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key point to exposes all cows in the herd to the risk of becoming pregnant at or very near the end of the voluntary waiting period.

P061
A spontaneous delayed post-ovulatory progesterone rise discovered in Indigenous-Holstein cross-bred dairy heifers
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1st International Congress on Animal Reproduction, Poster Abstracts

Indigenous-Holstein (≥75%) cross-breed (Bos indicus x Bos taurus) is the majority of dairy cows/heifers in South-East Asia including Thailand and is claimed to well adapt to the tropical and sub-tropical environments. However, Bos indicus had less potential for production as well as lower fertility than Bos taurus cattle. These may contribute to certain problems and limited success, especially in reproduction aspect, in our dairy industries. The aims of the current study, hence, were to illustrate figures for the characteristics of oestrous cycles especially on follicular dynamics, corpus luteum and changes in progesterone, in the Indigenous-Holstein-cross-bred dairy heifers. Twenty six healthy and sexual-mature virgin heifers were included. Their ovaries were sonically examined once a day and the numbers and the sizes of the follicles were watched. The corpus luteum were documented. Blood samples were drawn as the same frequency as ovarian examination and progesterone was determined by means of EIA (Enzyme-linked immunosassay). In our study, certain diversities comparing to of existed documents on dairy breeds were drawn for follicular dynamics, corpus luteum and its progesterone: 1) the follicle tended to quicker ovulate but with a smaller diameter at ovulation (12.4 ± 1.1 mm in diameter); 2) the corpus luteum exhibited 4.0-16.5 mm in diameter of central cavity. Connecting to the levels of progesterone, the corpus luteum turned into active, as well as mid-luteal, period quite late (6.0 ± 1.7 days and 9.80 ± 2.49 days, resp.), and 4) the duration of the active period of the corpus luteum was shorter (12.5 ± 1.7 days), but 6) at the end of the cycle –around the day of oestrous, progesterone remained certain low but significant levels (range 0.15 to 0.60 ng/ml). To conclude, a spontaneous delayed post-ovulatory progesterone rise was discovered, in connection to a series of following events: 1) smaller ovulatory follicle; 2) CL with cavity and delayed rise in progesterone and 3) delayed CL regression. It is of challenge to figure out an (or a combined) underlying cause of, and a precise manner to undo, the loop of the delayed rise in post-ovulatory progesterone, either at endocrine or at cell levels.

P062
Leukotrienes as modulators of ovarian and uterine secretory functions in cattle in vivo
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Leukotrienes (LTs) beside prostaglandins (PGs) and tromboxan belong to biologically active unsaturated fatty acids called eicosanoids. Leukotrienes are known as potential inflammatory factors and causing edema in respiratory tract diseases. The precursor of LTs is 20-carboxylated Arachidonic Acid (AA) – the component of membrane fosfolipids. The enzyme which converts AA to LTs is lipoxigenase (LO). The role of lipoxigenase pathway products such as LTs in the regulation of bovine reproduction tract functions remains controversial. The aim of the study was the determination of the influence of LTs on changes in hormone homeostasis of reproductive tract in cattle in vivo. Heifers (15 Day of estrous cycle) were injected during 1 hour into aorta abdominis with: LTC4 in doses: 10, 25 and 50 µg and LTB4 in doses: 10 and 25 µg. The levels of PG and AA metabolites: PGE2 and PGFM were measured in plasma by EIA. Leukotriene C4 and B4 did not influence on P4 level although the dose 25 µg LTB4 prolonged the duration of luteal phase. Leukotriene C4 in dose 10 µg temporally increased the secretion of PGE2 (from 8 to 10 h after infusion) but simultaneously increased the secretion of PGFM. The dose 25 µg of LTC4 caused the increase of PGFM (PGFM) release, whereas 50 µg of LTC4 did not change the secretion of hormones. Leukotriene B4 in dose 10 µg caused PGFM release and 25 µg of LTB4 increased PGF2 secretion. Moreover the acceleration of luteolysis for the doses of leukotrienes: 10 µg, 25 µg LTC4 and 10 µg LTB4, was observed. Resuming, the action of LTB4 on reproductive tract depends on the dose, because 10 µg is luteolytic while 25 µg prolongs the duration of luteal stage. The action of LTC4 is luteolytic for doses: 10 and 25 µg but 50 µg of LTC4, caused to be not effective in experiment. Further studies are necessary for investigation of the influence of LTs on hormone homeostasis of bovine reproductive tract with the administration of LTs antagonists and other doses of LTs. The implication of LTs can be the alternative to PGs method of estrus synchronization or other cycle manipulation techniques in the future.

