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Characterization of cull sows harvested in the U.S.

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The objective of this study was to characterize the physical conditions of cull sows from U.S. Midwestern sow harvest plants. Traditional culling studies are based on retrospective farm data as they are easy and economical to obtain. Producers typically record one reason for culling each individual sow without reporting of co-morbid conditions. Additionally, these reasons are typically based on external signs or indications and do not incorporate evidence of internal lesions or diagnostic testing. Frequently, culling is the result of multiple factors. Studies investigating reasons for sow culling in harvest plants are few. Information from harvest plants can be used as a tool to evaluate the frequency and range of severity of these problems and further understand contributors to sow culling.

Physical and reproductive conditions of cull sows (3,158) from 2 U.S. Midwestern sow harvest plants were assessed. Body conditioning, feet, shoulders, teeth, lungs, and reproductive tracts were visually evaluated for gross lesions and abnormal conditions on harvested sows. PROC FREQ (SAS, Cary, NC) was used to calculate the frequency of each binary trait event. Mantel-Haenszel chi-square tests were used to test the alternative hypothesis that there was a linear association between binary traits and body condition score (BCS). The most common foot lesions observed among harvested cull sows were rear ($n = 2,064$, 67.5%) and front ($n = 1,024$, 32.9%) heel lesions. Cracked hooves were found on the front feet of 703 sows (22.6%) and rear feet of 552 (18.1%) sows. Rear digital overgrowth was observed in 644 (21.1%) sows. The most common reproductive gross lesion observed among harvested cull sows was ovaries that appeared to be acyclic ($n = 277$, 9.0%). The presence of grossly acyclic ovaries increased ($P < 0.01$) as BCS decreased. Grossly cystic ovaries were found in 192 (6.3%) sows. The incidence of grossly cystic ovaries increased ($P < 0.01$) as BCS increased. Pneumonia was the

most frequent systemic lesion observed ($n = 298$, 9.7%). The presence of pneumonia increased ($P < 0.01$) as BCS decreased. The most frequently observed shoulder lesion among harvested cull sows was shoulder abrasions ($n = 394$, 12.5%). The presence of shoulder abrasions increased ($P < 0.01$) as BCS decreased. The incidence of reproductive lesions detected in the present study was substantially lower than the percentage of sows culled for reproductive failure reported in previous studies and from record keeping summaries.

From the observations of this study, BCS was clearly associated with several abnormal conditions of sows. Causative relationships were not established by this study. Additional work in the research area or by individual producers may be able to relate on-farm culling practices to one or more lesions that had a high occurrence in the present study. Modifications of the culling protocol could then be employed to reduce the impact of the lesion on the productivity of the enterprise. The prevalence of reproductive lesions detected in the current study was substantially fewer than the reported percentage of sows culled for reproductive failure in previous studies. The prevalence of foot lesions detected in the current study was substantially higher than previously reported other studies. Multiple lesions were associated with BCS. Whether the lesions caused BCS to change, BCS caused the lesions, or the lesions and BCS changed simultaneously is unknown.

This project was funded by the National Pork Board, Clive, IA.