NATIONAL PEST MANAGEMENT STRATEGY FOR BOVINE TUBERCULOSIS CONTROL

Paul Livingstone

INTRODUCTION

When the Biosecurity Act was passed in 1993, it was hailed as the beginning of a new era of legislation The Act was designed to be permissive and encompassing, rather than follow the prescriptive format of older legislation such as the Animals Act The Act was developed to manage a wide range of pests, be they plant, animal or microorganism It allows for a collective approach to pest management, either on a national or a regional basis, but requires that the benefits of implementing the management strategy must outweigh the costs

Under the Act all organisations, agencies or persons wishing to implement a National or Regional Pest Management Strategy for the control or eradication of pests must have their strategies approved by the appropriate Minister The Biosecurity Act includes a set of criteria that have to be met before the Minister can accept a National or Regional Pest Management Strategy (PMS) The Minister must be assured that stakeholders have been adequately consulted and that the strategy has the agreement of all affected parties with regard to their funding contribution, acceptance of scheme rules and enforcement provisions The Minister achieves this by publicly notifying the proposed PMS Unless satisfied that there is no opposition to the proposed strategy, the Minister must appoint a Board of Inquiry to review the proposal Once satisfied that the proposed PMS is acceptable, either through the public notification process or through a Board of Inquiry, then the Minister recommends that it be approved by Order in Council The maximum term of any proposed PMS is five years Under the Biosecurity Act the rules of the PMS, as approved by the Order in Council, will have a similar weight in law as regulations enacted under the old legislation

A PMS must cover the vagaries of managing a pest for up to five years, so the rules must be sufficiently broad to cover a range of contingencies Alternatively, another draft PMS, to include changes in the rules, will have to be produced and a further full round of consultation with its associated costs undertaken

Once approved by the Order in Council, then the Organisation or persons promoting the strategy will be offered the opportunity to manage the pest and be called the Pest Management Agency

Development of the Pest Management Strategy for Bovine Tuberculosis Control

For the purposes of the PMS for bovine tuberculosis control the pest is *Mycobacterium bovis* and animal vectors such as possums are defined as *pest agents*

In 1994, the Animal Health Board developed a draft PMS for bovine tuberculosis control This draft was sent to farmers and interested people and organisations for comment Approximately 100 submissions were received Acting on these submissions, a second discussion document called *Tb Beyond 2000* (Animal Health Board 1995) was produced This was sent out to all interested organisations and farmers for comment In addition, consultations were held throughout the country with Regional Councils, farmers and other interested parties and organisations The following is a summary of what is included in the discussion document *Tb Beyond 2000*

It must be noted here that the current levy arrangements for the control of bovine tuberculosis expire on 31 December 1995, and therefore unless a pest management strategy is enacted before 1 January 1996, there will be no legal mandate to allow a levy to be collected from farmers to cover the cost of tuberculosis control

SUMMARY OF THE DISCUSSION DOCUMENT 'TB BEYOND 2000'

1 The Tuberculosis Problem

The purpose of the strategy is to address the bovine tuberculosis problem in New Zealand, where herds become reinfected after contacting tuberculous vectors Tuberculosis can and has caused production losses in deer and cattle, especially dairy cattle Since the mid 1970's though, the test and slaughter regime has ensured that cases of generalised tuberculosis in cattle are rare with a consequent negligible affect on production However, there are still instances where tuberculosis causes production losses through wasting and death in farmed deer

Tuberculosis is also a zoonosis and humans are still being infected, although at negligible levels since pasteurisation of milk has become routine New human cases are now often associated with possum hunters in endemic areas

The major reason why tuberculosis is a problem though, is that it poses a threat to beef, dairy and venison exports Under GATT, it should be harder for overseas countries to impose trade barriers because of our tuberculosis status, provided New Zealand can show technical reasons why primary products are not at risk of being infected However, market perception of our tuberculosis problem has the potential to pose a far greater threat to acceptance by consumers of our primary produce Consumers may assume that because of the tuberculosis problem in our domestic and wild animals, products derived from them are unsafe for human consumption They may elect not to purchase these products

The total trade at risk is ($ million FOB)

Dairy	$3 42 billion
Beef	$1 10 billion
Venison	$0 12 billion
Velvet	$0.06 billion
	$4 70 billion

New Zealand is unlikely to lose $4 7 billion worth of trade It is more likely that consumers in a certain country may refuse to purchase a particular primary product or range, or of products because of concern over our tuberculosis status

