Title: Evaluation of sows at harvest to determine the incidence of abnormalities that could lead to culling of breeding herd females – NPB#04-127

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Abstract:
Physical and reproductive conditions of cull sows (3,158) from two U.S. Midwestern harvest plants were assessed. Body condition, 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 a linear association existed between binary traits and body condition score (BCS). The most common foot lesions observed 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 (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%). Presence of acyclic ovaries increased (P < 0.01) as BCS decreased. Cystic ovaries were found in 192 (6.3%) sows, which increased (P < 0.01) as BCS increased. Pneumonia was observed in 9.7% (n = 298), and increased in frequency as BCS decreased (P < 0.01). 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 less than anticipated by the reported percentage of sows culled for reproductive failure from previous studies and from record keeping summaries.

In the second portion of the study, production data from sows producing pigs in a commercial production system were associated with physical condition evaluated at harvest. Sows (923) from 8 farms, all from one large integrated U.S. pork production system, were evaluated at the same 2 large Midwestern sow harvest facilities previously described. Body condition, feet, shoulders, teeth, respiratory systems, and reproductive tracts were visually evaluated for lesions and abnormal conditions on harvested sows. Physical conditions evaluated at harvest were analyzed by parity, culling code, farm, and production parameters. Farm culling codes were categorized into poor body condition (BC), old age (G), lameness (L), other (O), poor litter performance (P), and reproductive failure (R). R was the most common culling code in parities 1 to 5 (66.1, 58.1, 52.7, 39.4, and 37.7%, respectively). Front/rear heel lesions, front cracked hooves, front/rear digital overgrowth, and rear missing dew claws increased (P < 0.01) as parity increased. Grossly acyclic ovaries decreased (P <
0.05) and grossly cystic ovaries tended to increase (P < 0.10) as parity increased. The likelihood of grossly normal ovaries did not differ (P > 0.05) between culling codes. Sows culled for R had an 86.2% probability of having normal ovaries. The L culling code had a higher (P < 0.05) prevalence of cracked hooves than the other 5 culling codes combined (30.9 vs. 18.7%). Sows culled for L were leaner and had lower body condition than G, P, and R sows. Sows with no shoulder lesions had more (P < 0.05) lifetime pigs born alive (59.97 vs. 57.96) in comparison to sows with shoulder lesions. Sows with severe teeth wear tended to have fewer (P < 0.10) lifetime pigs born alive (58.94 vs. 60.30), pigs born alive in last litter (9.87 vs. 10.31) and had less (P < 0.01) pigs born alive/day/ herd life (0.0704 vs. 0.0734) than sows without severe teeth wear. Sows with no front cracked hooves tended (P < 0.10) to have more pigs born alive/day of herd life (0.0725 vs. 0.0703) compared to sows with front cracked hooves. Sows with no rear digital overgrowth had more (P < 0.05) pigs born alive in last litter (10.22 vs. 9.68) and a trend (P < 0.10) for increased pigs born alive/day/ herd life (0.0724 vs. 0.0702) than sows with rear digital overgrowth. Regression coefficient estimates for percent lung involvement from pneumonia were positive and tended to be different from zero (P < 0.10) for lifetime pigs born alive (0.06) and pigs born alive/day/ herd life (0.00009). Identifying and correcting suboptimal farm specific fertility factors offer the greatest benefit in improving culling for reproductive failure and hence, sow longevity. The presence of physical conditions evaluated at harvest was associated with farm reproductive parameters.

Keywords: Sow Longevity, Cull, Disease, Foot, Teeth, Ovary