategy is a novel and safe option for super-early resynchronization in heifers.

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A009 TAI/FTET/AI

Use of hCG, eCG or p-FSH on estrus induction of goats and their effects on luteal dynamics and conception rate

J.T. Trevizan[1], R.P. Nociti[1], A.C. Pedrosa[2], V.L. Brair[2], I.C. Oliveira[3], M.F.A. Balaro[3], A.L.R.S. Maia[3], J.F. Prastes[4], F.Z. Brandão[3], J.F. Fonseca[4], M.E. Oliveira[1]

[1]Unesp/FCAV - Universidade Estadual Paulista, Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, SP, Brasil; [2]UNIRP - Centro Universitário de Rio Preto, São José do Rio Preto, São Paulo, Brasil; [3]UFF - Universidade Federal Fluminense, Faculdade de Medicina Veterinária,Niterói, RJ, Brasil; [4]EMPRAPA, Centro de Pesquisa Brasileira de Caprinos e Ovinos, Sobral, CE, Brasil.

The present study tested the hypothesis that hCG and pFSH stimulate the follicular development and consequently corpora lutea, in a manner equivalent to those induced by eCG in goat. Eighty-five Toggenburg goats, during the seasonal transition period (December, 21ºS), underwent a short-duration estrus induction/synchronization protocol with a sponge impregnated with medroxyprogesterone acetate (60 mg MAP, 6 days). Twenty-four hours before sponge removal, females were divided into groups according to gonadotrophin used (eCG, 200 IU, n = 32; hCG, 300 UI, n = 25; or pFSH, 30 IU, n = 28). At the same time, all goats received 22.5 µg d - cloprostenol. Luteal dynamics were monitored using B-Mode and Color Doppler ultrasonography on specific days (Days 5, 8, 13, 18, 23 and 28) after estrus onset (Day 0). Biometric parameters (diameter, area and volume of corpora lutea), echogenicity and heterogeneity of luteal tissue (*numerical pixel values* and standard deviation of pixels, respectively), and vascularization (number of colored pixels) were determined. The pregnancy diagnosis was performed on Day 28. The parametric variables were submitted to analysis of variance using the R program, and the means were compared by the Kruskal Wallis test. The binomial variables were compared by chi-square teste ($P < 0.05$). The response to estrus was similar between treatments (93.90%, $P = 0.87$). The hCG group was characterized by a greater number of luteal structures ($P<0.001$), but the corpora lutea presented smaller mean diameter and volume when compared to the eCG and pFSH groups ($P=0.024$, for both). There were no differences on luteal area, heterogeneity and vascularization ($P>0.05$). When the biometric parameters of the corpora luteal were summed, goats treated with eCG and hCG presented higher values of total diameter and volume, compared to the animals that were treated with pFSH ($P=0.006$ and 0.011, respectively). The area of luteal tissue (sum) did not differ between groups ($P=0.123$). The echogenicity of the corpora lutea was influenced by the interaction of treatments and evaluation days. It was recorded diferent variations over the evaluation days between groups. For the hCG group, there was a reduction in echogenicity on days 23 and 28 compared to previous days; however, the difference between groups was verified only on day 28 ($P=0.023$). The conception rate was similar between the groups (65.73%, $P=0.25$). In conclusion, the use of hCG and pFSH in protocol of estrus induction/synchronization in goats induces equivalent luteal dynamics and conception rate, being substitutes for eCG.

A010 TAI/FTET/AI

GnRH effect on pregnancy rate of *Bos indicus* cows with and without estrus expression submitted to TAI

M.P. Bottino[1], R.E. Orlandi[1], E.A. Lima[1], L.M.S. Simões[1], A.P.C. Santos[1], P.H.A. Marinho[1], J.P.M. Massoneto[2], L.A. Scandiuzzi Júnior[2], J.N.S. Sales[1]

[1]UFLA - Universidade Federal de Lavras, Lavras, MG, Brasil; [2]AAP - Agropecuária Água Preta S/A, Cocalinho, MT, Brasil.

The objective was to evaluate the effect of GnRH treatment on pregnancy rate of *Bos indicus* cows with and without estrus expression submitted to TAI. The study enrolled 343 lactating cows, between 30 and 60 days post-partum and body condition score (BCS) of 2.8±0.1 (1 to 5 scale). In a random day of the estrus cycle (D0) all cows received 2 mg of estradiol benzoate (Sincrodiol®, Ourofino, Brazil) and a first use intravaginal progesterone device (Sincrogest®, Ourofino, Brazil). On D8, all cows received 500µg of cloprostenol (Sincrocio ®, Ourofino, Brazil), 1 mg of estradiol cypionate (ECP ®, Pfizer, Brazil), 300IU of eCG (Folligon®, MSD, Brazil) and progesterone device removal. On D10, females were distributed according to estrus expression, in one of two treatments (Control Group and GnRH Group). Animals from GnRH group received 100µg of gonadorelin (Cystorelin®, Boehringer Ingelheim, Brazil) and cows from Control group received no treatment. Cows were inseminated at fixed-time 48 hours after progesterone device removal. Estrus detection was performed with a wax stick mark on the top of the tail head. Pregnancy diagnosis was performed 35 days after TAI by ultrasound exam. All data were analyzed by GLIMMIX procedure of SAS. There was no interaction between treatment and estrus expression (P=0.26) and no treatment effect [Control Group 49.4% (85/172) and GnRH Group 46.1% (83/180); P=0.82] on pregnancy rate. However, cows that expressed estrus during the protocol had a higher pregnancy rate [estrus 56.0% (122/218) and without estrus 34.3% (46/134); P=0.0002]. In cows that expressed estrus [Control 59.6% (65/109) and GnRH 52.3% (57/109) P=0.27] or not [Control 31.8% (20/63) and GnRH 36.6% (26/71) P=0.56], GnRH treatment did not interfere with pregnancy rate to TAI. It is concluded that GnRH treatment at TAI does not interfere on pregnancy rate of cows with or without estrus expression during the protocol.
Support: Fapemig, Agropecuária Água Preta and Ouro Fino.

A011 TAI/FTET/AI

Efficiency of the ciclicity induction protocol with long action injectable progesterone (single handling) in prepubertal Nelore (*Bos Indicus*) heifers

D.F.C. Souza[4], B.G. Freitas[1], R.C. Camargo[3], R. Anjos[4], B.M. Guerreiro[1], M.R. Bastos[1], R.D. Mingoti[5], L.G. Silva[5], B.L.C. Catussi[5], A.R. Felisbino Neto[2]

[1]Ourofino Saúde Animal, Cravinhos, SP; [2]FAZEN Distribuição de Produtos Agropecuários, Barra do Garças, MT, Brasil; [3]RC Multiplicação genetic, Barra do Garças, MT, Brasil; [4]FERTY + Reprodução Animal, Barra do Garças, MT, Brasil; [5]Departamento de Reprodução Animal, FMVZ/USP, São Paulo, SP, Brasil.

With the aim of improving reproductive efficiency in prepubertal Nellore (*Bos indicus*) heifers, this study evaluated the use of a cyclicity induction protocol using a single treatment of injectable progesterone prior to the onset of the TAI protocol. Five hundred twenty-eight Nellore (*Bos indicus*) heifers aging 14 months were used, mean live weight 303.1±30.2 kg. All animals were evaluated by ultrasonography (Mindray® DP2200 Vet) at day -10 to detect the presence of corpus luteum (CL). At day 0, Only prepubertal heifers (without CL) were randomly distributed into 4 experimental groups: Negative Control Group (NCG, n=138), heifers received no hormonal treatment; Positive Control Group (PCG; n=134), animals received an 1g progesterone intravaginal device previously used (fourth use) for 24 days and i.m. treatment with 1mg of estradiol cipionate (EC) on the day of P4 device removal (day 12); Group 1-P4LA (1-P4LA; n=130), heifers receiving only an i.m treatment with 150mg of injectable long-acting P4 (Sincrogest injetavel, Ourofino Saude Animal); and P4LA+EC Group (P4LA+EC; n=126), animals receiving treatment with 150mg i.m. of injectable long acting P4 at day 0 and 1 mg of EC i.m. on day 12. In all groups, TAI protocol was initiated 24 days after the onset of ciclicity induction protocol. Variables were analyzed by GLIMMIX procedure of SAS®. There was no interaction between lot and treatment (P=0.15). Cyclicity rate at day 24 was higher in heifers treated with cyclicity induction protocol [NCG: 30.8%b (41/133); PCG: 66.2%a (88/133); 1-P4LA: 56.9%a (74/130); P4LA + EC: 57.9%a (73/126); P<0.001)]. Also, it was found that heavier heifers had a higher cyclicity rate [<270 kg = 38%b (25/66); between 270 and 300kg = 49%ab (92/188) and> 300kg = 59%a (159/268); P=0.01]. The pregnancy rate after TAI protocol for heifers previously submitted to cyclicity induction protocol was higher when compared to control group [NCG = 23.9%b (33/138); PCG = 38.8%a (52/134); 1-P4LA = 40.6%a (52/128); P4LA+EC = 29%ab (36/124); P=0.04]. In conclusion, a single i.m. treatment with 150mg of injectable long acting P4 increased cyclicity and pregnancy rates of Nellore heifers compared to the negative control group. However, no differences were observed between the positive control group and P4LA single treatment, which could be a great strategy to reduce heifers handling without compromising reproductive efficiency.

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A012 TAI/FTET/AI

Improvement of follicular and luteinic growth following homeopathic treatment of heifers submitted to TAI

E.B. Ferreira[1], G.M.G. Santos[2], K.C.S. Santos[2,3], I.S. Dias[4], T.K. Sanches[3], F. Morotti[3], G.P. Nogueira[5], M.M. Seneda[3]

[1]Real H Nutrição e Saúde Animal, Campo Grande, MS, Brasil; [2]Sheep Embryo Reprodução Animal, Londrina, PR, Brasil; [3]UEL - Universidade Estadual de Londrina, Londrina, PR, Brasil; [4]UNOPAR - Universidade do Norte do Paraná, Arapongas, PR, Brasil; [5]UNESP - Universidade Estadual Paulista Araçatuba, São Paulo, Brasil.

Aiming to evaluating the effect of supplementation with homeopathic product on follicular and CL development, ½ Nelore x Aberdeen Angus heifers (n = 40; 14 ± 1 months) were assigned into two groups: Control (n = 20; 310 kg; ECC 3.75) and Pró-cio (n = 20; 304 kg; ECC 3.72). All were maintained in pasture receiving mineral salt and water freely available and 500 g ground corn/animal/day. For the Pró-cio group, 20 g/animal of the homeopathic product were supplied with corn (Pro-cio®, Real H, Campo Grande, Brazil) since 28 days before TAI (D-18) until 10 days after TAI (D20). At D0, all heifers received an intravaginal P4 device (Fertilcare 600®, Vallée, Montes Claros, Brazil) and 2 mg EB (Fertilcare Benzoato Sincronização®, Vallée), IM. On D5, it was performed ultrasonography (linear transducer, 6 MHz; A5V, Sonoscape, Shenzhen, China) for counting of antral follicles ≥ 3 mm in diameter (AFC) and blood collection for the dosage of Anti-mülleriano hormone (AMH) by ELISA (Bovine AMH Elisa AL-114, Webster, EUA), using serum obtained by centrifugation at 3000 g for 15 min. On D8, P4 device was removed and all heifers received 300 IU of eCG (Folligon®, MSD Saúde animal, São Paulo, Brazil), 530 µg of sodium cloprostenol (Ciosin®, MSD Saúde Animal), 0.5 mg of EC (Fertilcare Ovulação®, Vallée) IM, besides receiving an adhesive detection of estrous aid placed at the tail insertion (Fasco®, Alta Genetics, Uberaba, Brazil) and being evaluated for the diameter of the dominant follicle (DF). On D10, all heifers were inseminated with conventional semen from a single Brangus bull, and evaluation of heat detection and measurement of the preovulatory follicle (POF) was also performed. On D20, CL area was measured and CL blood flow (scale 0-4) was assessed by Doppler ultrasonography (PRF 0.5; WF 60/65; S8V, Sonoscape). The comparison between the groups was performed by the T-student test (parametric data) or Mann-Whitney (non-parametric data). The rates were analyzed by the binary logistic regression model. All analyzes were performed in the Minitab® 16.1.1 program and $P \leq 0.05$ was considered significant. There was no difference in AFC (29.1 ± 3.0 and 31.4 ± 3.3) or AMH dosage (1,322.03 ± 241.15 and 1,274.44 ± 210.67 pg/ml; $P>0.05$). Heifers supplemented with the homeopathic product had larger diameters of DF, POF and CL; however, there was no difference in the conception rate to TAI between groups.

A013 TAI/FTET/AI

Effect of pre-exposition to injectable long acting progesterone on pregnancy rates of suckled beef cows submitted to the estrous synchronization protocol

A.P.C. Santos[1], R.E. Orlandi[1], M.P. Bottino[1], L.M.S. Simões[1], E.A. Lima[1], A.G. Silva[2], B.M. Guerreiro[3], M.R. Bastos[3], B.G. Freitas[3], F.L.S. Bertoncini[4], J.A. Santos[4], J.N.S. Sales[1]

[1]UFLA - Universidade Federal de Lavras, Lavras, MG, Brasil; [2]RG Genética Avançada, Água Boa, MT, Brasil; [3]Ouro Fino Saúde Animal, Cravinhos, SP, Brasil; [4]JA Reprogen, Eunápolis, BA, Brasil.

The objective was to evaluate the effect of previous exposure of injectable progesterone (P4i) to FTAI protocol on the pregnancy rate of lactating *Bos indicus* cows with satisfactory body condition score. A total of 988 lactating Nelore cows (114 primiparous and 874 multiparous) with a body condition score of 2.9±0.1 (1 to 5 scale) and postpartum between 30 and 60 days were used. Ten days before the initiation of ovulation synchronization protocol (D-10), cows were divided into two experimental groups (Control Group and P4i Group) and in the P4i group, cows received 150 mg of injectable progesterone (Sincrogest Injection ®, Ouro Fino, Brazil) intramuscularly. In both experimental groups, cows received 2.0 mg of estradiol benzoate (Sincrodiol®, Ouro Fino, Brazil) and an intravaginal progesterone device (Sincrogest®, Ouro Fino, Brazil) at D0. Eight days later (D8), the device was removed and cows received 500 µg of Cloprostenol (Sincrocio®, Ouro Fino, Brazil), 1.0 mg of estradiol cypionate (SincroCP®, Ouro Fino, Brazil) and 300IU of equine chorionic gonadotrophin (eCG, SincroeCG®, Ouro Fino, Brazil). The pregnancy diagnosis was performed by ultrasonography 30 days after FTAI and in a subgroup of animals (n = 352), cyclicity was evaluated at the time of pregnancy diagnosis (presence of corpus luteum in non-pregnancy cows). Statistical analysis was performed using the GLIMMIX SAS procedure. Pregnancy rate [Control 64.66% (322/498) and P4i 62.86% (308/490) P = 0.55] and cyclicity in pregnancy diagnosis [Control 39.77% (70/176) and P4i 39.56% (72/182) P = 0.78] were similar among the experimental groups. It is concluded that previous exposure of progesterone to FTAI protocol does not interfere in the pregnancy rate neither in cycliclity of lactating Nelore cows with satisfactory body condition score.
Support: RG Genética Avançada, JÁ Reprogen, Ouro Fino Saúde Animal and FAPEMIG.

A014 TAI/FTET/AI

Energy and protein supplementation on follicular growth and pregnancy rate of *Bos indicus* lactating cows submitted to FTAI in a breeding season of 110 days

R.E. Orlandi[1], L.M.S. Simões[1], M.P. Bottino[1], A.P.C. Santos[1], E.A. Lima[1], J.P.M. Massoneto[2], L.A. Scandiuzzi Júnior[2], P.H.B.M. Pádua[2], J.N.S. Sales[1]

[1]UFLA - Universidade Federal de Lavras, Lavras, MG, Brasil; [2]AAP - Agropecuária Água Preta S/A, Cocalinho, MT, Brasil.

Effect of energy and protein supplementation on final follicular growth (FG) and pregnancy rate (P/AI) of lactating Nelore cows submitted to synchronization of ovulation were evaluated. Cows (n=342; between 30 and 45 days postpartum and BCS of 2.6±0.1) were distributed in 2 experimental groups (Control and Supplement) 12 days before initiation of the FTAI protocol. Cows from control group received no supplementation and cows from Supplement received 2.5 kg supplement/day (2kg of ground corn, 400g of soybean meal and 100g of urea - 26.5% CP and 76.5% TDN) during 26 days (D-12 to D14) meeting the requirements for maintenance of N*elore* lactating cows. Cows remained on *B. humidicola* pastures with free access to water and mineral salt while groups rotated between pastures. Twelve days after beggining of supplementation (D0), cows received 2mg of estradiol benzoate (Sincrodiol®, Ourofino, Brazil) and an intravaginal progesterone device (P4; Sincrogest®, Ourofino, Brazil). On D8, P4 device was removed and cows received 500µg of Cloprostenol (Sincrocio®, Ourofino Brazil), 300IU of eCG (SincroeCG®, Ourofino, Brazil) and 1mg of estradiol cypionate (SincroCP®, Ourofino Brazil). On D10, 48 hours after P4 device removal, all cows were inseminated. Pregnancy diagnosis was performed 30 days after FTAI by ultrasonography (US) and non-pregnant cows were resynchronized. After second FTAI, cows were placed with fertile bulls until the end of breeding season (110 days). In a subgroup of cows (n=173), US examinations were performed to evaluate the diameter of the dominant follicle (DF) and CL, final growth of DF and ovulation. Statistical analysis was performed by GLIMMIX procedure of SAS. There was no difference between experimental groups for FG between D8 and D10 (Control 1.5±0.1mm/day e Supplement 1.6±0.1mm/day; P=0.80), CL ratio on resynchronization [Control 46.9% (50/106) and Supplement 57.6% (67/117); P=0.18], P/AI at first FTAI [Control 42.6% (72/169) and Supplement 46.8% (81/173); P=0.29] and P/AI at second FTAI [Control 33.0% (29/88) and Supplement 42.6% (35/82); P=0.19]. Diameters of DF on D0 (Control 11.3±0.3mm and Supplement 11.8±0.2mm, P=0.04) on D8 (Control 9.4±0.2mm and Supplement 10.2±0.3mm, P=0.01), on D10 (Control 12.2±0.3mm and Supplement 13.2±0.2mm, P=0.002), of CL on D14 (Control 16.0±0.4mm and Supplement 17.1±0.3mm, P=0.005), ovulation rate [Control - 77.8% (82/106) and Supplement - 91.3%(107/117); P=0.0015] and pregnancy rate at the end of breeding season [Control 77.7%(115/148) and Supplement 87.8%(129/147); P=0.02] were higher on Supplement group. There was a tendency of greater manifestation of estrus [Control 70.8% (75/106) and Supplement 80.3% (94/117); P=0.09] and pregnancy rate by bull [Control 44.0% (26/59) and Supplement 61.7% (29/47); P=0.07] in cows on Supplement group. In conclusion, energetic and protein supplement increased fertility of lactating Nelore cows at the end of breeding season.
Support: FAPEMIG; Agropecuária Água Preta.

A015 TAI/FTET/AI

Conception rate in suckling Nelore cows with low, intermediate and high antral follicle count submitted to TAI with temporary calf removal

F.L.Z. Moraes[1,2], M.A. Silva[1], A.M. Volpato[2], J.B. Souza[2], A.C.C. Souza[1], F. Morotti[1], M.M. Seneda[1]

[1]UEL - Universidade Estadual de Londrina, Londrina, PR, Brasil; [2]UNOPAR - Universidade Norte do Paraná, Londrina, PR, Brasil.

Assuming the hypothesis that lactating Nelore cows with low follicle count (AFC) present a higher conception rate in a timed artificial insemination (TAI) protocol with temporary calf withdrawal, the objective of the present study was to evaluate the conception rate of suckling Nelore cows with low, intermediate and high AFC submitted to the TAI with temporary calf removal. A total of 342 Nelore cows (*Bos taurus indicus*), cyclic, with 48 to 120 months of age, 30 to 45 days postpartum and body condition score between 2.5 and 3.5 (range 1-5) were used in this study. On a random day of estrus cycle (Day 0), cows received an intravaginal device containing 1.9 g of progesterone (P4, CIDR®, Zoetis, São Paulo, Brazil) in association with intramuscularly (i.m.) injection of 2.0 mg estradiol benzoate (Gonadiol®, Zoetis). After 7 days, 48.2 mg of Cloprostenol sodium (i.m., Estron®, União Química, São Paulo, Brazil) was administered. On day 9, the intravaginal P4 device was removed; 1.0 mg of estradiol cypionate was administered (i.m., ECP®, Zoetis), and the calves were removed from the cows for a period of 48 hours until the time of the TAI (Day 11). The calves were kept at a management center with water, mineral salt, and ration *ad libitum* until reintroduced into cow's lot after insemination. The pregnancy diagnosis was performed 30 days after the TAI by transrectal ultrasonography (Aloka, SSD 500, Japan, 5 MHz linear transducer), in this same handling the AFC was evaluated, since this characteristic presents high individual repeatability during the reproductive phases. For determination of AFC, all follicles >3 mm were counted in each ovary and a total number of follicles were recorded for each cow. For the analysis, females (n = 342) were classified as low (1st quartile, ≤15 follicles, n = 119), intermediate (cows ≥ 16 and ≤39 follicles, n = 166) and high AFC (3rd quartile, ≥ 40 follicles, n = 57). Data were analyzed by the Minitab® 16.1.1. Statistical program, using the generalized linear model and logistic regression adopting $P \leq 0.05$ to be significant. The mean number of antral follicles differed ($P<0.0001$) among low, intermediate and high AFC groups (13 ± 3, 26 ± 5 and 52 ± 16 follicles, respectively). The conception rate was similar ($P=0.238$) among cows with low (62.2%, 74/119), intermediate (60.2%, 100/166) and high AFC count (49.1%; 28/57). Although there was no difference in conception rate between the AFC groups, temporary calf removal resulted in a similar conception rate to other studies that related AFC and TAI using equine chorionic gonadotrophin. It was concluded that suckling Nelore cows classified as low, intermediate or high AFC showed a similar conception rate when submitted to TAI associated with temporary calf removal.

A016 TAI/FTET/AI

Effects of the administration of short-acting progesterone and intravaginal progesterone device permanence on follicular dynamics and pregnancy rate of resynchronized *Bos indicus* heifers 14 days after TAI

L.M.S. Simões[1], E.A. Lima[1], A.P.C. Santos[1], R.E. Orlandi[1], M.P. Bottino[1], P.H.A. Marinho[1], L.A. Scandiuzzi Junior[2], J.P.M. Massoneto[2], J.C. Souza[1], A.H. Souza[3], P.S. Baruselli[4], J.N.S. Sales[1]

[1]UFLA - Universidade Federal de Lavras, Lavras, MG, Brasil; [2]AAP - Agropecuária Água Preta S/A, Cocalinho, MT, Brasil; [3]CEVA Saúde Animal, Paulínea, SP, Brasil; [4]USP - Universidade de São Paulo, São Paulo, SP, Brasil.

The objective was to evaluate the effect of a short-action progesterone (Afisterone®, CEVA, Brazil) injection and intravaginal progesterone device permanence (P4D) on follicular dynamics, pregnancy rate (P/AI) of the 1st TAI, 2nd TAI and the total (1st and 2nd TAI) and false positive rates (%False+) by Doppler ultrasonography in Nelore heifers submitted to super-early resynchronization. Fourteen days after the 1st TAI (D14), 1065 Nelore heifers (24.5±0.1 months-old and 3.5±0.1 in BCS) received a P4D (Prociclar, CEVA, Brazil) and were allocated in a 2X2 factorial design to either receive or not 50mg of Afisterone® IM keeping the P4D in for 6 (6DayP4) or 8 days (8DayP4). At the removal of the P4D (D20 and D22) a Color Doppler ultrasound was used for pregnancy diagnosis for evaluation of the luteal vascularization. In non-pregnant heifers (low or absent luteal vascularization), 150µg of D-Cloprostenol (Veteglan®, CEVA, Brazil) and 0.6mg of estradiol cypionate (Cipionato HC, CEVA, Brazil) and 300UI of eCG (Folligon®, MSD, Brazil) were given. Timed AI was performed 48h after P4D removal. Heifers were scanned (B-mode ultrasonography) at P4D removal and at the 2ndTAI, in order to measure the largest follicle (DF) and 30 days after the AI to evaluate P/AI. Heifers considered pregnant by Color Doppler ultrasonography were evaluated by B-mode ultrasound eight days later for pregnancy diagnosis and determination of %False+. Data were analyzed by the GLIMMIX procedure of SAS®. There were no interaction effects between Afisterone and P4D permanence. The P/AI by diagnosed by Doppler (P=0.88), 1st TAI (P=0.37), 2nd TAI (P=0.47), total (P=0.65) and %False+ (P=0.27) did not differ between heifers receiving or not Afisterone. Similarly, P4D permanence did not influence P/AI by Doppler (P=0.36), 1st TAI (P=0.20), 2nd TAI (P=0.84) and total (P=0.43). However, the diagnosis by Doppler performed earlier (20 d post TAI) increase the %False+ [6DayP4 - 33.7% (106/315) vs. 8DayP4 - 23.3% (67/288); P=0.01]. The diameter of the DF (dDF) at P4D removal was similar between heifers receiving or not Afisterone (P=0.79), and larger in the 8DayP4 heifers (6DayP4 - 10.3±0.2mm vs. 8DayP4 - 11.2±0.2mm; P=0.001). Moreover, the dDF at TAI was larger in heifers receiving Afisterone (P4 - 12.9±0.2mm vs. NoP4 - 12.3±0.2mm; P=0.03) and similar between the P4D-permanence times (P=0.24). Additionally, the early ovulation rates (pre-TAI) were similar in heifers receiving or not Afisterone (P=0.13) and between the P4D-permanence times (P=0.14). It is concluded that in the beginning of super-early resynchronization protocols is not necessary to inject Afisterone and the reduction from 8 to 6 days in P4D permanence does not interfere with Nelore heifer fertility. However, early (20 d post TAI) Color Doppler ultrasound diagnosis of CLV increases the rate of false positives.

A017 TAI/FTET/AI

Estradiol esters in the induction and synchronization of ovulation in dairy buffaloes submitted to a TAI protocol during the nonbreeding season

N.A.T. Carvalho[1], J.G.S. Carvalho[2,5], J.N.S. Sales[3], A.M. Krüger[4], B.M. Guerreiro[4], B.G. Freitas[4], P.S. Baruselli[5]

[1]UPD - IZ - Unidade de Pesquisa e Desenvolvimento de Registro-Centro de Zootecnia Diversificada-Instituto de Zootecnia (Registro-SP), São Paulo, SP, Brasil; [2]UFESP - Universidade Federal de São Paulo, Escola Paulista de Medicina, Centro de Pesquisa em Urologia, São Paulo, SP, Brasil; [3]UFL - Departamento de Medicina Veterinária, Universidade Federal de Lavras, Lavras, MG; [4]Ourofino Agronegócio, Cravinhos, SP; [5]Departamento de Reprodução Animal, VRA-FMVZ-USP, São Paulo, SP, Brasil.

