

# Lameness in breeding age swine — A case study

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Lameness can be a major cause of culling in swine breeding herds (1-3). Some surveys rank leg weakness as the second most common reason for removal of sows (2,3). Feet and leg soundness is an important selection criterion used by pork producers when choosing replacement breeding stock (4,5). The reputation and therefore the livestock sales of a swine breeding-stock company can be affected negatively if customers experience a high incidence of lameness among newly purchased gilts and boars.

The most likely causes of lameness in culled animals are osteochondrosis, foot rot, infectious arthritis, osteomalacia, and fractures and other leg injuries (6,7). The relative importance of these conditions is not known but studies suggest that osteochondrosis is the major cause of leg weakness among young, breeding-age swine (4,8). Foot rot and injuries contribute to the lameness experienced by pigs housed on slippery, abrasive, or wet floors. Osteomalacia in sows is most commonly observed at the end of lactation because of calcium loss during the nursing period. A sudden outbreak of severe lameness involving lactating and newly weaned sows should arouse suspicions of a problem with osteomalacia related to calcium or vitamin D deficiency. Some infectious causes of lameness, such as arthritis caused by *Mycoplasma* and *Erysipelas*, are common in grower-finisher pigs. They are seldom associated with lameness in the adult herd (7).

The owners of a breeding company reported that they had received complaints from their customers concerning lameness in their breeding stock. The purposes of the study reported herein were to determine the annual culling rate due to lameness in sows in the herds supplied by this breeding company and to determine if there was a difference in the culling rates between newly established herds and herds that had been populated for more than one year.

A questionnaire was mailed to the breeding company's nucleus herd and the 21 herds which purchased replacement stock from this company. The questionnaire defined gilts as young females that were selected for the breeding herd but were not bred. Sows included all females in the herd that had been bred. The producers were asked how many sows were in the herd in January 1985 and December 1985, and how many gilts entered the breeding herd during the year. They also recorded the number of sows and gilts that were

culled for lameness or for reasons other than lameness during the year. For newly established herds, the producers were asked how many months the existing breeding herd had been in production.

The annual culling rates due to lameness in sows and gilts were measured as the number of sows/gilts culled for lameness during 1985 divided by the average number of sows/gilts in the herd during the year. Estimated culling rates due to lameness per sow per year were calculated for production units that had been established for less than one year (9). It was assumed that the culling rates in these herds would remain constant during the year. The annual proportional culling rate due to lameness was calculated as the number of sows culled for lameness during the year divided by the total number of sows culled during the year. The annual culling rates between start-up herds and established herds and between sows and gilts were compared using *t*-tests.

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**These start-up herds had a higher ( $p < 0.001$ ) "annual culling rate due to lameness in sows" and "annual proportional culling rate due to lameness in sows" than herds that had been established for at least one year**

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Seventeen of the 22 producers completed the questionnaire (77% response rate). The annual culling rate for lameness in sows varied a great deal from farm to farm. The rate ranged from 0-38% with an average of  $11\% \pm 9\%$  (Table 1). In a study of randomly selected commercial swine herds in Ontario, the average culling rate due to lameness was ten percent (2). Eleven herds in our study had an annual culling rate due to lameness of less than ten percent.

The mean sow culling rate due to lameness in the established herds was only eight percent. Four herds had been established for an average of  $7.25 \pm 2.2$  months. These start-up herds had a higher ( $p < 0.001$ ) "annual culling rate due to lameness in sows" and "annual proportional culling rate due to lameness in sows" than herds that had been established for at least one year (Table 1).

The start-up herds had a larger proportion of gilts and young sows in the breeding herd than established herds. It would therefore seem appropriate that measures taken to reduce lameness should be directed at the management of young breeding stock animals. In a study of 54 start-up herds, Penny *et al* (6) found that gilts and boars that were sold and bred immediately after performance testing were susceptible to a number of lameness problems. They advise producers who sell breeding stock to allow for a "hardening-off" period, preferably in a yard or on straw, before shipping these animals.

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Copies of the questionnaire used will be mailed upon request.

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**Table 1. Descriptive statistics related to the level of lameness in 17 swine herds**

Variable	Minimum	Maximum	Mean	SD
Annual culling rate of sows (%)	10	140	40	30
Annual culling rate of gilts (%)	0	50	10	14
Annual culling rate due to lameness in sows (%)	0	38	11	9
Annual culling rate due to lameness in gilts (%)	0	43	13	15
ACRLS <sup>a</sup> in start-up herds <sup>b</sup>	8	38	26 <sup>d</sup>	13
ACRLS <sup>a</sup> in established herds <sup>b</sup>	0	20	8 <sup>c</sup>	6
PCRLS <sup>c</sup> in start-up herds	44	78	63 <sup>d</sup>	14
PCRLS <sup>c</sup> in established herds	0	33	19 <sup>e</sup>	9

<sup>a</sup>Annual culling rate due to lameness in sows

<sup>b</sup>There were four start-up herds and 13 established herds in this survey. A start-up herd was a herd that had been established for less than one year

<sup>c</sup>Annual proportional culling rate due to lameness in sows

<sup>d,e</sup>Means with different superscripts are significantly different at  $p < 0.001$

As a follow-up to our study, it was recommended that herds with a higher than average proportional culling rate due to lameness (greater than 20%) conduct a slaughter check on culled lame sows to determine the exact cause of the lameness.

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## BOOK REVIEW

## REVUE DE LIVRE

Sewell MMH, Brocklesby DW, ed. **Handbook on Animal Diseases in the Tropics (4th edition)**. Toronto. Balliere Tindall, 1990. 385 pp. \$43.75

The first edition of this book was published by the British Veterinary Association in 1962. This fourth edition is still aimed at veterinarians working in tropical and subtropical countries. This book serves as a source of general information for diseases caused by arthropods, bacteria, helminths, protozoa, rickettsia and viruses. The authors, who are experts in their respective disciplines, provide a synopsis of important diseases of domestic animals, emphasizing the special features and practical aspects useful to veterinarians in the field.

The topics in each chapter are listed alphabetically and each disease encompasses etiology, occurrence, species affected, transmission, clinical features, pathology, diagnosis, treatment, immunology, and public health aspects. There are limited, but relevant, general references listed after each topic for further reading. In addition to a well organized "contents", the book has a good indexing system for assisting the reader to find a particular topic.

This encyclopedic handbook on animal diseases is definitely an invaluable asset to any veterinary practitioner, especially those who are working in the tropics.

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