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Monitoring Animal Disease and Productivity in Samoa

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Abstract

This thesis presents two studies that form the basis of the Samoan Ministry of Agriculture and Fisheries' (MAF) recent efforts to enhance its animal disease surveillance capacity.

The first study investigated a method of enhancing the surveillance value of veterinary case data collected by the MAF's Animal Health Service, which provides the only veterinary service for livestock in the country, through temporal analysis of cases and syndromes by species. Threshold levels generated from 3-monthly moving averages combined over 3 years of veterinary case data were used to identify unusually high numbers of cases and the cause of these unusual events were investigated. Further, the analysis of data in the system identified gaps in the coverage of the Animal Health Service which helped identify alternative methods for conducting surveillance in these areas using the Crops Division advisory officers.

The objective of the second study was to identify if the veterinary case data collected by the Animal Health Service represented pig health problems in the general population. Reproduction and mortality patterns were compared on a group of 10 holdings that were regularly attended by the veterinary staff and 13 holdings that did not utilise the Animal Health Service. The performance of these holdings, measured in liveborn piglets per sow year and pre-weaning and post-weaning mortality were compared given their status as client or non-client of the service and their exposure to various management factors like confinement, protein supplementation, frequency of feeding, management time per sow per day, the use of improved or exotic breeds, the extent of commercial activity and, in the case of piglets their season of birth (rainy or dry season). The mean number of sows per herd was 6, producing a mean litter size of 6.1 piglets with a mean interfarrowing interval of 235 days. The median pre-weaning mortality per litter was 0 and a median of 1 piglet per litter was used for productive purposes (consumed, gifted or sold) at a median age of 153 days. It was found that the greatest influence on productivity in these holdings was nutrition. Sow productivity (in terms of liveborn piglets per sow year and

pre-weaning survival) was best in the non-client, free range herds that did not provide protein supplementation (but whose feeding was unrestricted due to their freedom to roam and scavenge) and worst in client and non-client herds that were confined and not given protein supplementation (due to restricted and underfeeding). The mortality of pigs post-weaning was significantly higher if they were free roaming, due to their loss to predation, theft and being hit by car. The study showed that the health status of pigs was better on holdings that did not use the Animal Health Service compared with those that did.

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