The effect of the administration of two estradiol esters [Benzoate (EB) and Cypionate (CP)] was evaluated in the induction and synchronization of ovulation in dairy buffaloes submitted to a TAI protocol during the nonbreeding season (spring-summer; south hemisphere). It was hypothesized that CP have similar results to EB in the induction and synchronization of ovulation, and in the conception rate. The aim of CP utilization as ovulation inductor was to reduce the number of managements (4 to 3) and the cost of protocol implantation. At a random day of the estrous cycle (D0), in the morning period, 231 dairy buffalo females received an intravaginal progesterone device (P4; 1.0g; Sincrogest®, Ourofino Agribusiness, Brazil) and 2.0mg im of EB (Sincrodiol®, Ourofino Agribusiness). On D9 (morning), the animals received 0.53mg im of $PGF_{2\alpha}$ (sodium cloprostenol, Sincrocio®, Ourofino Agribusiness) and 400IU im of eCG (SincroeCG®, Ourofino Agribusiness, Brazil), followed by intravaginal P4 device removal. At this instant, buffaloes were divided into one of two groups (GEB; n=117 and GCP; n=114) according to the number of parturitions, postpartum period, body condition score, ovarian activity and the largest follicle diameter (□) on D9. The animals from GCP received 1.0mg im of CP (SincroCP®, Ourofino Agribusiness) on D9 (morning) and, 24h later (D10), buffaloes from GEB received 1.0mg im of EB (Sincrodiol®). All buffaloes were submitted to TAI 56h after $PGF_{2\alpha}$ administration (D11, afternoon). In a subset of animals (GEB, n=27 and GCP, n=29), the ovaries were evaluated by ultrasonography (Mindray DP2200Vet, China) on D0, on D9 and D10 (24h interval), and from D11 to D13 (12/12 hours), to verify the ovarian activity, to establish the follicular diameters, the follicular growth rate, the time of ovulation and the ovulation rate. The other buffaloes were also submitted to ultrasonography (Mindray DP2200Vet) for measuring the ovarian activity (D0 and D9), the largest follicle ∅ (D9) and to pregnancy diagnosis (D41). Statistical analyses were performed using the GLIMMIX procedure of SAS®. There was no difference between the experimental groups (GEB vs. GCP) for the variables ovulatory follicle Ø (13.4±0.5mm vs. 13.0±0.5mm; P=0.72); time of ovulation (71.0±1.4h vs. 68.2±2.8h, P=0.35) and the ovulation rate [70.4% (19/27) vs. 62.1% (18/29); P=0.31]. It was verified a greater follicular growth rate between $PGF_{2\alpha}$ administration and TAI (1.1±0.1mm/day vs. 0.9±0.1mm/day; P=0.08), follicular Ø on TAI (12.5±0.5mm vs. 11.3±0.6mm; P=0.08) and lower conception rate [36.2% (42/116) vs. 49.5% (56/113); P=0.04] in animals from GEB compared with GCP, respectively. It was concluded that the induction of ovulation with CP results in satisfactory follicular response, ovulation and conception rates in buffaloes synchronized for TAI during the nonbreeding season, with reduction in the number of managements and in the costs of protocol implantation.

A018 TAI/FTET/AI

Effects of antral follicles count (AFC), weight and age on the pregnancy rate after FTAI of Nellore heifers

G.C. Silva[1], C.J.T. Cardoso[2], D.M. Pereira[1], G.L. Ortiz[1], M. Santos[1], S.S. Oliveira[1], A.F. Silva[1], A.C.B. Lima[1], D.P. Oliveira[1], J.M. Gheller[1], É. Nogueira[3], F.A. Melo-Sterza[1,2]

[1]UEMS - Universidade Estadual de Mato Grosso do Sul, Aquidauana-MS, Brasil; [2]UFMS - Universidade Federal de Mato Grosso do Sul, Campo Grande, MS, Brasil; [3]Embrapa Pantanal, Corumbá-MS, Brasil.

The aim of this study was to evaluate the effects of antral follicles count (AFC), weight and age on the pregnancy rate of Nellore heifers. The experiment was carried out at São Judas Farm, county of Anastácio-MS. A total of 139 PO heifers aged between 13 and 28 month, with a mean weight of 323 ± 43.9 kg, maintained on pasture and considered suitable for reproduction from 275 kg regardless of age, were used. For the follicular counting procedure, an ultrasound device with SonoScape A5 VET® transrectal transducer was used on random days of the estrous cycle. All follicles ≥ 2 mm in diameter in both ovaries were counted to characterize AFC, with the operator rotating approximately 180 °, so that all follicles were counted without repetition. Immediately after folicle counting, with the aid of "cineloop" the conference of the AFC was performed. After follicle counting, the animals were weighed and submitted to the FTAI protocol. On D0, animals received 2 mg of estradiol benzoate (i.m.; RIC-BE®, Agener União, Brazil) and intravaginal device with 1 g of P4 (Primer®, Agener União, Brazil). On D8 P_4 devices were removed and IM 1 mg estradiol cypionate (ECP®, Zoetis, Brazil), 150 µg d-cloprostenol (Prolise®, Arsa, Argentina) and 300 IU eCG (Folligon®, MSD, São Paulo Brazil). AI was performed after 48 hours of withdrawal from the device. The animals were submitted to the diagnosis of gestation 30 days after the AI with the aid of transrectal ultrasonography. The data were analyzed by PROC GLIMMIX and PROC LOGISTIC of SAS, and the effects included in the model were: age, weight, AFC and pregnancy. The variables that did not have significant effects were removed from the model. There was no effect of heifer weight (P = 0.097) and AFC (P = 0.1687) on the pregnancy rate for FTAI, but age had a significant effect (P = 0.008), the greater the age the higher the pregnancy rate. Mean AFC was 21.2 ± 9.2 follicles between the animals and no difference (P> 0.05) was observed between the ages. The pregnancy rate at 30 days was 21.6%. It was concluded that AFC did not differ between heifers from 13 to 28 months and had no influence on pregnancy, nor did weight change the pregnancy rate. However, pregnancy is influenced by age till 28 months.

A019 TAI/FTET/AI

Use of injectable progesterone for super-early resynchronization in *Bos indicus* beef cows submitted to two timed-AI in 22 days

D.Z. Bisinotto[2,1], B.P. Mello[2,1], F.C. Lahr[2,1], C.A.F. Gallimberti[1], L. Amaral[1], G.D. Melo[1], M.R. Bastos[3], Ed H. Madureira[1], G. Pugliesi[1]

[1]FMVZ - Faculdade de Medicina Veterinária e Zootecnia, Universidade de São Paulo, Pirassununga, SP, Brasil;
[2]FZEA - Faculdade de Zootecnia e Engenharia de Alimentos, Universidade de São Paulo Pirassununga, SP;
[3]Ourofino Saúde Animal, Cravinhos, SP, Brasil.

We aimed to evaluate the preovulatory follicle (fol) size and pregnancy rates in Nelore lactating cows submitted to a super-early resynchronization at 12 days after first timed-AI (TAI) with or without the use of long-acting injectable progesterone (P4-LA). Pluriparous (n=293) and primiparous (n=83) Nelore cows, with body condition (BC) between 4 and 6 (scale: 1 to 9), were submitted to a progesterone/estradiol based timed-AI protocol (D0 = insemination). On D12, animals were divided into 2 groups (G). In the control G (n=184) cows received a new P4 intravaginal device (0.96 g; Progestar, Boehringer-Ingelheim, Campinas, Brazil); whereas in the P4-LA G (n=192) cows received the P4 device and 75mg P4-LA (Sincrogest Injetável, Ourofino, Cravinhos, Brazil). On D20, the devices were removed and cows underwent color-Doppler ultrasonography (US) evaluation to identify non-pregnant females by structural regression of corpus luteum, as established by Pugliesi et al (Biol of Reprod, 4:1-12, 2014). Cows identified as non-pregnant on D20 (n=120) was retired P4 intravaginal device and applied 500ug of sodium cloprostenol (Cioprostin, Boehringer-Ingelheim), 1mg of estradiol cypionate (SincroCP, Ourofino) and 300 IU of eCG (Ecegon, Biogensis Bagó, Vinhedo, Brazil) and were re-inseminated on Day 22. The manifestation of estrus was verified by the use of a marker stick at the base of the tail and visualization of the total or partial loss of the marking on the day of the TAI (D22). The size of the largest ovarian fol was measured by transrectal US on the day of TAI. The pregnancy diagnosis was performed on D52 by B mode US. The parametric data were evaluated by ANOVA (PROC MIXED) and the pregnancy rate by logistic regression (PROC GLIMMIX) of SAS, considering BC, fol size, and estrus in the model. There was no difference (P>0.10) in the pregnancy rate at D20, 30 and 60 after first TAI between the control (69%, 59.7% and 57%, respectively) and P4-LA (67%, 55.7%, and 55.2%, respectively) G. Pregnancy loss between D20 and D30 was 13.3% (17/127) in the control G and 17% in the P4-LA G (22/129; P>0.1). Pre-ovulatory fol size at second TAI did not differ, between control and P4-LA (13.3 ± 0,38mm vs 13.5 ± 0,39mm respectively; P>0.1). No interaction among the variables studied were detected. However, the estrous and pregnancy rates were greater (P<0.05) in the P4-LA G (92.2% [59/64] and 60.9% [39/64]) than in the control G (75% [42/56] and 44.6% [25/56]), respectively. The accumulative pregnancy rate at 30 days after two TAIs was 73.4% (135/184) in the control G and 79.3% (146/184) in the P4-LA G (P>0.1). The use of P4-LA at 12 days after TAI for super-early resynchronization associated with the Doppler imaging pregnancy diagnosis is an advantageous alternative to improve pregnancy rates in *Bos indicus* beef cows submitted to two TAI in 22 days.
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A020 TAI/FTET/AI

Effect of one or two doses of prostaglandin in a resynchronization protocol for TAI in beef cows: pregnancy rate

A.P. Baioco[1], A.P. Martini[1], E.F. Machado Filho[1], G.J.M. Silveira[1], J.F. Colombo[1], H.F. Pinto[3], G.W. Carloto[3], F.G. Leivas[3], M.F. Sá Filho[2], I. Claro Junior[4], G.A. Pessoa[1]

[1]UFSM - Universidade Federal de Santa Maria, Santa Maria, RS, Brasil; [2]Alta Genetics, Uberaba, MG, Brasil; [3]UNIPAMPA - Universidade Federal do Pampa, Uruguaiana, RS, Brasil; [4]Zoetis Saúde Animal, São Paulo, SP, Brasil.

The objective of this study was to evaluate the number of the prostaglandin doses in resynchronization protocol on the pregnancy rate. This study was performed during the 2017-2018 breeding season on 10 commercial farms located in the central and southwest region of Rio Grande do Sul, Brazil. A total of 2,347 *Bos taurus* beef cows (Angus, Hereford) with body condition score 2.90 ± 0.15 (1 = thin, 5 = obese) and 40 ± 5.1 days post-partum were used. The synchronization protocol for first TAI all cows received a new P4 intravaginal progesterone device (CIDR®, Zoetis, Brazil) and 2mg of estradiol benzoate (EB, im, Gonadiol®, Zoetis) on Day -11. On Day 4 was administered 12.5 mg of dinoprost tromethamine (PGF, im, Lutalyse®, Zoetis) and on Day 2 the 0.6 mg of estradiol cypionate (ECP® im, Zoetis) and 300 IU of eCG (im, Novormon®, Zoetis) was applied and P4 device was removed. The AI was performed on Day 0 (48 hours after P4 device removed). The resynchronization protocol was started on Day 23 in all cows and it was randomly distributed to receive a new, used1x or used2x P4 device (CIDR®) and given 2 mg of EB. On Day 30 the pregnancy diagnosis was performed by transrectal ultrasonography. In pregnant cows (n=1,021) the P4 device were withdrawn. At moment the non-pregnant cows (n=1,326) was randomly by presence of CL in ovary in two groups. The group 1PGF (n= 674) the single application of PGF was performed on Day 30, and group 2PGF (n=652) was injected PGF on Days 30 and 32. On Day 32, all cows received eCG, ECP and P4 device was removed. AI of resynchronization protocol was performed in both groups on Day 34 (48h hours after P4 device removed) and pregnancy diagnosis was performed on Day 64. Data were analyzed using the Glimmix procedure of SAS. The pregnancy rate obtained in the synchronization protocol was 56.5% (1021/2347). The pregnancy rate in resynchronization protocol was similar between PGF doses 1PGF [1PGF=39.5% (266/674); 2PGF=40.6% (265/652), (P=0.49). No interaction was observed in P4 device new, used 1x, used 2x and PGF treatment (P=0.38). The pregnancy rate was similar when compared 1PGF or 2PGF using new P4 [1PGF = 43.2% (35/81); 2PGF = 56% (93/166), (P=0.67)], used 1x [1PGF = 39% (163/418); 2PGF = 40.6% (40/345), (P=0.64)], used 2x [1PGF = 38.9% (68/175); 2PGF = 22.7% (32/141), (P=0.14)]. The pregnancy rate was similar with the use of one or two doses of prostaglandin. In conclusion is possible to suppress a second dose of prostaglandin in resynchronization protocol without compromising the pregnancy rate in *Bos taurus* beef cows.

A021 TAI/FTET/AI

Supplementation with melengestrol acetate (MGA®) after TAI in *Bos taurus* beef cows suckled and heifers

H.F. Pinto[1], D.S. Brum[1], N.C. Carvalho[1], N. Alves Neto[3], I. Claro Junior[3], A.P. Martini[2], G.A. Pessoa[2], A.P. Baioco[2], E.F. Machado Filho[2], F.G. Leivas[1]

[1]UNIPAMPA - BIOTECH, Lab. de Biotecnologia da Reprodução, Universidade Federal do Pampa, Uruguaiana, RS, Brasil; [2]UFSM - Embryolab, Lab. de Embriologia Animal, DCGA, Universidade Federal de Santa Maria, Santa Maria, RS, Brasil; [3]Zoetis Brasil, Vila Boa Vista, Campinas, SP, Brasil.

The aim of this study was to evaluate the effect of oral supplementation with melengestrol acetate (MGA®, Zoetis, Brazil) in pregnancy rate after TAI and reproductive performance at the end of the 90-day breeding season. A total of 242 animals (BCS=2.88 scale 1-5) from 2 farms were used (90 cows: 45 days postpartum and 152 heifers). At the onset of the synchronization (D0), animals were examined by ultrasound to evaluate the presence of CL (CLD0=45%) and received an intravaginal P4 device (CIDR, Zoetis) plus 2 mg of estradiol benzoate IM (Gonadiol, Zoetis). On D7, 12.5 mg of dinoprost IM (Lutalyse, Zoetis) were administrated. The P4 device was removed and it was administered 0.5mg of estradiol cypionate IM (ECP, Zoetis) plus 300IU of eCG (Novormon, Zoetis) on D9. The TAI was performed 48h later (D11). On the 13th day after TAI until day 18, the heifers and cows were homogeneously divided into cyclicity and BCS and category into 2 groups: *Group MGA (n = 117)* that received 2.28 g of MGA® Premix (Zoetis, Brazil) per day mixed with salt (equivalent to 0.50 mg Melengestrol Acetate) and noMGA Group (n = 125) that received only salt. The breeding season with bulls occurred from D19 up to D90. The diagnosis of pregnancy was performed at D30, D90 and D120. The variables were analyzed using the procedure GLIMMIX of SAS, the averages were compared by Tukey-Kramer test. There was no effect of the animal category. The cyclicity rate (presence of CL) on day 30 was 68.0 and 93.2% for the MGA and noMGA groups (P =0.08), respectively. The pregnancy rate at D30 was 38.4% and 40.2% (P=0.44) and in D90 was 74.4% and 88.9% (P=0.09) in groups *noMGA* and *MGA* group, respectively. The pregnancy loss between days 30 and 120 was 18.8% and 4.1% for the groups noMGA and MGA, respectively (P <0.05). Based on the results obtained, it can be inferred that the supplementation with MGA did not improve the pregnancy rate at 30 days, but increased the pregnancy rate at the end of the breeding season. A greater number of animals should be tested for data confirmation as well as evaluate the effect on different categories of animals and different conditions of cyclicity.

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A022 TAI/FTET/AI

Effect of treatment with injectable progesterone at the onset of super precocious TAI ressincronization protocol on TAI pregnancy rates of Nellore heifers

W.A. Gonçales Junior[1], M.H.A. Colli[1], B.L.C. Catussi[1], R.G. Rezende[1], D.L. Andrea[2], M.W. Castro[2], B.G. Freitas[3], B.M. Guerreiro[3], P.S. Baruselli[1]

[1]USP - Universidade de São Paulo, São Paulo, SP, Brasil; [2]NA - Nova Aliança, Campo Grande, MS, Brasil; [3]Ourofino Saúde Animal, Cravinhos, SP, Brasil.

Estradiol treatment induced luteolysis and compromised the conception rate when administered 13 days after TAI (Vieira et al., 2014 SBTE). The injectable P4 could be used to promote the follicular wave emergence through the LH dependent dominant follicle suppression (Rezende et al., 2016 SBTE). The aim of this study was evaluate the pregnancy rates of Nellore heifers, submitted to P4 treatment or not, at the onset of superearly TAI ressincronization protocol. For this, 1000 Nellore heifers (24±4 months of age and 320±20 kg) were submitted to a first TAI protocol. Fourteen days after the first AI, the heifers were homogeneously distributed into three groups: G-A50, 50 mg IM of injectable progesterone (Afisterone®, Hertape, Brasil) associated to a previously used for eight days 1.9g progesterone intravaginal device (CIDR®, Zoetis, Brasil); G-P4LA50, 50 mg IM of injectable progesterone of long action (Sincrogest injetável®, Ouro fino, Brasil) associated to a previously used, for eight days, 1.9g progesterone intravaginal device (CIDR, Zoetis) and G-CONT, only a previously used, for eight days, 1.9g progesterone intravaginal device (CIDR®, Zoetis). Eight days after the distribution (D22), all heifers were submitted to the removal of the P4 device and pregnancy diagnosis by color Doppler ultrasound (S8®, Sonoscape, China). The animals with negative diagnosis (Pugliesi et al, 2017), were submitted to ultrasound examination to measure the major follicle present on the ovaries (DFD22) and the second TAI protocol continuation (G-A50, n=184; G-P4LA50, n=164; and G-CONT, n= 176). At day 22, the heifers with negative pregnancy diagnosis (PD) received 12.5 mg IM of Dinoprost tromethamine (Lutalyse®, Zoetis), 200 IU of eCG (Novormon®, Zoetis), 0.5 mg of Estradiol cypionate (ECP®, Zoetis) and the tail basis was painted with a wax stick (Walmur®, Brasil), for the heat detection between D22 and D24. All animals were inseminated on day 24, by the same inseminator and using the same bull and batch. The resyinchronization pregnancy diagnosis was performed by B mode ultrasound (DP2200®, Mindray, China), 70 days after the 2° AI. Data were analyzed by GLIMIX procedure of SAS 9.3. There were no significant differences between treatments on DFD22, G-A50: 10±2.1mm; G-P4LA50: 9.8±2.0mm and G-CONT: 9.7±2.2mm; P= 0.23 and on heat expression G-A50: 68% (123/182); G-P4LA50: 62% (102/164); G-CONT: 69% (121/175); P=0.62. There was also no difference on pregnancy rate between treated and control groups G-A50: 38.0% (70/184); G-P4LA50: 38.4% (63/164); G-CONT: 34.7% (61/176) P= 0.65. There were no differences on orthogonal contrast analyses (G-A50 vs G-P4LA50; P= 0.89) and on control vs. treated, G-CONT vs G-A50 + G-P4LA50; P= 0.35. No statistical difference was found between groups, showing the need for more studies to determine the necessity or not of use of injectable progesterone at the onset of super precocious TAI protocol ressynchronization.

A023 TAI/FTET/AI

Association of *in vivo* fertility of bulls with *in vivo* production of embryos

G.M. Zanatta[1], F.M. Elliff[1], A. Bridi[3], G.A. Crepaldi[2], R.D. Mingoti[1], M.E.O.D'A. Assumpção[1], F. Perecin[3], P.S. Baruselli[1]

[1]FMVZ - Universidade de São Paulo/Departamento de Reprodução Animal, São Paulo, SP, Brasil; [2]ST Repro, Indaiatuba, SP, Brasil; [3]FZEA/USP - Departamento de Medicina Veterinária/Universidade de São Paulo, Pirassununga, SP, Brasil.

The objective of this study was to evaluate the association between embryo production and pregnancy rate using bulls of high and low fertility in the field. The bulls' fertility was predetermined in comparative trials done by the partner company for this experiment, using the bulls in the same lot and presenting statistical differences on pregnancy rate to TAI, determining high and low fertility bulls. For this, 426 Nellore lactating cows were synchronized for TAI. At the onset of the synchronization protocol (D-10) 2mg, IM of Estradiol Benzoate (RIC BE®, Agener União, Tecnopec, São Paulo/SP) was administered associated with an intravaginal progesterone device impregnated with 0.750g of P4 (Prociclar®, Hertape, Brasil). After 8 days (D-2), the P4 device was removed and 1mg, IM of Estradiol Cipionate (ECP®, Zoetis, São Paulo/SP), 0.150mg de D-cloprostenol (Veteglan Luteolítico®, Hertap, Brasil) and 300IU of eCG (Novormon®, Zoetis, São Paulo/SP) were administrated. After 48h of device removal (D0), all females were inseminated using high (n=3) or low (n=3) fertility Angus bulls semen. Seven days after the TAI (D7) the ovulation rate was evaluate by ultrasound (DP2200® Mindray, China), and the cows were homogeneously distributed according to bull and ovulation in two groups: Flushing Group (FG) and Pregnancy Group (PG). The FG animals were submitted to the collection of embryos by the non-surgical method, in the horn ipsilateral to ovulation. The filters were washed and the embryos were traced in stereomicroscope (Olympus, EUA). The embryos were classified according to IETS standards, washed in PBS plus 1% Polyvinylpyrrolidone (PVP) and cryopreserved in liquid nitrogen. The pregnancy diagnosis of the PG was performed 30 days after the TAI (D30). Data were analyzed by Fischer's exact test and SAS® GLIMIX procedure. There was no difference on the recovery rate of structures according to the fertility of the bull: high – 38.2% (39/102) and low – 31.1% (32/103), (P=0.31). Concerning the viability of the embryos, the high fertility bulls presented difference (P <0.001) between viable 87.2% (34/39) and non-viable 12.8% (5/39) embryos. Low fertility bulls did not present this difference (viable 59.4% (19/32) and non-viable 40.6% (13/32), P=0.28). High fertility bulls presented higher rate (P=0.013) of viable embryos (87.2%; 34/39) when compared to bulls with low (59.4%; 19/32) fertility. There was difference (P=0.03) in the pregnancy rate at TAI between high (54.6%; 48/88) and low fertility (38.2%; 34/89) bulls. High fertility bulls produced embryos of greater viability, therefore there is a need for further studies to clarify this fact.

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A024 TAI/FTET/AI

Effect of body condition score and antral follicle count on induction of puberty in Nelore heifers

M.P.M. Negreiros[1,2], G.H.F. Seugling[1], L.A.R. Pegorari Junior[1], G.C. Silva[1], A.C.B. Pereira[1], J.G.R. Kairuz[1], G.R. Vicentin[1], W. Blaschi[1], T.R.R. Barreiros[1]

[1]UENP - Universidade Estadual do Norte do Paraná, Bandeirante, PR, Brasil; [2]PIBIC - FAP - Fundação Araucária do Estado do Paraná, Bandeirantes, PR, Brasil.

The objective of the present study was to evaluate the effect of antral follicle count (AFC) and body condition score (BCS) on puberty induction in heifers. Nelore heifers (n=336), 22 to 24 months of age, with 260 to 280 Kg body weight, and body condition score between 2.25 and 3.25 (1=thin to 5=obese scale) were used. The animals were submitted two ultrasonographic examinations with a 14 day apart, to evaluate the cyclicity by the presence of CL and AFC (follicles >3 mm). The experimental groups were divided by tertile (n = 112) in high AFC (32 to 64 follicles), mean AFC (22 to 30 follicles) and low AFC (6 to 20 follicles). Prepubertal females received an intravaginal progesterone device (CIDR, Zoetis, Brazil) previously used by 32 days. Ten days later, the devices were withdrawn and given 1 mg of estradiol benzoate (Gonadiol, Zoetis, Brazil) via IM. The animals were submitted to ultrasonography 10 days later for CL detection. The results were analyzed by logistic regression ($p < 0.05$). The cyclicity evaluation resulted 47.0% (158/336) of the heifers with CL. Heifers with low AFC presented lower ($p < 0.001$) cyclicity rate (33.9%, 38/112) than heifers with mean (52.6%; 59/112) or high AFC (50.0%, 61 / 112). The rate of cyclicity was influenced by BCS ($p = 0.02$); [BCS≤2.5: 18.4% (7/38); BCS = 2.75: 52.6% (42/85); BCS ≥3.0: 50.0%; 104/213)]. The induction of puberty (n = 178 prepubertal heifers) showed similarity ($p = 0.30$) among heifers with high: 66.6% (34/51); mean: 86.7% (46/53) and low AFC: 77.0% (57/74). The induction of puberty was not influenced by BCS ($p = 0.65$); [BCS ≤2.5: 77.4% (24/31); BCS = 2.75: 72.0% (31/43); BCS ≥3.0: 78.8%; (82/104)]. In conclusion, AFC and BCS stood out as important aspects in the assessment of heifer cyclicity. AFC presented promising results and may be a relevant factor in the evaluation of prepubertal heifers. However, AFC was not highlighted as a predictive parameter in the induction of puberty in heifers.

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A025 TAI/FTET/AI

Effect of cyclicity, body condition score and antral follicle count on the conception rate of Nelore cows submitted to fixed-time artificial insemination

L.A.R. Pegorari Junior[1,2], G.H.F. Seugling[1], M.P.M. Negreiros[1], G.R. Vicentin[1], G.C. Silva[1], J.G.R. Kairuz[1], A.C.B. Pereira[1], W. Blaschi[1], T.R.R. Barreiros[1]

[1]UENP - Universidade Estadual do Norte do Paraná, Bandeirantes, PR, Brasil; [2]PIBIC - FAP - Fundação Araucária do Estado do Paraná, Bandeirantes, PR, Brasil.

The present study aimed to evaluate the effect of cyclicity, antral follicles count (AFC) and body condition score (BCS) on the pregnancy rate of Nelore cows submitted to timed artificial insemination. A total 979 Nelore cows, 30 to 45 days post-partum with BCS of 2.7±0.5 (range 1 - 5), in the region of Congonhinhas, State of Parana was used. The animals were submitted to two ultrasound examinations with an interval of 14 days for evaluation of cyclicity by the presence of CL, and antral follicles>3 mm were counted by ultrasonography, using transrectal linear probe. At the time of the second ultrasound evaluation, the animals received an intravaginal progesterone device (CIDR®, Zoetis, Brazil) and 2mg of BE (Gonadiol®, Zoetis, Brazil). Nine days later, the implants were removed and the animals received 12.5 mg of dinoprost (Lutalyse®, Zoetis, Brazil), 300IU eCG (Novormon®, Zoetis, Brasil) and 1.0 mg EC (ECP®, Zoetis, Brazil). Forty-eight hours later the cows were inseminated and pregnancy diagnosis was performed 35 days later by ultrasonography examination. Data were analyzed by logistic regression ($p < 0.05$). The proportion of cycling cows was 15.0% (146/979). Cows were classified according to AFC (mean ± standard deviation) in groups of high AFC (35.5±5.5 follicles, n=185), medium AFC (20.8±8.5follicles, n=629) or low AFC 10,7±1,8 follicles, n=165). The AFC was greater ($p = 0.001$) in anestrus cows (21.0 ±8.5 follicles) than in cycling cows (18.6±8.2 follicles). However, AFC was not affected by BCS (BCS ≤2.5: 20.7±8.3; BCS =2.75: 21.6±9.1 e BCS ≥ 3.0: 21.9±9.5 follicles). Pregnancy results were similar (P=0.35) for cycling and anestrus cows (60.2%, 88/146 vs. 56.0%, 466/833, respectively). Pregnancy rate was influenced (P=0.005) by AFC [high: 49.7% (92/185)^{a}; medium: 56.1% (353/629) ^{ab}; low: 66.0% (109/165) ^{b}] and BCS (P=0.02); [BCS ≤2.5: 49.6% (151/304)^{a}; BCS =2.75: 56.2% (188/334) ^{ab}; BCS ≥3.0: 63.4%; 215/341)^{b}].The pregnancy rate showed interaction with BCS ($p = 0.02$), and AFC ($p = 0.004$), resulting in higher pregnancy rate in cows with low AFC and better BCS [high AFC / BCS ≤2.5: 33.3% (16/48)^{a}, high AFC / BCS =2.75: 51.6% (32/62)^{b}, high AFC / BCS ≥3.0: 57.8% (44/76)^{b}, medium AFC / BCS ≤2.5: 53.0% (106/200)^{a}, medium AFC / BCS =2.75: 58.2% (127/218)^{a}, medium AFC / BCS ≥3.0: 58.3% (122/209)^{a}, low AFC / BCS ≤2.5: 51.7% (29/56)^{a}, low AFC / BCS =2.75: 53.7% (29/54)^{a}, low AFC / BCS ≥3.0: 87.5% (49/56)^{b}]. In conclusion, cows with lower AFC and higher BCS had better pregnancy rates. Therefore, AFC and BCS deserve to be highlighted as important aspects in the previous assessment of the fertility of cows for timed artificial insemination.
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A026 TAI/FTET/AI

Influence of PGF2α at the first day and/or GnRH at the time of AI during a shorter FTAI protocol in Nelore heifers

R. Sujrus[1], A. Prata[2], O. Costa Junior[1], J.C.O. Lima[1], L. Serafim[1]

[1]Parceiros Agronegocios, Matupá, MT, Brasil; [2]Globalgen vet Science, Jaboticabal, SP, Brasil.

