1-1-1990

The Western Australian Pig Health Monitoring Scheme

Ashley Mercy

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4

Part of the Meat Science Commons, Other Animal Sciences Commons, Other Immunology and Infectious Disease Commons, and the Parasitology Commons

Recommended Citation

This article is brought to you for free and open access by Research Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 4 by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au, paul.orange@dpird.wa.gov.au.
The Western Australian PIG HEALTH MONITORING SCHEME

Private veterinarian Dr Scott Edwards inspects pig viscera at an abattoir for evidence of disease.

By Ashley Mercy, Principal Veterinary Officer, Epidemiology Branch, South Perth

Over 30,000 slaughter pigs from 245 Western Australian piggeries have been examined for the presence of 16 diseases since the Western Australian Pig Health Monitoring Scheme (PHMS) started in January 1987. The scheme was developed by the author in conjunction with Dr Chris Brennan, a pig veterinary consultant.

Monitoring of slaughter pigs is an important part of providing an effective veterinary service to commercial piggeries. It can be used in accreditation schemes and to help in certifying herds free of particular diseases.

The Western Australian scheme, which has been well supported by our pig producers, is based on a similar scheme operating in South Australia.

How the scheme works

Farmers selling pigs on consignment to one of the four main pig abattoirs in Western Australia can have batches of up to 65 pigs examined by a veterinary practitioner for 16 diseases. Pigs are checked during the slaughter process for the diseases shown in Table 1.

Table 1. Diseases for which pigs are checked at slaughter

<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
<th>11.</th>
<th>12.</th>
<th>13.</th>
<th>14.</th>
<th>15.</th>
<th>16.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enzootic pneumonia.</td>
<td>Sarcoptic mange</td>
<td>Nephritis</td>
<td>Liver white spots (roundworm)</td>
<td>Ileitis (campylobacter)</td>
<td>Pleurisy</td>
<td>Haemophilus pleuropneumonia</td>
<td>Pericarditis</td>
<td>Peritonitis</td>
<td>Arthritis</td>
<td>Erysipelas</td>
<td>Abscesses</td>
<td>Tuberculosis</td>
<td>Oesophagastroduodenal ulcer</td>
<td>Atrophic rhinitis</td>
<td>Sow infertility</td>
</tr>
</tbody>
</table>

+ Only if specifically requested.

These are the more common diseases that affect pig performance (and profits) but are often not recognised by farmers. They are also diseases that can be diagnosed in pigs slaughtered at the abattoir.

The number of pigs inspected in each batch depends on herd size. It is calculated on the basis of being able to detect one pig with the condition if the prevalence is low (5 per cent) and to estimate the within-herd prevalence to +/- 5 per cent at the 90 per cent level of confidence.

Reporting and co-ordination

Producers receive a detailed report showing the prevalence of each disease in the batch of pigs examined and the severity of some conditions. The classification of the severity of lesions for some diseases is an important feature of the service because this shows producers how many pigs are affected and just how severe is the problem.

The report also shows a comparison with the results of previous inspections so producers can evaluate the effect of any management changes or treatments given. The Department of Agriculture recommends that producers discuss the interpretation of reports with their veterinarian and copies of reports are forwarded to their veterinarian if requested. A new graphics format report has been developed to make interpretation of the results easier (Figure 1).
The PHMS is coordinated by the veterinary officer (pigs) of the Department of Agriculture. The results are collated for use in industry extension programmes and to help in identifying research priorities for pig diseases.

Standardisation of inspection procedures between veterinarians and laboratory back-up is also provided by the Department. Validation of the gross diagnoses of some diseases by pathology testing, for example, nephritis (leptospirosis), Intestinal adenomatosis (Campylobacter spp.) and Haemophilus (Actinobacillus) pleuropneumonia is carried out. Results are collated by a computer program called PIGMON and reports produced on herd prevalence for all diseases on a State, abattoir, regional, herd size, seasonal and individual herd basis.

Operation of the PHMS is monitored by an advisory committee comprising producers, veterinarians and processors.

Cost of inspections

The cost of each inspection is shared between the pig producer and the Western Australian Pig Industry Compensation Fund (PICF). The 1990 costs for having a batch of up to 65 pigs examined are shown in Table 2.

Producers are entitled to four PICF-subsidized inspections each year, but they can arrange additional inspections if required.

Only pigs sold on a consignment basis can be examined under the PHMS. Producers arrange inspections by contacting the veterinary practitioner at one of the nominated abattoirs before delivering their pigs.

Table 2. 1990 costs of examining up to 65 pigs

<table>
<thead>
<tr>
<th></th>
<th>Standard inspection for 13 diseases</th>
<th>Standard inspection plus atrophic rhinitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pig producer</td>
<td>$46</td>
<td>$73</td>
</tr>
<tr>
<td>PICF</td>
<td>$24</td>
<td>$35</td>
</tr>
<tr>
<td>Total</td>
<td>$70</td>
<td>$108</td>
</tr>
</tbody>
</table>

Dr Sue Skirrow, the Department's veterinary officer (pigs) with some grower pigs at Medina. The PHMS allows producers of specific pathogen-free herds to monitor the health status regularly.

