Atrophic rhinitis in pigs

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Severe atrophic rhinitis in pigs recurred recently in Australia after an apparent absence of some 20 years. The first of these recent cases occurred in a Western Australian herd in late 1984 and since then six other local herds have reported the disease. Severe atrophic rhinitis has also been seen recently in South Australia.

Atrophic rhinitis is a complex disease which causes degeneration of the turbinate bones in the nasal cavity, twisting of the snout and sometimes occasional bleeding from the nose. It occurs only in pigs and severely affected animals may have a slower growth rate.

A survey of 611 pigs from 107 herds carried out in December 1984 by Department of Agriculture veterinary officers showed that the overall prevalence of severe turbinate atrophy in pigs slaughtered in Western Australia had not changed significantly in recent years. Score 4 lesions were seen in only 0.3 per cent of pigs compared with 0.4 per cent found in a 1981-82 survey (see bar chart).

However the level of severe turbinate atrophy (scores 4 and 5) in individual herds subsequently investigated with clinical signs of the disease has ranged from 3 to 25 per cent.

Prevalence of atrophic rhinitis

Two recent abattoir surveys investigated the level of atrophic rhinitis in Western Australian pigs. The degree of turbinate atrophy in slaughtered pigs was used as an indicator of the prevalence of the disease.

A system called DONE scoring, developed in the United Kingdom, was used to grade the damage occurring to the nasal turbinate bones. Normal pigs have scores of 0 to 2 while severely affected pigs in which most of the turbinate bones have been lost have scores of 4 or 5.

Cause of atrophic rhinitis

Certain toxin-producing strains of two bacteria, Pasteurella multocida and Bordetella bronchiseptica are primarily responsible for causing severe atrophic rhinitis.

B. bronchiseptica alone causes only mild forms of the disease while the toxigenic P. multocida produces severe atrophic rhinitis. However it is not just these bacteria which are involved in this complex disease. Poor ventilation and overcrowding in pig housing contribute to the 'right environment' for atrophic rhinitis to occur. Some breeds and some strains within breeds appear to be
Surveys of turbinate atrophy in W.A. pigs. DONE scores 4-5 suggest severe atropic rhinitis

![DONE Score Chart]

More susceptible to atrophic rhinitis, which should be considered as a 'herd' disease rather than an individual animal disease.

The diagnosis of atrophic rhinitis depends on clinical inspection of the herd, pathological examinations and laboratory tests. A positive diagnosis is considered when two at least two of the following criteria occur: clinical signs present, more than 2 per cent of pigs with DONE scores of 4 or 5, or toxigenic *P. multocida* is isolated from affected pigs. Producers of herds with symptoms such as excessive sneezing or twisted snouts in weaner or grower pigs should consult their veterinarian for a detailed investigation.

Economic effects

Estimates of the economic effect of the disease on pig performance vary widely, and a range of 5 to 15 per cent reduction in growth rate and feed conversion efficiency in severely affected pigs has been reported. The extent to which pig performance is affected is determined by the presence of the toxigenic strain of *P. multocida* and whether housing conditions are inadequate.

Commercial producers also may not want to buy replacement stock from breeding herds affected with atrophic rhinitis. This can have a significant economic impact on farmers wishing to sell breeding stock from infected herds.

Control and prevention

Medication with different anti-bacterial drugs either in the feed or by injection has been used widely overseas for atrophic rhinitis. However the results are often variable and producers should be cautious before starting an extensive medication programme.

They must first be satisfied that the disease is affecting pig performance adversely and that poor ventilation and overcrowding in farrowing and weaner accommodation do not exist.

Producers who are considering using medication should seek veterinary advice to identify the age when infection is occurring so that treatment can be given at the appropriate stage.

More importantly, pig producers should take precautions to prevent the introduction of atrophic rhinitis into their herds. Atrophic rhinitis is no different from any other 'economically important' disease. When purchasing replacement breeding stock, producers should only introduce pigs from other herds which have a similar or better disease status than their own, that is 'like-health status' herds.

Producers therefore need to know whether atrophic rhinitis is present in their own herds. They should ask their veterinarian to inspect their herds and arrange for some of their pigs to be checked after slaughter for evidence of turbinate atrophy. When buying breeding stock they should ask the vendors for the same information on their herds and discuss the interpretation of this information with their veterinarian.

A monitoring scheme has been available in Western Australia since June 1985 to enable sellers of breeding stock to have batches of slaughtered pigs checked for turbinate atrophy. This is not an accreditation scheme but it gives some indication of the level of atrophic rhinitis in a herd.

Research

There is little information on what effect atrophic rhinitis has on pig performance under Australian conditions. The climate here is much different from that of most of Europe and North America, where atrophic rhinitis is a significant problem. More information needs to be gathered from affected herds in Australia to see if the disease is economically significant.

Vaccines recently developed in Europe show considerable promise in controlling atrophic rhinitis. However because of Government policy prohibiting, in most cases, the importation of vaccines from overseas, these new vaccines are not available to Australian pig producers.

Some preliminary work is being carried out by the Western Australian Department of Agriculture to develop and evaluate an atrophic rhinitis vaccine for use in affected herds in Australia.