

improved the technique providing substantial advances in feline assisted reproduction. Techniques for Transcervical Catheterization (TC) proposed by different authors have been certainly the most important step to improve the results in AI permitting insemination with a low number of sperm. Considering the particular characteristics of queen's vagina, for each technique a different catheter has been proposed, often associated with a speculum to perform a blind TC (Zambelli et al. 2015, *Reprod Dom Anim* 50:13–16). In 2015 the first successful endoscopic transcervical insemination in the queen was reported. The cervix was catheterized under endoscopic visualization with a human semi-rigid sialendoscope (length 120 and diameter 1.1 mm) using a 100 mm stainless steel rounded tip needle connected to a tom cat urinary catheter. For estrus induction, 4.7 mg deslorelin subcutaneous implants (Suprelorin; Virbac, Milano, Italy) were used and queens were monitored daily until estrus identification. Once the peak of estrus was identified, ovulation was induced with hCG, 100 IU total dose (Corulon; Intervet Italia Srl, Milano, Italia) and, 5 to 6 days after, serum progesterone was assayed to confirm ovulation. Artificial insemination was performed twice, 24 h and 48 h after hCG administration. Tomcat semen was collected with UrCaPI (Urethral Catheterization after Pharmacological Induction) technique (Zambelli et al. 2015, *Theriogenology* 84:773–778).

## WORKSHOP 7 BOVINE HERD HEALTH MANAGEMENT: ANALYSIS OF REPRODUCTIVE DATA

### WS 7.1 | Bovi-Analytics: a platform to educate veterinary students Big Data in dairy cows An initiative to create the veterinary stethoscope version 3.0?

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As in other sectors, Veterinary Medicine is evolving quickly in the 21st century due to new Precision Livestock Farming (PLF) technologies. At the Department of Reproduction, Obstetrics and Herd Health (ROHH) at the Faculty of Veterinary Medicine of the University of Ghent, Belgium, dairy researchers and veterinarians are trying to adapt to the wide range of new technologies. New mobile wearables during animal and herd checks offer valuable tools to increase accuracy of the diagnosis. Furthermore, the amount of data created on a dairy farm exponentially grew over the last decade to 100 MegaBytes each day (milk meters, accelerometers and vaginal or ruminal temperature loggers). However, trying to integrate the widespread data streams from PLF technologies is tempting. Researchers at ROHH are developing an online platform allowing

students to have direct access to a wide range of data from dairy farms. Students are able to consult the herd and animals on- and offline, on and off site. The current initiative is focusing on a new tool called Bovi-Analytics to allow student access to herd data using Big Data technology. The proposed framework mainly focuses on efficient co-creation, co-coding and collaboration. The goal of the platform is to increase the student's ability to convert physiological knowledge into applied Veterinary Medicine using Big Data. The workshop will focus on the current experiences of implementing such framework in a large European project called Gpluse (www.gpluse.eu).

## WORKSHOP 8 ULTRASONOGRAPHIC EXAMINATION OF THE STALLION

### WS 8.1 | Advances in Doppler ultrasonographic examination of the stallion

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Doppler ultrasonography has signified an improvement in diagnosis of testicular disorders. Testicular function is particularly susceptible to vascular insult, resulting in a negative impact on sperm production and quality of the ejaculate. Pulse Doppler ultrasound provides several parameters that can be used as indicators of testicular efficiency since significant correlations between them and parameters of sperm production have been determined. Moreover, preliminary studies have shown important correlations among Doppler parameters and sperm quality parameters such as integrity and viability of sperm, mitochondrial activity and DNA fragmentation index assessed by flow cytometry. Early diagnosis of subfertility problems triggered by vascular disturbance would enable implementation of appropriate treatment, hence improving fertility forecasts for stallions. In addition, Doppler ultrasound is an excellent tool to monitor therapeutic outcome after medical treatment such as pentoxifylline therapy or for follow-up after surgical interventions such as hernioplasty. Furthermore, this imaging modality could be an alternative to invasive procedures traditionally used for diagnosis of sub-fertility disorders such as fine needle aspiration or assays to determine plasma concentrations of hormones. The main problem with this technique is that it suffers from a lack of standardization and reference values. Generally, healthy stallions tend to present high values for EDV, TAMV, TABF and TABF rates, whereas sub-fertile stallions tend to show high Doppler index values. Doppler ultrasound is being introduced ever more frequently into breeding soundness evaluations of the stallion and should be performed in all stallions with pathologies and abnormalities of sperm analysis. (Funding: IJCI-2014-2167)