

FACIAL ECZEMA — A STRATEGIC APPROACH

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ABSTRACT

Advisory Services Division has promoted and co-ordinated a problem solving approach to facial eczema. Results from the workshop provide a good example of the achievements possible when experience skills and knowledge are pooled.

The support enthusiasm and action of the workshop participants has resulted in a strategic plan to arrive at a clearly defined goal. Objectives have now been selected to substantially reduce losses for the Regions most serious animal disease.

Keywords: Facial eczema, damage, attitudes, control strategies, problems

INTRODUCTION

In 1981 the national loss from facial eczema damage was estimated to be \$58 million. In the Auckland Region lost production from sheep alone has been calculated to range between \$1 million and \$5 million according to seasonal conditions. Facial eczema damage is obvious when clinical symptoms appear but it is the sub-clinical or "unseen" damage which mask the major cause of loss in animal production. Researchers have presented farmers with a range of control methods however field observation reveals that adoption rates remain low. This paper reviews present knowledge and attitude to facial eczema and discusses results from a facial eczema workshop. A co-ordinated industry strategic plan to reduce the present unacceptable loss from facial eczema is presented.

SITUATION REVIEW

Facial Eczema Damage

Information about facial eczema damage to livestock in Northland can be obtained from AFFCO Moerewa Freezing Works reports, Animal Health Division reports (field and laboratory), and farm records. Preliminary assessment of this information revealed that:

1. Freezing works reports provide an indication of the incidence of facial eczema in sheep. During the facial eczema season each line of lambs killed has a sample of the livers assessed and the percentage of damage livers noted. However only affected lines are recorded and no indication of the total lambs killed from each farm is known. Analysis of Lands and Survey lamb killing for the 1984/85 season would suggest that works reports can be misleading. For example, some blocks had sent a high proportion of lambs to the works before the facial eczema season.
2. Animal Health Division Reports are based on spore levels at their core sites, freezing works data, laboratory reports from animals and specimens submitted and field observation. The reports are as thorough as they can be with existing monitoring methods. Improved methods for assessment of the incidence and severity of the disease would be necessary if an accurate account of facial eczema is sought.
3. Farm records could give an indication of the deaths and wastage associated with facial eczema but would only provide limited information. No account could be given to sub-clinical effects.

The information gathered by Animal Health Division would indicate that the incidence of facial eczema over the past six years was medium in 1980, high in 1981, low in 1982, 1983, 1984, and high in 1985. It appears the disease could follow a three year cycle of low, medium, high. Campbell and Wesslink (1973), Towers and Stratton

(1978), Moore and Sumner (1983) and Smeaton et al. (1982), have all reported sheep production losses at sub-clinical levels as a direct result of a facial eczema outbreak. Combined with records of clinical cases and deaths an overall picture of the effect of facial eczema can be derived. This has been summarised by Squire (1985) in Table 1 and effects of on sheep gross margin estimated.

TABLE 1

Average Liver	Damage Score	GGT Level	Average gross margin/Su
0	None	40	\$34.94
0-1	Minor	40 80	\$33.24
1-2	Mild	80 140	\$31.30
2-3	Moderate	140 250	\$28.64
3-4	Major	250 450	\$25.33
4-5	Severe	450 650+	\$18.48

TABLE 2

Percentage of Flock Affected	Financial Loss	
	Northland	Auckland Region
10%	\$0.50 million	\$1.00 million
25%	\$1.25 million	\$2.50 million
50%	\$2.50 million	\$5.00 million
Average Loss	\$1.42 million	\$2.83 million

By applying the financial effects of facial eczema to the incidence of the disease in Northland and the Auckland region an estimate of the economic loss can be calculated (Table 2) taking into account the following assumptions on the incidence and damage pattern for sheep affected with facial eczema.

Incidence: low, medium and high; 10%, 25% and 50% sheep affected respectively.

Damage pattern: 60% minor, 25% mild, 12% moderate and 3% major damage.

