

Effect of bacitracin methylenedisalicylate supplementation on pelvic organ prolapse incidence in late gestation sowsJamie M. Studer¹, Zoe E. Kiefer¹, R. Blythe Schultz¹, Jason W. Ross¹¹Department of Animal Science, Iowa State University, Ames, IA 50010

Throughout the last decade, rising sow mortality rates have afflicted U.S. pork producers, as sow mortality has increased from an average of 9.0% in 2014 to a record high of 15.8% in 2023. Much of this increase is the result of an elevated incidence of pelvic organ prolapse (POP), as POP accounted for 22.6% of sow mortality in 2023 alone. Despite being widely recognized as not only an economic issue but also a sow welfare and production issue, mitigation strategies are lacking. Antibiotics represent a potential avenue for prevention of this condition, as some work indicates vaginal microbiota differences in sows at elevated risk for POP. Therefore, we conducted a study to evaluate the effect of bacitracin methylenedisalicylate (BMD) supplementation in late gestation sows on POP incidence. This study utilized 2,289 sows housed on two commercial sow farms from the same production system. Administration of BMD differed between farms, with farm A utilizing administration of BMD soluble through the water and farm B utilizing administration of BMD as a feed additive. A total of 1,014 sows were on trial at farm A, with 522 in the control group and 492 in the BMD group. A total of 1,275 sows were on trial at farm B, with 709 in the control group and 566 in the BMD group. Sows were administered BMD for two weeks prior to farrowing and perineal score (PS) evaluations were conducted during the last week of gestation to determine presumed POP risk. In brief, a PS of 1 (PS1) presumes low risk of prolapse and has little to no vulva swelling, protrusion, or swelling of the perineal region. By comparison, a PS of 3 (PS3) presumes high risk of prolapse and has moderate to severe vulva swelling, protrusion, and swelling of the perineal region. Outcomes analyzed included the effect of BMD treatment on PS, POP incidence, and litter characteristics. Analysis of PS by treatment revealed that BMD administration did not affect PS at either farm ($P \geq 0.13$). At farm A, 60.0% of control sows and 60.6% of BMD treated sows were scored a PS1 while 2.9% of control sows and 5.4% of BMD treated sows were scored a PS3. At farm B, 78.3% of control sows and 76.7% of BMD treated sows were scored a PS1 while 2.8% of control sows and 3.1% of BMD treated sows were scored a PS3. Further, BMD treatment did not affect POP incidence at either farm ($P \geq 0.71$), with 2.7% of control sows and 2.8% of BMD treated sows experiencing POP at farm A, and 2.8% of control sows and 3.2% of BMD treated sows experiencing POP at farm B. When evaluating litter characteristics, BMD treated sows had a significantly lower number of stillborn piglets compared to control sows at both farms ($P \leq 0.05$). Although BMD administration did not reduce POP incidence in the current study, further investigation into the effect of BMD treatment on incidence of stillborn piglets is warranted. This project was supported by the National Pork Board and the Foundation for Food and Agriculture Research.