

## MELIOIDOSIS IN AN INTENSIVE PIGGERY

Melioidosis is one of the reasons for the condemnation of pigs at the Bohle Abattoir, Townsville. The disease in pigs is normally chronic and symptomless. Condemnation is based on lesions typical of the disease with bacteriological confirmation being sought only when the disease status of the herd is unknown. *Pseudomonas pseudomallei* has been isolated at this laboratory from 30% of such porcine abscesses during a 5-year survey of melioidosis in animals in northern Queensland. Unless otherwise requested, lesions from only a few animals per year are submitted from herds that are known to be endemic for the disease.

A piggery 40 km north of Townsville was regularly having 1 to 3 porker pig carcasses condemned each year because of melioidosis (Table 1). During mid-1976, a vehicular bridge was built across the creek upstream of where the owner pumped water to the herd. Erosion of the creek banks resulted in cloudy water due to suspended clay particles present in that area. The water given to the herd was unfiltered and remained cloudy for several months. In early 1977, 25 carcasses were condemned for melioidosis. In May of that year, one surface water sample and 2 soil samples were collected from each of one mating pen and 2 gilt pens; 3 samples were taken from the water storage tank and 3 water and 6 soil samples were collected from the pump-

ing site. It was noticed that the creek water was clear at this time and that the soil from the pens and pumpsite area were low in clay content. Two samples of feed were also tested. All samples were cultured by the method of Thomas *et al* (1979) and guinea pigs (which are very sensitive to the disease) were inoculated with all the samples except the food. No *P. pseudomallei* was isolated.

During the 1977 to 1979 financial years, the number of condemnations was few (Table 1). To increase the water supply during a drought in late 1979, the owner dug a large trench 2 metres deep, in a heavy white clay area adjacent to the creek and upstream of both the bridge and the regular water supply. Cloudy, seepage water from this trench was pumped unfiltered to the herd. The number of condemnations rose to 14 in the 1979 to 1980 period. In April 1980, 12 soil and 3 water samples from the trench and 2 samples from the water storage tank were collected and cultured as before. No guinea pigs were used for these samples. *P. pseudomallei* was isolated from a soil sample collected at 0.3 metre in the side of the trench. At the time of collection, the creek flow was adequate and pumping had recommenced from the regular site. The trench had been undisturbed for 2 to 3 months.

The majority of the condemnations occurred during the

TABLE 1

*Increase in Condemnations of Porker-weight Pigs for Melioidosis in an Intensive Piggery in Northern Queensland between 1973 and 1980, Due to Drinking Contaminated Water*

Year	Porker Pigs Slaughtered	Porker Pigs Condemned for Melioidosis	Porker Pigs Examined Bacteriologically	
			Number Submitted*	Culture Positive
1973-1974	850	1 (0.12%) <sup>†</sup>	1	1
1974-1975	941	3 (0.32%)	3	3
1975-1976	1067	1 (0.09%)	1	1
1976-1977	1057	25 (2.36%)	1	1
1977-1978	1253	3 (0.24%)	2	1 <sup>‡</sup>
1978-1979	1286	0 (0.00%)	—	—
1979-1980	1454	14 (0.96%)	7	7

\* Being a known positive herd, not all condemnations were confirmed by bacteriological examination.

<sup>†</sup> Number in brackets represents the percentage condemned.

<sup>‡</sup> The negative sample was a sterile abscess submitted in July.

months of March, April and May. This agrees with data reported by Laws and Hall (1964) and Thomas *et al* (1979) that showed infection was more readily contracted from soil and swampy areas during the hot, wet season (December to March). It is unlikely that the condemned porker-weight pigs became infected *in utero* (Rogers and Andersen 1970) or via the sow's milk, as no breeder pigs have been condemned for melioidosis. An average of 25 were slaughtered each year. Why the breeders that drank from the same water supply as the porker pigs did not become infected is unknown but could be due to an age or acquired immunity. It is probable that a percentage of the breeders became infected at porker weight. The absence of lesions in adult carcasses could indicate recovery from disease. A lesion suspected of being a melioidosis lesion in regression was seen in one case submitted in July 1977 (Table 1).

The porker-weight slaughter pigs of 5 to 6 months of age had spent their entire life without access to soil, being reared on artificial, hard surfaces. Melioidosis is known to be a soil contact infection (Howe *et al* 1971). Although few soil and water samples were examined, the presence of *P. pseudomallei* in the soil of the trench would indicate that contamination of the water supply was possible. It would appear that during a normal year with adequate water supply, the organisms are present in very low numbers and very few animals contract melioidosis. However, an increase in the amount of soil content of the water supply was followed, in both cases, by increased morbidity indicating, in the absence of soil contact during growth, that the disease was probably contracted by drinking contaminated water.

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