In comparison to New Zealand's growing tuberculosis problem, our major trading partners and competitors are either free or virtually free of tuberculosis in their domestic livestock While our trading partners understand the tuberculosis problem confronting New Zealand, they expect our programme to be of an equivalent standard to theirs and to see that we are progressing towards eradication. The AHB considers that a national strategy is the best means of meeting our trading partner's needs

A regional strategy is unlikely to be acceptable to overseas authorities and markets, largely because they see the product as coming from New Zealand, rather than a region within New Zealand New Zealand's exporters also want the flexibility of being able to combine product from various regions to meet an export order This is unlikely to be acceptable under a regional strategy Further, a regional strategy would still require similar coordination for 'across-the-border' control measures as required in a national strategy Therefore the AHB considers that a national strategy is the most logical way of managing a bovine tuberculosis control programme

2. Whose Problem Is It?

The Biosecurity Act directs responsibility for managing a pest problem to those who benefit (classified as beneficiaries) and those who contribute to the problem (classified as exacerbators). The beef, dairy and deer industries are considered to be the major beneficiaries of the tuberculosis control programme, and land owners who harbour tuberculous vectors are considered to be the main exacerbators On this basis it was logical that the Animal Health Board who represent the beef, dairy and deer industries, should develop and promote the PMS for bovine tuberculosis control

3. Strategy Objectives

The objectives of the strategy are

i) To decrease the number of herds on movement control in non-endemic areas to 0.2%.
ii) To decrease movement control herds by 30%-50% and decrease number of reactors by between 50% and 70% in endemic areas
iii) To prevent the establishment of new endemic areas
iv) To prevent the expansion of existing endemic areas to farmland free of vectors
v) To increase vector control and tighten movement control restrictions to decrease the number and extent of endemic areas
vi) To encourage individual land owners to take responsibility for tuberculosis control on their own properties

4. Economic Assessment

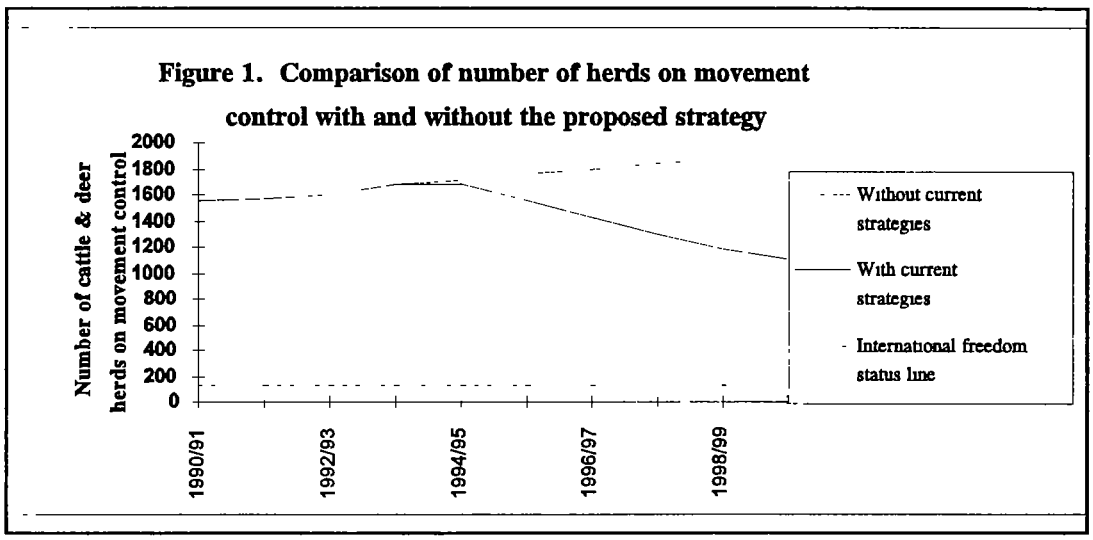
The Act requires that an economic assessment of the strategy be undertaken This must compare the "do nothing" option with the proposed strategy Under a "do nothing' option, there would be no

formal livestock testing or possum control Such a programme would not be acceptable to our overseas markets and would be a disaster for tuberculosis control in New Zealand Indeed the continued increase in number of movement controlled cattle herds since the early 1980s, is a witness to the impact that the reduction in vector control funding over the period 1979-1984 had on the spread of infection in vectors, both within these endemic areas and to new endemic areas. Stopping vector control has proven to be an illogical option for the New Zealand tuberculosis control programme.