This study aimed to evaluate the influence of sodium cloprostenol (PGF2α) on D0 and/or buserelin acetate (GnRH) at the time of AI on pregnancy per AI (P/AI) in heifers submitted to an E2/P4-based FTAI protocol with 7d of P4 implant. Nulliparous Nelore heifers (n=899; ~2yr old), with BCS 2.7±0.01 (1-5 scale) and body weight of 353 kg were randomly assigned to 1 of 4 groups. On D0, P0G0 group received estradiol benzoate (1.5mg) and a new intravaginal P4 device (0.5g). After 7d (D7) the device was removed and PGF2α (0.53mg), eCG (200 IU) and estradiol cypionate (0.5 mg) were administered, followed by FTAI performed on D9. The groups P1G0 and P0G1 were submitted to the same protocol described above, differing by treatment with PGF2α (0.530 mg) on D0 or GnRH (8.4 μg) at AI, respectively. Heifers from the P1G1 group were treated with both PGF2α on D0 and GnRH on D9. Estrus expression was evaluated at AI using tail-chalk. The hormones used were from GlobalGen Vet Science, Jaboticabal, SP, Brazil. Ultrasound exams were performed to evaluate the presence of corpus luteum (CL) on D0, and on D40 for pregnancy diagnosis. Statistical analyses were performed by GLIMMIX and MIXED of SAS (LSM±SEM; P≤0.05). Considering all heifers, no difference (P=0.3) on P/AI between treatments was detected [P0G0= 37.9% (80/211); P1G0= 46.9% (112/240); P0G1= 48% (112/232); P1G1= 49.7% (108/216)], but there was a tendency (P=0.06) for GnRH effect [with GnRH = 48.8% (213/436) vs without GnRH = 42.3% (188/445)]. There was also a major effect (P<0.0001) of ciclicity on P/AI [55.5% (319/574) with vs 35.9% (110/307) without CL on D0]. Considering only cyclic heifers, GnRH treatment improved (P=0.02) P/AI [with GnRH = 60.5% (178/294) vs without GnRH = 50.7% (142/280)], but PGF2α had no effect (P=0.4). Regarding heifers without CL on D0, an interaction (P=0.02) between PGF2α and GnRH was detected. Heifers from P1G0 group had greater P/AI than P0G0 [46% (41/88) vs 25.6% (20/78)]. Overall estrus expression was 73.4% (660/899), with no difference between groups. Cyclic heifers had more estrus than heifers without CL on D0 [83.9% (493/587) vs 53.9% (168/311)]. Independent of ciclicity status, heifers with expression of estrus had greater (P=0.02) P/AI than heifers not detected in estrus [48.7% (317/650) vs 39% (90/231)], with effect of ciclicity (P<0.0001). Also, there was no interaction between treatment with GnRH at the time of AI and expression of estrus on P/AI [heifers with estrus that received GnRH = 53.2% (171/322) vs heifers with estrus not receiving GnRH = 44.3% (150/338); P=0.3]. Heifers not detected in estrus and treated with GnRH [39.2% (49/126)] had similar P/AI as heifers not in estrus and without GnRH [38.9% (44/113); P=0.3]. In summary, treatment with PGF2α on D0 had minor or no effect on P/AI, but GnRH at the time of AI seems to have improved fertility of Nelore heifers submitted to a shorter E2/P4-based FTAI protocol.

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A027 TAI/FTET/AI

Conception rate according to corpus luteum vascularization in embryo recepients cows and heifers

A.K. Munhoz, M.H.C. Pereira, J.L.M. Vasconcelos

UNESP - Botucatu - Universidade Estadual Paulista Júlio de Mesquita Filho/Faculdade de Medicina Veterinária e Zootecnia, Botucatu, SP, Brasil.

The evaluation of corpus luteum (CL) size is positively correlated to P4 circulating concentrations. In addition, the evaluation of CL vascularization represents more precisely the CL function (Bollwein et al. 2002; 2012). Higher concentrations of P4 are related to greater development of the concept (Mann and Lamming, 2001) and greater probability of pregnancy. The objective of this study was to evaluate if CL vascularization impacts the conception rate of Girolando recipients submitted to fixed-time embryo transfer (FTET). Cows (n=129) and heifers (n=352) were synchronized with the following FTET protocol: D-11, 2mg estradiol benzoate i.m (Gonadiol®, Zoetis, Brazil) administered concomitantly with the insertion of the intravaginal device of 1.9g P4 (CIDR®, Zoetis, Brazil); in D-4, 12.5mg of dinoprost i.m (Lutalyse®, Zoetis, Brazil) was administered; in D-2, 1mg estradiol cipionate i.m (cows) or 0.5mg i.m (heifers) (ECP, Zoetis, Brazil) and withdrawal of CIDR; in D7 embryo transfer was performed in animals with CL, evaluated by Doppler ultrasonography (Mindray Z5 Vet, DPS®). At this moment the degree of vascularization of the CL was determined: peripheral and central blood perfusion (PPC), peripheral blood perfusion only (PP), absence of blood perfusion (PA). Embryo transfer was performed in the uterine horn ipsilateral to CL, fresh embryos produced *in vitro* were used. The pregnancy diagnosis was performed on D32 and D60. The pregnancy rate of the animals according to the CL classification at the time of FTET was evaluated. To evaluate the binomial variables, PROC GLIMMIX from SAS (Cary, USA) was used. Significance was considered when $P \leq 0.05$ and tendency when $P \leq 0.10$. In heifers, 68% (241/352) showed CL PPC, 26% (90/352) PP and 6% (21/352) AP, whereas in cows, 74% (96/129) presented CL PPC, 23% (30/129) PP and 2% (3/129) AP. In heifers CL PPC presented a higher conception rate at 30 days [56% (135/241); P = 0.05] in relation to CL AP [33.3% (7/21)], and CL PP did not differ from the others [50% (45/90); P> 0.10]. In cows, there was no difference in the pregnancy rate among the CL blood perfusion classes [PPC = 42.1% (39/93), PP = 40% (12/30), AP = 33.3% (1/3), P = 0.94]. There was no effect of CL class on pregnancy loss between 30 and 60 days in heifers [PPC = 9.6% (15/135), PP = 11.1% (6/45), AP = 14.3% (1/7), P = 0.9], and cows [PPC = 17.5% (7/40), PP = 16.6% (2/12), AP 0% (0/1) P = 0.90]. In conclusion, heifers with no CL perfusion had a lower conception rate, however, only 6% of the animals had this degree of vascularization. In cows, this effect was not observed and only 2% of the animals had no CL perfusion. The use of this evaluation technique for the vascularization of the corpus luteum would not bring significant improvements in fertility in FTET programs, since only 5% of the animals had no CL perfusion.

A028 TAI/FTET/AI

Effect of the dose of short-acting injectable progesterone (50 vs 100mg) on day 14 of super-precocious synchronization

F.B. Santos[1], L.A.A. Laís[2], B.L.C. Catussi[2], C.P. Costa[2], J.M. Cruz[3], F.M. Elliff[2], M.D.D.V. Ortolan[2], R.D. Mingotti[2], L.P. Silva[1], P.S. Baruselli[2]

[1]FIRMASA Tecnologia Para Pecuária, Ltda, Londrina, PR, Brasil; [2]USP - Universidade de São Paulo, São Paulo, SP, Brasil; [3]UNC - Universidade Nacional da Colômbia, Bogotá, Colombia,

The present study evaluated the use of different dosages of short-acting injectable progesterone P4 (Afisterone®, Hertape Calier, Juatuba, Brazil) in the super-precocious resynchronization protocol. For this, 690 cows were used, 635 Nellore (*Bos indicus*) and 55 crossbred (*Bos taurus x Bos indicus*), mean BCS of 2.99 ± 0.4, from three properties located in the State of Paraná, Brazil; [Farm A (n= 162), Farm B (n= 333) and Farm C (n= 195)]. The conception rate at first FTAI was 55.7% (384/690). Non-pregnant animals (n= 306) were resynchronized and reinseminated. The resynchronization protocol consisted on the insertion of a P4 device (Fertilcare 1200®; Vallé, Montes Claros, Brazil) 14 days (D14) after 1st TAI, in all animals of the lot, associated or not to different doses of short-acting injectable P4 *i.m* according to the following treatments: Control Group [intravaginal P4 device only; n= 101], Group P4-50 [50mg of injectable P4 (Afisterone®, Hertape Calier, Juatuba, Brazil); n= 100] and Group P4-100 [100mg of injectable P4 (Afisterone®, Hertape Calier, Juatuba, Brazil); n= 105]. On day 22 (D22) the P4 intravaginal devices were removed and transrectal ultrasonography evaluation, using a frequency of 7.2 MHz (SonoScape®S8) was performed. The pregnancy diagnosis was performed by CL functionality, through the color Doppler mode; taking as reference, blood flow >25% for pregnant cows. Cows diagnosed as non-pregnant were treated with 0.530 mg of sodium cloprostenol *i.m.* (Ciosin®, MSD, São Paulo, Brazil) associated with 1 mg estradiol cipionate (EC) *i.m.* (Fertilcare Ovulation®, Vallé, Montes Claros, Brazil) and 300 IU of eCG *i.m.* (Folligon®, MSD, São Paulo, Brazil). The 2nd AI was performed 48 hours after removal of the P4 device (D24). The gestation diagnosis of resynchronization was performed 30 days after insemination (D54). The data were analyzed by the GLIMMIX SAS procedure. No interaction was observed between group*category (P = 0.68) and group*farm (P = 0.31) in the resynchronization pregnancy rate. There was no difference in the pregnancy rate according to the experimental groups [Control grouP= 35.7% (36/101); Group P4-50= 37.0% (37/100); Group P4-100= 39.1% (41/105); P = 0.80]. It was concluded that pregnancy rate in the 14 day resynchronization protocol, using Doppler ultrasonography, was not increased using different dosages of short-acting injectable P4.
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A029 TAI/FTET/AI

Effect of PGF2α treatment at the start of an E2/P4-based FTAI protocol (7 days of P4 implant) on expression of estrus and fertility of Nelore females

L.O. Silva[1], G. Madureira[1], C.E.C. Consentini[1], J.C.L. Motta[1], R.L.O.R. Alves[1], A.B. Prata[2], F.R. Manicardi[3], D.P.D. Lanna[1], M.C. Wiltbank[4], R. Sartori[1]

[1]ESALQ/USP - Department of Animal Science, Luiz de Queiroz College of Agriculture of University of São Paulo, Piracicaba, SP, Brazil; [2]GlobalGen - GlobalGen Vet Sience, Jaboticabal,SP, Brazil; [3]Sta Helena Farm - Santa Helena Farm, Bom sucesso, PR, Brasil; [4]UW - Department of Dairy Science, University of Wisconsin, Madison, WI, USA.

The aim of this study was to evaluate the effect of cloprostenol sodium (PGF2α) administration at the beginning of a shorter E2/P4-based FTAI protocol (7 d of P4 implant) on the expression of estrus and fertility of Nelore females. Thus, on D0 of the protocol, 475 females of different categories (heifers, primiparous and multiparous), with mean BCS of 3.2 ± 0.1 (1-5 scale), were evaluated for presence of CL and randomly assigned to two treatments: PG1 (administration of 0.530 mg of PGF2α) and PG0 (control). Also on D0, all females were submitted to the synchronization protocol according to the category: in cows, an intravaginal P4 device (1 g) was used and 2 mg of estradiol benzoate (EB) were given; in heifers, a 0.5 g P4 device was used and 1.5 mg EB was administered. After 7 d (D7), the P4 device was removed, PGF2α (0.530 mg), estradiol cypionate (0.5 mg) and eCG (200 IU for heifers and 300 IU for cows) were administered, and females had the base of their tailhead painted with tail-chalk for estrus evaluation. At the time of AI (48 h after P4 withdrawal) all females received 10 μg of buserelin acetate (GnRH) and were evaluated for estrus expression. Pregnancy diagnosis was performed 30 d after AI by ultrasonography. Statistical analyses were performed by GLIMMIX of SAS (LSM ± SEM; $P \leq 0.05$). There was no effect of BCS (≤ 3 or>3; P = 0.59) or presence of CL on D0 (P = 0.33) on fertility. There was an effect of category on pregnancy per AI (P/AI; P = 0.04), such that heifers had lower P/AI than multiparous cows [47.1% (49/104) and 53.2% (157/295), respectively]. Fertility of primiparous was intermediate [51.3% (39/76)] and not different from the other categories. Treatment with PGF2α on D0 did not influence fertility of the groups [PG1 = 52.2% (128/245) vs. PG0 = 50.9% (117/230); P = 0.88] and no interaction was observed between treatment and presence of CL on D0 (P = 0.89). However, females from the PG1 group had more expression of estrus [66.5% (151/227) vs. 52.3% (112/214); P = 0.0016], and higher fertility was observed for females that showed estrus [58.9% (155/263) vs. 42.7% (76/178); P = 0.0009]. Nevertheless, expression of estrus was not altered by presence of CL on D0 (P = 0.98), and there was no interaction between presence of CL and treatment on expression of estrus (P = 0.63). The unexpected lack of an effect of PGF2α on D0 on P/AI may be due to a potential beneficial effect of treatment with GnRH at the time of AI, particularly in cows not detected in estrus. In summary, treatment with PGF2α at the beginning of a 7-d FTAI protocol in which GnRH is given at the time of AI did not improve fertility of Nelore females, despite inducing greater expression of estrus.

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A030 TAI/FTET/AI

Ovarian follicular dynamics in cows submitted to a progesterone-based FTAI protocol beginning with estradiol benzoate or estradiol 17β administration

R.L.O.R. Alves[1], J.C.L. Motta[1], C.E.C. Consentini[1], G. Madureira[1], L.O. Silva[1], J.N. Drum[1], A.B. Prata[2], M.C. Wiltbank[3], R. Sartori[1]

[1]ESALQ/USP - Department of Animal Science, Luiz de Queiroz College of Agriculture of University of São Paulo, Piracicaba, SP, Brazil; [2]GlobalGen - Globalgen Vet Sience, Jaboticabal, SP, Brazil; [3]UW - Department of Dairy Science, University of Wisconsin, Madison, WI, EUA.

The peak of circulating estradiol (E2) after administration of estradiol 17β (E17β) occurs earlier, is of greater magnitude, but persists for a shorter time period than after estradiol benzoate (EB) administration. The aim of this study was to evaluate if there would be an earlier emergence of a new follicular wave when E17β was used rather than EB in a FTAI protocol. E17β powder was diluted in peanut oil resulting in a concentration of 1 mg/mL. A total of 18 nonlactating Holstein cows received an intravaginal device (IVD) containing 1 g of progesterone (P4) on D0 and cows were blocked by BCS and then randomized into two groups: E17β (2 mg of E17β; n = 9, BCS = 3.5 ± 0.19) vs. EB (2 mg of EB; n = 9; BCS = 3.3 ± 0.20). On D7, the cows received 0.530 mg of cloprostenol sodium and 1 mg of estradiol cypionate and the IVD was removed. Ovarian dynamics were evaluated every 8 h using transrectal ultrasound from D0 until ovulation of the dominant follicle at the end of the protocol. Continuous variables were analyzed using PROC MIXED of SAS ($P \leq 0.05$) and binomial variables were described by percentage and n/n. Two cows, one from each group, ovulated after the treatment on D0 and they were removed from the analyses. These cows emerged a new follicular wave at 48 (BE) and 88 h (E17β). CL regression was observed in one cow in each treatment group. Most cows had synchronized emergence of the new follicular wave after EB or E17β treatment (87.5%; 7/8 for both groups). There was no detectable difference in the time of follicular wave emergence after treatments, 94.8 ± 9.31 h for E17β vs. 104.0 ± 8.73 h for EB. In addition, the growth rate of the ovulatory follicle did not differ (1.5 ± 0.08 mm/d for E17βvs. 1.7 ± 0.09 mm/d for EB). The diameter of the ovulatory follicle at IVD withdrawal (9.3 ± 0.84 vs. 9.4 ± 0.53 mm) and its maximum diameter (13.5 ± 0.63 vs. 13.3 ± 0.51 mm) were similar for E17β and EB cows, respectively. Ovulation rate at the end of the protocol was 87.5% (7/8) and 75% (6/8) for E17β and EB, respectively. No difference was detected between groups related to the interval between IVD withdrawal and ovulation (80 h). In conclusion, there was no difference in ovarian dynamics of cows submitted to a shorter FTAI protocol (7 d of P4 implant maintenance) with administration of E17β or EB on D0.
Acknowledgments: FAPESP, CNPq, CAPES, GlobalGen.

A031 TAI/FTET/AI

Reproductive efficiency of Nelore cows submitted to FTAI protocols with 7, 8 or 9 days of the intravaginal P4 device and with or without GnRH at the time of AI

A.B. Prata[1], A.J. Robl, H.S. Ribeiro[2], M. Sagae[2], M.C.V. Elias[2], C. Pimenta[2], J. Barrios[2], A.A. Schneider[1], D. Hartmann[2], G. Sandoval[1]

[1]Globalgen Vet science, Jaboticabal, SP, Brasil; [2]Agropecuária Roncador, Querência, MT, Brasil.

The aim of this study was to evaluate the fertility of Nelore cows submitted to FTAI protocols with 7, 8 or 9 d of the intravaginal P4 device and the effect of GnRH at the time of AI. We hypothesized similar pregnancy per AI (P/AI) in groups with 7, 8 or 9d of P4 device and cows treated with GnRH would increase P/AI. Primiparous, multiparous and non-lactating cows, with average body condition score of 2.9 were randomized into treatments and used in two experiments. In Experiment 1, 2137 cows were submitted to FTAI protocols with 7d or 8d of the P4 device and were randomly assigned to receive or not GnRH at AI. In Experiment 2, 1345 cows were submitted to protocols with 7d or 9d of P4 and also received or not GnRH at AI. At the onset of the protocol (D0) all cows received estradiol benzoate (2mg), cloprostenol sodium (PGF2α; 530μg) and a P4 device. On days 7, 8 or 9, the P4 device was removed and all cows received cloprostenol sodium (PGF2α; 530μg), estradiol cypionate (0.5mg), eCG (300IU) and had chalk applied on their tailhead to evaluate estrous behavior at AI. FTAI was performed 48h after P4 removal and cows were treated with buserelin acetate (GnRH; 10μg) or not. All hormones were from GlobalGen Vet Science, Jaboticabal, Brazil. Statistical analyses were performed using chi-square. In Experiment 1 (7d vs. 8d of P4), the overall P/AI [7d=57.7% (611/1059) vs. 8d=57.2% (617/1078); P=0.8] were not different between groups. Moreover, greater P/AI was observed for cows that received GnRH in group 7d [GnRH=60.5% (203/484)^{a} vs. No GnRH=54.3% (275/506)^{b}; P=0.04], but was not different in group 8d [GnRH=59.2% (292/493) vs. No GnRH=56.7% (286/504); P=0.4]. In Experiment 2 (7d vs. 9d of P4), the overall P/AI [7d=52.6% (368/700) vs. 9d=55.0% (355/645); P=0.3] were not different between groups. Again, greater P/AI was observed for cows that received GnRH in group 7d [GnRH=57.9% (198/342)^{a} vs. No GnRH=47.5% (170/358)^{b}; P=0.005], but was not different in group 8d [GnRH=55.5% (181/327) vs. No GnRH=54.7% (174/318); P=0.8]. Furthermore, when all groups were analyzed together (7+8+9d), cows treated with GnRH at AI presented greater P/AI [GnRH=58.5% (964/11646) vs. No GnRH=53.7% (905/1686); P=0.004]. Also, 14d after AI, transrectal ultrasound exam was performed to check double ovulation, no difference was observed among treatments [7d=1.8% (5/268); 8d=1.5% (3/197); 9d=2.6% (2/75); P=0.8]. In conclusion, as hypothesized, FTAI protocols with 7, 8 or 9d of intravaginal P4 device presented similar P/AI, however, GnRH at AI only increase fertility in cows that were on group 7d. Moreover, no difference was observed for double ovulation rate among groups, and when all groups were analyzed together GnRH at AI increased P/AI.

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A032 TAI/FTET/AI

RESYNCH 21: A protocol for resynchronization with intervals of 21 days and 100% service rate - preliminary data

J.P.N. Andrade[1], Y.B. Guerson[1], M.H.A. Colli[2], B.P. Carvalho[4], F. Sonnewend[5], J.C.F. Jacob[1], J.N.S. Sales[3], M.R.B. Mello[1]

[1]UFRRJ - Universidade Federal Rural do Rio de Janeiro, Seropédica, RJ, Brasil; [2]USP - Universidade de São Paulo, São Paulo, SP, Brasil; [3]UFLA - Universidade Federal de Lavras, Lavras, Brasil; [4]EMBRAPA - Empresa Brasileira de Pesquisa Agropecuária, Rio Branco, AC, Brasil; [5]Autônoma - Médica Veterinária, Valença, RJ, Brasil.

The objective of the study was to develop a resynchronization protocol adapted to return heat, with a 21-day interval between TAI. This procedure was performed at Santana farm (Valença-RJ) using 76 Nellore nulliparous cows, with an average live weight of 333.4 kg, with water and mineral supplementation *ad libitum*. Treatments started on a random day of the estrous cycle, considered as Day minus ten (D-10), where females received an intravaginal device (ID) of third use, containing 1.9 g of progesterone (CIDR®, Zoetis, Brazil), and an intramuscular (im) treatment of 2.0 mg estradiol benzoate (SINCRODIOL®, Ourofino, Brazil). In D-2, ID was removed and heifers received 150 μg cloprostenol (VETEGLAN®, Hertape, Brazil), 1 mg of estradiol cypionate (ECP, Zoetis, Brazil) and 300 IU of eCG (FOLLIGON®, MSD, Brazil). TAI was performed in the D0 (zero) in all animals. 12 days (D12) after the first TAI, the resynchronization treatments were started, where all the females received again an ID with 3 use. On D19, the ID was removed and 300 IU of eCG was applied. On D21, the pregnancy diagnosis (PD) was performed with Doppler ultrasound (Mindray-Z5VET) (Pugliesi et al., Biology of Reproduction, 95, 1-12, 2014). The CL vascularization score was classified on a scale of 0 to 4 (0 = 0%, 1 = 1 to 25%, 2 = 26 to 50%, 3 = 51 to 75% and 4 = 76 to 100%) in which the animal with score 0 or 1 was considered non-pregnant and score ≥ 2, pregnant. Females considered non-pregnant, immediately after the PD, were inseminated (second TAI) and received an im treatment of 0.1 mg of gonadorelin (FERTAGYL®, MSD, Brazil). On D33, heifers considered non-pregnant in the last evaluation were again synchronized with ID with 3 use, repeating the resynchronization treatment and the PD methodology described above for the third TAI. Ultrasound PD was performed in the two-dimensional module (Mindray DP-2200 Vet) 12 days after the last PD with Doppler to verify the existence of false positives and / or negatives. The conception rate was analyzed by Chi-square test with significance level of 5%. PD there was no false negative. The false positive was of 22 and 25%, respectively in the second TAI and third TAI. There were no differences in the conception rate in the 1st TAI 38% (29/76) with the resynchronizations in the second (46% - 18/39) and third (36% - 8/22) TAI (P>0.05). The results show that for the first time it is possible to control the estrous cycle of bovine females, associated with an early PD allowing the females to be inseminated every 21 days without estrous detection. With the proposed protocol, it is viable to simulate the physiological state of a cyclic bovine female, working with 100% service rate during the breeding season and accumulating 72% pregnancy. The proposed resynchronization protocol presented similar results to the conventional TAI, providing a satisfactory pregnancy accumulated in nulliparous, within 42 days.

A033 TAI/FTET/AI

Effects of single treatment with kisspeptin or buserelin acetate at fixed time artificial insemination on: dynamics of ovulatory dispersion, ovulation rate and pregnancy rate of prepubertal Nellore heifers

M.H.A. Colli[1], R.G. Rezende[1], F.M. Elliff[1], G.M. Zanatta[1], R.D. Mingoti[1], L.G. Silva[1], J.R.G. Maio[2], B.G. Freitas[2], G.G. Macedo[3], P.S. Baruselli[1]

[1]VRA-FMVZ-USP - Departamento de Reprodução Animal, São Paulo, SP, Brasil; [2]Ouro Fino Saúde Animal, Cravinhos, Brasil; [3]FAMEV-UFU - Departamento de Reprodução Animal, Uberlândia, MG, Brasil.

The aim of these experiments was to evaluate the effects of kisspeptin or buserelin acetate treatment compared to non-treated prepubertal Nellore heifers aging 14.3±0.9 months, BCS 3.3±0.3 (1-5) and body weigh 272±20.2kg. The experiments were conducted in two farms located in Mato Grosso do Sul, Brazil. Heifers were synchronized using a 3mg of Norgestomet ear implant (Crestar, MSD Animal Health) plus treatment i.m. of 1mg EB (Fertilcare Sincronização, Vallée Animal Health) on D0. Eight days later (D8), the auricular implant was removed and 200 IU i.m. of eCG (Folligon, MSD), 0.5mg i.m. of EC (Fertilcare Ovulação, Vallé) and 0.265mg i.m. of PGF (Ciosin, MSD) were administered. On D10, heifers were allocated in one of these groups: Control: no additional treatment; Kisspeptin: treatment of 3mg i.m. murine kisspeptin; and GnRH: treatment of 0.01mg i.m. of buserelin acetate and FTAI was performed only in heifers from experiment 2. On experiment 1: 30 heifers were used, ultrasound (US) evaluations were done on D-10 and D0, for puberty classification based on CL presence; on D8 to D11 (with 12h interval between examinations) for largest follicle (LF) measurements and to identify the moment of ovulation and on D17 to confirm the ovulations. On experiment 2: 592 heifers were used. US evaluations were done on D-10 and D0 for puberty classification; on D8 and D10 for LF measurement; on D17 to check the ovulation rate; to evaluate the pregnancy rate per AI (P/AI) on D40 and D70. Were used the PROC GLM and PROC GLIMMIX of SAS to analyze the data. On experiment 1 there were no effects on the moment of ovulation [Control=78.9±9.4h, Kisspeptin=76.5±8.9h; GnRH=82.5±11.9h (P=0.82)] and preovulatory LF size [Control=9.5±1.3mm, Kisspeptin=9.9±0.9mm; GnRH=10.5±2.1mm and (P=0.34)]. On experiment 2 there was no effect on ovulation rate [Control=84.5%(169/200); Kisspeptin=88.9%(176/198) and GnRH=88.1%(171/194; P=0.38)]; on P/AI at 30 days [Control=44.5%(89/200); Kisspeptin=43.4%(86/198) and GnRH=41.8%(81/194; P=0.77). Therefore was a positive effect (P=0.03) of heat expression between D8 and D10 on P/AI [Heat: 46.3%^{a} (217/468) *x* No Heat: 31.5%^{b} (39/124) but there wasn't interaction Treat*Heat (P=0.23)]. There was a positive effect (P=0.0004) LFClass on D10 on P/AI [>10.6=50.3%^{a} (152/302) *vs.* ≤10.6=35.9%^{b} (104/290) but there wasn't interaction Treat*LFClass (P=0.29)]. No effect on P/AI at 60 days [Control=43.0% (86/200); Kisspeptin=40.4% (80/198) and GnRH=37.1% (72/194; P=0.56) and no effect on pregnancy loss between 30 and 60d after AI [Control=3.4% (3/89); Kisspeptin=7.0% (6/86) and GnRH=11.1% (9/81; P=0.17). In conclusion, treatment with Kisspeptin (3.0mg i.m.) or Buserelin acetate (0.01mg i.m.) were not efficient to improve ovulation synchronization, ovulation rate, P/AI at 30 and 60 days after AI likewise avoid pregnancy loss in prepubertal heifers aging 14 months old.