The damage pattern used would relate to an estimated two per cent of the sheep affected showing clinical signs of facial eczema.

Application of the financial analysis prepared by Squire (1985) and adjustment of the gross margins according to local returns provides the basis for estimation of the financial loss for Northland and the Auckland Region (Table 2). Although base data on the incidence and severity of facial eczema is scant for sheep production and almost non-existent for other livestock species it should be appreciated the financial loss is substantial.

Farmer Attitude

In general terms it seems farmers are well aware of facial eczema and the effect it could have on their flock or herd. Dairy farmers appear more receptive than sheep and beef farmers to advice and adoption of control measures. This observation is logical when you consider dairy farmers are in daily contact with their stock, have more intensive, easier contoured farm land and have the milk vat as a barometer of production. On the other hand sheep and beef farmers have generally not adopted control measures despite there being a number of options available. The applicability of present control options on sheep and beef farms are questioned. The extensive nature, difficult terrain, labour and associated expense all contribute to the hill country farmer opting to ignore the problem. Control methods depend on application before the facial eczema challenge and are invariably an increased cost. Farmers often choose to ignore the problem, take the chance, write off losses to clinicals and deaths, and look for other reasons for lowered animal performance.

Advisor Attitude

Farm advisors have promoted prevention measures and provided farmers with up-dated control methods in line with research findings. Dairy farmers have been responsive as already noted however the main concern is with the hill country sheep and beef farmer. As more data becomes available on the financial impact of facial eczema, adviser concern has increased, especially in relation to the low level of adoption of prevention measures. With increased knowledge of the sub-clinical effects it becomes even more obvious that the major financial loss is "unseen".

The whole facial eczema scenario has been questioned as advisors become more aware that advisory effort to promote management and breeding systems for increased product quantity and/or quality is being undermined by losses through facial eczema.

The situation review as outlined resulted in four key areas being identified:

1. Effectiveness of the facial eczema Warning System.
2. Applicability of control measures (especially on hill country sheep and beef farms).
3. Research and research needs.
4. Procedures for assessing the effect on facial eczema on livestock damage.

Responsibility for facial eczema control must be shared by farmers, veterinarians, Research Division, Advisory Services Division and Animal Health Division. Clearly there was a need for representatives from these groups to address the key issues and prepare guidelines for a strategic approach to facial eczema control.

THE FACIAL ECZEMA WORKSHOP

Thirteen selected representatives with facial eczema responsibility were invited to attend a two-day workshop in July 1985. The purpose of the workshop was to develop a co-ordinated approach to the issues mentioned. A concensus was sought when preparing a tern-6 of reference for future action.

Problems and Solutions to the four key issues were debated and summarised as follows.

Effectiveness of Warning System,	
Problems	Solutions
Monitoring method	
Based on spore counts	Pasture toxicity versus spore counts
Geographical generalisation and extrapolation	Review warning base
Same basic system for 20+ years	Less MAF dependancy
	More farmer involvement
	Predictive modelling
Warning communication	
Over frequent warnings	Change name of service
Answer phone lets MAF off question	Target audience
Close down over Christmas	Full media coverage (including Tv)
Dependancy on warning system	Regional co-ordination
Spore counts only; no follow up results	Include results of F.E. damage
Farmer awareness	
Do not know financial loss	Advisory package
Not receptive or interested	emphasising financial loss,
Do not want to get involved	control options, cost benefit
Do not want to know	and sources of advice

Comment

A need to inform farmers of the cost-benefit advantages/disadvantages of control options and to revise present warning system with the onus on farmers to take appropriate action.