P063
The slope of the postovulatory progesterone rise modulates pregnancy rate in Holstein-Friesian heifers
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During peak lactation, the negative energy balance and its metabolic consequences may interfere with the postovulatory progesterone (P4) rise, hence affecting pregnancy rate and incidence of embryonic/early fetal mortality (EM) in dairy cows. The aim of this study was to explore whether metabolic markers could also be related to fertility in heifers. In the hot summer season, sixty, 16-15-month-old Holstein-Friesian heifers with medium or higher body condition score (BCS≥2.0) were inseminated (AI) at synchronized estrus (Norgestomet implant, for 9 days combined with PGF2α and eCG, 2 days before and simultaneously with implant removal, respectively; AI: 6th later; AI: 4-D00). Blood samples were collected on D0 and analyzed for B01-hydroxyprogesterone (B11), non-esterified fatty acids (NEFA), insulin, IGF-1, IL-6, IL-10 and leptin. Progesterone (P4) was determined every 12 hours for 7 days following implant removal, every 24 hours thereafter until 14 and again on d 16, 19, 21, 23 and 36. The estradiol (E2) was assayed during the first 4 days. Pregnancy was checked on day 36 by (i) ultrasound (US) and (ii) plasma Pregnancy-Specific Protein B (PSPB) measurement, and (iii) on day 45-60 by rectal palpation (RP). The E2 patterns indicated well-synchronized growth and maturation of follicles. The P4 profiles allowed conception (P4 at the time of AI: <3.2 mmol/L, ≥2.6-4.0 ml) in nearly 56 (52/60) heifers. However, only 28 of them proved pregnant. Elevated P4 levels on d 16-23 and PSPB-US on d 36 suggested or confirmed only 21 and 2 of EM. There was no further cases of EM between d 36 and d 45-60. Between 60 hours following AI and at d 7, P4 levels were higher (P<0.001 to 0.098) in pregnant than non-pregnant heifers. BCS and leptin levels were lower in pregnant than non-pregnant females. All hormones and metabolites were within the physiological range for this age group, with high leptin, insulin and IGF-1 levels. Our data suggest that the postovulatory P4 rise may also interact with fertility in dairy heifers.

P064
Pregnancy rate in anestrous Bos taurus/Bos indicus crossbred cows given a CIDR insert and estradiol, with or without an injection of progesterone
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**PO66**

**Comparison of reproductive performance in dairy cows bred by Natural Service or Timed Artificial Insemination**

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Despite the compelling advantages of artificial insemination (AI), a significant number of dairy producers use natural service (NS) for their breeding program. The most common use of NS was after unsuccessful AI attempts due to difficulty to do heat detection. Estrus detection in order to AI cows is inefficient because not all cows are identified in estrus due to human errors, attenuated expression of estrus in high producing cows, and adverse responses to heat stress. Therefore, dairy producers claim that more cows are bred by NS compared to AI because human errors in estrus detection are avoided when bulls are used. Systematic breeding programs for AI at a predetermined time (Timed AI; TAI) without the need for estrus detection, coupled with early rebreeding of non pregnant cows are successful options for reproductive management of lactating dairy cows. The objective of this study was to compare the reproductive performance of two breeding system without estrus detection. Six hundred and forty one lactating Holstein dairy cows from a single farm located in Florida were randomized at 42±3 days post partum into two groups TAI and NS, and. Cows in the TAI group were pre-synchronized with 2 injections of PGF2α, 14 days a part. Fourteen days later an Ovsynch modified protocol was started. Eighteen days after TAI, cows received a CIDR insert followed by implant removal and GnRH administration 7 days. Cows were diagnosed for pregnancy by ultrasonography examination at 32 days after TAI. Cows diagnosed pregnant were re-examined by palpation per rectum of the uterus 28 days later. Cows diagnosed open at 32 days after TAI were given PGF2α followed by an injection of GnRH at 56 hours after PGF2α and TAI 16 hours later. Cows not pregnant were re-synchronized again with the same protocol until diagnosed pregnant or at a maximum of 223 days post partum. Cows in the NS group received PGF2α at days 42 and 56 and moved to a bull pen at 70 days post partum. After 42 days of being turned in with bulls, cows underwent an ultrasonography examination to determine pregnancy status. The same interval pos partum was observed for cows at NS group. Median times to conception estimated from 32 d after breeding for TAI and NS bred cows were 104 d (95% CI = 100 to 104) and 103 d (95% CI = 72 to 103), respectively. However, analysis of pregnancy rate (PR) for first service differed for 91 d postpartum (P < 0.01). Twenty five per cent of all pregnant cows conceived 11 d (69 vs. 81 d) earlier in the TAI group at the end of the voluntary waiting period (VWP). Cows bred to TAI become pregnant at a faster rate for the first service at the end of the VWP than NS bred cows. Because PR from NS was good for the first service in our study, this difference is attribute to the TAI management and not necessarily better fertility.

**PO65**

**Andrologic, zootechnical and endocrinologic characterization of Nelore bulls at puberty**

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Puberty initiates the reproductive phase and is influenced by differences in the genetic potential among breeds and by the husbandry, and its knowledge facilitates an early selection of bulls and also the discard of those with late puberty (4). Associations between weight characteristics, testicular measures and seminal characteristics for zebu bulls are yet limited. The goal of this study is to obtain parameters in pubertal bulls to be used in selection criteria.

**Material e methods**

Nelore bulls (Bos taurus indicus) (n=24) at twelve months of age were divided in groups of eight animals each based on the scrotal circumference (SC): G1 (SC > 22.6cm); G2 (SC 21.6-22.6cm) and G3 (SC 20.1-21.2cm). Zootechnical, seminal and endocrinologic traits were taken and analyzed as the animal achieved puberty (4). Statistics was done and the mean values compared with SNK test (2).

**Results and discussion**

There was statistical difference of G1 compared with G2 and G3 in terms of weight and to androgen concentration at puberty. The G1 at twelve months had the highest SC and the lowest weight at weaning in relation to other groups. Bos taurus tauros reached puberty with a mean value of SC 27.8cm (1) and similar values were described in Nelore bulls (3), which are similar to those found in this work. The age at puberty in Nelore bulls has decreased in the past years, due to genetic improvement and animal selection. Parameters as SC and weight at weaning are relevant markers of genetic selection for sexual precocity.