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**EXAMINATION OF ALTERNATIVE SELECTION
POLICES FOR SPORT HORSE BREEDING
IN NEW ZEALAND**

A thesis presented in partial fulfilment
of the requirements for the Degree of Master of
Agricultural Science
in
Animal Science
at
Massey University

CHRISTOPHER WILLIAM WARNOCK ROGERS

1993

MASSEY UNIVERSITY



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ABSTRACT

The present structure for breeding sport horses in New Zealand was summarised. The New Zealand sport horse breeding population probably consists of about 5750 mares mated to 288 stallions. There are approximately 35,000 horses in the total recreation category of which about 4500 are registered for competition use with the New Zealand equestrian federation.

Most horses produced will be used locally but there is a lucrative export market. Breeders range from amateurs with 1-2 mares producing mainly for their own use through to professionals with sizeable herds. Some are heavily involved in exporting.

At present the industry lacks an effective genetic improvement structure. A high proportion of breeding stock are recruited from the racebred thoroughbred population and are not evaluated for a sport horse objective before entry. If sport horse breeding is to attain its potential a more efficient structure must be developed.

A industry objective was identified for the breeding, development, and competition system. Economic weights had to be subjectively derived due to limited industry data.

Alternative single stage schemes to generate genetic response in the proposed breeding objective were compared using deterministic models. Benefits and costs were predicted and analysed. The one day field test appeared to generate the most genetic progress and the best benefit-cost result of the single-stage sire-selection models. Station tests lasting 14 - 100 days gave good genetic gain although it was assumed that high costs would greatly limit the number of 3 year old colts tested as potential sires in comparison with the one day field test. Selection on data generated in competitions restricted to young horses also generated a good rate of genetic gain.

The use of the one day field test to evaluate dams of sires as well as potential sire candidates offered an 7.7% increase in total genetic response. This model offered the best benefit cost result due to greatest efficiency of genetic improvement but it also offered significant secondary benefits. However further research on other alternatives is desirable before an evaluation programme is firmly established.

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