2. **Applicability of control methods**

Problems **Solutions**

Avoiding toxic pasture

Need to spore count Spraying fungicide, dusting zinc: difficult, expensive, high risk (weather) need to apply before challenge Alternative fodder: need to budget/-make before facial eczema challenge. Less flexible and needs to have dual purpose role to warrant expense Grazing management: research lacking Alternative pasture species — expensive, some have low dry matter yields	Interim control measure Spore count to assess problem and identify safe paddocks Alternative safe, productive, pasture species Spore toxicity measure Cost/benefit analysis
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Zinc dosing

Labour intensive Animal health problems associated with yarding Need to spore count before decision to dose Timing number and cost of dosing Water trough method: need to drink from trough, distribution system Prevention only	Crisis control method Use portable yards Measure spore level Cost benefit analysis Strategic approach: treat replacement stock, finishing stock
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Breeding for resistance

Confined to sheep at present Long term Ram source Need buyer and breeder demand and comprehension Expensive to ram breeder	Long term control method Lobby dairy industry Need advisory package to convince ram buyer/breeder Simplified method to identify resistant sires
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Comment

Existing control methods can be categorised as follows:

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|----------------------|-----------------------------|
| 1. Interim control | ie, avoid toxic pasture |
| 2. Crisis control | ie, zinc dosing |
| 3. Strategic control | ie, dose replacement stock |
| 4. Long term control | ie, breeding for resistance |

3. **Research and research needs**

Problems **Solutions**

Information transfer

Delays getting results to field Available data under-utilised	Data base Cost benefit analysis Promote results
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Control methods

Zinc problem No multi-purpose vaccine/drench Pasture spore count but no toxicity measure No single dose or long term prevention No alternative to zinc	Multi-purpose vaccine/drench Alternatives to zinc Spore toxicity determination Treatment versus prevention Identify other fungal problems Data on indirect effects eg, shearing,
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Concurrent fungal disease	fertiliser etc
Indirect effects	Single dose to I.D. resistant sires
Efficiency of sporidesmin dosing in breeding programme	Use of genetic marker to identify resistant sires
Method of identifying resistant sires	

General

Limited data on production losses from sheep but almost non-existent for beef, dairy, deer etc	Analysis of all available data on facial eczema damage Research according to greatest need
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Comment

Emphasis on research effort for single dose prevention techniques, measurement of direct, indirect and carry-over effects for all major livestock species. Preparation of an accessible data base.

4. **Assessment of damage to livestock**

Problems	Existing data	Solutions
Data not collated and analysed	Collect, collate and analyse existing data	
No simple on farm measure of financial loss	Relate results to farm, district, region, country	
Data limited — sheep only	Co-ordinate effort	
Monitoring methods inadequate		
Losses not economically based		
Sub-clinical effects unknown		
Co-ordination poor		
	Proposed assessment	
No simple on farm test	Review and determine on-farm test and statistical requirements for regional assessment	
Limited financial resource	Determine funding requirements	
Cost of survey to assess damage (3-5 years)	Need to know carry-over effects	
Sampling procedure required all livestock and secure same	Co-ordinate effort	
No long term measurement technique		
Access to freezing works		
Carryover and cumulative effect		

Comment

An on-farm monitoring programme is necessary to measure the incidence, severity and losses from facial eczema. Results from this could provide valuable information on all major livestock types for establishing priorities for:

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|---------------------|-------------------------------------|
| 1. Individual farms | 2. Extension personnel |
| 3. Research workers | 4. New Zealand's livestock industry |

Workshop Summary

The final session of the workshop concentrated on defining objectives to meet a common goal. The goal and objectives agreed to are:

Goal

Improve animal production by reducing the impact of facial eczema.

Objective

1. Design a monitoring system to measure the effect of facial eczema damage,
2. Define the impact of facial eczema (cost/benefit analysis).
3. Review research and extension priorities.

Clear guidelines on strategies and direction to meet the goal have been agreed to

ACKNOWLEDGMENTS

To facial eczema workshop participants: Hartles, D.; Whitehouse, A.; Robinson, A.; Goodall, G.; Towers, N. R.; Reid, T. C.; Kearns, M.; Kake, W.; Van Rynbach.; Page, C. R.; Auld, M.; Currie, J. D.

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