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hypothesis mares were transported for 40 min either 4 weeks before parturition ($n = 3$) or 5 days after parturition ($n = 10$). Before, during and after transport, HR, HRV and cortisol were analysed. Cortisol concentration increased without group differences during transport ($p < 0.05$) and decreased thereafter. In both groups, HR increased during transport ($p < 0.05$). Immediately after unloading, HR decreased in postpartum mares, but remained elevated during the first hour after transport in late pregnant mares ($p < 0.05$). During transport HRV decreased in late pregnant but not postpartum mares ($p < 0.05$). In conclusion, the transport-related stress response differs between late pregnant and postpartum mares. These differences may be due to alterations of sympathoadrenal and adrenocortical activity during pregnancy.

OC 7.4 | Evaluation of steroid concentrations in the saliva of pre-pubertal gilts for the identification of biomarkers of the pubertal stage of maturity

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Estrus synchronization is important for optimal management of gilt reproduction in farms. Synthetic progestogens are used for this purpose, but there is growing demand for non-hormonal alternatives. Before puberty, gilts exhibit a "waiting period", related to ovarian development and gonadotrophin secretions, during which external stimulation, such as boar exposure, could induce and synchronize first ovulation. Practical non-invasive tools for identification of this period in farms are lacking. During this period, urinary estrone levels are high, but urine sampling is difficult in group-housed females. Our aim was to search for steroidal biomarkers of this "waiting period" from immature to pubertal gilts through saliva monitoring. Six 144- to 147-day-old Large White gilts were subjected to ultrasound puberty diagnosis 3 times a week until first ovulation. Urine and saliva samples were collected at the same frequency for estrone assay and steroidome analysis respectively. Data were analyzed using the R software (nonparametric permutation test). Urinary estrone concentration significantly increased 2 weeks before puberty (detected at 182–192 days). Steroidome analysis quantified 28 steroids in saliva. Significant variations were detected within 2 weeks before puberty for dehydroepiandrosterone (decrease) and estradiol-17b (increase). These steroids could be biomarkers of the "waiting period". These results confirm that non-invasive salivary sampling could allow the identification of the physiological status of the gilts and presumably the optimal time for application of the boar effect.

OC 8.1 | Introducing karyomapping to the cattle breeding industry: use of a comprehensive preimplantation genetic test to optimise the delivery of superior genetics

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Traditional practice in the UK beef and dairy breeding industry has involved the selection of dam and sire lines based on phenotypic progeny testing, but recently genomic estimated breeding values (EBVs) identified through single nucleotide polymorphism (SNP) interrogation strategies have become more popular especially for sires. With continued advancements in multiple ovulation and embryo transfer (MOET), ovum pickup (OPU) and *in vitro* production (IVP) of embryos, the ability to produce a greater number of genetically superior animals has enabled significant improvements to beef and dairy production. However, the combination of inherited parental genotypes is random and therefore the inheritance of specific traits is not guaranteed. Furthermore, live birth rates remain relatively low indicating poor ability to select the 'healthiest' embryos using commonly applied morphology grading systems. Our research aims to address these shortcomings by adapting assisted reproductive technologies (ART) and preimplantation genetic screening (PGS) techniques commonplace in human *in vitro* fertilisation (IVF) clinics. Using a comprehensive preimplantation genetic screening test known as Karyomapping, simultaneous genotyping and detection of chromosome copy number abnormalities (a leading cause of IVF failure in humans) is possible. This approach complements traditional morphology screening to enable the selection of embryos with the best chance of survival to term, and ensures that resulting calves are proven carriers of desirable traits (e.g. those associated with health, welfare and productivity). Moreover, such an approach significantly increases selection intensity, whilst shortening of the generation interval, thereby improving the rate of genetic progress.

OC 8.2 | On-farm ovum pick-up in Holstein cows and *in vitro* production of embryos in Estonia

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The ovum pick-up (OPU) procedure and *in vitro* production of embryos (IVP) are used worldwide to improve reproductive performance and accelerate genetic improvement in dairy and beef cattle. Our aim is to elaborate an OPU/IVP system applicable on dairy farms in Estonia. A total of 21 lactating non-pregnant Holstein cows were used for repeated OPU. Prior to OPU, the cows were restrained and