A034 TAI/FTET/AI

Effect of dose of estradiol cypionate in primiparous and multiparous Nelore cows submitted to a 7-d estradiol/progesterone-based FTAI protocol

G. Madureira[1], J.N. Drum[1], L.O. Silva[1], A.B. Prata[1], J.R.S. Gonçalves[2], M.C. Wiltbank[3], R. Sartori[1]

[1]ESALQ/USP - Department of Animal Science, "Luiz de Queiroz" College of Agriculture of University of São Paulo, Piracicaba, SP, Brazil; [2]FEALQ - "Hildegard Georgina Von Pritzelwiltz" Experimental Station, Londrina, PR, Brazil; [3]UW - Department of Animal Science, University of Wisconsin, Madison, WI, USA.

This study evaluated two doses of estradiol cypionate (EC) for synchronization of ovulation in an estradiol/progesterone (P4)-based protocol for fixed-time AI (FTAI) with 7 d of P4 implant for primiparous (n = 217; BCS 2.9 ± 0.1) and multiparous (n = 455; BCS 3.1 ± 0.2) Nelore cows. A total of 672 cows (91.0 ± 0.8 d postpartum; mean ± SD) diagnosed as not pregnant at 35 d after the first AI, were submitted to an FTAI protocol using an intravaginal P4 implant (1 g) and estradiol benzoate (EB; 2 mg) on D0. After 7 d (D7), all cows were treated with sodium cloprostenol (PGF2α; 0.530 mg) and eCG (300 IU). Also on D7, two treatments were randomly administered: EC0.5 (0.5 mg of EC; n = 338) or EC1 (1 mg of EC; n = 334); and cows had the base of their tailhead painted with tail-chalk for estrus evaluation. On D9 (48 h after P4 implant removal) cows were inseminated and checked for estrus based on the disappearance of the tail-chalk. All hormones were from GlobalGen Vet Science, Jaboticabal, SP, Brazil. Ovarian ultrasound evaluation was used to determine the maximum diameter of the dominant follicle (DF; mm; D7) and of the preovulatory follicle (OF; mm; D9). Pregnancy per AI (P/AI) diagnosis was performed 35 d after AI. Statistical analyses were done by GLIMMIX and MIXED of SAS 9.4 (LSM ± SE; $P \leq 0.05$). There was an interaction between EC dose (0.5 or 1 mg) and cow category (primiparous or multiparous) on fertility. Primiparous from EC0.5 group had lower P/AI (30.2%; 32/106) than primiparous from EC1 group (53.4%; 59/111), or multiparous from both groups [EC0.5 (58.4%; 136/232) and EC1 (59.1%; 132/223)]. For expression of estrus, there was no interaction between EC dose and cow category, however multiparous had more estrus expression than primiparous cows [82.9% (376/455) vs. 73.7% (159/217)] and cows from EC1 group had more estrus expression than cows from EC0.5 group [83.8% (280/334) vs. 75.4% (255/338)]. When EC dose, cow category, and estrus expression were analyzed for fertility, there was an interaction between estrus and category. Primiparous that did not express estrus had lower P/AI [19.4% (11/58)] than primiparous that expressed estrus [50.2% (80/159)] or multiparous with [60.7% (177/292)] or without [50.0% (27/54)] estrus. As expected, the diameter of the DF was similar between treatments [EC0.5: 9.4 ± 0.2 (n = 80); EC1: 9.1 ± 0.2 (n = 79)], but the diameter of the OF was larger in EC0.5 cows than EC1 (12.1 ± 0.3 vs. 11.1 ± 0.3) and no significant effect of category on the diameter of the DF or OF was observed. Thus, treatment with a higher dose of EC increased expression of estrus and decreased OF size in all cows but only increased fertility in primiparous and not multiparous cows. In conclusion, when using this shorter FTAI protocol, with P4 implant use for only 7 d, the greater dose of EC (1 mg) should be indicated for primiparous Nelore cows. For multiparous cows, any of the evaluated doses can be successfully used.

A035 TAI/FTET/AI

Pregnancy rates in Nelore heifers using a shortened estradiol/progesterone-based protocol that provides for a lengthened proestrus (J-Synch)

D. Pincinato[3], L.C. Peres[3], L. Lorentz[4], G.S. Santana[3], M.K. Machado[5], A.J. Borges[6], L.S. Lacerda[3], G.A. Bo[2,1]

[1]IRAC - Instituto de Reproduccion Animal Cordoba, Cordoba, Argentina; [2]UNVM - Instituto A.P. de Ciencias Basicas y Aplicadas, Universidad Nacional de Villa Maria, Cordoba, Argentina; [3]CLIVAR - Clivar Reprodução Bovina, Paraiso, TO, Brasil; [4]FVR - Fazenda Vale Rico, TO, Brasil; [5]UNICRUZ - Universidade de Cruz Alta, Cruz Alta, RS, Brasil; [6]UFT - Universidade Federal de Tocantins, Araguaina, TO, Brasil.

An experiment was designed to evaluate pregnancy rates in Nelore (*Bos indicus)* heifers synchronized with a shortened estradiol/progesterone-based protocol that provides for a lengthened proestrus (J-Synch). Cycling Nelore heifers (n=241) were synchronized with one of two treatment groups. All heifers received a progesterone (P4) device (1.2 g of P4, FertilCare, MSD, Brazil) that was previously used once for 8 days and 2 mg estradiol benzoate (FertilCare Sincronização, MSD) on Day 0 and were subdivided to receive or not 250 µg of cloprostenol (PGF, MSD) at the same time. Heifers in the J-synch treatment group the received 250 µg of cloprostenol, 200 IU eCG (Folligon, MSD) and P4-device removal Day 6 (2 PM) and those in the conventional group received PGF, eCG, ECP (0,5 mg, FertilCare Ovulação, MSD) and P4-device removal on Day 7 (8 AM). All heifers were also tail-painted at the time of P4-device removal and observed for signs of estrus (i.e. >50% of the tail-paint rubbed off). Heifers in the J-Synch group with the tail-paint rubbed off by 66 h after P4 removal (i.e. Day 9, 8 AM) were inseminated at that time and those not showing estrus received 100 µg of gonadorelin (GnRH, Fertagyl, MSD) and were inseminated 6 to 8 h later. Heifers in the conventional group with the tail-paint rubbed at 48 h after P4 device removal (i.e. Day 9, 8 AM) were inseminated and those not showing estrus by 48 h received GnRH and were inseminated 6 to 8 h later. Data was by analyzed GLM for binary data with a logit link. Pregnancy rates (P/AI) were 62.9% (68/108) for heifers in the J-Synch group and 48.1% (64/133) for those in the conventional treatment group ($P<0.01$). Overall, 83.0% (200/241) of the heifers were detected in estrus and there was a significant interaction between treatment and estrus expression on P/AI ($P<0.05$). In heifers in the J-Synch group P/AI was 67% (66/98) for those in estrus and inseminated at 66 h and 20% (2/10) for those not in estrus and inseminated at 72 h ($P<0.05$). In heifers in the conventional group P/AI was 49% (50/102) for those in estrus and inseminated at 48 h and 43% (13/30) for those not in estrus and inseminated at 54 h ($P>0.2$). Finally, there was a treatment by day of PGF interaction on P/AI, that was attributed to a higher P/AI in heifers in the conventional treatment that received PGF on Day 0 (61.2%; 41/67) than in those that did not receive PGF at that time (34.8%; 23/66). Conversely, P/AI was not affected by PGF administration on Day 0 in those treated with the J-Synch protocol (56.7%; 30/52 vs 69.1% 38/55, for heifers receiving or not PGF on Day 0). In conclusion, the J-Synch protocol resulted in higher P/AI than the conventional protocol in Nelore heifers. In addition, estrus expression significantly affected P/AI in the J-Synch group but not in the conventional group; whereas the effect of PGF administration on Day 0 was the opposite, resulting in higher P/AI in the conventional treatment but not in the J-Synch treatment.

A036 TAI/FTET/AI

Factors that affect the conception rate to FTET of Holstein recipients evaluated by Color Doppler ultrasound

F.A.L.F. Aragon[2], R.G. Rezende[1], S. Soriano[2], A.F. Sica[2], L. Abreu[1], R. Mingoti[1], F.M. Elliff[1], G. Zanatta[1], P.S. Baruselli[1]

[1]VRA/FMVZ-USP - Departamento de Reprodução Animal, São Paulo, SP, Brasil; [2]FC - Fazenda Colorado, Araras, SP, Brasil.

The objectives of the present study were: 1) evaluate the influence of the CL blood flow on the moment of the FTET on conception rate (CR) on day 30 and pregnancy loss of lactating Holstein cows and 2) evaluate the factors that affect the CR of Holstein lactating embryo recipients. The animals were submitted to mode B ultrasound evaluation to check ovulation from the FTET protocol. The cows that presented CL (n=358) were classified as suitable to receiving an embryo. All suitable recipients were submitted to a Color Doppler ultrasound examination and the CL blood flow (CLBF) was evaluated, following the score criteria (0-4) for peripheral and central blood flow. After these evaluations, animals were classified into three groups: Excellent flow (n=79); good flow (n=251) and bad flow (n=28) for the CR analysis according to the CLBF. The information regarding DIM, number of lactations, milk production, estrus presentation and number of services were collected for the establishment of correlation between conception rate. Statistical analysis were performed using SAS. The variables related to TC and pregnancy loss were analyzed using the GLIMMIX procedure and correlations were performed using the CORR procedure. The multivariable/best model regression was performed in order to establish the probability of CR30 days equation by the procedure GLMSELECT. The medium CR of the animals classified as suitable by mode B ultrasound evaluation was of 35%. There was no significant difference between blood flow and CR at 30 days among the BF classification: Excellent 42% (33/79); Good 35% (89/251); and Bad 18% (5/28) (P=0.14). The analyzed variables that had positive correlation (R value followed by P value) with CR30D are: DIM – negative correlation (R= -0.14 / P=0.007); CLBF at the moment of FTET – positive correlation (R= 0.12 / P=0.02); Number of services – negative correlation (R= -0.12 / P=0.02). No correlation was found between CR and estrus presentation, milk production and number of lactations. An equation for probability of conception of lactating Holstein recipients was established considering the variables of greater influence, where: Probability of Conception (%; 30days) = 0.3894 - 0.0006*(DIM) + 0.2915*(Total flow) - 0.0379*(number of lactations). Data obtained in this study indicate that the evaluation of CL blood flow as well as DIM and number of lactations may be an important tool for predicting the conception of lactating Holstein embryo recipients.

A037 TAI/FTET/AI

Influence of injectable progesterone on pregnancy rate and gestational loss in buffaloes reared extensively in the Amazon

H. Ribeiro, S. Tavares, A.D. Farias, Álvaro Neto, A. Ramos, S.K. Chahar

UFRA - Universidade Federal Rural da Amazonia, Belém, PA, Brasil.

The objective of this study was to evaluate the influence of injectable progesterone on pregnancy rate (PR) and gestational loss in extensively reared buffaloes, as well as the effect of body condition score (BCS) and fixed time artificial insemination (FTAI) after GnRH application. 118 multiparous crossbred buffaloes (cross with Murrah breed) were used: treatment group (TG) (58 buffaloes) received the protocol: day (D) 0 (afternoon), injection (inj.) 2.0 mg Estradiol Benzoate (IM) (Sincrodiol®, Ouro Fino, São Paulo, Brazil) associated to the intravaginal implant of P_4 0.5 g monodose (Primer®, Tecnopec, São Paulo, Brazil); D 9 (afternoon), withdrawal of P_4 + inj. 0.5 mg of PGF2α IM (Sincrocio®, Ouro Fino, São Paulo, Brazil) + inj. 400 IU of eCG IM (SincroeCG®, Ouro Fino, São Paulo, Brazil); D 11 (afternoon), inj. 25 μg GnRH IM (Gestran Plus®, Tecnopec, São Paulo, Brazil); D 12 (in the morning) to FTAI. In this group four days after the FTAI (D 16) in the morning, the buffaloes received inj. P_4 150 mg IM (1.0 ml) (Sincrogest®, Ouro Fino, São Paulo, Brazil). The control group (CG) (60 buffaloes) was submitted to the same protocol as the treatment group without injected P_4. The buffaloes from both CG and TG were selected according to body condition score in three intervals, 34 with score ranging from 2.5 to 2.75; 66 with a score ranging from 3.0 to 3.5 and 18 with a score equal to or greater than 3.75. Regarding the FTAI time after GnRH application, 112 buffaloes were counted, 34 were inseminated between 07:00 a.m. to 09:00 a.m., 52 between 09:01 a.m. to 11:00 a.m. and 26 buffaloes were inseminated between 11:00 a.m. to 12:00 p.m., respectively. In order to analyze PR and gestational loss rate, the Fisher Exact test was used, as well as the other variables. Values of $p \leq 0.05$ were considered significant. The pregnancy status was examined by ultrasonography on day 30. The overall PR on day 30 was 57.60% (68/118); 58.60% (34/58) and 56.60% (34/60) in TG and CG, respectively. On day 90, the overall PR was 54.20%; 58.60% and 50.00% in TG and CG, respectively. On day 140, there was no change in the PR and gestational loss at 90 days, and did not differ statistically ($P>0.05$). There was not any significant ($P>0.05$) influence of injectable P_4 after FTAI on the PR and gestational loss. The PR based on the BCS was 69.60% and 35.20% for the range between 3 to 3.5 and 2.5 to 2.75, respectively and differ significantly ($P<0.05$) from each other. The buffalo with BCC ≥3.75 the PR was 55.5%. The PR was 58.80%, 53.80% and 51.80% during 7:00 a.m. to 9:00 a.m., 09.01 a.m. to 11.00 a.m. and 11:00 a.m. to 12:00 p.m., respectively and not any significant ($P> 0.05$) difference observed between different duration of time . Conclusion, the use of 1.0 ml of injectable P_4 after FTAI did not significantly ($P>0.05$) improve PR and gestational loss, however, buffaloes reared extensively on meadow with BCS ranges between 3 to 3.5 showed higher PR than ranges between 2.5 to 2.7.

A038 TAI/FTET/AI

High antral follicle count is related to higher pregnancy rates at 30 and 60 days in Holstein cows

R.G. Dröher, T.K. Sanches, A.F. Zangirolamo, F. Morotti, M.M. Seneda

Instituto Nacional de Ciência e Tecnologia para a Cadeia Produtiva do Leite (INCT–LEITE), Laboratório de Reprodução Animal (ReproA), DCV-CCA, Universidade Estadual de Londrina, PR, Brasil.

Antral follicle counting (AFC) is a characteristic that has been linked to the reproductive performance of beef cattle and milk, subspecies *taurus* and *indicus*. Although early data from the Northern Hemisphere have linked high AFC to positive aspects on fertility characteristics, some recent data were related to controversial relation between AFC and reproductive indexes. To investigate AFC and reproductive performance in dairy herds in Brazil, the present study aimed to compare the dominant follicle diameter and conception rate in Holstein cows (n=100) submitted to artificial insemination (AI) according to the low, intermediate and high AFC groups. Using single bull frozen semen, after detection of estrus by visual observation, the cows were inseminated by a single technician. AFC was determined on the day of estrus using an ultrasound equipped with convex intravaginal transducer, with antral follicle count ≥ 2 mm. At 30 and 60 days after AI, the ultrasonographic diagnosis of gestation was performed. The quartiles were established as G-low (≤ 19 follicles, n = 30), G-intermediate (≥ 20 and ≤ 29 follicles, n = 41) and G-high AFC (≥ 30 follicles, n = 29). Data were analyzed by the generalized linear model inserting the AFC as a fixed effect and the means compared by the Tukey test. The conception rate was analyzed by the chi-square test considering $p \leq 0.05$. The cows with intermediate AFC had greater diameter of the dominant follicle at the moment of AI (17.9 ± 2.6 mm) compared to G-High (16.0 ± 2.6 mm; P = 0.027). However, cows with high AFC had higher conception rates (55.2 and 48.3%) than G-intermediate (29.3 and 24.4%) at 30 and 60 days of pregnancy, respectively (P = 0.03 and P = 0.04). G-low showed no significant difference between G-high and G-intermediate groups, for dominant follicle diameter on day AI (16.9 ± 2.8) as well as for conception rate (36.7% and 36.7%) at 30 and 60 days after AI, respectively. Despite recent controversies regarding the effect of CFA on reproductive indexes, data from the present study are in agreement with the first reports described in Europe, showing better reproductive performance for Holstein females with high CFA.

A039 TAI/FTET/AI

Pattern of circulating LH release after prostaglandin F2alpha treatment in ovariectomized cows

N.A. Castro[1], E.M. Moreira[3], J. Andrade[2,3], P.M.A. Neves[2,3], I.C. Lemos[2,3], V.L. Souza[2,3], V.R.R. Nunes[4,3], R.R. Silva[3], G.M. Silva[4,3], A. Schneider[1], L.F.M. Pfeifer[3]

[1]UFPel - Universidade Federal de Pelotas, Pelotas, RS, Brasil; [2]UNIR - Universidade Federal de Rondônia, Porto Velho, RO, Brasil; [3]Embrapa - Rondônia - Centro de Pesquisa Agroflorestal de Rondônia, Porto Velho, RO, Brasil; [4]FIMCA - Faculdades Integradas Aparício Carvalho, Porto Velho, RO, Brasil.

The ability of prostaglandin F2α (PGF) to induce ovulation in cattle, by a mechanism independent of luteolysis, has already been demonstrated (Leonardi et al., Theriogenology, 78:1578-82, 2012). However, the mechanism by which PGF acts has not yet been clarified. The objective of this study was to evaluate the pattern of circulating LH release after treatment of ovariectomized cows with PGF. Our hypothesis was that PGF treatment leads to pituitary LH release. Ovariectomized Girolando cows (n=14) were randomly allocated to three groups to receive one of three i.m. injection (Hour 0, 1 and 2) of one of the following treatments: 300µg d-Cloprostenol (PGF analog; Croniben®, Curitiba, Brazil, PG Group, n = 5), 100µg lecirelin (GnRH analogue, Gestran plus®, Tecnopec, São Paulo, Brazil; GnRH Group, n = 5) or PBS (CTL Group, n = 4), without any pretreatment with gonadal hormones. To determine the levels of circulating LH, blood samples were collected in all cows, as follows: the first one two hours before the treatments; and from the moment of the injections (Hour 0) until six hours after, collections were performed hourly; and between 6 and 36 hours after injections, blood samples were collected every 6 hours. Plasma LH concentration was analyzed by radioimmunoassay. Data were analyzed by Two-way ANOVA, and the means were compared between groups by the Tukey test. Prior to the beginning of treatments (Time 0), the LH concentration was similar between groups (4.48 ±0.25 ng/mL, P = 0.97). However, one hour after the first injections, the LH concentration was higher (P <0.0001) in cows of the GnRH group (33.59 ±13.24 ng/mL) compared to the PG and CTL groups (5.23 ±0.50 and 4.22 ±0.47 ng/mL, respectively), and this difference remained up to 4 hours after the first injections. After this period, levels were similar (P>0.05) among the three groups. In addition, the LH secretion pattern did not differ between the PGF or CTL groups (P>0.05) throughout the analyzed period, maintaining its levels between 3 and 8 ng/mL. These results indicate that an injectable solution of PGF did not induce increase of LH secretion in ovariectomized cows, suggesting that the role of PGF in ovulation may be local in the ovary, however to confirm this hypothesis more studies are necessary.

A040 TAI/FTET/AI

Comparison of different models of sheath for artificial insemination on the fertility rate of cows subjected to fixed-time artificial insemination

D. Braga[1], L.G. Silva[2], T.C. Cunha[2], A.G. Silva[1], L.C.L. Ferreira[2]

[1]FAMEZ - Faculdade de Medicina Veterinária e Zootecnia, Campo Grande, MS, Brasil; [2]Cia Pecuária S/S Ltda, Campo Grande, MS, Brasil.

The increase in the use of reproductive biotechniques in beef cattle industry reflects a market focused on innovation and improvement. The disposable sheath is of paramount importance for hygiene, precision and reduction of semen losses during artificial insemination (AI). Compared to the conventional sheath, models that have a plunger developed to promote the total insulation of the tube eliminate the possibility of semen reflux and loss, thus presents the benefit of diminishing the leftovers of semen during the IA. There are also models of sheath that, in addition to having the same system that decreases semen losses, have three outlets to provide accuracy in semen deposition. In this way, the aim with this study was comparing three models of disposable insemination sheath and their influence on the pregnancy rate on fixed-time artificial insemination (FTAI) protocols. The study was conducted on Seriema Ranch, in Miranda-MS, Brazil, from September 2016 to January 2017. A completely randomized design was used, in which six hundred and seventy-two dams were allocate and one of the three experimental group: A (conventional), B (model with a plunger against semen loss) and C (model with plunger against losses plus three precision outlets). Pregnancy diagnosis was carried out 30 days after artificial insemination (AI). Data was analyzed with GLIMMIX procedure in SAS University. Body condition score on the day of pregnancy diagnosis, dam's category, technician and sire were included as random variables in the statistical model. There was no significant effect of the sheath model on FTAI pregnancy rate (P = 0.64). Average pregnancy rate for dams that used the sheath A was 37.8% ± 11.3 (231), then 36.3% ± 11.2 (213) for sheath B, and 40.8% ± 11.8 (228) for sheath C. We concluded that either the conventional sheath or more sophisticated models provide similar pregnancy rates in bovine females subjected to FTAI.

A041 TAI/FTET/AI

Effect of treatment with strain RB51 on day zero of FTAI protocol on pregnancy rate of bovine females

L.C.L. Ferreira[1], L.G. Silva[1], H. Ayres[2], R.B. Trannin[1], A.G. Silva[3], D.B.A. Antonio[2]

[1]Cia Pecuária S/S Ltda, Campo Grande, MS, Brasil; [2]MSD Saúde Animal, São Paulo, SP, Brasil; [3]FAMEZ - Faculdade de Medicina Veterinária e Zootecnia, Campo Grande, MS, Brasil.

Bovine brucellosis is a zoonosis that has been a target in eradication programs in several countries due to concerns on public health and its negative impact on livestock production. Besides abortion, Brucella Abortus causes birth of weak offspring and low fertility rate (Poster et al, Arquivo Brasileiro de Medicina Veterinária e Zootecnia, 61:1-5, 2009). One of the main alternatives for eradication is the vaccination with Brucella abortus strain, which is recommended by the World Organization for Animal Health (OIE). Vaccination on the first day of fixed time artificial insemination protocol (FTAI) is a practice that has been used by producers and technicians without scientific verification of its impact on pregnancy rate. In this way, the aim with this work was to evaluate the effects of treatment with strain RB51 vaccine on day zero of the fixed time artificial insemination (FTAI) protocol on pregnancy rate. The study was conducted by Company Cia Pecuária at Rancho Alegre Ranch, in Miranda, Mato Grosso do Sul, Brazil, from October 2016 to January 2017. A total of 717 Nelore females with an average 2.7 body condition score (scale 1 to 5) were used, including heifers (220), primiparous (56) and multiparous (441), which were randomly treated with 2 mL of strain RB51 vaccine or saline solution. Treatment was performed subcutaneously on the same day progesterone intravaginal device was placed (Day 0), accounting 369 females receiving saline solution and 348 females treated with RB51 strain. Pregnancy diagnosis was carried out 30 days after FTAI. Data was analyzed with GLIMMIX procedure in SAS. Category, if heifer, primiparous or multiparous and body condition score were included in the model as random effects. Vaccination with strain RB51 in Day 0 of the protocol had no significant effect on AI pregnancy rate (P=0.89). The AI pregnancy rate of the unvaccinated animals was 64.14% ± 5.85 and in vaccinated animals was 64.67% ± 5.85. We conclude that vaccination with strain RB51 can be performed on the first day of the FTAI protocol with no negative effects on pregnancy rate.

A042 TAI/FTET/AI

Influence of difficulty of insemination, temperament and plasma cortisol on conception rate of Nelore cows and heifers submitted to timed artificial insemination

A.C.B. Teixeira[1], A.G. Silva[2], J.W.D. Horta[1], I.A.P. Lima[1], P.C.P. Silva[1], E.H.O. Costa[1], I.M. Noronha[3], H.B. Graff[4], A.L.R. Rodrigues[2], F.Z. Brandão[2], R.F.G. Peres[5,3], L.Z. Oliveira[1]

[1]UFMG - Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil; [2]UFF - Universidade Federal Fluminense, Niteroi, RJ, Brasil; [3]FMVZ/UNESP Botucatu - Faculdade de Medicina Veterinária e Zootecnia, UNESP Botucatu, SP, Brasil; [4]AFB - Agropecuária Fazenda Brasil, Bom Jesus do Araguaia, MT, Brasil; [5]ABS - ABS PecPlan, Delta, MG, Brasil; [6]Fazenda Jatobá, Patrocínio, MG, Brasil; [7]EPAMIG - Departamento de Pesquisa, Empresa de Pesquisa Agropecuária de Minas Gerais, EPAMIG, Belo Horizonte, MG, Brasil.

The aim of this work was to evaluate the influence of stress and difficulty of insemination (DifAI) on fertility of Nelore females at Timed-AI. Data were collected from 165 bovine females (pasture raised), being 72 heifers and 93 multiparous cows with 50 days postpartum. The females received a protocol of Timed-AI containing estrogen and progesterone (P4) and were inseminated by two technicians with semen from four Angus bulls equally distributed. On the day of P4 implant removal (D9), behavioral score (BSc; 1=calm to 5=agitated) and chute exit period (CEP) were assessed for all animals, and blood samples were collected from heifers (coccygeal vein puncture). On the day of Timed-AI (D11), each animal received a score for DifAI (1=easy to 3=difficult) and time required to complete each insemination was observed (Time for AI). At 40 days after AI, pregnancy was diagnosed (CEUA UFF 884/2016). Serum cortisol was determined by radioimmunoassay. Conception rate (CR) was analyzed by logistic regression of SAS and the means were compared by Tukey's test, considering $P<0.05$. Total CR was 40% (66/165), being 36% (33/93) for cows and 46% (33/72) for heifers ($P=0.124$). No significant effects of bull, body condition score or AI technician were observed on CR. Also, no effect of BSc on CR was observed, either for multiparous (BSc2=36%, n=33; BSc3=38%, n=44; BSc4+BSc5=25, n=16), heifers (BSc3=50%, n=38; BSc4+BSc5=41%, n=34) or both categories evaluated together (BSc2=36%, n=33; BSc3=44%, n=82; BSc4-5=36%, n=50); ($P>0.05$). Animals BSc2 left the chute more slowly ($P<0.001$) than BSc3 animals, and these animals more slowly ($P<0.001$) than animals BSc4-5. DifAI was the factor that most influenced CR when cows and heifers were analyzed together, since a tendency ($P=0.082$) for higher CR was observed in animals presenting no difficulty for AI (DifAI 1; TP=42%, n=143) compared to animals that presented moderate or high difficulty (DifAI2+DifAI3; TP=27%, n=22). Less time ($P<0.001$) was required for AI procedure in animals from DifAI1 (17:31±06:02sec) compared to DifAI2+DifAI3 groups (30:10±15:45sec). Only heifers with DifAI1 were selected for cortisol dosage. When cortisol data were separated into quartiles, it was interesting to note that groups with higher ($P<0.05$) cortisol levels presented higher ($P<0.05$) mean for BSc. However, the difference in CR among these groups of animals was only numerical ($P>0.05$), since CR (59%) of more calm heifers (cortisol=4.12±1.12ng/mL; BSc=3.19±0.59; n=22) did not differ ($P>0.05$) from CR (41%) of more temperamental ones (cortisol=7.76±1.33ng/mL; BSc=3.82±0.79; n=22). It was concluded that the subjective (BSc) and numerical (CEP) evaluations of temperament are related to stress levels of the animals, although these parameters did not affect CR of the present study. However, lower fertility at Timed-AI may be expected in animals in which higher difficulty and/or higher time required to complete AI are observed.

A043 TAI/FTET/AI

Artificial insemination sheath with three exits for semen in the pregnancy rate of *Bos indicus* cows submitted to TAI

O.Y. Watanabe[1], L.M.S. Simões[2], J.P.M. Massoneto[3], L.A. Scandiuzzi Junior[3], L. Inague[3], J.N.S. Sales[2]

[1]WTA - Watanabe Tecnologia Aplicada, Cravinhos, SP, Brasil; [2]UFLA - Universidade Federal de Lavras, Lavras, MG, Brasil; [3]Agropecuária Água Preta S.A., Cocalinho, MT, Brasil.

