**P9**

**VIVALDI - veterinary validation of point-of-care detection instrument**

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In the VIVALDI project the consortium will validate new equipment (the VETPOD platform) for rapid on-site detection of zoonotic pathogens in industrial food and animal production chains.

The coordinator Technical University of Denmark (DTU) has developed the VETPOD platform based on Loop mediated isothermal amplification (LAMP) technology and optical read-out to a user interface, with disposable plastic cartridges (Lab-on-Chip, LDC) that can be adapted to an infinite number of assays for almost all pathogens.

We have a portable LOC system with optical detection: a system with polymeric chip made by injection moulded with multiple (8-32) chambers suitable for rapid online or on site detection of pathogens.

The polymer chip with multiple chambers is able to perform LAMP to detect different pathogens at species level from multiple (8-30) samples within 30–60 min.

We want to validate the VETPOD platform for three important zoonotic pathogens: Avian Influenza Virus (AIV) or Highly Pathogenic Avian Influenza Virus (HPAIV), Salmonella spp. and Campylobacter spp. For HPAIV this will include identification of H types (H5 and H7), for Salmonella the identification of the most important serovars S. Enteritidis, S. Typhimurium and S. Dublin, and for Campylobacter species identification of C. jejuni and C. coli.

The validation includes two stages:1) Validation by national reference laboratories in DK, SE, IT and FR. Each NRL will involve 10 external labs for ring trials. 2) End-user validation at private labs (SMES) in DE and IT. The equipment provider will prepare a business plan for sale of the VETPOD system. The private labs will prepare business plans for using the VETPOD platform for at site animal health detection as well as for online detection of zoonotic pathogens in food and animal production chains.

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**P10**

**Dietary diformates and monolaurate - support for a healthy gut in sows during lactation - a short review**

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**Introduction**

It is generally agreed that good gut health is effective against intestinal pathogens, a strategy that has only been made possible through the removal of antibiotic growth promoters in feed. Creating and maintaining a healthy intestinal environment has become essential to productivity and food safety programmes alike. Maintaining a healthy gut requires up to 25% of the daily protein and 20% of the dietary energy supplied with the feed. This strategy should be carefully planned into the dietary programme, in order not waste resources (Hittel and Lückstädt, 2017).

The application of organic acids and their salts to diets for pigs has been studied extensively for more than 50 years. They have proved especially effective in maintaining growth performance since the ban on antibiotic growth promoters came into effect in Europe. Numerous trials have demonstrated their mode and magnitude of action and established effective doses for piglets, fattening pigs and sows.

The use of formic acid and its double potassium salt in particular has been the subject of intense investigation, with the result that we now understand its dose-dependent effect on growth performance and feed conversion in pigs under a range of different environmental conditions and feed formulations (Lückstädt and Mellor, 2011). The main mode of action is its antimicrobial effect, which makes it comparable (but less expensive) to antibiotics.

**Material and Methods**

Multiparous sows on commercial farms in Germany were fed either a commercial lactation diet as control - or a test diet, which contained additionally 1% of a diformate-monolaurate mixture (traded as Formi GML, ADDCON). On the 21st day of lactation, freshly excreted faecal matter was collected from all sows and analysed for *E. coli*, Enterococci, Streptococci and the total aerobic bacteria count. Data were analysed using the t-test and a significance level of 0.05 was used in all tests.

**Results**

Results of the microbial analysis revealed a strong significant impact of the product on the bacterial population in the faecal matter of sows. This holds true for *E.coli* and Streptococci / Enterococci counts, as well as the total aerobic bacteria count (Table 1).

**Table 1: Bacterial count reduction rates (%) in sow faeces after feeding with 1.0% diformate-monolaurate (for details see Supplementary Information).**

The significant reduction rates in the *E. coli* counts in the faeces were well above 90% and varied in the trials between 90% and 98%. Furthermore, the reduction in the Streptococci/Enterococci counts within the various trial periods were significant and varied from 75% to 99%. Finally, the count of total aerobic bacteria, among them the group of spoilage indicating bacteria, tended to be reduced (-94%).

**Discussion and Conclusion**

The addition of this combination of sodium diformate and monolaurate caused a significant improvement of the health status of sows. The impact against the Gram-positive Streptococci is especially noteworthy. This is particularly important since the EU-funded Focus Group is calling for actions to reduce the use