Figure 1. Page one of a Pig Health Monitoring Scheme report on a batch of pigs from a pig producer.
Results
At the end of 1989, after three years operation, 31,490 pigs from 245 herds had been examined. The most common diseases recorded (Figure 2) were sarcoptic mange (96 per cent of herds affected), pleurisy (96 per cent of herds), enzootic pneumonia (86 per cent of herds), nephritis (71 per cent of herds) and roundworms (66 per cent of herds).

The average prevalence of some of the diseases within infected herds was also relatively high (Figure 2).

Economic effect of diseases
The potential loss caused by some of the diseases is considerable.

Enzootic pneumonia. Thirty per cent of all pigs had enzootic pneumonia and 15 per cent of herds had more than half the pigs affected. In 27 per cent of herds the Average Lung Score was between 7 and 22 (out of a maximum score of 55 for each pig). In these herds lost production is estimated to cost producers between $5 and $17 per pig produced, that is $8,000 to $27,000 a year in a 100-sow herd.

Pleurisy. Fourteen per cent of all pigs had some pleurisy, with 30 per cent of herds having more than one-quarter of the pigs affected. In some herds the prevalence was between 50 and 78 per cent. For every 1 per cent of pigs with pleurisy, the time taken for pigs to reach slaughter weight, averaged over the whole herd, is increased by 1.2 days. This increases the cost of production in a 100-sow herd producing 1,600 pigs per year by about $1,600 so that in some Western Australian herds the effect of pleurisy is costly.

Sarcoptic mange. Forty per cent of all pigs had sarcoptic mange with 21 per cent of herds having more than half the pigs affected. About 70 per cent of herds had pigs with score 2 to 3 mange. The estimated cost of mange in these herds is about $1 to $2 per pig sold, that is $1,600 to $3,200 each year in a 100-sow herd.

Epidemiological studies
Collation of the PHMS results on a statewide basis allows comparisons to be made between regions, between herds of different sizes and between season of the year in terms of prevalence of disease. Associations found on an initial analysis of the data include:

- The prevalence and severity of enzootic pneumonia increased with increasing herd size. This probably reflects the problems of housing larger numbers (herds with more than 50 sows) of pigs together under the one roof. Owners of larger herds should be aware of this problem.
- The prevalence of roundworm-damaged livers was higher in smaller herds (less than 50 sows) suggesting these producers may need to improve their pig worm control programmes.
- Pigs slaughtered during winter and spring had a higher prevalence of sarcoptic mange. This may be because mange mites survive longer during the cooler months, increasing the chances of reinfecting grower pigs. Pig producers need to adapt their mange control programme accordingly to prevent mange reducing their profits.
- The prevalence of enzootic pneumonia was greater in pigs slaughtered in summer. These pigs would have been born during winter and therefore exposed to environmental factors predisposing them to pneumonia at a younger age than pigs born in summer.

Leptospirosis
One of the more surprising results to come from the PHMS data was the high prevalence of nephritis (diseased kidneys) in herds, most of which has been shown to be caused by Leptospira spp. infection. In some herds up to 70 per cent of kidneys had lesions indicating previous infection with this organism. Although Leptospira spp. does not affect performance of grower pigs it can cause abortions and stillbirths in sows.
More important is the potential risk to farmers, veterinarians and abattoir workers from leptospirosis. Leptospirosis in humans is a serious disease. In piggeries with high levels of this disease producers should improve hygiene and undertake an effective pig vaccination programme.

Benefits of the scheme

Herds that have had several inspections show a consistent trend towards a lower prevalence of nearly all diseases at the more recent inspections. Figure 3 shows the average prevalence of the more significant diseases in 38 herds which have had at least eight batches of pigs examined. The average prevalence of disease found in these herds at their eighth inspection is consistently lower than that found at their first inspection.

Although further analysis is needed the consistent trend over these 38 herds suggests that there has been a real reduction in the percentage of diseased pigs. This suggests that pig producers are using the PHMS to detect diseases in their herds and are taking action to reduce their prevalence.

This indication is reinforced from the results of a recent survey of 120 pig producers using the PHMS. Eighty-six per cent of producers said they had used the PHMS to detect one or more disease problems and they had taken remedial action to reduce them.

Figure 3. Average percentage of pigs affected by five diseases in 38 herds. Less disease was found at the eighth inspection than at the first inspection.

Haemophilus (Actinobacillus) pleuropneumonia was the only disease to increase in prevalence in the 38 herds. Pleuropneumonia is an emerging disease in the Australian pig industry and has the potential to cause serious losses in individual herds. Producers need to monitor their herds carefully for this disease and take care when introducing replacement breeding stock, to avoid introducing pleuropneumonia.

The most important benefit of the PHMS to individual producers is that it enables them and their veterinarian to monitor the level of disease in their herds and assess the effects of various treatments, control programmes or both.

The losses from some diseases in many Western Australian herds are significant. Producers who are able to assess the extent of these diseases and evaluate the success of treatment benefit greatly. The PHMS has also helped producers to determine the health status of their herd, and this has enabled them to 'match' the health status of their herds with that of potential sources of replacement breeding stock.

The PHMS has provided the industry with the first real data on the prevalence and severity of a number of diseases affecting pig performance. The results are being put to good use in developing extension programmes on particular diseases and providing background information for further research on particular conditions.