The objective of this study was to evaluate the effect of the artificial insemination sheath on the pregnancy rate of *Bos indicus* cows submitted to ovulation synchronization protocol based on progesterone (P4) and estradiol (E2). In the study, 797 suckled Nelore cows with average body condition score (BCS) of 2.71±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). Eight days later (D8), the P4 device was removed and the cows received 500mg of Cloprostenol (Estron®, Tecnopec, Brazil), 300 IU of eCG (Folligon®, MSD, Brazil) and 0.6mg of estradiol cypionate (ECP® , Zoetis, Brazil). Cows were submitted to TAI 48 hours after removal of the P4 device (D10). In this moment, cows were randomly assigned in two groups (Control Group and 3W Group). In the Control Group, cows were inseminated with artificial insemination sheath with one exit for semen (Bainha Evolution, WTA, Brazil) and in the 3W Group, cows were inseminated with artificial insemination sheath with three exits for semen (Bainha 3W, WTA, Brazil). Inseminations were performed by five experienced technicians who had no previous knowledge of the treatments. Pregnancy diagnosis was 30 d after TAI. Statistical analysis was performed using the GLIMMIX SAS procedure. There was no interaction between Treatment/BCS and Treatment/Inseminator. There was a tendency for a higher pregnancy rate in the cows of the 3W Group [Control 40.3% (164/407) and 3W 42.1% (164/390); P=0.06]. It is concluded that the use of artificial insemination sheath with three exits for semen (Bainha 3W, WTA, Brazil) may be alternative to increase pregnancy rate in *Bos indicus* cows submitted to TAI.

A044 TAI/FTET/AI

Pregnancy rate in Angus heifers resynchronized 14 days after FTAI using Color-Doppler Mode Ultrasonography for pregnancy diagnosis

S.P. Wallace[1], M.A. Silva[1], P. Veiga[2], S. Bidart[2], F. Adrover[2], L.O. Zapata[3], J. Bartolome[3]

[1]Zoetis Argentina, Buenos Aires, Argentina; [2]Cabaña El Volcán, Santa Fe, Argentina; [3]FCV, UNLPam - Facultad de Ciencias Veterinarias, Universidad Nacional de La Pampa, La Pampa, Argentina.

The objective of the current study was to compare the pregnancy rate in 2 Angus heifers resynchronized 14 days and 22 days after FTAI. The experiment took place in Buenos Aires Province, Argentina, where 257 2-years-old Angus heifers with an average weight of 350 kg were inseminated following a conventional FTAI protocol: D0= 0.5g P4 device insertion (DIB0.5®, Zoetis, Argentina) + 2mg estradiol benzoate (EB; (Gonadiol®, Zoetis, Argentina); D7=P4 device removal + 12.5mg dinoprost tromethamine (Lutalyse®, Zoetis, Argentina) + 0.5mg estradiol cipionate (EC; Cipiosyn®, Zoetis, Argentina) + 400 IU equine chorionic gonadotrophin (eCG; Novormon®, Zoetis, Argentina); D9= FTAI), and were randomly divided in two groups in order to be submitted to one of two resynchronization programs at 14d (Group Res14) or 22d (Group Res22) after AI. Heifers in group Res14 (n = 129) received a 0.5g P4 device (DIB®, Zoetis, Argentina) in conjunction with 50mg of short action injectable progesterone (Progesterona®, Rio de Janeiro, Argentina) 14 days after AI. On day 22, P4 devices were removed. At the same time, pregnancy diagnosis was performed assessing the vascularization of the CL by Doppler-Color mode transrectal ultrasonography (MyLabOne, Esaote, Holland). Heifers considered as non-pregnant (CL area vascularization <25%, or absence of CL) received 500µg cloprostenol (Ciclase DL®, Zoetis, Argentina), 0.5mg EC (Cipiosyn®, Zoetis, Argentina) and 400 IU eCG (Novormon®, Zoetis, Argentina). Artificial insemination was done 48h later, on day 24. On day 30, pregnancy diagnosis by B mode ultrasonography (HS-101V, Honda, Japan) was performed in order to evaluate false positive diagnosis (heifers considered as pregnant on d22 and non-pregnant on d30). Heifers from group Res22 (n=128) received a P4 device and 1mg EB on day 22 after AI. Progesterone devices were removed on day 30, at the same time pregnancy diagnosis was performed using B mode ultrasonography (DP10, Mindray, China). Heifers diagnosed as non-pregnant received 500ug cloprostenol (Ciclase DL®, Zoetis, Argentina), 0.5mg EC (Cipiosyn®, Zoetis, Argentina), and 400 IU eCG (Novormon®, Zoetis, Argentina). Artificial insemination was performed 48h later, on day 32. Logistic regression was used to compare pregnancy rate (PR) between groups using the version 3.2.3 of R Studio software (R Foundation for Statistical Computing, Vienna, Austria). Statistical differences were not found between groups for PR at first FTAI (Res14= 60.4% [PWS1] vs Res22= 54.7%; P= 0.38), PR at second FTAI (Res14= 47.1% vs Res22= 50.0%; P= 0.75), nor accumulative PR (Res14= 79.1% vs Res22= 77.3%; P= 0.73). False positive rate on group Res14 was 11.3% (10/88). In conclusion, resynchronization on day 14 after AI using Color-Doppler mode US for pregnancy diagnosis can be feasible used in Angus heifers. This 24d interval between AI programs allows achieving PR values as high as those achieved in 32d AI interval program.

A045 TAI/FTET/AI

Synchronization of estrus with two doses of cloprostenol at different intervals and Artificial Insemination in dairy goats

G.C. Bonato[1], J.M.G. Souza-Fabjan[2], L.R. Côrtes[2], T.A. Oliveira[3], A.M. Arrais[4], A.L.R.S. Maia[2], J.F. Prates[5], M.O. Veiga[6], J.F. Fonseca[6]

[1]UFV - Universidade Federal de Viçosa, Viçosa, MG, Brasil; [2]UFF - Universidade Federal Fluminense, Niterói, RJ, Brasil; [3]UNIPAC - Universidade Presidente Antônio Carlos, Juiz de Fora, MG, Brasil; [4]UFRRJ - Universidade Federal Rural do Rio de Janeiro, Departamento de Reprodução e Avaliação Animal, Instituto de Zootecnia, Seropédica, Rio de Janeiro, Brasil; [5]IF Sudeste MG - Instituto Federal de Educação Ciência e Tecnologias Sudeste de Minas Gerais Rio Pomba, MG, Brasil; [6]Embrapa Caprinos e Ovinos, Embrapa Gado de Leite, Núcleo Regional Sudeste, Coronel Pacheco, MG, Brasil.

The present study evaluated the efficacy of two protocols for estrus synchronization with different intervals in order to use them in artificial insemination (AI) in Saanen and Alpine multiparous goats in June (end of the natural mating season). The animals were allocated into two groups, according to breeding, parity, and body condition score to receive two doses of 37.5 µg d-cloprostenol (Prolise®, ARSA SRL, Buenos Aires, Argentina) latero-vulvar 7.5 (n=23) and 11.5 (n=25) days. The first dose was administered between 0600 and 0700 a.m. and the second between 1700 and 1800 p.m. Estrus was observed every 12 h from the second d-cloprostenol dose to 96 h after. The AIs were performed with commercially frozen semen, thawed for 30 s at 35 ºC, after 18 and 24 h (T7.5) and 10 and 24 h (T11.5) as earlier proposed (Maia et al., Anim. Reprod. Sci., 181:16-23, 2017). Non-parametric data were checked by chi-square test while parametric data (mean ± SD) were submitted to analysis of variance, all tests at a significance level of 5%. Estrus response was 78.3% (18/23) for T7.5 and 80.0% (20/25) for T11.5 (P> 0.05). From animals in estrus, 77.7% (14/18) and 80.0% (16/20) started estrus in morning for T7.5 and T11.5, respectively. Three animals from each group were submitted to natural mating (NM) because they presented a frequent history of estrus repetition and the rest were submitted to AI. The estrus interval was shorter (P <0.001) in T7.5 (40.0±9.2 h) than in T11.5 (51.6±11.7 h). The intervals of the second dose of cloprostenol to AI and the onset of estrus to AI were, respectively, 64.4±1.4 and 26.1±3.7 h for T7.5 and 68.8±2.8 and 16.6±7.6 h for T11.5 (P <0.001). Two animals died in T7.5 within 60 days from AI until the diagnosis of gestation. No animal became pregnant after NM. In AI animals, conception rate was 69.2% (9/13) for T7.5 and 70.6% (12/17) for T11.5 (P> 0.05). Even at the end of the breeding season, the protocols were able to synchronize a significant percentage of animals in a short window of time, resulting in a high conception rate after AI.

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A046 TAI/FTET/AI

Influence of body weight changes, body condition score loss, and behavior during the period of management for TAI on the conception rate from Nelore cows

M.E.S. Bomtempo[1], J.H.A. Dias[1], K.C.S. Santos[2], F. Morotti[1]

[1]UEL - Universidade Estadual de Londrina, Londrina, PR, Brasil; [2]Sheep Embryo Reprodução Animal Fazenda Santa Maria, Assai, PR, Brasil.

The objective of this study was to evaluate the influence of body weight (BW) changes, body condition score (BCS) loss, and cow behavior during the period of management for TAI on the conception rate from Nelore cows. The experiment was conducted in the Pantanal region with 189 multiparous (60 - 70 days postpartum), with a mean of 9 years of age and maintained under a continuous grazing regime of *Brachiaria humidicula*. The evaluations of weight, BCS and behavior were performed for a single person 10 days before the initiation of the TAI protocol (D_{-10}), on the days of the protocol ($D_{0,\ 8\ and\ 10}$) and in the pregnancy diagnosis (D_{40}). The weight was determined on a digital scale, the BCS was based on the scale 1 to 5 (Lowman et al., 1976) and the behavior evaluated according to the refusal scores when entering the squeeze chute (1 - no refusal and 2 - with refusal) and movement in the squeeze chute (1 - calm to 5 - violent), (Grandin, 1993). On a random day of the estrous cycle (D_0), the cows received an intravaginal progesterone (P4) device (2^{nd}use, CIDR®, Zoetis, São Paulo, Brazil) and intramuscularly (i.m.) 2mg estradiol benzoate (Gonadiol®). On D_8 after device removal cows received i.m.300IU of equine chorionic gonadotrophin (Novormon®), 1mg of estradiol cypionate (ECP®) and 16.75mg of dinoprost tromethamine (Lutalyse®). The TAI was performed 48 h after ovulation induction. The pregnancy diagnosis was performed by transrectal ultrasonography (5-MHz linear transducer) 30 days after the TAI (D_{40}). For data analysis, from the weights and BCS the cows were classified as gaining or maintaining/losing weight and gaining or maintaining/losing BCS. From behavioral scores the cows were classified as calm, reactive or very reactive. The conception rate was analyzed by the logistic regression model and other variables by the general linear model adopting $P \leq 0.05$. The days of management practices ($D_{-10,\ 0,\ 8,\ 10\ and\ 40}$) determined variation in weight (367 ± 40^{b}, 349 ± 39^{c}, 373 ± 41^{b}, $363 \pm 42^{b}$and 393 ± 43^{a}, P = 0.001) and in BCS (2.6 ± 0.5^{ab}, 2.4 ± 0.2^{b}, 2.5 ± 0.2^{ab}, $2.5 \pm 0.2^{ab}$and 2.7 ± 0.2^{a}, P = 0.037), respectively. From 189 cows monitored during all days of management, 45.5% (86) were classified as calm, 32.3% (61) as reactive and 22.2% (42) as very reactive. The overall conception rate of the study was 32.3% (61/189) and wasn't influenced by weight [gaining = 32.9% (48/146) vs. losing/maintaining = 30.2% (13/43, P = 0.744)], BCS [gaining = 35.1% (46/131) vs. losing/maintaining = 25.9% (15/58, P = 0.204)] and behavior [calm = 32.7% (28/86), reactive = 29.5% (18/61) and very reactive = 35.7% (15/42, P = 0.204)]. Under the conditions of this study, days of TAI management practices were associated with variations in BW, and BCS. However, it was not identified any relationship between the variables and conception rate in Nelore cows submitted to TAI.

A047 TAI/FTET/AI

Effects of narasin on the pregnancy rate of Nellore cows maintained under grazing and performance of calves - preliminary results

C.J.T. Cardoso[1], A.C.B. Lima[2], D.M. Pereira[2], G.C. Silva[2], K.C. Silva[1], N.A. Anache[1], W.B. Rodrigues[3], H.R. Marques Júnior[4], F.A. Melo-Sterza[2], E. Nogueira[5]

[1]UFMS - Universidade Federal de Mato Grosso do Sul, Campo Grande, MS, Brasil; [2]UEMS - Universidade Estadual de Mato Grosso do Sul, Aquidauana, MS, Brasil; [3]FUNDECT - Fundação de Apoio ao Desenvolvimento do Ensino, Ciência e Tecnologia do Estado de Mato Grosso do Sul; Campo Grande, MS, Brasil; [4]UCDB - Universidade Católica Dom Bosco, Campo Grande, MS, Brasil; [5]EMBRAPA – Pantanal, Corumbá, MS, Brasil.

Ionophores have been used to improve forage conversion in animal protein and to increase nutrient utilization efficiency in cattle. The effects of the mineral mix (MM) with addition of narasin (Zimprova®; Elanco, Brazil) on the performance of calves and pregnancy rate of Nellore cows were evaluated. A total of 362 multiparous cows, with initial weight of 441.65 ± 51.3 kg, ECC of 2.79 ± 0.66 (1-5 scale) and their calves (n = 362, males and females; 200 Nellore and 162 ½ Nellore x ½ Aberdeen Angus). The animals were distributed in the treatments in a 2x2 factorial scheme: two treatments (CONTROL and NARASIN) and two racial groups of calves (Nellore and ½ Angus x ½ Nellore), forming 4 experimental groups: NELCONTR: 100 cows and 100 Nellore calves, CRUZCONTR: 82 cows and 82 crossbreed calves, NELTRAT: 100 cows and 100 Nellore calves, and CRUZTRAT: 80 cows and 80 crossbred calves. All animals received the same diet, differing only from the inclusion of 13 ppm of narasin in MM (as recommended by the manufacturer) for the treated groups. The calves were supplemented in creep-feeding without access to the cow supplement. Supplementation started 17 days before the start of the breeding season (BS) and a 7-day ruminal adaptation period was observed. BS lasted 90 days, consisting of a basic FTAI protocol with 3 managements and 30 days after the transfer with bulls in the proportion 1:25 for 60 days. In FTAI, the cows were inseminated with semen from bulls with known fertility, also distributed in the treatments. Supplementation of cows and calves lasted for six months until weaning (8 months). The data were analyzed by PROC GLIMMIX from SAS. MM consumption for CONTR cows averaged 0.131 kg and 0.125 kg for the NARASIN group. The crossbred calves consumed on average 0.015 kg while the Nellore 0.010 kg. There was no effect (P> 0.05) of narasin on the pregnancy rate in the FTAI (51.1% CONTR vs 51.7% NARASIN), as well as at the end of BS (75.0% CONTR vs 77.2% NARASIN). On the other hand, cow weight gain during the supplementation period was higher (P = 0.004) in the supplemented group (6.63 ± 30.40 kg CONTROL vs 18.85 ± 49.85 kg NARASIN). However, the weight of the calves at 205 days presented interaction (P=0.043), so the effect of the treatment depends on the racial group. The treatment effect was only observed in the crossed group (CRUZTRAT 214.62 ± 25.76a kg vs. CRUZCONTR 198.14 ± 26.40b kg) whereas in Nellore calves there was no treatment effect (NELTRAT 186.92±20.29 kg vs. NELCONTR 180.47 ± 24.62 kg). Similar effect was observed in the mean daily gain in which the treatment effect was only observed in crossbred calves (P=0.034; CRUZTRAT 0.87±0.12a kg vs. CRUZCONTR 0.79±0.12b kg) and (NELTRAT 0.74±0.09 kg vs. NELCONTR 0.71±0.11 kg). It was concluded that supplementation with narasin in MM during BS until weaning promotes an increase in the weight of cows and crossbred calves without affecting the pregnancy rate.

A048 TAI/FTET/AI

Efficiency of cooled semen in the TAI of Girolando cows

O.A. Resende[2,1], P.A.P.M. Alves[1], R.S.L. Fajardo[1], J. Almeida[4], O.R. Silva[3], M.R.B. Mello[3]

[1]Pesagro-Rio - Empresa de Pesquisa Agropecuária do Estado do Rio de Janeiro, Seropédica, RJ, Brasil; [2]Embrapa/CNPAB - Empresa Brasileira de Pesquisa Agropecuária/Agrobiologia, Seropédica, RJ, Brasil; [3]UFRRJ - Universidade Federal Rural do Rio de Janeiro, Seropédica, RJ, Brasil; [4]UFMG/EV - Universidade Federal de Minas Gerais/Escola de Veterinária, Belo Horizonte, MG, Brasil.

Timed artificial insemination (TAI) has been successfully used, on a large scale, as an alternative to natural mating of beef cattle, promoting a high socio-economic impact. However, TAI in dairy cattle is still little used as a viable alternative to traditional AI (with estrus observation), due to variable conception rates obtained with frozen semen. An alternative in order to increase in the reproductive and consequently productive indexes has been to investigate the effects of the use of cooled semen at 5°C for up to 48 hours in the TAI programs in beef and dairy herds. Therefore, the objective of the present study was to evaluate the use of cooled semen in a TAI program in Girolando cows, comparing it with frozen semen. For this purpose, a TAI experiment was carried out using the PESAGRO RIO dairy herd, in randomized blocks, from 2016 to 2017. The cooled semen came from bulls from a farm, located 200 km away from the herd to be inseminated and the frozen semen was commercial. For semen cooling, ejaculates were collected from two bulls (Holstein and Gir, 3 years old), with minimum parameters of seminal quality, according to the CBRA (≥ 70% progressive motility, ≥ 3 sperm vigor, ≤ 30% total sperm morphological defects, ≤ 10% larger defects)**.** The semen was collected by means of electro ejaculation, and the ejaculate was diluted in Botubov ® (Botupharma - Botucatu / SP), containing glycerol, at the concentration of $20x10^6$ spermatozoa / dose. Refrigeration was carried out at a temperature of 5°C for up to 24 hours in a passive system (transport in a styrofoam box with recyclable ice for three hours, and then commercial refrigerator maintenance at 5°C). In the group inseminated with commercial frozen semen two bulls (Holstein and Gir) of known fertility were used. 152 lactating cows (> 60 days postpartum) of the Girolando breed were synchronized in the TAI program, and the ovulation induction protocol was performed on a random day of the estrous cycle. All cows received 2.0 mg of Estradiol Benzoate (BE®) associated with the intravaginal progesterone monodose device containing 558 mg of progesterone (Cronipres®). In D8, the devices were withdrawn and 530 mg sodium cloprostenol (Ciosin®) plus 1 mg Estradiol Cypionate (ECP®) were administered. The TAI was performed between 48-52 hours after withdrawal of the progesterone source. The results were submitted to the X^2 test. The mean pregnancy rates were: a) Cooled semen = 64.5% (49/76) and frozen semen = 44.7% (34/76) for conservation methods ($p < 0.05$); b) Holstein = 53.7% (65/121) and Gir = 58.1% (18/31) for breed bull ($P > 0.05$). The interaction conservation method vs. bull breed was not significant ($P > 0.05$). The results allow us to conclude that in Girolando herds, regardless of the bull breed, the TAI pregnancy rates using refrigerated semen are higher than those obtained with frozen semen, with an increase of 20%.

A049 TAI/FTET/AI

Intravaginal hCG administration increases pregnancy rate in artificially inseminated cyclic dairy goats subjected to estrous synchronization

J.H. Dias[1], L.R. Côrtes[2], F.Z. Brandão[2], G.C. Bonato[1], J.M.G. Souza-Fabjan[2], A.M. Arrais[3], T.A. Oliveira[4], B.B. Martins[4], O. Facó[5], J.F. Fonseca[5]

[1]UFV - Universidade Federal de Viçosa, Viçosa, MG, Brasil; [2]UFF - Universidade Federal Fluminense, Niterói, RJ, Brasil; [3]UFRRJ - Universidade Federal Rural do Rio de Janeiro, Seropédica, RJ, Brasil; [4]UPAC - Universidade de Presidente Antônio Carlos, Juiz de Fora, MG, Brasil; [5]EMPRAPA Caprinos e Ovinos, Coronel Pacheco, MG, Brasil.

Pregnancy establishing after artificial insemination (AI) in goats depends on many important aspects, including time of AI, ovulation and premature luteal regression. The knowledge of ovulation in relation to estrus onset, ovulation induction and strategies to prevent PLR can be valuable tools to increase pregnancy rate. This study tested the effect of hCG administration on pregnancy rate in artificially inseminated dairy cyclic goats after estrus synchronization. A total of 315 dairy goats received two doses of 30 μg d-cloprostenol (Prolise®; ARSA S.R.L., Buenos Aires, Argentina) latero-vulvar 7 (n=115) or 11.5 (n=200) days apart in five (1 to 5) different farms. In farms 1 and 2, goats received 7 days protocol; 3 and 4 received 11.5 days protocol; and farm 5 both protocols. Goats were checked for estrus twice daily and only those in estrus up to 72 h after the second d-cloprostenol administration were artificially inseminated with frozen-thawed commercial semen, in standing position (Fonseca et al., Biol Reprod., 17:268-273, 2017). After second cloprostenol administration, goats in estrus at 24 to 48 h, 60 and 72 h were artificially inseminated at 24, 18 and 10 hours after estrus onset 7 days protocol, while for 11.5 days protocol, goats in estrus at 24 to 36 h, 48 and 60 h were artificially inseminated at 24, 18 and 10 hours after estrus onset, respectively as proposed (Maia et al., Anim. Reprod. Sci., 181:16-23, 2017). Immediately after AI, goats were alternately allocated according to estrus synchronization protocol to received either 300 IU hCG (Vetecor® 5000; Hertape Calier, São Paulo, Brazil) (n=143) or not (n=147). hCG was diluted in a 0.3 mL saline solution and deposited into the vagina with the aid of a sterile insulin syringe without needle. Pregnancy rate was checked 60 days after AI by transrectal ultrasonography. Qualitative variables were analyzed by chi-square test at 5% significance. Protocols of 7 and 11.5 days apart resulted in overall pregnancy rate of 62.8% (66/105) and 80.0% (148/185), respectively. In Farm 5, pregnancy rate for 7 and 11.5 days protocols was 85.2 (23/27) 93.6 (29/31), respectively ($P>0.05$). A total of 67.3% (99/147) and 80.4% (115/143) of artificially inseminated goats became pregnant for Control and hCG treated groups, respectively ($P<0.05$). Results of this study showed that hCG administration associated to AI significantly increased pregnancy rates in goats after estrus synchronization with d-cloprostenol, which can be a valuable and promising tool to be applied in field conditions.

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A050 TAI/FTET/AI

Importance of follicular diameter and estrus occurrence and conception rate in Nelore cows submitted to FTAI

J.P. Lollato[1], G.A. Veras[3], M.C. Farias[3], R.A. Silva Júnior[3], M. Maturana Filho[2], R.L. Gonçalves[1], C.C. Bartolomeu[3], M.A.L. Oliveira[3]

[1]Bio - Biogénesis Bagó Saúde Animal, Curitiba, PR, Brasil; [2]MF VETPLAN Consultoria Agropecuária, Águas da Prata, SP, Brasil; [3]UFRPE - Departamento de Reprodução Animal, Recife, PE, Brasil.

The correct execution and manipulation of the follicular development at the most appropriate moments of the estrous cycle, can generate better results in IATF protocols in beef cows. The objective of this study was to evaluate the associations between the follicular diameter and the occurrence of estrus on the design rate of Nelore cows submitted to FTAI. Twenty-three lactating Nellore (*Bos indicus*) primiparous and multiparous cows, kept in Brachiaria decumbens pasture, with free access to water and mineral supplementation were used. The base hormonal protocol used was: D0 = implant insertion Cronipres® Mono Dose + application of 2 mg of BE (Bioestrogen®); D8.5 = implant withdrawal + application of 300 IU of eCG (Ecegon®), + 75 μg of D-Cloprostenol (PGF2α) + 1mg BE (Bioestrogen®). The females had the base of the tail painted with a marker stick at the moment of removal of the device. In the D10, IATF was performed in the morning. The pregnancy rate (TP) was evaluated by ultrasonography (Mindray M5 Vet, with linear probe of 5.0 MHz) at 30 and 60 days after IATF. The data were submitted to frequency analysis and logistic regression analysis, using the Statistical Analyzes System (SAS, 9.3) program, adopting a significance level of 5%. The mean estrus occurrence rate was 58 for the va and the conception rate of 51%. The mean diameter of the dominant follicle at the time of FTAI was higher ($P < 0.05$) in cows presenting estrus (11.70 ± 0.19 mm) compared to those without estrus (10.31 ± 0.23 mm). The mean follicular diameter of pregnant cows was higher ($P < 0.05$) than non-pregnant cows, both at the time of removal of the P4 device (9.62 ± 0.24 versus 8.15 ± 0.22 mm) (12.21 ± 0.22 versus 10.31 ± 0.22 mm). There was no difference in the pregnancy rate between cows with ovulatory follicles with diameters between 11.1 mm and 14 mm (63.5%) with cows with follicles> 14.1 mm (63.5%) ($P > 0.05$). However, cows with follicular diameter <11.1 mm had a lower conception rate (34, 5%) ($P < 0.05$). The mean follicular diameter at the time of TAI was 11.4 mm. Lactating Nelore cows submitted to FTAI with larger diameter follicles, at the time of FTAI, were more likely to show a higher percentage of estrus and consequently higher pregnancy rate.

A051 TAI/FTET/AI

Administration of HCG seven days after estrous onset increases the pregnancy rate in Toggenburg goats subjected to induction of synchronized estrus and natural mating

L.R. Côrtes[1], M.O. Fraga[2], D.S. Silva[3], J.F. Prates[4], B.B. Martins[5], L.M. Figueira[6], G.C. Bonato[7], A.M. Arrais[8], J.M.G. Souza-Fabjan[1], F.Z. Brandão[1], J.F. Fonseca[2]

[1]UFF - Faculdade de Veterinária, Universidade Federal Fluminense, Niteroi, RJ, Brasil; [2]Embrapa Caprinos e Ovinos, Sobral, CE, Brasil; [3]Unigranrio - Universidade do Grande Rio, Duque de Caxias, RJ, Brasil; [4]IF Sudeste MG - Instituto Federal de Educação Ciência e Tecnologias Sudeste de Minas Gerais, Rio Pomba, MG, Brasil; [5]UNIPAC - Universidade Presidente Antônio Carlos, MG, Brasil; [6]UFLA - Universidade Federal de Lavras, Lavras, MG, Brasil; [7]UFV - Universidade Federal de Viçosa, Viçosa, MG, Brasil; [8]UFRRJ - Universidade Federal Rural do Rio de Janeiro, Seropédica, RJ, Brasil.

The dominant follicle reaches its maximum diameter on the sixth day after ovulation or seven days after the onset of estrus (Castro et al., Theriogenology, 52: 399-411, 1999). This study investigated the effect of hCG administration on the seventh day after the onset of estrus (D7) on pregnancy rate in Toggenburg goats. The study was conducted during December and January in Piau, MG, Brazil (latitude 21°35′S and longitude 43°15′W). A total of 86 Toggenburg goats was used, with a mean body weight of 49.2 ± 10.5 and body condition score of 2.8 ± 0.4 (1 to 5 scale). For estrus synchronization, all the animals received a vaginal sponge containing 60 mg of medroxyprogesterone acetate (Progespon; Syntex S.A., Biochemical and Pharmaceutical Industry, Buenos Aires, Argentina) for six days. Both 200 IU eCG (Folligon; Intervet International B. V., Boxmeer, Holanda) and 30 µg of d-cloprostenol (Prolise; ARSA S.R.L., Buenos Aires, Argentina) i.m. were administered 24 h before sponge removal. After sponge removal, the estrus detection and breeding were performed every 12 h with males previously submitted to andrological examination. Both experimental groups were formed according to their order of entry into estrus, where the animals in the control group received 1 mL of saline solution and 300 IU hCG (Vetecor, Laboratorios Calier S.A., Barcelona, Spain) i.m., both in D7. Pregnancy diagnosis was performed on the D30 through transrectal ultrasonographic evaluation (Mindray® M5Vet, Shenzhen, China), with a linear transducer of 5.0 MHz. For statistical analysis, the chi-square test was used with a significance level of 5%. The pregnancy rate of the animals receiving hCG was superior (P=0.047) than those receiving saline [90.7% (39/43) and 74.4% (32/43)]. We conclude that the use of hCG seven days after hormonally induced-estrus is an efficient strategy to increase the pregnancy rate in dairy goats.

