

High dietary fiber during late gestation reduces the rate of stillborn piglets

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The beneficial effects of dietary fiber in the diet of gestating sows have been thoroughly investigated from behavioral and welfare prospective. However, there is limited information whether dietary fiber is beneficial from a reproductive point of view. Therefore, the present study aimed to investigate the impact of increasing dietary fiber supply during the last 2 weeks of gestation on rate of stillborn and survival of live born piglets during lactation. From continuous weekly batch inseminated sows in a commercial herd, sows with odd ear number (n=298) and even ear number (n=322) were randomly assigned to the control and treatment group, respectively. Sows in the control group were fed according to normal feeding strategy of the herd, fed a standard gestation diet until 1 week before expected parturition, fed transition diet until day 5 postpartum and fed a standard lactation diet until weaning. Sows in the treatment group were fed as the control group but part of the gestation diet (from day 102 to 108 of gestation) and part of the transition diet (from day 109 of gestation until farrowing) was replaced by a fiber rich supplement. Thus, 350 and 700 g/d of the supplement replaced part of the gestation and transition diet, respectively. The two groups received the same amount of net energy per day. The numbers of live born and stillborn piglets were recorded for individual sows. In total, 5,483 and 5,843 piglets were born in the control and treatment group, respectively. Litters were standardized to 13-15 piglets within 24 hours postpartum while excess piglets were fostered by nurse sows within the group. Mortality of live born piglets and possible causes of death were registered during the lactation period. The effect of supplemented dietary fiber on stillborn piglets, pre-weaning piglet mortality and total piglet mortality was analyzed using PROC GLIMMIX procedure of SAS (SAS Inst. Inc., Cary, NC, USA). The possible impact of supplemented dietary fiber on the causes of pre-weaning piglet mortality was analyzed using PROC FREQ procedure of SAS (SAS Inst. Inc., Cary, NC, USA). Supplemented dietary fiber reduced the proportion of stillborn piglets from 8.7 to 6.6% ($p<0.0001$) and mortality of total born piglets from 22.3 to 19.9% ($p=0.004$) but had no impact on pre-weaning piglet mortality ($p=0.21$). Moreover, the present study elucidated that the risk of being stillborn increased with increased sow parity. The supplemented dietary fiber reduced the proportion of death caused due to poor viability at birth ($p<0.0001$) and prevalence of diarrhea in lactation ($p=0.008$), whereas proportionally more piglets were crushed ($p=0.04$) in the supplemented dietary fiber group. Crushing (31.4 vs 36.5%), low birth weight (21.4 vs 26.3%) and poor viability at birth (19.0 vs 10.8%) were the major predominant causes of pre-weaning mortality in the control and treatment group, respectively. In conclusion, supplemented dietary fiber in late gestation reduced the rate of stillborn piglets and total piglet mortality but had no impact on pre-weaning piglet mortality.

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