An economic assessment of the proposed PMS was undertaken by an independent firm of consultants, Nimmo Bell The outcome of their economic assessment was that the costs associated with implementing the PMS would be equivalent to 2 2% of New Zealand's potential trade loss, estimated as equivalent to half our primary export earnings, or about $2 3 billion

Figure 1

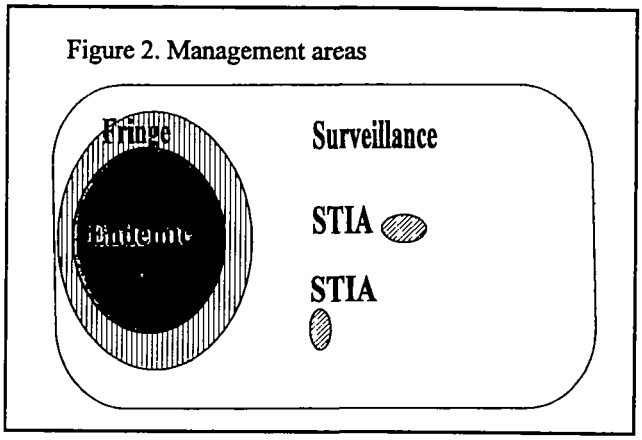
Figure 1 shows a comparison between the proposed tuberculosis control programme (parts of which were implemented in July 1993) and the programme that existed prior to July 1993 From this figure it can be seen that with the proposed strategy, the number of cattle and deer movement control herds is expected to decrease from approximately 1650 to approximately 1200 over the five years of the strategy The dotted line at the base of the diagram shows the international level for freedom from tuberculosis which is set at 0 2% of herds



5. Achieving Strategy Objectives

It is considered that the current management areas, that is, the Endemic, Special Tuberculosis Investigation Areas (STIAs), Fringe and Surveillance areas provide the best means of cost-effectively targeting control These are shown diagrammatically in figure 2

Figure 2. Management areas



Continued disease surveillance is required to monitor and manage the problem Disease surveillance will be achieved through the application of the test and slaughter programme as well as the routine inspection of carcases In some areas the frequency of whole-herd testing may need to be increased to identify low levels of infection existing in the cattle or farmed deer populations that have not been detected adequately by the current testing frequency In addition, surveys of wild animals may be required in some areas to better define the tuberculosis "front"

To restrict spread of tuberculosis, enforcement of the herd and area movement control policy is required In addition, vector control needs to be increased in at risk areas This includes the endemic areas, the fringe areas, and STIAS

To enable farmers and others in the industry to be more aware of the problem and allow them to reduce their perceived risks, it is important that they receive timely information from research and management findings.

Finally, to achieve these objectives, the regulatory system must be managed such that wherever possible, decision making is devolved to the lowest level possible

6 Management Philosophy - Time For A Change

Under the current scheme, a collective approach has evolved Tuberculosis control is funded by taxpayers and farmers on a national basis, and the scheme is managed at a national level. Intervention and regulation have increased to ensure coordination and compliance The scheme has tried to minimise the financial burden that individual farmers could face in order to encourage compliance with the scheme Farmers and others have since come to view the tuberculosis problem as a national problem and expect the scheme to be responsible for managing it

As a consequence, some stakeholders have argued that central control has gone too far and responsibility for ' the problem has been removed from individuals They argue that there is little financial incentive or disincentive for action or compliance By contrast, the Biosecurity Act directs that responsibility should remain as close to the source of the problem as possible and should rest with the beneficiaries and exacerbators In seeking to address these concerns the discussion document outlines options that would make individuals more responsible for the disease problem in their own herds and on their own property

Under these options, individual responsibility offers increased efficiency and reduces the need for cross-subsidisation, which under the current programme sees the transfer of money from surveillance areas to endemic areas

Individual responsibility should also encourage self regulation This is because the likely cost associated with being found with infected livestock will force farmers to take a far greater interest in the disease status of any animals they purchase and the status and density of vectors on their properties as well as properties where they graze their animals

The discussion document also identifies negative aspects associated with devolving responsibility to the lowest level These need to be weighed against the positive aspects of change It is considered that introduction of some measures may cause non-compliance to increase, or see the problem go "underground", such that infection will spread unknowingly into the wider farming industries in clear areas Examples of non-compliance have come to light in the deer scheme and with the Irish tuberculosis programme (O'Connor *et al* 1993), but are rare under the existing cattle scheme

The changes in management philosophy being proposed by the Animal Health Board are consistent with the free market reforms which have reshaped the New Zealand economy over the past decade In some extreme situations they may impose a severe financial burden, especially on farmers in endemic areas Some farmers may be forced to adopt major changes in farm management systems

The other negative aspect of the proposed changes may be an increase in transaction costs, which up to now have been minimised by the co-operative approach

