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AN EVALUATION OF ABATTOIR DATA

FOR DISEASE SURVEILLANCE.

This thesis represents 70% of the assessment requirements for the degree of Master of Philosophy at Massey University.

RICARDO FERRE MARERO

1980

ABSTRACT

Data from abattoirs were evaluated to determine their usefulness for disease surveillance. Self-acquired data from three surveys conducted at abattoirs and routinely generated disease statistics from meat export slaughterhouses were analysed.

Three techniques were employed in the analysis of these available data from New Zealand abattoirs. Returns from a large scale survey of bovine ocular squamous cell carcinoma were indexed on printed cards as a filing system and those from the serological surveys of two separate groups of abattoir workers were converted into computer system files. The "pencil and paper"-calculator method was used for the recorded disease statistics.

Conversion of survey returns into system files facilitated the handling of data. Manual sorting in a card index system provided new information on the epidemiology and economic importance of squamous cell carcinoma of the bovine eye in New Zealand. The rate of "cancer eye" in Herefords and Hereford crosses was 403/100,000 compared to 8/100,000 in other breeds. Further investigations indicated that these differences were associated with pigmentation of the ocular structures.

The data from the serological surveys among abattoir workers were conveniently manipulated in the computer and provided information of the risk factors involved in three potential zoonoses at the works. Both leptospirosis and brucellosis were shown to be occupational hazards. In the case of leptospirosis, direct pig contact appeared to constitute the greatest risk, while in brucellosis, one of the more important

correlations was in relation to time employed in the Meat Industry. Toxoplasmosis did not appear to be an occupational disease.

The information derived on these files were dependent on the manner of organisation (e.g. establishing variables from measurements, coding values) of the data originally obtained from the disease surveys carried out by others.

Routinely generated vital statistics of the prevalence of "Diseases and Defects" recorded by the Meat Division of the Ministry of Agriculture and Fisheries were examined and analysed. Analysis of variance tests were applied to selected conditions to determine regional variations. The application of statistical tests uncovered the subtleties of each group of data and revealed information on disease prevalences. True geographical variations in the prevalence of sarcocysts, caseous lymphadenitis and pleurisy of sheep were demonstrated.

Through these techniques useful information was derived from data generated by these three disease surveys carried out at the abattoir and from routinely recorded meat inspection statistics. Information obtained from the surveys is discussed in relation to previous studies on the same topics. Routinely recorded vital statistics were appraised for accuracy and their usefulness in studying variations in disease prevalence. The evaluation of data and information obtained during these investigations manifests the potential of the abattoir as a source of useful information for disease surveillance.

ACKNOWLEDGEMENTS

I am grateful to the New Zealand government and her Ministry of Foreign Affairs for giving me this opportunity, as a grantee of the Philippine government, of having studied at the Department of Veterinary Pathology and Public Health at Massey University.

Many thanks are extended to my supervisors : Professor D.K.Blackmore for his continuous and untiring guidance throughout my work, to Mr. G.V. Petersen for his inspiring patience and tutorship and his arrangements for Meat Division materials and visits at the local works, and to the late Dr. R.E.Harris whose instructions in computer analysis and kindness will be remembered.

The constructive advice and timely help proffered by Dr. Linda Schollum and the expert typing of the thesis by Mrs. Allain Scott are warmly appreciated.

Many acquaintances and friends have directly and indirectly helped me in my work : those from the different departments of the Faculty of Veterinary Science who were keenly receptive to my enquiries and requests; the thoughtful and genial people of the Animal Health Division of Palmerston North; the able veterinarians, skillful meat inspectors, cheerful meat workers and accommodating members of the managerial staffs at Longburn, Feilding and Gisborne meat works; the honest people casually met, and new friends who have made my sojourn worthwhile. I extend to them my sincerest gratitude.

And to my great folks at home who have always believed in me, to my wife who has endured this all and to my kids who wondered why I had to study in New Zealand, this work is dedicated.

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