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A052 TAI/FTET/AI

Microbiological characterization of vaginal tract of ewes synchronized with intravaginal progesterone implants

L.M. Lof[1], M.F.S. Lemes[2], G.C. Zanella[1], E.L. Zanella[1], M.G. Marques[3], K.C. Caires[4], R. Zanella[1]

[1]UPF - Universidade de Passo Fundo, Passo Fundo, RS, Brasil; [2]Integrado UPF - Programa Integrado, Universidade de Passo Fundo, Passo Fundo, RS, Brasil; [3]Embrapa Suínos e Aves, Condórdia, SC, Brasil; [4]UH - University of Hawai'i at Mānoa, Honolulu, HI, USA.

The reproductive efficiency of farm animals is measured by the success of a female becoming pregnant every breeding season and giving birth to progeny. With the intensification of production systems, it is necessary to maximize the use of high genetic merit sires over a shorter time frame to compress the lambing season during a desired time of the year. However, improvement of reproductive gains is often dependent on efficiency strategies for the synchronization of estrus and ovulation. Currently, the most effective protocols for synchronizing females in different stages of estrus depends on the use of intravaginal, progesterone (P4) releasing implants. At the present time, little is known about the effect of those implants on the normal vaginal microbiota of the synchronized females. Therefore the objective of this study was to characterize the effect of intravaginal P_4 implants on the population of vaginal microbiota in ewes. To that end, 18 Hampshire-Down ewes were synchronized with progesterone sponge implants (UFSM), for a period of 7 days. Intravaginal swabs were collected on day 0 (zero) of the protocol and subsequently on day 7, at the removal of the implant, in all the animals. Immediately after collection, bacterial populations were characterized based on culture analyses and biochemical testing. A comparison amongst the presence of different bacterial types in animals at different time points were performed using a Fisher-Exact test, and significance was considered if a $P<0.05$. Using the culture method, thirteen (n=13) different bacterial types were identified in the vaginal tract of ewes. The use of intravaginal P_4 implants appeared to reduce the presence of many vaginal bacterial populations in all ewes. The usage of the P_4 implant significantly reduced the presence of the *Corynebacterium sp*. and *Streptococcus sp*. on day-7 when compared to day-0 ($P<0.04$). *Escherichia coli*, was the only bacterial population identified in the vaginal tract of more animals on day-7, when compared to day-0 (P_4 implants used for estrus synchronization has possibly amplified the local immune response within the vaginal tract of ewes, therefore reducing the bacterial colonization in the synchronized ewes.

A053 TAI/FTET/AI

Improvement in the reproductive efficiency of acyclic beef cows at breeding season

J.R. Pereira[1], C.A.C. Fernandes[1,2], H.L. Neri[1], A.C. Figueiredo[1,2], G.H.S. Pereira[1], J.A.D. Garcia[2], C.S. Scattaregi[2]

[1]Biotran, Alfenas, MG, Brasil; [2]UNIFENAS - Universidade José do Rosário Vellano, Alfenas, MG, Brasil.

The objective was to determine through evaluations related to nutritional balance and reproduction, the efficacy of the injectable supplement, Aminofort®, applied to beef bovine anestrous females submitted to a fixed time artificial insemination protocol (FTAI). Two hundred and thirty lactating, primiparous and multiparous, acyclic zebu cows (without CL), body scoring (ECC) between 2 and 3 (scale: 1 to 5) and 45 to 60 days postpartum were used. Fifteen days before the FTAI protocols, they were distributed according to the diameter of the largest follicle, ECC and category (primiparous or multiparous) in two treatments. T1: (N = 154) 10mL of Aminofort®, IM, in three doses, D-15, D0 and D10, and T2: (N = 76) 10mL of saline on the same days. The FTAI protocol was - D0: Progesterone (P4) device insert and 2mg of Estradiol Benzoate IM, D8: withdrawn implant, 0.5mg of Cloprostenol, 1.0mg of estradiol Cypionate and 300UI of eCG IM and FTAI in D10. Used semen was from the same bull. Ultrasonographic assessments were performed on D-15, D10 for follicle measurement, D17 for corpus luteum (CL) check, and D40 after the end of the reproductive season to gestation diagnosis (Mindray ™ - M5). The ECC evaluation and weighting was performed at D-15 and D40. Five days after the FTAI the cows were released with bulls. The animals of the different treatments remained together in *Brachiaria decumbens* pasture with mineral mixture and water ad libitum. The means of weight, ECC and follicular diameter were submitted to ANOVA and compared by Tukey test. The percentages of cyclic animals on D17 and pregnant in both periods were compared by X^2. Analyzes at 5% probability. There was no difference (P>0.05) in body weight and body score in the initial evaluation, indicating a right distribution in the treatments. The mean weight gain (317 ± 31.3^a vs 222.8 ± 30.43^b g/day) and mean ECC (2.9 ± 0.4^a vs 2.8 ± 0.3^b) evaluated in D40 were higher in females treated with Aminofort (P<0.05). The mean ovulatory follicle diameter in D10 (10.9 ± 3.4^a vs 9.6 ± 2.9^bmm) and the percentage of cows with CL in D17 (82.4% vs 69.7%) was higher (P<0.05) in females treated with Aminofort. The gestation rate in D40 was 42.2% and 31.6% for Aminofort or saline. At the end of the breeding season, this percentage was 90.2 and 67.6% for T1 and T2, respectively (P<0.05). Although not providing differences in pregnancy rate on D40, the treatment was efficient in making more cows cyclical after the protocol, and these were more quickly served by bulls, which led to better gestation rate (P<0,05) at the end of the season. The condition of cyclicity is a prerequisite for the female to be able to become pregnant, especially in natural mating. It is concluded that the supplementation used is efficient in improving the performance of acyclic zebu cows in the breeding season scheme.

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A054 TAI/FTET/AI

Progesterone release from a vaginal implant used for three times in crosbreed heifers and cows

G.H.S. Pereira[1], C.A.C. Fernandes[1,2], H.L. Del Hoyo Neri[1], A.C.S. Figueiredo[1,2], J.R. Pereira[1], R.M. Silva[1], E.S.C. Nogueira[1,3]

[1]Biotran LTDA, Alfenas, MG, Brasil; [2]UNIFENAS - Universidade Jose do Rosario Vellano, Alfenas, MG, Brasil; [3]UNIFAL - Universidade Federal de Alfenas, Alfenas, MG, Brasil.

The aim of this study was to determine the progesterone (P4) release of an intravaginal device (IVD) containing 1.25 g of P4 (Biprogest™-Bimeda, Brasil) in three consecutive uses in females without endogenous P4. Eighteen crossbred females, nine heifers (322 to 375kg) and nine cows (388 to 512kg) were used. Prior to the insertion of IVD, these animals received another commercial DIV and remained with it between D-8 and D-1. In this period they received a dose of PGF in D-8 and D-3. In D0, ultrasonographic (US) evaluation of the ovaries using Color Doppler ultrasonography (Mindray - M5) was made to confirm the absence of functional corpus luteum (CL) and a blood sample was collected. On this day the IVD was inserted. Other blood samples were collected at 12, 24, 48, 72, 96, 120, 144, 168 and 192 hours, when the implant was removed, washed and disinfected. On this day, a new US was made to verify the absence of CL. New blood sample was collected 12 hours (204 h) after IVD removal. For the second use, seven days later, the animals were submitted to the same preparation and the devices were inserted again. The same evaluations and blood collection scheme were repeated. The same procedures were made to determine the third release curve. P4 dosages were done by Electrochemiluminescence (ECL) using commercial Elecys Progesterone III kits (Roche™). The mean concentrations of P4 between categories and curves were compared by ANOVA (5% probability). The protocol for the removal of endogenous P4 was efficient in all animals in the three curves. The intra-assay variation coefficient of the P4 dosage was 1.37%. The mean concentrations of P4 in the 1st curve were 0.7±0.3; 3.5±1.1; 4.2±1.6; 4.1±1.6; 4.0±1.4; 3.4±1.0; 3.5±1.2; 2.9±0.9; 2.5±0.8; 2.2±0.7 and 0.7±0.3. From the 2nd curve 0.6±0.2; 3.3±1.1; 3.4±0.7; 3.2±0.7; 3.0±0.6; 2.7±0.8; 2.2±0.8; 1.8±0.8; 1.7±0.7; 1.6±0.7 and 0.4+0.3. From the 3rd curve 0.2±0.1; 1.2±0.3; 1.4±0.5; 1.5±0.6; 1.4±0.3; 1.3±0.3; 1.3±0.3; 1.0±0.3; 0.8±0.4; 0.7±0.1 and 0.3±0.1 ng/mL for moments 0, 12, 24, 48, 72, 96, 120, 144, 168, 192 and 204 hours, respectively. The mean concentration of P4 was $3.3+1.3^{a}$; 2.6 ± 1.0^{b} and 1.2 ± 0.4^{c} ($P<0.05$) for uses 1, 2 and 3, respectively. Heifers showed higher concentrations than cows ($P<0.05$) when considering uses together and in uses 1 and 2. In these two curves, heifers presented higher concentrations ($P<0.05$) from 12 to 192 hours. P4 concentrations were compatible with those considered capable of blocking the hypothalamic/pituitary axis (above 0.8 ng/mL) in heifers in three uses and in cows in two uses. It is concluded that the IVD is efficient for three uses in heifers and two uses in cows without endogenous P4, in timed protocols where the implant remains for eight days.

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A055 TAI/FTET/AI

Effect of using medroxiprogesterone acetate on days 12 to 17 post-breeding on luteal function of hair sheep

E.K.N. Arashiro, M.F.A. Balaro, J.D.R. Santos, M.M.C.P. Costa, A.B.S. Carvalho, F.Z. Brandão

UFF - Universidade Federal Fluminense, Niterói, RJ, Brasil.

The possibility of performing early pregnancy diagnosis in ewes 17 days post-breeding using color Doppler ultrasonography (US) (Arashiro et al., Theriogenology, 106:247-252, 2018) allows resynchronization protocols to be started even before knowing the pregnancy status of the animal. However, utilization of such protocols still depends on the evaluation of their effects on luteal function and consequent effects on a possible pregnancy. The present study evaluated the effect of using medroxiprogesterone acetate on days 12 to 17 post-breeding on luteal function of sheep. Hair sheep (n=42) were submitted to estrus/ovulation synchronization protocol according to Balaro et al., 2016 (Domestic Animal Endocrinology, 54:10-14). Briefly, this protocol was based on intravaginal sponge impregnated with 60mg of medroxiprogesterone acetate for 6 days, associated with 0.24mg of sodium cloprostenol and 300 IU of equine chorionic gonadotropin (24 h before sponge withdrawal), and 0.025mg of gonadorelin acetate (24h after sponge withdrawal). Only part of the ewes (n=24) were submitted to estrus detection and controlled natural mating (D0) with fertile rams (n=5). A second intravaginal sponge was inserted 12 days (D12) after beginning of natural mating in half of the ewes submitted to natural breeding and in half those not mated. The second sponge was removed 5 days later (D17). Blood samples were daily collected forma all ewes using vacutainer tubes containing EDTA for determination of plasma progesterone (P4) levels. Pregnancy diagnosis was performed by B-Mode US on D30 and animals were retrospectively allocated in the experimental groups as follows: Group 1 (G1), pregnant ewes without sponge (n=9); Group 2 (G2), pregnant ewes with sponge (n=10); Group 3 (G3), non-pregnant ewes without sponge (n=12); Group 4 (G4), non-pregnant ewes with sponge (n=11). An abrupt decrease in P4 concentration (>50%) was used to determine the moment of luteolysis. Data were submitted to normality and homocedasticity evaluation e comparison between groups were performed by ANOVA and Tukey's test with 5% significance. From D12 to D17, plasma P4 concentration did not differ between pregnant ewes with and without sponge (G1 and G2) and also not differ between non-pregnant ewes with and without sponge (G3 and G4). Luteolysis moment also did not differ between non-pregnant animals (day 14.58±1.11 and 14.64±0.8 for G3 and G4, respectively). The results show that insertion of a second sponge impregnated with medroxiprogesterone acetate in the second half of luteal phase did not affect plasma progesterone concentration and the expected moment of luteolysis. Such results allow intensification of reproductive management of sheep by developing early estrus/ovulation resynchronization protocols.

A056 TAI/FTET/AI

Color-Doppler Mode Ultrasonography for selection of Angus embryo recipients

A. Silva[1], P. Veiga[3], T. Castro[3], J. Bartolomé[2], S.P. Wallace[1]

[1]Zoetis Argentina, San Isidro, Argentina; [2]FCV-UNLPam - Facultad de Ciencias Veterinarias, Universidad Nacional de La Pampa, Santa Rosa, Argentina; [3]Cabaña El Volcán - Cabaña El Volcán, Santa Fe, Argentina.

Evaluation and selection of embryo recipients is generally based on rectal palpation and B mode ultrasonography of corpus luteum (CL). However, this assessment may result in low efficacy and accuracy, transferring embryos in females with non-functional or low functional CLs, because size and consistence are not high reliable parameters to assess CL functionality. The objective of the current study was to evaluate the impact of corpus luteum blood flow (CLBF) assessed by Color-Doppler mode ultrasonography at the time of embryo transfer on pregnancy rate in Angus embryo recipients. The experiment took place in Buenos Aires Province, Argentina, where 93 lactating Angus recipients at 60 days postpartum received an embryo after the following estrus synchronization protocol: D0= 1.9g P4 device insertion (CIDR®, Zoetis, Argentina) + 2 mg estradiol benzoate (EB; Gonadiol®, Zoetis, Argentina); D7= P4 device removal + 25mg dinoprost tromethamine (Lutalyse®, Zoetis, Argentina); D8= 1mg EB. Estrus detection was done by visual observation and embryo transfer (ET) was performed 7 days after. At the time of ET ovaries were scanned using a Color-Doppler mode and B mode ultrasonography equipment (MyLab one, Esaote, Holland) with a color velocity setting of 5cm/s and a frequency of 6.6MHz, by one experienced technician in order to assess CLBF and CL diameter. Animals were retrospectively divided in two groups according to CLBF: High CLBF (blood flow ≥40% of CL area; n=64) and Low CLBF (blood flow <40% of CL area; n=29). Pregnancy diagnosis was performed by B mode ultrasonography (Aloka 500, Aloka, Japan) on day 30 after ET. Pregnancy rate (PR) and average CL diameter were compared between groups by logistic regression following a binomial distribution and t-test, respectively, using the version 3.2.3 of R Studio software (R Foundation for Statistical Computing, Vienna, Austria). There was no statistical difference for PR between groups (High CLBF=60.6%, Low CLBF grouP=48.1%; P=0.27). The average CL diameter was not different between cows with higher CLBF (21.34mm) and low CLBF (21.52mm; P=0.8). Results show that CL diameter is not related with CL functionality, as previously demonstrated in a previous study (Pinaffi et al., Pesquisa Veterinária Brasileira, 35:5:470-476, 2015). Contrary to previous studies (Pinaffi et al., Pesquisa Veterinárisa Brasileira, 35:5:470-476, 2015, and Pugliesi et al., Anais SBTE 2016, pag 238, 2016) in which recipients with greater CL functionality had higher PR, this fact was not found in the current assay. Further assays are being done based and supported by the numerical difference in PR found between groups in the current experiment.

A057 TAI/FTET/AI

Effect of estradiol benzoate and cypionate use on sheep follicular development and ovulation

S.F. Vargas Júnior, K.L. Goularte, D.C. Silveira, R.M. Barbosa, B. Capeletti, N.W. Knabah, F.C. Oliveira, B.G. Gasperin [1], R.G. Mondadori, A.D. Vieira

UFPel - Universidade Federal de Pelotas, Pelotas, RS.

Estrus synchronization with fixed-time artificial insemination in sheep is performed based on the estimated time of the highest concentration of ovulation but, so far, the results are highly inconstant. Apparently, 17β-estradiol and Estradiol Benzoate (EB) stimulate LH discharges in sheep similar to preovulatory concentrations, but information is scarce regarding their effect on follicle development. Furthermore, there is no information regarding Estradiol Cypionate (EC). Therefore, this study aimed to determine if EC influences follicular growth and ovulation, compared to EB. To test this hypothesis, cyclic ewes (n = 22) were maintained for 13 days with an intravaginal sponge impregnated with 60mg of MAP. At sponge withdrawal (Day 0), all animals received 120 µg sodium Cloprostenol i.m. (Estron, Agener) to ensure low concentrations of circulating progesterone. The animals were randomly divided into four experimental groups: On D0 Negative control (NC) animals (n = 5), did not receive additional hormones; Positive control (PC; n = 5) received 300 IU of eCG (Novormon, Zoetis) and the animals of the CE Group (n = 6) received 250 µg of EC i.m. (ECP, Zoetis). After 24 h (D1), animals from EB Group (n = 6) received 250 µg BE i.m. (Gonadiol, Zoetis). The follicular development was daily evaluated by transrectal ultrasonography, from D0 to the disappearance of the ovulatory follicle or until D4. Estrous was identified by a teaser with crayon markers. CLs presence and number were confirmed by laparoscopy on D7. Data were evaluated by ANOVA and means compared by T-Student test. The mean preovulatory follicle diameter was 5.5 ± 0.3 mm and did not differ among groups. On D1, follicular growth rate of the PC group was higher than the others (p = 0.001). On D2, when the moment (24, 48, 72h) was considered in relation to the growth of the largest follicle, the EB group had higher follicular growth (p = 0.001). On D3, the NC had a tendency (p = 0.06) for a higher follicular growth rate in relation to the others, which did not differ among themselves. Animals had similar estrous and ovulatory rates among the treatments NC, PC, EC and EB (80%, 4/5, 100%, 5/5, 83%, 5/6 and 83%, 5/6) and (80%, 4/5, 100%, 5/5, 66.6%, 4/6 and 83%, 5/6), respectively. Ewes from NC, PC, EC and EB, respectively, had 1.25, 1.25, 1 and 1 CLs on D7. From the evaluations performed, there was an increase in follicular growth 24 h after the EB administration; however, the response obtained with EC was not different at the end of the period. More experiments should be conducted to determine the ability of EC to induce LH peak and consolidate EB function as on ovulation inducer.

A058 TAI/FTET/AI

The effect of Ceftioflur Hydrochloride in the vaginal microbiota of dairy cows submitted to a synchronization protocol with CIDR®

G.C. Zanella[1], D.L. Quadros[1], A.N. Silva[1], L.M. Lof[1], F.L. Facioli[1], M.E. Cantão[2], C. Bondan[1], E.L. Zanella[1], R. Zanella[1]

[1]UPF - Universidade de Passo Fundo, Passo Fundo, RS, Brasil; [2]EMBRAPA Suínos e Aves, Concórdia, SC, Brasil.

With the intensification in the livestock sector, it is necessary to better understand the mechanisms involved with reproductive failures to minimize those effects. The use of synchronization of estrus and ovulation with intravaginal progesterone implants (P4) is a common tool used in cattle to control the breeding season. However, their use may result in vaginitis, possibly altering the normal vaginal microbiota, leading to a local inflammation. Therefore, the objective of this study was to identify the effect of P4 implants in the vaginal microbiota of Holstein cows, using a 16S rRNA sequencing of the vaginal tract of synchronized females. For that, 6 healthy, cyclic Holstein cows were synchronized with progesterone implants and separated into two groups: Group one (G1) received 2.2mg.kg^{-1} of Ceftioflur Hydrochloride by IM route on day 9 of the protocol and Group two (G2), received 25ml of physiological solution. Vaginal swabs were collected on day zero (d0) and on day ten (d10) of the protocol, to investigate the effect of implants and antibiotics on the local microbiota. Bacterial DNA was extracted, measured and further sequenced using SE-Libraries for fragments of 300bp with an average of 10.000 reads per sample using MiSeq-Illumina. Bacterial sequence data were preprocessed using Seqyclean to remove adapters and low quality reads (<280bp), and further classification was conducted with Silva data base. Comparison between the type and amount of bacteria on d0 and d10 of G1 and G2 was conducted using STAMP software using an ANOVA test, significance was considered if $P<0.05$. In addition to that, an interaction amont time and treatment was conducted using Calypso program (Multivariate option) ANOSIM. One hundred and thirty five different bacterial genera were identified in the vaginal microbiota of Holstein cows, most of which are found in the cattle gastrointestinal tract. An interaction among time and treatment was observed in four bacterial families ($P<0.05$). The antibiotic significantly reduced the presence of 5 bacterial families (*Xanthomonadaceae* $P=1.15x10^{-3}$ S*uccinivibrionaceae* P=0.019, *Lachnospiraceae* P=0.027, *Porphyromonadaceae* P=0.035, *Spirochaetaceae* P=0.049). And the non use of it increased significantly 3 bacterial families (*Family_XIII_unclassified* P=0.013, *Family_XIII_AD3011_group* P=0.048, *Lachnospiraceae* P=0.049). Characterization of the vaginal microbiota in the livestock is of great economical and sanitary interest. The Ceftioflur Hydrochloride was shown to be useful on preventing infection and reducing bacterial growth, caused by intravaginal implants.

A059 TAI/FTET/AI

Interrelation between the follicular and luteal characteristics of dairy cows submitted to a fixed-time artificial insemination program

T.O. Brandão[1,3], A.S. Rodrigues[3], G.G. Dalchiavon[3], J.F. Santos[3], M.R. Alcantara[3], A.L. Ribeiro Filho[2], R.F. Bittencourt[2], M.C.C. Lima[2]

[1]IFNMG - Instituto Federal do Norte de Minas Gerais, Salinas, MG, Brasil; [2]UFBA - Universidade Federal da Bahia, Escola de Medicina Veterinária, Salvador, BA, Brasil; [3]UFOB - Universidade Federal do Oeste da Bahia, Barra, BA, Brasil.

The objective of this study was to correlate the structural characteristics of the preovulatory follicle and the morphofunctional parameters of the corpus luteum (CL) in dairy crossbred females submitted to a Protocol for Fixed-Time Artificial Insemination (FTAI). A total of 116 multiparous female, non-lactating, 3/4 Gir x Holtein-Frisian, aged 5.69±1.06 years, with body condition score of 3.01±0.39 (1 to 5 scale) were utilized. Cows were maintained in pasture with mineral supplementation and water ad libitum. In a randomized day denominated day zero (D0) the synchronization protocol was initiated through the insertion of intravaginal progesterone (P4) device (DIB®, Zoetis, São Paulo, Brazil) and injection of 2.0mg of estradiol benzoate (Gonadiol®, Zoetis, São Paulo, Brazil) intramuscularly (IM). On day nine (D9) the P4 devices were removed and 12.5mg dinoprost tromethamine (Lutalyse®, Zoetis, Sao Paulo, Brazil), 0.6mg estradiol cypionate (ECP®, Zoetis, St. Paulo, Brazil), and 300UI equine chorionic gonodotrophin (eCG) (Novormon®, Zoetis, São Paulo, Brazil) were administered IM. On day 11 (D11), to determine the structural characteristics of the preovulatory follicle, the animals were examined by ultrasonography (US) in B mode and color doppler by measuring the follicular diameter (DFOL), the area of the follicular wall (AFOL) and the area of vascularization of the follicular wall (VFOL). On day 24 (D24), we performed US in B mode and color doppler of the CL, analyzing the luteal diameter (DCL), luteal area (ACL) and the area of vascularization of the CL (VCL). Blood samples were also collected and serum P4 concentrations were determined using the *Access immunoassay systems progesterone* (Architect Progesterone Reagent Kit, Abbott Laboratórios do Brasil LTDA, São Paulo, Brazil). Statistical analyses were performed using SPSS, version 19, $P<0.05$. The correlation between the follicular (DFOL, AFOL and VFOL) and luteal characteristics (DCL, ACL, VCL and P4) were established using the Pearson correlation test. The overall mean for DFOL, AFOL and VFOL was 1.35±0.24cm, 0.63±0.14 cm^2 and 0.28±0.09 cm^2, respectively. For the luteal parameters, the average observed for DCL, ACL, VCL and P4 concentrations, were 2.02±0.34cm, 3.24±0.94cm^2, 1.18±0.59cm^2 and 8.64±3.26ng/mL, respectively. The DFOL showed a positive correlation with DCL (r=0.45, P=0.02), ACL (r=0.43, P=0.03) and P4 concentrations (r=0.56, P=0.004). The association between AFOL and P4 concentrations was positive (r=0.64, P=0.001). In relation to the VFOL, a positive correlation was observed with DCL (r=0.56, P=0.003), VCL (r=0.52, P=0.008) and P4 concentrations (r=0.78, P=0.0003). It was concluded that there was a positive correlation between the follicular structural characteristics and the morphofunctional parameters of the corpus luteum, making possible the use of follicular measurement as a tool to predict the functionality of CL and thus improve FTAI programs.

A060 TAI/FTET/AI

Use of 17β-estradiol and progesterone association for ovulation synchronization in *Bos indicus* beef cows

C.C. Rocha[1], B.P. Mello[3], G.D. Melo[1], C.A.F. Gallimberti[3], I.G. Motta[1], F.C. Lahr[3], L. Amaral[3], K.M. Lemes[2], R.J.C. Moreira[2], Ed H. Madureira[1], G. Pugliesi[1]

[1]USP/FMVZ - Universidade de São Paulo Faculdade de Medicina Veterinária e Zootecnia, São Paulo, SP, Brasil; [2]Boehringer Ingelheim Animal Health do Brasil Ltda, Campinas, SP, Brasil; [3]USP/FZEA - Universidade de São Paulo Faculdade de Zootecnia e Engenharia de Alimentos, Pirassununga, SP, Brasil.

The objective of this study was to compare the use of combination of progesterone (P4) and17β-estradiol (E_2) or E_2 benzoate (EB) for synchronization of follicular emergency in *Bos indicus* beef cows submitted to FTAI on: 1) moment of new follicular wave emergency; 2) characteristics of the preovulatory follicle (POF); and 3) pregnancy rate (PR). For this, in the Exp1 lactating Nelore cows (n = 12/group) were submitted to an FTAI protocol and divided into 2 groups (EB and E_2). On D−10, the EB group received an intravaginal P_4 device (0.96 g; Progestar®; Boehringer Ingelheim, Brazil), 500 µg $PGF_{2\alpha}$ (Cloprostenol sodium; Cioprostinn®; Boehringer Ingelheim) and 2 mg EB (Estrovulinn® Boehringer Ingelheim). In the group E_2, EB was replaced by 5.5 mg of E_2 associated with 50mg P_4 (Betaproginn®; Boehringer Ingelheim). After 8 days the device was withdrawn, $PGF_{2\alpha}$ was applied and 12 hours after EB (1mg) was injected. The FTAI was performed 36 hours after EB injection (D0). Between D−10 and D0, ultrasonography (US) assessments were performed daily to measure all follicles with diameter>4 mm. In the last 48 hours pre-FTAI, percentage of blood perfusion in the follicular wall in the POF was evaluated by US Color-Doppler. The ovulation was confirmed on D1. In Exp2, Nelore and Tabapuã cows and heifers (n = 505) were submitted to the same treatments described in Exp1 (except for $PGF_{2\alpha}$ in D−10). At D0 the diameter of the POF was measured and the pregnancy diagnosis was performed on D30 and D60. PR was evaluated by logistic regression using PROC GLIMMIX of SAS. The following variables were included in the final model: treatment, bull, eCG and estrus. The parametric data were evaluated by ANOVA using PROC MIXED. In Exp 1, follicular emergence (3.4 ± 0.2 days), ovulation rate (87%) and PR (54%) did not differ (P> 0.1) between groups. The diameter and perfusion of the POF did not differ (P>0.1) at TAI (13.7 ± 0.4mm and 53.8 ± 3%, respectively). However, the percentage of perfusion in the POF on D−2 tended to be greater (P= 0.08) in the E_2 group (47 ± 3%) than in EB group (38.8 ± 2%). In Exp2, there was no difference in the diameter of the POF between groups (P>0.1). An interaction (P<0.05) between group and category was observed for PR in D30 and D60. No difference was observed between EB and E_2 groups in pluriparous cows (61%, 99/164 vs. 56%, 92/165, respectively) and 24-month-old heifers (45%, 20/46 vs. 50%, 16/36, respectively). For primiparous cows, higher (P <0.05) PR was observed in the E_2 group (58%, 26/46) compared to the EB group (30%, 14/48). It is concluded that E_2 when associated with P4 has similar efficacy to EB on follicular wave synchronization, POF development and PR in pluriparous cows and heifers. However, E_2 when associated with P4 may benefit the PR post-TAI in primiparous cows, but future studies are needed in a larger number of animals.
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A061 TAI/FTET/AI

Influence of weight gain on the conception rate of Nelore cows with low, intermediate and high antral follicle count submitted to TAI

F. Morotti[1], A.G. Lindquist[1], F.L.Z. Moraes[1,2], A.M. Volpato[2], J.B. Souza[2], M.M. Seneda[1]

[1]UEL - Univesidade Estadual de Londrina, Londrina, PR, Brasil; [2]UNOPAR - Universidade Norte do Paraná, Londrina, PR, Brasil.