7. Policy Changes Proposed

Note These are *proposed* changes, the decision as to which changes will be implemented will depend upon the outcome of the consultation process.

i) A progressive introduction of direct payment for testing charges
ii) A significant reduction in compensation
iii) Stricter movement control
iv) Land holder responsibility for vector maintenance
v) Increased technical support and incentives for high-risk farmers to adopt integrated management programmes.
vi) Gradual reduction in levies
vii) Increased Board support for self help and other educational programmes

7 1 Payment for Cattle Testing

7 1 1 Advantages

Direct farmer payment for herd testing should lead to increased efficiency Farmers will have a greater incentive to improve both their yard quality and throughput It also implies that farmers will have a choice as to who does their testing, provided the person undertaking the

tests has been accredited by the Chief Veterinary Officer More importantly it will provide positive market signals to farmers, which should result in them having a better appreciation of the financial implications of not managing their disease risk correctly

7 1 2 Disadvantages

The main disadvantage of direct payment for testing is noncompliance As farmers are paying directly for testing, some may avoid testing all cattle as a money saving measure The cost of monitoring to detect this type of non-compliance is high Direct payment will also involve bad debts and transaction costs These do not arise under the current cattle scheme, but are a component of the current deer scheme Direct payment also raises the question of testing integrity Because of the high cost associated with an infected herd, a few farmers may attempt to use commercial pressure to obtain a particular result This can largely be managed by requiring all testers to be part of a quality assurance programme, subjected to regular monitoring and auditing

7 1 3 *Options for Direct Payment*

i) No change - farmers continue funding testing through levy
ii) Farmers pay for all movement control, CCTs and other discretionary testing such as show testing It is estimated that this would cost farmers about $600,000 annually, mainly in endemic areas There would be a saving on the levy of about 28 cents
iii) Farmers pay for all discretionary testing and an estimated 60% of regular testing. This would cost farmers about $4 4 million annually and reduce the levy by about $2
iv) Farmers pay for all testing costs. This would cost farmers approximately $7 million annually and reduce the levy by $3 25 per animal slaughtered

7.2 Compensation Options

i) Retain compensation at the current level of 85% Fair Market Value (FMV)
ii) For two years, July 1995 July 1997, Non Visible Lesion (NVL) reactors would receive 65% FMV or carcase proceeds, which ever is higher Lesion reactors would only receive carcase proceeds The increased payment for NVL reactors is an acknowledgment that the test is not one hundred percent specific However, this serves to wrongly reinforce in farmers minds that NVL reactors are not tuberculous.
After July 1997, all reactors would only receive carcase proceeds, but the Animal Health Board would continue paying cartage to slaughter
iii) All reactors would receive 55% FMV and the AHB would pay for cartage
iv) Farmers would only receive carcase proceeds, the Animal Health Board would pay for cartage
v) Farmers would only receive carcase proceeds and pay their own cartage

7.3 Movement Control Policy

It is proposed that there should be a tightening of movement control requirements for animals in 'at risk' herds The reason for the proposed change is that some farmers consider the current policy provides insufficient protection for clear herds in clear areas In addition, the tighter controls will

provide market signals and incentives for individuals to take the problem more seriously, which is consistent with the Animal Health Board's philosophy

Movement control options for cattle are

i) Continue with the existing system
ii) Continue with the existing system but require all in-contact animals to test clear at the pre-movement test
iii) As for (ii) but animals over 12 months of age can only go for slaughter
iv) As for (ii) but movement is only allowed within endemic areas or to slaughter. No animals may leave an infected movement controlled herd and move into a clear surveillance/fringe area.
v) Herds that purchase cattle or deer from movement controlled herds, that is, white-tagged cattle or deer, will have their herd status suspended and require further whole-herd tests to regain their previous herd status
vi) Cattle from infected herds may only go direct for slaughter
vii) Cattle or deer from any herd under movement control can only go for direct slaughter

Table 1 compares costs associated with a movement controlled herd within an endemic area, and an accredited dairy herd and a Tb-free finishing unit both in non-endemic areas, under a possible free-market scenario

Table 1. Assessed cost to farmers in three management regimes under a possible free-market Tb management scheme

	Movement control herd	Accredited dairy herd	Tb-free finishing unit
Testing (direct payment)	$1,090	$64	-
Compensation loss	$1,350	$0	$0
Levy reduction	-$420	-$240	-$930
Vector control	$2,180	$0	$0
Discount on sale of livestock	$3,250	$0	$0
Total additional cost	$7,450	-$176	-$930

