Effects of probiotic feeding of sows during late gestation and lactation on sow and litter performance and welfare

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SESSION 3 – MICROBIOTA AND NUTRITION

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Feed additives have demonstrated beneficial effects on stress, health and recovery from adverse events in pigs.. Our objective was to determine if a supplement given to the sow can positively affect both the sow and her litter. A total of 32 sows were supplemented during late gestation and lactation with *Bacillus subtilis*. The 2 heaviest males and females of each litter were selected at 3d. On sows, we measured: reproduction performance, recovery from farrowing, colostrum composition, fecal microbiota, maternal ability and stress around parturition and at weaning. On piglets, we measured: growth, fecal microbiota, response to stress during processing, weaning, open-fields (OF) at 11d and 3 months, aggressiveness at weaning and brain stress hormones 1w after weaning. Data were analyzed using linear models. For sows, the probiotic increased the weaning-estrus interval (P=0.020), changed fecal acetate and propionate percentage both before (P=0.011 and P=0.057, respectively) and 10d after farrowing (P=0.049, P=0.023). It decreased the percentage of time looking at her own piglet in a recognition test (P<0.01), decreased the number of posture changes 2d before weaning (P=0.030), decreased the heart rate 4.5h post-weaning (P=0.052) and overall affected sympathetic and vagal activities both 30min and 4.5h after weaning (P<0.05). For piglets, the supplementation increased the mean heart rate 15 to 75 min after the farm procedures up to 15%, decreased the time spent in periphery on the OF at 11d (P=0.022) and overall affected sympathetic and vagal activities during both OF, had a tendency to increase the hypothalamus 3,4-Dihydroxyphenylacetic acid (P=0.087) and the hippocampus norepinephrine concentrations (P=0.093). The supplementation of sows during late gestation and lactation did affect the sows themselves and their offspring over both short- and long-term. The results seem to demonstrate less stress for *Bacillus*-supplemented sows around weaning but a higher sensitivity of their piglets to pain and stress.