The objective of this study was to evaluate the influence of weight variation on the conception rate of Nelore cows with low, intermediate and high antral follicle count (AFC) submitted to timed artificial insemination (TAI). Nelore cows (*Bos indicus*, n = 280), multiparous (30-40 days postpartum), with body condition score ranging from 2.0 to 4.5 (scale 1-5) were selected to receive a TAI protocol. On a random day of the estrous cycle (D0), the cows received an intravaginal progesterone device (1g P4, 1st use, Primer®, Tecnopec, São Paulo, Brazil) and 2mg estradiol benzoate (RIC BE®, Tecnopec) i.m. On D9 the P4 device was removed and it was administered (i.m.) 482µg sodium cloprostenol (Estron®, Tecnopec), 300IU equine chorionic gonadotrophin (Folligon®, MSD) and 1mg estradiol cypionate (Fertilcare ovulation®, MSD). The TAI was performed 48 h after P4 device removal. The AFC (count of follicles ≥ 3 mm) was determined by transrectal ultrasonography on D0. The cows were weighed (kg) 10 days before starting the protocol and on the day of pregnancy diagnosis (D40), which was performed 30 days after the TAI. For analysis, the cows were divided according to the AFC in low (≤ 15 follicles), intermediate (≥ 16 and ≤ 34 follicles) or high count (≥ 35 follicles) and according to the weight variation in gaining (positive variation of +10 to -90 kg), maintaining (variation from -9 to +9 kg) or losing weight (negative variation from -10 to -50 kg). Data were analyzed by the logistic regression model, including all effects and interactions (P ≤ 0.05). The overall conception rate was 60.7% (170/280). There was an effect weight variation [gaining = 65.9%^{a} (56/85), maintaining = 66.4%^{a} (75/113) and losing = 47.6%^{b} (39/82); P = 0.010] but not significant effect of AFC [low = 62.8% (54/86), intermediate = 60.7% (71/117) and high = 58.4% (45/77); P = 0.195] on conception rate. There was an interaction (P = 0.043) between weight and AFC. Lower conception rate (P = 0.05) was observed in cows losing weight, both in low AFC [gaining = 61.9%^{a} (13/21), maintaining = 76.9%^{a} (30/39) and losing = 42.3%^{b} (11/26)] as high AFC group [gaining = 69.2%^{a} (18/26), maintaining = 70.0%^{a} (14/20) and losing = 41.9%^{b} (13/31)]. In the intermediate AFC group, no effect of weight variation was observed [gaining = 65.8% (25/38), maintaining = 57.4% (31/54) and losing = 60.0% (15/25), P = 0.743]. In the present study, it was concluded that weight loss, but not ovarian AFC, affects conception rate in Nelore cows submitted to TAI.

A062 TAI/FTET/AI

Effect of different classes of body condition score on the conception rate of Nelore cows with low, intermediate and high antral follicle count submitted to TAI

C.B. Costa, F.L.Z. Moraes, F. Morotti, P.A. Lunardelli, M.M. Seneda

UEL - Universidade Estadual de Londrina, Londrina, PR, Brasil.

The objective of this study was to evaluate the effect of body condition score (BCS) on the conception rate of Nelore cows with low, intermediate and high antral follicle count (AFC), submitted to timed artificial insemination (TAI) protocol. A total of 721 zebu cows, with 36 to 96 months old and BCS ranging from 2.0 to 3.5 (scale 1-5) were used in this study. The animals were assigned to TAI and submitted to a standard ovulation synchronization protocol on a random day of the estrous cycle denominated D0. On this day the females received, the intravaginal device of progesterone (P4; Cronipres® Mono Dose M-24, Biogénesis Bagó, Buenos Aires, Argentina) in association with the injection of 2.0 mg estradiol benzoate (Bioestrogen®, Biogénesis Bagó) intramuscular (i.m.). After 8 days (D8), the device of P4 was removed and i.m. were administered 150 µg of sodium cloprostenol (Croniben Biogénesis Bagó), 300 IU of equine chorionic gonadotropin (Novormon®, MSD Saúde Animal, São Paulo, Brazil) and 1.0 mg of estradiol cypionate (ECP®, Zoetis, São Paulo, Brazil). The AFC of each animal was determined in the D0 after examination with transrectal ultrasonography with linear transducer of 5 MHz. The ovaries pair (right and left) was evaluated and the total number of antral follicles (≥ 3 mm of diameter) was counted and recorded for each animal. Pregnancy diagnosis was performed 30 days after the insemination. For data analysis, the animals were divided into AFC groups of high (≥ 30 follicles), intermediary (15 to 25 follicles) and low (≤ 10 follicles), as well as ranked in two classes of BCS: 2.0 to 2.5 and 3.0 to 3.5. The conception rate was analyzed by the Chi-Square test adopting a value of $P \leq 0.05$. In the AFC high category, 2.0 to 2.5 BCS presented higher conception rate (60.9%, 28/46, P*vs.* 48.3%, 85/176) and low AFC (51.7%, 87/159 *vs.* 59.6%, 81/136) presented a similar conception rate ($P>0.05$) between BCS classes 2.0 to 2.5 *vs.* 3.0 to 3.5, respectively. Considering only BSC 3.0 to 3.5, both the low and intermediary groups resulted in conception rate higher ($P<0.05$) in relation to the AFC high group. However, this same effect was not observed among cows with 2.0 to 2.5 BCS. In conclusion, the conception rate of Nelore cows with low, intermediate and high AFC demonstrated to be influenced by the different classes of body condition score when submitted to TAI.

A063 TAI/FTET/AI

Stress and inflammation markers in laparoscopic inseminated ewes

A.P. Bohn, V.G.G. Costa, N.W. Knabah, R.M. Barbosa, J.H. Dias, F.C. Oliveira, C.S. Haas, A. Schneider, R.G. Mondadori, B.G. Gasperin, A.D. Vieira

UFPel - Universidade Federal de Pelotas, Pelotas, RS, Brasil.

The increasing concern with animal welfare has stimulated the evaluation of alternatives to minimize the negative effects caused by management techniques applied to the animals. The laparoscopic procedure normally indicated for ewe AI with cryopreserved semen, is potentially determinant of discomfortand tissue injury, however, there is insufficient information on its impact on specific stress and inflammatory markers. Therefore, this study aimed to determine the alteration caused in cortisol (COR), total plasma protein (TPP), serum albumin (SA) and paraoxonase1 (PON1) levels in ewes submitted or not to laparoscopy (LAP). All procedures were approved by UFPel's Ethics in Animal Experimentation Committee (CEEA 7340-2016). Procedure started (day -12 = D-12) when animals (n = 42) received an intravaginalprogestogen-impregnatedsponge (PRID, 60 mg medroxyprogesterone acetate). At D0 PRID was removed and the animals received 400 UI of eCG i.m. and were allocated in to three groups: control with blood collection without LAP (CON; n = 4); treatment with blood collection and with LAP (TRE; n = 5); and control without blood collection and with AI via LAP (PR; n = 33, only for pregnancy rate evaluation). Between 54-60 hours after PRID removal, animals from TRE and PR groups were submitted to LAP (Killeen&Caffey, Aust. Vet. J. 59, 1982), and received ketoprofen (3 mg/kg i.m.).Blood samples, were achieved by jugular puncture from TRE group, at the onset of 24 h solid diet fasting (moment zero = M0), and at 5 min (M1), 30 min (M2), 60 min (M3), 24 h (M4) and 48 h (M5) after LAP.In the CON group the blood samples were collected at the same intervals than TRE group. Pregnancy rates in the PR group were determined by ultrasonography 25 days after AI. The results were evaluated through repeated data analysis using the MIXED procedure (SAS). The effects of the group, moment and their interactions were considered using significance level of 5%. TRE group had higher COR level at M1 and M5. From M2 to M4. CON and TRE groups had similar COR levels. TPP levels were similar in both groups, but with influence of the moment ($P < 0.05$). SA levels were lower in the TRE group from M1 to M3 moments. PON1 values were similar between the groups at all moments. Pregnancy rate for PR group was 37%, which can be a consequence of a negative effect of the anti-inflammatory on ovulation. Based on the increase of COR levels and temporary alteration of negative acute phase proteins, it can be inferred that the LAP management for AI causes stress and significant inflammatory reaction until the first 24 hours after the procedure. Therefore, it is necessary to investigate approaches that minimize the discomfort and the inflammatory reaction, without negatively affecting the reproductive performance of the laparoscopic inseminated animals.

A064 TAI/FTET/AI

Effects of temperament and mineral and vitamin supplementation in pregnacy rates of Nelore females submitted to FTAI programs

B.P. Mello[1], M. Maturana Filho[2], K.M. Lemes[3], T. Santin[1], R.L. Gonçalvez[4], J.P.M. Lollato[4], Ed H. Madureira[1], C.M.B. Membrive[5]

[1]FMVZ/USP - Faculdade de Medicina Veterinária e Zootecnia - Universidade de São Paulo, Pirassununga, SP, Brasil; [2]MF VetPlan Consultoria Veterinária, Águas da Prata, SP, Brasil; [3]Boehringer Ingelheim, Paulínea, SP, Brasil; [4]Biogénesis-Bagó, Curitiba, PR; [5]FCAT/UNESP - Faculdade de Ciências Agrárias e Tecnológicas, Dracena, SP, Brasil.

The objective of this study was evaluate the effects of the temperament in Nelore females submitted to FTAI protocol (Exp.1) and the effect of mineral and vitamin supplementation (Adaptador®, Biogénesis Bagó, Brazil) (Exp.2) on the diameter of dominant follicle on FTAI day (DF), pregnancy rate on day 30 (PR30) and 60 (PR60). There was used data breeding seasons realized during 2012 to 2016 (Exp.1) and during 2014 and 2015 (Exp.2), carried out at the USP Campus in Pirassununga/SP, to perform retrospective analysis. The Nelore females (heifers, primiparous and pluriparous) with 50 ± 3 days post-partum (D-10) were submitted at the same FTAI protocol. They received on D-10 an intravaginal progesterone device (Cronipress Monoset®, Biogenesis Bagó) associated with intramuscular (IM) administration of 2mg of estradiol benzoate (Bioestrogen®, Biogenesis Bagó). On D-2, the devices were removed and were injected IM 530µg of Cloprostenol Sodium (Croniben®, Biogenesis Bagó), 300 IU of eCG (Ecegon®, Biogenesis Bagó) and 1mg of Estradiol Cypionate (Cronicip®, Biogenesis Bagó). After 48h the FTAI was performed (D0). On D-10 of Exp.1 was realized the analysis of Composite Reactivity Score (CRS) adapted from Piovezan (1998), based on the movement and breathing while the animal was in the cattle chute associated with the exit velocity, the animals were classified as calm (CRS ≤ 4; n=830) and reactive (CRS>4; n=1872). On Exp.2, on day 35 ± 3 post-partum (D-45) and D-10, the animals were randomly classified in two groups to receive a subcutaneous injection of 1mL/100kg of live weight of the Adaptador® (Adaptador Group; n=942) or a placebo solution (Control Group; n=920). Was performed a frequency analysis by PROC FREQ and logistic regression analysis by PROC LOGISTIC, using the Statistical Analyzes System program (SAS, 9.3), adopting 5% of significance level. In both experiments there were no effect (P>0.05) of semen and breeding season. In Exp.1, the calm compared to reactive animals present higher DF (14.35mm *vs.* 13.43mm; P=0,01) and PR60 (53.3% *vs.* 47,75%; P=0.02), however there was no difference in PR30 (57.35% *vs.* 56.10%; P = 0.13), in the BCS (1 to 9) on D-10 (5.65 *vs.* 5.45; P=0.06) and in the percentage of cycling females on D-10 (59.45% *vs.* 56.33%; P=0.8). In Exp.2, the Adaptador group present a higher PR30 (58.37% vs. 50.27%; P=0.01), PR60 (53.1% *vs.* 46.1%; P = 0.01) and higher percentage of cycling females on D-10 (56.83% *vs.* 46.63%; P = 0.03) when compared with control group. There was no difference in diameter of DF (13.93mm *vs.* 12.50mm; P=0.73) and in BCS on D-10 (5.50 *vs.* 5.27; P = 0.88). In conclusion, reactive females have lower fertility then calms, and the supplementation of the Adaptador® on days D-35, D-10 and D60 increases the pregnancy and cycling rates.

A065 TAI/FTET/AI

Estrus identification methods as an alternative to optimize IATF results

N.A. Anache[1], K.C. Silva[1], W.B. Rodrigues[2], J.P. Jara[3], F. Rech[1], P.P. Pires[3], C.J.T. Cardoso[1], E. Nogueira[2]

[1]UFMS - Universidade Federal de Mato Grosso do Sul, Campo Grande, MS, Brasil; [2]EMBRAPA Pantanal, Corumbá, MS, Brasil; [3]EMBRAPA Gado de Corte, Campo Grande, MS, Brasil.

The objective of the present study was to compare the efficacy of different techniques for detection of estrus in Nellore cows submitted to FTAI protocols and their relationships with fertility. We used the techniques: T1-BOLUS: use of intraruminal bolus with temperature sensor (Trr), marker chalk in the sacro-caudal region: marker rod in the sacro-caudal region (SILVA et al., 2016), where: ESCT 1: no expression of estrus; ESCT2: low expression of estrus; ESCT3: high expression of estrus; T3- DRONE: visual observation of estrus using drone (DJI-PhAnton 3). The experiment was carried out at the EMBRAPA Gado de Corte, in Campo Grande - MS, with 44 cows multiparous, with an average weight of 372 ± 40.97 and BCS of 3.04 ± 0.60 (1-5), evaluated by the three techniques . Esophageal introduction of the intraruminal bolus with temperature sensor was performed and data collection was performed during days 8.9 and 10 of the FTAI protocol. The Trr works with a radio frequency telemetry system, whose basic principle is the use of a sensor that generates an electric impulse proportional to the physiological variation captured by antennas, which have a range of 30 meters. After bolus placement, the FTAI protocol used was: D0: placement of intravaginal device of P4 and application of EB (2mg) I.M .; D8: removal of the device and application of PGF2α (500µg) IM, ECP (1mg) IM and 300 IU of eCG, IM, and marking the animals with the chalk in the sacro-caudal region and in the dorsal region, to facilitate identification in observation visual analysis with the drone, which occurred twice a day (morning and afternoon) for 60 minutes on days 9 and 10. FTAT was performed at D10, where estrus expression (ESCT 1-3) was evaluated. Pregnancy diagnosis was performed 30 days after the FTAI, with transrectal ultrasonography. The expression of estrus according to the method was evaluated by the Chi-square test ($p < 0.05$). In order to analyze the effect of the method of detection of estrus in the probability of FTAI pregnancy, the PROC LOGISTIC package from SAS was used. The number of cows identified in estrus was: 61.36% (27/44) with BOLUS; 56.81% (25/44) with DRONE, and 75% (33/44) with BATT (considering ESCT 2 and 3), without differing the estrus% among detection methods ($P = 0.17$). The IATF pregnancy rate was 56% and the detection of barium enema had an effect ($P = 0.006$) on the probability of pregnancy of TAI, as well as on the DRONE group ($P=0.01$). In BOLUS, there was no effect on the probability of pregnancy ($P=0.35$). Comparison of the methods for the detection of estrus showed that the ability to observe the techniques was similar, however, when correlated with the pregnancy rate of the FTAI, the use of the marker stick and visual observation through drone images were more efficient.

A066 TAI/FTET/AI

Effect of different concentrations of sexed semen on the conception rate of multiparous Nelore cows submitted to TAI

M.O. Marques[1], M. Ribeiro Júnior[1], F. Morotti[2], M.M. Seneda[2], P.S. Baruselli[3]

[1]Geraembryo Ass. Consult. Pec. Ltda, Cornélio Procópio, PR, Brasil; [2]UEL - Universidade Estadual de Londrina, Londrina, PR, Brasil; [3]USP - Universidade de São Paulo, São Paulo, SP, Brasil.

The aim of this study was to evaluate the effect of different concentrations of sexed semen (SexedULTRA^{TM}, Sexing Technologies, Navasota, Texas) on conception rate of Nelore cows with estrus expression during timed artificial insemination (TAI). Nelore cows (*Bos indicus*, n = 281), multiparous (35-60 days postpartum) and mean body condition score (BCS) of 2.8±0.4 (1 to 5 scale) were submitted to TAI. Synchronization protocol consisted on intravaginal progesterone device insertion (Fertilcare 600®, MSD, São Paulo, Brazil) and an intramuscular (i.m.) injection of estradiol benzoate (2mg, Fertilcare Sincronização®, MSD) on a random day of estrous cycle (Day 0, 8:00 AM). During device removal (Day 8; 6:00 AM), cows received i.m. cloprostenol sodium (0.530mg, Ciosin®, MSD), equine chorionic gonadotrophin (300IU, Folligon®, MSD) and estradiol cypionate (1mg, Fertilcare Ovulação®, MSD). In addition, a painting with chalk was performed in tail head to evaluate estrus expression. TAI was performed 60 hours after device removal (Day 10, 6:00 PM). Semen from a single Nelore bull and with known fertility was used. So, cows showing estrus (paint removed) were randomly inseminated with sex-sorted (female) semen of 4.0, 6.0 or $8.0x10^6$ sperm. Cows that maintained tail paint (without estrus manifestation) were inseminated with conventional semen (non-sorted, $20x10^6$ sperm). Pregnancy diagnosis was performed by transrectal ultrasonography 30 days after TAI and at the end of breeding season to determine gestational loss. Data were analyzed by logistic regression model adopting $P \leq 0.05$. Estrus expression rate was 82.9% (233/281). The conception rate was similar (P = 0.590) among groups that received 4.0 (59.5%, 47/79), 6.0 (58.4%, 45/77) and $8.0x10^6$ sperm (51.9%, 40/77). There was no effect of BCS (P=0.58) or any interaction between factors (P>0.05). Cows that did not show estrus and were inseminated with conventional semen, 33.3% (16/48) became pregnant. Gestational loss in conventional semen group was 6.3% (1/16) and in sexed semen group was 6.8% (9/132) and did not differ (P=0.61) among the different concentrations. We concluded that similar conception rates were obtained in suckling Nelore cows submitted to TAI with 4.0, 6.0 or $8.0x10^6$ sex-sorted sperm.
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A067 TAI/FTET/AI

Estrus behavior and conception rates at TAI of Nelore cows with high, intermediate or low antral follicles count

J.H.A. Dias[1], G.M.G. Santos[2], N.C. Silva[1], B. Ambrozini[1], M.E.S. Bomtempo[1], K.C.S. Santos[1,2]

[1]UEL - Universidade Estadual de Londrina, Londrina, PR, Brasil; [2]Sheep Embryo Reprodução Animal, Londrina, PR, Brasil.

The aim of this study was to evaluate the influence of the number of antral follicles (AFC) on the estrus behavior of Nelore cows during the synchronization of ovulation. Multiparous Nelore cows (*Bos indicus*; n = 271), with 45 ± 15 days postpartum and ECC 3 ± 0.5 were evaluated by ultrasonography (6 MHz linear transducer, A5V, Sonoscape, Shinzhen, China) for the counting of antral follicles ≥ 3 mm in diameter at D0 (beginning of the TAI protocol) and separation of groups, based on the medium number of follicles ± 1 SD: high AFC (G-High AFC, ≥ 50 follicles, n = 70), intermediate AFC (G-Intermediate AFC, 30-35 follicles, n = 114) or low AFC (G-Low AFC, ≤ 25 follicles, n = 87). On random days of the estrus cycle (D0), cows received 1 g P4 intravaginal device (Fertilcare 1200®, Vallé, Montes Claros, Brazil) and 2mg EB (Fertilcare sincronização®, Vallée), IM. After the device withdraw (D8), they received 500 µg of sodium cloprostenol (Ciosin®, MSD, São Paulo, Brazil), 300 IU eCG (Folligon®, MSD) and 1 mg EC (Fertilcare ovulation®, MSD), IM, and were stained with a stick marker paint (Raidex®, Walmur, Germany) at the base of the tail for further estrus detection on the day of insemination. Cows were inseminated (TAI) 48-52 h after removal of the P4 device (D10). The manifestation of estrus was considered for females whose paint was removed from the base of the tail. The diagnosis of gestation by ultrasonography was performed 30 days after TAI. The comparison between conception and estrus presentation rates was performed using the chi-square test. For all analyzes, $P \leq 0.05$ was considered statistically significant. There was no difference in estrus presentation rate among the low (69%; 60/87), intermediate (76%; 87/114) and high AFC groups (76%; 53/70, $P>0.05$). The conception rates to TAI did not differ between groups ($P>0.05$; 44% - 38/87 G-Low AFC; 51% - 58/114 G-Intermediate AFC; 57% - 40/70 G-High AFC). It was concluded that Nelore females with high, intermediate or low AFC, submitted to a TAI protocol, showed no difference in estrus behavior and conception rates.

A068 TAI/FTET/AI

Treatment with eCG improves follicular growth, estrus expression, ovulation rate and pregnancy per AI in Nelore primiparous cows subjected to TAI

B.L.C. Catussi[1], R.M. Ferreira[1], R.L. Gonçalves[2], J.P.M. Lollato[2], C. Pavoski[2], A.T. Loureiro[2], R.D. Mingotti[1], P.S. Baruselli[1]

[1]VRA/FMVZ - Departamento de Reprodução Animal/ Faculdade de Medicina Veterinária e Zootecnia, São Paulo, SP, Brasil; [2]Biogénesis Bagó, Curitiba, PR, Brasil.

The aim of this study was to evaluate the effect of using different eCG on ovarian follicular dynamics and pregnancy per AI (P/AI) of primiparous cows treated for TAI, thus verifying the efficacy of two commonly used products. A total of 150 primiparous Nelore cows ranging 35-50 d postpartum and with average BCS of 2.78±0.05 (1-5 point scale) from Condomínio Silmar Farm (MT State, Brazil) were used. Cows were treated with the same protocol of synchronization of follicular wave emergence and ovulation for TAI, except for the use or not of different eCG. Briefly, at random days of the estrous cycle (D0) cows were treated with an intravaginal device with 1g P4 (Cronipres® Mono Dose, Biogénesis Bagó) and 2mg estradiol benzoate (Bioestrogen®, Biogénesis Bagó). On D8, device was removed and cows received 150µg D-Cloprostenol (PGF2α, Croniben®, Biogénesis Bagó) and 1mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó). At this time, cows were evaluated by ultrasonography (Mindray® DP-2200Vet) in order to measure the diameter of the dominant follicle (DF) and to verify the presence of a CL. Then, they were homogenously allocated (BCS and diameter of the DF) to receive or not eCG, as follows: Control (without eCG), Ecegon (300 IU Ecegon®, Biogénesis Bagó) and Novormon (300 IU Novormon®, Zoetis). Cows were painted with chalk on their tailheads, and removal of chalk was used as an indication of estrus. TAI was done 48h after device removal, concomitant with estrus evaluation and measurement of the DF. On D16 the occurrence of ovulation was registered and the diameter of the new-formed CL was measured. P/IA was verified 33d after TAI. Data was analyzed by logistic regression (PROC GLIMMIX from SAS). Control, Ecegon and Novormon cows had similar average BCS (2.76±0.04, 2.74±0.05 and 2.84±0.04; P=0.27), diameter of the DF on D8 (9.8±0.3, 9.9±0.3 and 9.8±0.3mm; P=0.89) and presence of CL [4.2% (2/48), 5.9% (3/51) and 5.9% (3/51); P=0.96], respectively, evidencing the homogeneity between groups. Comparatively with Control cows, on D10, cows treated with Ecegon and Novormon had greater diameter of the DF (10.8±0.4^{b} vs 12.2±03^{a} and 11.9±0.3^{a}mm; P=0.008), greater daily follicular growth (0.5±0.08^{b} *vs* 1.2±0.11^{a} and 1.0±0.09^{a}mm; P<0.0001) and greater estrus expression [68.8%^{b} (33/48) *vs* 86.3%^{a} (44/51) and 80.4%^{a} (41/51); P=0.04], respectively. On D16, ovulation rate [56.3%^{b} (27/48) *vs* 88.2%^{a} (45/51) and 80.4%^{a} (41/51); P=0.002) was observed for Ecegon and Novormon treated cows, respectively. Yet, similar diameter of the CL was detected for groups (13.7±0.5 vs 14.8±0.4 and 14.8±0.5mm; P=0.20). Greater P/AI (P=0.06) was observed for cows treated with Ecegon [56.9%^{a} (29/51)] and Novormon [52.9%^{a} (27/51)] compared to Control [35.4%^{b} (17/48)]. In conclusion, treatment with the two brands of eCG improves follicular growth, diameter of the DF, estrus expression, ovulation rate and P/AI. Thus, its use is essential in TAI protocols for primiparous cows. Credits: Condomínio Fazenda Silmar.

A069 TAI/FTET/AI

Evaluation of different strategies for supplemental mineral and vitamin supplementation on the improvement of the fertility of beef cows in different regions of Brazil

M. Maturana Filho[1], R.M.F. Saran[5], J.A. Santos[3], J.P.M. Lollato[2], J.L. Costa Junior[4], C. Shutz[6], C.J. Fazzano[7], R.L.M. Souza[8], R.L. Gonçalves[2]

[1]MF VETPLAN Consultoria Agropecuária, Águas da Prata, SP, Brasil; [2]Bio - Biogénesis Bagó Saúde Animal, Curitiba, PR Brasil; [3]JA REPROGEN Serviços em Reprodução e Melhoramento Genético Eunápolis, BA, Brasil; [4]Mais Cria Serviços em Reprodução e Melhoramento, São Luiz Jequié, BA, Brasil; [5]MV - Médico Veterinário, São Paulo, SP, Brasil; [6]MV2 - Médico Veterinário, Coxim, MS, Brasil; [7]MV3 - Médico Veterinário, Araçatuba, SP, Brasil; [8]MV4 - Médico Veterinário, Pontes e Lacerda, MT, Brasil.

