



## WELFARE & NUTRITION

AWN-044

### **SPECIFIC COMPOUND FEED INCREASES INTESTINAL HEALTH AND GROWTH IN WEANING PIGLETS *IN VITRO* AND *IN VIVO***

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#### **Introduction**

In this study we analyzed whether a compound feed, primarily based on specific fats and to a lesser extent on protein and cholesterol, could be of advantage for weaning piglets as compared to no treatment, nutritional control or creep feed control.

#### **Materials & Methods**

Trans well cell culture analysis comprising Caco-2 cells was used to study effects of an *in vitro* digested compound feed on trans epithelial electrical resistance (TEER) and interleukin-8 (IL8) secretion after challenge with mycotoxin deoxynivalenol (DON). After that, effects on health and growth were analyzed in a controlled *in vivo* trial involving 74 piglets and a controlled field trial including 238 piglets.

#### **Results**

The compound feed counteracted *in vitro* the reduction of TEER and the increase of IL8 excretion in Caco-2 cultures challenged with DON. *In vivo*, the compound feed, when administered by oral gavage five days prior to weaning, lead to increased average daily weight gain (ADWG) as compared to water control and nutritional control. Alkaline phosphatase activity and IL8 concentration in plasma and villi length at mid jejunum were improved in the experimental group as compared to the controls. For the field trial, compound feed was mixed with a semolina of puffed wheat and this was offered to piglets in excess for voluntarily intake from day 4 of life up until 5 days after weaning (day of life 32). Feed uptake before weaning was increased by more than 50% in the experimental group as compared to the control group and body weight at day of life 61 was significantly 10% higher in the experimental group.

#### **Discussion & Conclusion**

These results are promising for the compound feed for preparation of piglets for challenging periods.