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Norwegian biochar (OBIO) increases daily growth post weaning

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Feed mixed with respectively 2 (left), 1 (bottom) og 0 (right) % Norwegian BioChar

Parameter	0 %	1 %	2 %
Weaning weight	6,5	6,6	6,4
Weight after 5 weeks	21,3	22,9	20,9
Average Daiy Gain (ADG)	**423 (a)**	**466 (b)**	**414 (a)**
Mortality	**4 (4 %)**	**0**	**0**

(a) and (b) are signifikant different

Zinkoxid (ZnO) is phased out in European swine production, and weaning diarrhea due to E.coli has become an issue

Background and objectives

To find alternatives to the use of Zinkoxide we investigated the efficacy of Norwegian biochar (+650 degrees centigrade pyrolysis of chipped pine tree and red spruce).

Material and methods

In a large pigherd with *E. coli* weaning diarrhea, 300 piglets from one weaning were spilt into 3 groups of 100 piglets each: 1) negative control, 2) given 1 % of biochar in the primary weaning diet for 8 days post weaning and 0,25 % of biochar in the second feed post weaning and 3) 2 % of biochar mixed in the primary weaning diet 8 days post weaning and 0,25 % in the second weaning diet. Weighing of piglets was done individually at weaning and again 35 days post weaning. Piglets was housed in 5 different pens for each group and were allocated randomly. Piglets were treated metaphylactic with antibiotics. Statistical analysis was done using a Linear mixed model.

Results

Average weight in the three groups were 6,5, 6,6 and 6,4 kg at weaning. 35 days post weaning the weight were 21,3, 22,9 and 20,9 respectively. The weight gain was 423, 466 and 414 gram pr day respectively. The weight gain was significantly higher for group 2 compared with both group 1 ($p = 0,033$) and 3 ($P=0,014$). Group 1 and 3 did not differ. Mortality in the 3 groups was 4, 0 and 0.

Discussion and conclusion

The observed efficacy of biochar is seen under simultaneously use of antibiotics. The efficacy is evident on the average daily gain. Future studies should be made, where the use of antibiotics is reduced, using individual treatment. The 20 kg/ton inclusion rate did not show any difference to the negative control. This is probably due to a lower feed intake influencing the average daily gain of the piglet. Mortality was evidently influenced however no significance can be calculated. Mixing the post weaning diet with biochar in the first feed by 10 kg/ton and in the second feed by 2,5 kg/ton increased the average daily gain significantly by 10 %. 20 kg/ton in the first feed did not show any difference to negative control.