The strategic supplementation of vitamins and minerals has been associated with the improvement of the reproductive performance in beef cows, mainly because the Selenium, Zinc and Copper deficiency occurs in much of Brazil. These microminerals are essential for metabolic, reproductive and antioxidative activities, especially in periods of increased demand and / or stress. Two studies were carried out to compare different strategies for mineral and vitamin supplementation (Kit Adaptador® Min and Vit, Biogénesis Bagó), in order to increase fertility in the breeding season. The first study was carried out in commercial farms in MG and SP, using a completely randomized design with factorial arrangement of treatments (2X2), with the experimental groups: G1) 2 doses of the supplement, with a 20 day interval (N = 175); G2) 1 dose of supplement at baseline (n = 175); G3) 1 dose of the supplement 20 days before the protocol (n = 175) and, G4) control (n = 175). The hormonal protocol used was: D0 = insertion of the Cronipres® Mono Dose implant and application of 2 mg of BE (Bioestrogen®); D8.5 = implant withdrawal and application of 300 IU of eCG (Ecegon®) and 75 μg of D-Cloprostenol (PGF2α, Croniben®) and 1mg BE (Biogenesis Bagó). In the D10 the IATF was performed. Cyclicity rate and conception rate (TC) was assessed by ultrasonography (Mindray DP 2200 Vet, with linear probe of 5.0 MHz). The second study was carried out in 21 farms (n = 9744), in partnership with two breeding companies and two veterinarians, in several regions of Brazil, using or not a dose of the supplement at the beginning of the IATF protocol (C = 4982 and Treated= 4762). Frequency analysis and logistic regression analysis were performed by PROC LOGISTIC, using the SAS program, 9.3, adopting a significance level of 5%. In the first study, a positive effect of the injectable supplement on the diameter of the dominant follicle at the time of TAF (G1 = 15.3, G2 = 13.1, G3 = 14.8 and G4 = 13.2 P=0.04). The treatment improved the conception rate (%), in the first (G1 = 61.1%, G2 = 57.7%, G3 = 52.5% and G4 = 51.4% P=0.03), and second protocol (G1 = 59%, G2 = 62.5%, G3 = 60% and G4 = 50% P=0.03) and the cumulative pregnancy rate (G1 = 82%, G2 = 81.1%, G3 = 79.4%). G4 = 72% P=0.02). The ciclicity rate of non pregnant cows in the first (G1 = 75%, G2 = 63.5%, G3 = 63.8% and G4 = 54.5% P=0.04) and the second IATF protocol (G1 = 65%, G2 = 59.3%, G3 = 63% and G4 = 47.8% P=0.01), as well as the mean corpus luteum size (G1 = 16.2, G2 = 13.6, G3 = 16.1 and G4 = 12.9 P=0.02) was higher in treated animals. In the second study, the treatment also improved the pregnancy rate, multiparous (C = 48.1% vs. Treated = 58.5% P<0.001), primiparous (C = 50.3% vs Treated = 56.1% P=0.02) and heifers (C = 52.2% vs. Trat = 57.3% P=0.04). Therefore, strategic supplementation with Kit Adaptador® MIN and VIT (Biogénesis Bagó) increases the conception rate and the cyclicity in beef cows in many categories.

A070 TAI/FTET/AI

Evaluation of mineral and vitamin supplementation (Kit Adaptador Min and Vit, Biogénesis Bagó) on the improvement of ovarian and fertility parameters in Nellore cows

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

[1]Bio - Biogénesis Bagó Saúde Animal, PR, Brasil; [2]MF VETPLAN Consultoria Agropecuária, Águas da Prata, SP, Brasil; [3]VRA - Departamento de Reprodução Animal, FMVZ/USP, São Paulo, SP, Brasil; [4]UNI LaPlata - Universidade de La Plata, Buenos Aires, Argentina.

The lack of micronutrients such as Selenium, Manganese Zinc and Copper and vitamins such as Retinol (A) and Tocopherol (E) have been associated with the strategic supplementation of vitamins and minerals during the pre-IATF period, occurs in much places of Brazil. These microminerals and vitamins are essential for antioxidative activities, which may contribute to improved fertility in beef cows. The aim of this study was to verify the efficiency of injectable mineral and vitamin supplementation (KIT Adaptador® MIN and VIT, Biogénesis Bagó) on D0 of FTAI protocols during the breeding season to improve the fertility of Nelore cows (n = 1232). The experiment was conducted on commercial farms and beef cattle sector of the administrative campus of the USP of Pirassununga. The animals were divided into two groups, one control group (C=610) that did not receive supplementation and one group of animals treated (trat=622) with Kit Adaptador Min and VIT ® at d0 of FTAI protocol. The hormonal protocol used was: D0 = implant insertion Cronipres® Mono Dose with 1 g of P4 + application of 2 mg of BE (Bioestrogen®); D8.5 = withdrawal of the intravaginal implant of P4 + application of 300 IU of eCG (Ecegon®), + 75 μg of D-Cloprostenol (PGF2α) + 1mg BE (Bioestrogen®). In the D10, IATF was performed in the morning. The evaluation of ovarian parameters was performed at the beginning of the protocol, at the implant withdrawal, on the day of the TAI and on the day of the diagnosis of pregnancy by ultrasonography (Mindray DP2200 Vet, with a linear probe of 5.0 MHz). The evaluation of Prenhez was performed 30 and 60 days after the IATF. The data were submitted to frequency analysis and logistic regression analysis by PROC LOGISTIC, using the program Statistical Analyzes System (SAS, 9.3), adopting level of significance of 5%. The treatment had a positive influence ($p < 0.05$) on the size of the dominant follicle at the time of withdrawal (C = 12.5 mm vs Trat 13.2 mm) and also on the day of FTAI (C = 13.1 mm vs Trat 14.4 mm). The treatment also improved the pregnancy rate ($P < 0.05$), both in the first (C = 46.5% vs Trat 58.7%) and in the second IATF protocol (C = 49.1% vs Trat 55), and cumulative pregnancy rates (C = 72% vs Trat 80.9%) and the pregnancy rate at the end of the season (C = 81.1% vs Trat 88.2%). The rate of cyclicity of the empty cows in the first (C = 54.1% vs Trat 66.5% $P < 0.05$) and in the second IATF protocol (C = 47.8% vs Trat 61.8% $P < 0.05$), as well as the average size of the corpus luteum (C = 12.6 mm vs Trat 14.4 mm $P < 0.05$) were higher for the treated animals. Therefore, strategic supplementation with Kit Adaptador® MIN and VIT (Biogénesis Bagó) in improving FTAI and resynchronization results in beef cattle, mainly increase the ovulatory follicle size of the animals.

A071 TAI/FTET/AI

Fertility at Timed-AI and bull service after induction of precocious puberty in Nelore heifers with or without application of PGF2α

P.S.L. Sampaio[2], A.C.B. Teixeira[1], J.W.D. Horta[1], I.A.P. Lima[1], F.C.A. Cruz[1], F.F.S. Scarpelli[1], I.M. Coutinho[1], V.M.T. Vilela[1], G.A. Monteiro[1], C.S. Oliveira[4], F.M. Monteiro[3], L.Z. Oliveira[1]

[1]UFMG - Universidade Federal de Minas Gerais, MG, Brasil; [2]EAO - Empreendimentos Agropecuários e Obras SA, Fazenda Boa Vista, Município de Ibicui, BA, Brasil; [3]IZ - Instituto de Zootecnia, Sertãozinho, SP, Brasil; [4]CNPGL - EMBRAPA Gado de Leite, Valença, RJ, Brasil.

The aim of this study was to evaluate fertility of Nelore heifers after hormonal induction of puberty with progesterone (P4), with or without PGF2α. Two lots of pasture-raised heifers (supplemented with protein-salt; 3g/kg body weight) were evaluated (n=389 animals). Heifers of lot1 presented 14.5m of age and mean weight of 310kg (n=193) and of lot2 presented 14.0m and 296kg (n=196). The protocol for induction of puberty consisted in insertion of P4 intravaginal device (4th use; CIDR, Zoetis) during 12d. On the day of device withdrawal, half of the animals received 1mg i.m. of Estradiol Cypionate (ECP, Zoetis) (CONT) and the other half received 1mg i.m. of ECP plus 12.5mg i.m. of Dinoprost (Lutalyse, Zoetis) (gPGF). Twelve days after device removal, Timed-AI protocol was initiated in all animals: on D0, CIDR (Zoetis) of 4th use and 2mg i.m. of BE (Gonadiol®, Zoetis) were apllied. On D9, 12.5mg i.m. of Dinoprost (Lutalyse, Zoetis) and 1mg i.m. of ECP (Zoetis) were apllied and CIDR was removed. Timed-AI was performed 48h later (D11), using semen from only one bull in all heifers from both lots. All heifers received 2.3g of melengestrol acetate/animal/day (MGA, Zoetis) in the protein-salt between D13 and D18 post AI. Twenty days after AI, 15 bulls were included in each lot, remaining for 40d. Pregnancy diagnosis was performed 33d after timed-AI to assess conception rate at first service (CR1). Females diagnosed as non-pregnant in this first examination were re-evaluated 30d after the bulls were removed (CR2). Data from CR1 and CR2 were transformed and compared between groups (CONT and gPGF) by Fisher's test on GraphPad INSTAT, considering $P<0.05$. For CR1, statistical difference (P=0.0009) was observed between lot1 (63.7%, n=123/193) and lot2 (46.9%; n=92/196), so both lots were evaluated separately. In lot1, no effect of BCS (P=0.2321) and no effect of AI Technician (AT; AT1=64.2% and AT2=63.3%; P=0.8929)) were observed for CR1. Additionaly, no effect of treatment was observed for CR1 (CONT=61.8%, n=60/97; gPGF=65.6%, n= 63/96; P=0.5881), nor for CR2 (CONT=64.9%, n=24/37; gPGF=66.7%, n=22/33; P=0.8806). At the end of this reproductive program, total CR of lot1 was 87.6% (169/193), being 86.6% (84/97) for CONT and 88.5% (85/96) for gPGF (P=0.6849). For lot2, no effect of BCS was observed (P=0.1214), although an effect of AI Technician on CR1 was detected. AT1 presented better (P=0.0050) CR1 for CONT (56.2%; n=27/48) and gPGF (59.1%; n=26/44) compared to AT2 (CONT=38.9%, n=21/54; gPGF=36.0%, n=18/50). No effect of treatment was observed on CR1 (CONT=47.0%, n=48/102; gPGF=46.8%, n=44/104; P=0.9733) nor on CR2 (CONT=35.2%, n=19/54; gPGF=50.0%, n=25/50; P=0.092). At the end, total CR of lot2 was 69.4% (136/196), being 65.7% (67/102) for CONT and 73.4% (69/94) for gPGF (P=0.121). It was concluded that the addition of PGF2α at the end of hormonal protocol for puberty induction did not improve fertility of heifers submitted to timed-AI

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A072 TAI/FTET/AI

GnRH increases pregnancy rate in Nelore cows submitted to TAI and without estrus manifestation

G.A. Veras[1], M.C. Farias[1], R.A. Silva Júnior[1], M. Maturana Filho[2], R.L. Gonçalves[3], J.P.M. Lollato[3], C.C. Bartolomeu[1], M.A.L. Oliveira[1]

[1]UFRPE - Departamento de Reprodução Animal, UFRPE, Recife, PE, Brasil; [2]MF VETPLAN Consultoria Agropecuária, Águas da Prata, SP, Brasil; [3]Bio - Biogénesis Bagó Saúde Animal, Curitiba, PR, Brasil.

The objective was to evaluate the importance of the occurrence of estrus and administration of GnRH at the time of TAI in Nellore cows. A total of 1,036 lactating Nellore (*Bos indicus*) primiparous and lactating cows were used, mean BCS of 2,80 ± 0,02 (scale 1-5) in three commercial farms, located in the states of Maranhão, Paraíba and Sergipe, Brazil, which were kept under farm management under grazing in Brachiaria decumbens, with free access water and mineral supplementation. The hormonal protocol used was: intravaginal device with 1.9 g of P4, new and reused and 2 mg of estradiol benzoate im. On day 7 they received 12.5 mg of dinoprost im, on day 9 the intravaginal devices were removed and 300 IU of eCG and 1 mg of im estradiol cypionate were administered and inseminated at fixed time after 48-52 hours. At the time of IATF, they were distributed homogeneously according to the occurrence of estrus and administered 10.5 mcg of Buserelin Acetate, GnRH: without GnRH estrus, without GnRH estrus, with GnRH estrus and with estrus GnRH. The pregnancy rate was evaluated by ultrasonography (Mindray M5 Vet, with linear probe of 5.0 MHz). 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 rate of estrus occurrence and pregnancy rate was 60% (621/1036) and 50.2% (520/1036), respectively. Cows that presented estrus had a higher pregnancy rate in comparison to those that did not present ($P < 0.05$). Cows treated with GnRH and without estrus (46.1%) presented higher pregnancy rate ($P < 0.05$) than control cows (37.4%). The occurrence of estrus was an important factor associated with improvements in pregnancy rate in lactating Nelore cows, as well as the administration of GnRH in cows that did not show estrus.

A073 TAI/FTET/AI

Administration of hCG on the seventh day after initiation of estrus may circumvent negative effects of cervical relaxation protocol in sheep: Preliminary results

A.M. Arrais[1], M.R.B. Mello[1], L.R. Côrtes[2], G.C. Bonato[3], T.A. Oliveira[4], B.P. Carvalho[5], J.F. Fonseca[6]

[1]UFRRJ - Universidade Federal Rural do Rio de Janeiro, Seropédica, RJ, Brasil; [2]UFF - Universidade Federal Fluminense, Niterói, RJ, Brasil; [3]UFV - Universidade Federal de Viçosa, Viçosa, MG, Brasil; [4]UNIPAC - Universidade Presidente Antônio Carlos, Juiz de Fora, MG, Brasil, [5]EMBRAPA - Empresa Brasileira de Pesquisa Agropecuária, Rio Branco, AC, Brasil; [6]EMBRAPA - Empresa Brasileira de Pesquisa Agropecuária, Coronel Pacheco, MG, Brasil.

Cervical relaxation with association of estradiol benzoate, cloprostenol and oxytocin allows a cervical transposition and embryo collection in sheep by the non-surgical method (Fonseca et al., Theriogenology, 86: 144-151, 2016). However, in recipients, the use of this protocol becomes impracticable due to the use of cloprostenol, which is a luteolytic agent. Sheep are known to form accessory luteal bodies after hCG administration seven days after the onset of estrus (Castro et al., Anim. Reprod., 12: 148, 2015). Therefore, the objective of this study was to develop a cervical relaxation protocol in embryo recipient ewes without compromising future gestation. For this, cyclic crossbred sheep (n = 24), with body weight and mean body condition score (ECC) of 50.8 ± 9.0 kg and 3.5 ± 0.35 respectively, were submitted to estrus synchronization by administration of two doses 30 µg of d-cloprostenol (Prolise®, Tecnopec LTDA, São Paulo, Brazil), with an intramuscular (i.m.) interval of 11.5 days. Two rams (Santa Inês and Lacaune), previously submitted to breeding soundness evaluation, were used in the detection of estrus every 12 hours from the second application of cloprostenol for 96 h. The females were mated at the beginning of estrus (D0) and every 12 hours if still in estrus. According to weight, ECC and estrus onset, the mated females were allocated in the following groups: Group 1 = that were not submitted to cervical relaxation protocol (control, n = 4); Group 2 = submitted to cervical relaxation protocol (n = 5) by administering 1 mg of BE (Benzoate HC®, Hertape Calier, Minas Gerais- Brazil) i.m, on day D6 (16: 00h) and 50 IU of OX (Oxytocin Forte UCB®, UCB animal health, São Paulo - Brazil), i.m. no D7 (08: 00h); Group 3 = submitted to relaxation protocol + 300 IU hCG (Vetecor®, Hertape Calier, Minas Gerais- Brazil) i.m., at D7 at 4:00 p.m.(n = 4). Pregnancy diagnosis was performed on D30 by transrectal mode B ultrasonography using a 7.5 MHz linear transducer (Mindray® M5vet, Shenzen, China). The data were presented in a descriptive way. Thirteen ewes were observed in estrus out of 24 females submitted to the synchronization protocol. The pregnancy rate were 75.0% (3/4) in G1, 0.0% in G2 (0/5) and 50.0% in G3 (2/4). Preliminary results suggest that the association of estradiol benzoate and oxytocin may compromise the onset of pregnancy and that the use of hCG at the end of the protocol in D7 can circumvent partially these negative effects, allowing the establishment of pregnancy.

A074 TAI/FTET/AI

Correlation of the antral follicle count with anti-Müllerian hormone and progesterone in indicus-taurus heifers submitted to ovulation synchronization protocol

E.P. Castro[1], A.C.C. Souza[1], F. Morotti[1], G.M.G. Santos[2], K.C. Silva-Santos[2], C. Koetz Junior[3], M.M. Seneda[1]

[1]UEL - Universidade Estadual de Londrina, PR, Brasil; [2]Sheep Embryo Reprodução Animal, Assaí, PR, Brasil; [3]UNOPAR Campus Arapongas, Arapongas, PR, Brasil.

Considering the controversial data between *Bos taurus* and *Bos indicus* females in relation to antral follicle count (AFC) and reproductive variables, the objective of this study was to determine the plasma concentrations of anti-Müllerian hormone (AMH) and progesterone (P4) in *indicus-taurus* heifers with different AFC subjected to a protocol of synchronization of ovulation, and to determine the correlations of these hormones with the number of antral follicles. Bradford heifers (⅝ Nelorex ⅜ Hereford, N=137), with 24 months of age and body condition score of 3.0±0.5 were previously examined by ultrasound (Scanner 200 Vet, Pie Medical, Maastricht, The Netherlands) equipped with an intravaginal micro convex transducer (7,5 MHz) to determine the AFC (follicles ≥ 3 mm). According to the AFC the experimental groups were determined in high (≥ 40 follicles, N=22), intermediate (≥ 20 e ≤ 25 follicles, N=22) and low count (≤ 10 follicles, N=23). On a random day of the estrous cycle (D0), all heifers received aprotocol of synchronization of ovulation with auricular progestogen implant (Crestar®, MSD, Brazil) and 2 mg estradiol benzoate intramuscular (i.m.; Estrogin®, Farmavet, Brazil). On the day of P4 implant removal (D8), the heifers received i.m. 500µg of cloprostenol (Ciosin®, MSD), 300 IU of equine chorionic gonadotrophin (Novormon®, Zoetis, Brazil) and 1mg of estradiol cypionate (ECP®, Zoetis). Ultrasonography exam was performed on D4 to determine the AFC, on D8 since the implant removal to control ovulation, and 7 days after ovulation (D18) to measure the diameter of the corpus luteum (CL). Blood samples were collected at the D4 and 18 to determine AMH and P4 concentrations respectively. In duplicate, the AMH concentration was determined by Elisa Kit (DSL 10 14400-Beckman - Coulter®, Immunotech, Czech Republic) and P4 concentration was determined by radioimmunoassay (RIA kit IM1188, Beckman Coulter®) in 100 µL samples. Data were analyzed using a generalized linear model and the Spearman correlation coefficients. For significant effect P ≤ 0.05 was considered. At D4, the AFC was 47.3 ± 7.5^{a} for high group, 23.4 ± 2.2^{b} for intermediate and 8.5 ± 2.8^{c} for the group with low count (P^{a}, 0.22 ± 0.03^{b} and 0.08 ± 0.01^{c}ng/mL for high, intermediate and low AFC groups, respectively (P0.05). It was concluded that *indicus-taurus* heifers with different AFC show different concentrations of AMH. In addition, a high correlation was observed between AFC and AMH concentration, following a similar pattern to that already described for *taurus* and *indicus* females.

A075 TAI/FTET/AI

Comparison of different doses of eCG for protocols of estrus resyncronization for FTAI in sheep

A.R. Taira[1], J.D.R. Santos[1], M.F.A. Balaro[1], E.K.N. Arashiro[1], I.O. Cosentino[1], A.B.S. Carvalho[1], A.L.C. Bade[1], R.Ungerfeld[2], F.Z. Brandão[1]

[1]UFF - Universidade Federal Fluminense, Niterói, RJ, Brasil; [2]FVET - Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguai.

The resynchronization of estrus in females that did not get pregnant at the first service, associated with early pregnancy diagnosis, may improve the cumulative pregnancy rate and decrease the interval between parturition. Nevertheless, there are few studies on resynchronization in sheep. Thus, the establishment of an efficient protocol is needed, with the use of an appropriate dose of eCG. Therefore, this study aimed to evaluate the use of distinct doses of eCG for a resynchronization protocol aiming FTAI in ovine. A total of 30 Santa Inês ewes was submitted to a short-term protocol for estrus synchronization (Balaro et al., Domestic Animal Endocrinology, 54:10-14, 2016). On the 12th day after the protocol, all animals received a sponge impregnated with 60 mg of medroxyprogesterone acetate (MAP; Progespon, Schering Plow, São Paulo, Brazil). On the 17th day, considered the day of the early pregnancy diagnosis in sheep (Arashiro et al., Theriogenology, 106:247-252, 2018) and the resynchronization protocol onset, the sheep were randomized in three experimental groups (n=10/group) according to the amount of eCG (Novormon, Schering Plough, São Paulo, Brasil) administered. The G1, G2 and G3 received 300 IU, 200 IU of eCG and saline, respectively, at time of sponge removal. Thirty-six hours, after the sponge removal, all animals received 0.025 mg of gonadorelin acetate (Gestran Plus, Tecnopec, São Paulo, Brazil). After the sponge removal, every 12 h, the estrus behavior was observed, as well as transrectal ultrasonography (Sonoscape S6, SonoScape, Shenzhen, China) was performed to established the ovulation time confirmed by the dominant follicle absence. Data were analyzed for normality and homoscedasticity by the Liliefors's and Levene's test, respectively. The Analysis of Variance and Tukey's test was performed to compare means. Non normal or distinct variances data were analyzed by Kruskal-Wallis test and compared by Dunn's test. A 5% of significance was adopted for all tests. No differences among groups (G1, G2 and G3) for estrus duration (39.5 ± 12.3 vs. 31.9 ± 12.1 vs. 39.7 ± 14.0; P> 0.05), interval of the sponge removal to the estrus onset (31.1 ± 7.1 vs. 30.3 ± 9.8 vs. 30.2 ± 8.6, P> 0.05), interval of the sponge removal to the ovulation time (46.8 ± 11.5 vs. 56.2 ± 3.8 vs. 54.1 ± 14.9, P> 0.05), estrus onset to the ovulation time (19.2 ± 14.7 vs. 24 , 3 ± 10.0 vs. 20.9 ± 14.1, P> 0.05) and number of ovulations (1.2 ± 0.4 vs. 1.1 ± 0.3 vs. 1.1 ± 0 , 4; P> 0.05) were found. Although, the interval of the sponge removal to the ovulation time in G2 showed homoscedasticity when compared to the variances of G1 and G3. Therefore, a greater concentration of the ovulation time in G2 was obtained. In conclusion, it is indicated the resynchronization protocol for FTAI in sheep adopting the eCG dose of 200 IU.

A076 TAI/FTET/AI

Comparison between FSH and eCG in Fixed-Time Artificial Insemination in Nellore females

A.S. Rodrigues[1], T.O. Brandão[2], J.F. Santos[1], G.G. Dalchiavon[1], M.R. Alcantara[1]

[1]UFOB - Universidade Federal do Oeste da Bahia, Barra, BA, Brasil; [2]IFNMG - Instituto Federal do Norte de Minas Gerais, Salinas, MG, Brasil.

The objective of this study was to evaluate the expression of estrus, ovulatory follicle diameter (DFOL) and fertility of Nelore lactating females treated with follicle stimulating hormone (FSH) or equine chorionic gonadotrophin (eCG) as follicular growth stimulants in a protocol for Fixed Insemination Time Artificial (FTAI). For this, 105 Nelore lactating females were used, with 50 to 60 days postpartum, belonging to the multiparous category, body condition score (BCS) of 2.58±0.11 (1 to 5 scale). On a random day of estrus cycle denominated day zero (D0) the synchronization protocol was initiated by insertion of an intravaginal device containing 1.0g progesterone (P4) (DIB®, Zoetis, São Paulo, Brazil) and application of 2.0mg of estradiol benzoate (Gonadiol®, Zoetis, São Paulo, Brazil) intramuscularly (im). On day eight (D8) the P4 devices were removed and there were administered 12.5mg of dinoprost tromethamine (Lutalyse®, Zoetis, São Paulo, Brazil) and 1mg estradiol cypionate (ECP®, Zoetis, São Paulo, Brazil) im. At this time, the females were divided equally according to BCS in two groups: Group eCG - application of 300UI Equine Chorionic Gonodotrophin (eCG) (Novormon®, Zoetis, São Paulo, Brazil) im and Group FSH - application of 10mg Follicle Stimulating Hormone (Folltropin®, Vetoquinol, São Paulo, Brazil) im. The animals were tagged with a marker stick between the sacral tuberosity and the tail insertion to determine estrus expression. On day 10 (D10), previously the FTAIs, the animals were evaluated according to the estrus expression verified by the removal of the ink from the marker stick. In addition, the cows were examined by transrectal ultrasonography to measure DFOL. Inseminations were performed using cryopreserved semen from a single Nellore bull. The diagnosis of gestation was performed by transrectal ultrasonography 30 days after the FTAIs. The data were processed by the SPSS considering $P \leq 0.05$. To evaluate the differences between the groups in the DFOL was used the analysis of variance and the Tukey test, the estrus expression and the conception rate were compared using the chi-square test. The general estrus expression rate was 65.7% (69/105). There wasn't difference (P=0.66) between the estrus expression rates obtained in the eCG and FSH groups, being 67.1% (47/70) and 62.9% (22/35), respectively. The eCG treatment had a DFOL of 12.09±2.33mm, similar to that sketched by the FSH group of 12.23±2.93mm (P=0.89). Regarding fertility rates, the eCG and FSH groups showed equivalent conception rates, being 48.5% (33/68) and 41.2% (14/34), respectively (P=0.48). Estrus expression, follicular diameter and fertility were not affected by treatment with eCG or FSH, suggesting that both follicle growth stimulants are effective in providing satisfactory results in FTAI programs.

A077 TAI/FTET/AI

Treatment with intravaginal devices of single use impregnated with 0.5 g or 1 g progesterone results similar rate of estrus expression and pregnancy per AI in Nelore postpartum cows subjected to TAI protocols

R.M. Ferreira[1], H.A.G. Gregianini[3], R.L. Gonçalves[2], J.P.M. Lollato[2], J.N.S. Sales[4], P.S. Baruselli[1]

[1]VRA - FMVZ - USP - Departamento de Reprodução Animal da Faculdade de Medicina Veterinária e Zootecnia da Universidade de São Paulo, São Paulo, SP, Brasil; [2]Biogénesis Bagó Saúde Animal, Curitiba, PR, Brasil; [3]In Vitro Acre, Rio Branco, AC, Brasil; [4]UFLA - Departamento de Medicina Veterinária da Universidade Federal de Lavras, Lavras, MG, Brasil.

The aim of this study was to evaluate the effect of different concentration of progesterone (P4) in intravaginal devices of single use on rates of estrus expression and pregnancy per AI (P/AI) of beef Nelore postpartum cows treated for TAI. A total of 272 Nelore cows ranging 35 to 50 days postpartum and with average body condition score (BCS) 2.30 ± 0.34 (1-5 point scale) from Rio Madeira Farm (Porto Velho, RO State, Brazil) were used. All cows were treated with the same protocol of synchronization of follicular wave emergence and ovulation for TAI, except for the concentration of P4 of the intravaginal device (0.5 g or 1 g). Briefly, at random days of the estrous cycle (D0) all cows were treated with 2 mg estradiol benzoate (Bioestrogen®, Biogénesis Bagó, Curitiba, Brazil) and 150 µg D-Cloprostenol (PGF2α, Croniben®, Biogénesis Bagó) IM and were homogenously allocated, accordingly with their BCS, to receive an intravaginal device with 0.5 g P4 (MD0.5g; Cronipres® Mono Dose 0.5 g P4, Biogénesis Bagó) or 1 g P4 (MD1g; Cronipres® Mono Dose with 1 g P4, Biogénesis Bagó). On D8, devices were removed and all cows were treated with 150 µg D-Cloprostenol, 300 IU eCG (Ecegon®, Biogénesis Bagó) and 1 mg estradiol cypionate (Croni-Cip®, Biogénesis Bagó) IM. Also on D8 cows 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 devices removal, concomitant with the administration of 10.5 µg buserelin acetate (GnRH; Gonaxal®; Biogénesis Bagó) and estrus evaluation. Semen of two Nelore bulls was equally distributed between groups. Diagnosis of P/IA was done 52 days after TAI (Sonoscape A5). Data was analyzed by logistic regression (PROC GLIMMIX from SAS). No effect of BCS (P = 0.78 and 0.26), bull (P = 0.96 and 0.20) and estrus (P = 0.11 and 0.43) was observed when devices with 0.5 g or 1 g P4 were used, respectively. The average BCS was similar (P = 0.78) for cows treated with both devices (MD0.5g = 2.28 ± 0.03 and MD1g = 2.32 ± 0.03), evidencing the adequate distribution between groups before treatment. Similar rate of estrus expression [MD0.5g = 77.4% (103/133) and MD1g = 78.4% (109/139); P = 0.95] and P/IA [MD0.5g = 61.7% (82/133) and MD1g = 53.2% (74/139); P = 0.11] were observed for both devices. Thus, both intravaginal devices of single use (Cronipres® Mono Dose), with 0.5 g or 1g P4, can be used for TAI protocols (with GnRH on D10) of Nelore postpartum cows with similar efficiency of estrus expression and P/IA. Credits: Rio Madeira Farm.