

## Oral Abstracts - Wednesday 08 June 2016

### O-REP1-003

#### Positive effect of oxytocin on placenta expulsion

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**Introduction:** With increasing litter size, management of the sow around farrowing has become critical. It is well known that use of oxytocin in conjunction with dystocia such as inertia uteri will enhance uterine contractions and use of exogenous oxytocin is therefore indicated. However, only very little has been reported about the use of oxytocin during the third phase of parturition, that is the expulsion of the placenta. We therefore hypothesized that use of oxytocin at the end of the second phase of parturition would improve the expulsion of the placenta and therefore decrease the overall duration of parturition.

**Materials and Methods:** We designed a trial with 107 crossbred sows (Yorkshire x Landrace, of parity  $4.2 \pm 1.1$  SD) submitted to farrow. We grouped sows according to the use of oxytocin; 42 of the sows received one injection of oxytocin (10 IU i.m. 5 cm caudal from the ear base) at the end of the phase two of parturition. The remaining 65 sows served as controls. The complete process of farrowing was video recorded for the different phases of parturition, focusing on the expulsion of the placenta. On d 3 of lactation, a transcutaneous ultrasound examination (10 MHz, Esaote SpA, Italy) was applied for determination of the presence or absence of placenta as well as the size of the uterus. We analyzed the effect of use of oxytocin on farrowing - related, fetal and uterine parameters with independent two sample t-test and chi-square test where appropriate (PASW Statistics v. 18.0.0).

**Results:** The sows farrowed an average of  $16.2 \pm 3.8$  born piglets / litter with an average duration of farrowing until the end of the second phase of  $402.3 \pm 244.0$  min and an overall duration of farrowing of  $695.3 \pm 279.8$  min. The average duration of expulsion of the placenta was  $295.8 \pm 231.0$  min. Use of oxytocin shortened the overall duration of farrowing by 136 min ( $P=0.013$ ) and the duration of the expulsion of placenta by 119 min ( $P<0.01$ ). The placenta was expelled in  $3.5 \pm 1.4$  parts, which was not affected by the use of oxytocin. According to the US scan post partum, use of oxytocin decreased retained placenta and tended to decrease the risk of increased uterine size ( $P<0.10$ ).

**Conclusion:** The present results indicate that limited used of oxytocin at the end of the second phase of parturition may shorten the expulsion phase of the placenta and thereby the overall duration of farrowing. However, the number of parts of placenta expelled was unaffected, suggesting an improved clearance of the uterus by endogenous oxytocin. The US findings indicate a potentially improved further clearance and involution of the uterus post partum by the use of oxytocin.

**Disclosure of Interest:** None Declared

**Keywords:** None

### O-REP1-004

#### Update of toxic compounds from plastic packaging used in artificial insemination that cause reproductive failure

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**Introduction:** In intensive pig production systems, 100% of fecundation is performed using artificial insemination. Semen from boars is collected, diluted and finally placed into a high barrier plastic packaging until final use. Sperm quality is always checked during processing, and routine parameters are measured before insemination. Sperm is accepted for breeding use only if these parameters achieve the required thresholds. Reproduction efficiency in swine is high, but some failures are acceptable and the origin can be related to many reasons. From 2010 some reproductive failures have been associated with the migration of toxic compounds from bags to the semen. Recent studies have detected toxic compounds in heat sealing tubes too.

**Materials and Methods:** Analysis and characterization of the plastic blisters and tubes suspicious of reproductive failure in farms, migration study, sperm functionality tests, in vitro/in vivo fecundation test, endocrine profiling panel and post- mortem uterus flushing of inseminated sows were carried out. All the statistic tests were performed using StatView 5.0 software.SAS Institute Inc.

**Results:** Toxics found in the plastic blisters were octyl phthalate, erucamide and BADGE (bisphenol A diglycidyl ether), 1,4-trioxacyclotridecane-8,13-dione (lactone) and a phthalate with cyclic structure.

Toxic characterized in the heat sealing tubes was phthalate with cyclic structure.

Analysis of blisters pointed to the BADGE as primarily responsible for reproductive failures. Moreover a synergistic effect with the cyclic lactone, was observed. In heat sealing tubes, the responsible of the failure was the phthalate.

Spermatozoa preserved in both systems passed all of the routine quality control tests ( $>70\%$  total motility,  $> 50\%$  HOST,  $> 80\%$  acrosome integrity), and no differences were observed between storage in the control and suspicious packagings. In vitro fecundity tests showed differences only in the toxic coming from the tubes .EPP( endocrine profiler panel analysis) did not show any alterations. In vivo tests confirmed the failure in both systems.

**Conclusion:** This paper demonstrates that reproductive failures can occur in different kind of plastics even when internal quality control tests were not able to detect any alteration of quality parameters. Unfortunately, it was not possible to prevent the reproductive failure before this study, because the relationship between unexpected unknown substances and the reproductive failure was completely unknown and was thus, undetectable. This paper is the first description of the interaction between different compounds and reproductive failure.

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