From this we can see there is an additional cost for the owner of a movement controlled herd in an endemic area of approximately $7,500/annum, whereas the accredited dairy herd owner will be better off by $176/annum, and the Th-free finishing unit will be better off by $930/annum

8. Funding Principles and Assumptions of the Pest Management Strategy

The provisions of the Biosecurity Act requires that the PMS should be user pays based on beneficiary/exacerbator principles The AHB considers that

i) all New Zealanders benefit, but dairy, beef and deer farmers are the major beneficiaries,
ii) the real Tb risk to individual farm businesses should not be masked by a collective approach,
iii) some Crown support is justified to reflect the benefits that all New Zealanders derive from the export of our primary produce,
iv) additionally, the Crown as an exacerbator would fund vector control on the Crown estate and a one kilometre strip of adjacent farmland,
v) individual or direct payment is preferred to encourage responsibility and economic efficiency;
vi) regional councils must have the flexibility to establish the regional vector control funding they need in their area

9. Options for Land Owner Representation

Obviously if land owners are required to fund vector control, they need to have representation. It is considered that regional councils are in the best position to provide such representation as

i) they represent land owners on other resource issues,
ii) regional action would be expected if there was no national strategy for bovine tuberculosis,
iii) they can integrate vector management with other regional pest management activities,
iv) they already have decision making mechanisms in place,
v) they have the ability to collect funds from a variety of sources to meet their obligations

The only other means of landowner representation would be through the Regional Animal Health Committee, but they would have no way of collecting funds for vector control

9.1 The role of the regional council

i) The discussion document proposes that regional councils would be responsible for regional vector policy and management subject to meeting the national pest management strategy requirements to the satisfaction of the Animal Health Board. Options for regional councils are

   A management service contract for vector control Regional councils would contract to undertake AHB vector control work in a similar manner to the current arrangement

ii) A policy contract with the Animal Health Board As a funder, this would allow regional councils to participate in policy making decisions To be effective, regional councils would have to have a clear policy/delivery split Vector control would be contracted out

iii) An integrated Regional Pest Management Strategy, that includes vector control

i) It is proposed that the Animal Health Board would fund the initial control, provided there was an agreement to fund ongoing maintenance
ii) The Crown would fund all control on the Crown land adjacent to properties where there was a vector-related problem provided vectors were controlled on the adjacent ratable land.
iii) The Animal Health Board would fund all preventive (BLIP) vector control at new breakdown sites
iv) Land owners/regional councils would over the 5 year period of the strategy, fund an increasing percentage of maintenance control
v) The Animal Health Board would provide funding support for maintenance in approved programmes in endemic areas

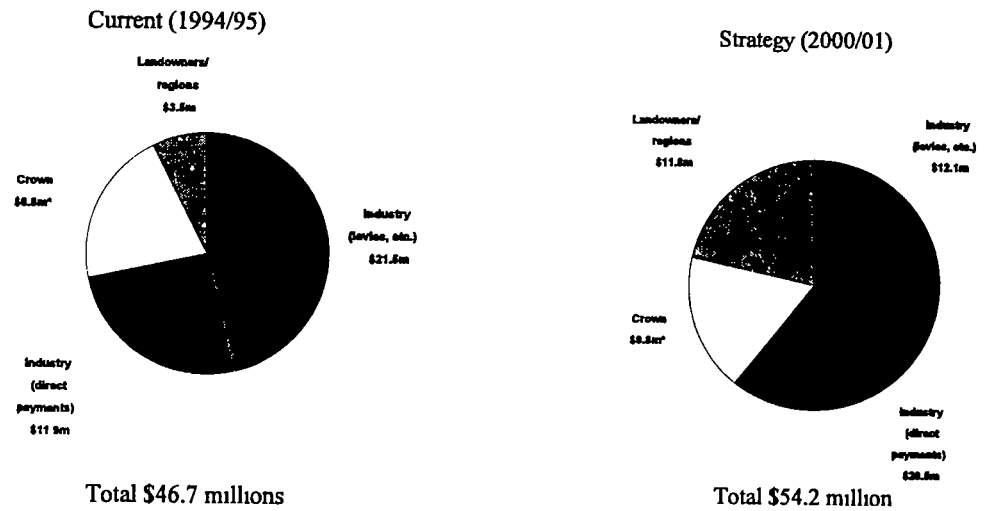
Vector control funding priorities are

a) Preventive control in surveillance areas and ongoing maintenance obligations,
b) Buffer areas and STIAS,
c) Agreed programmes for endemic areas

9.3 Vector Management Responsibility

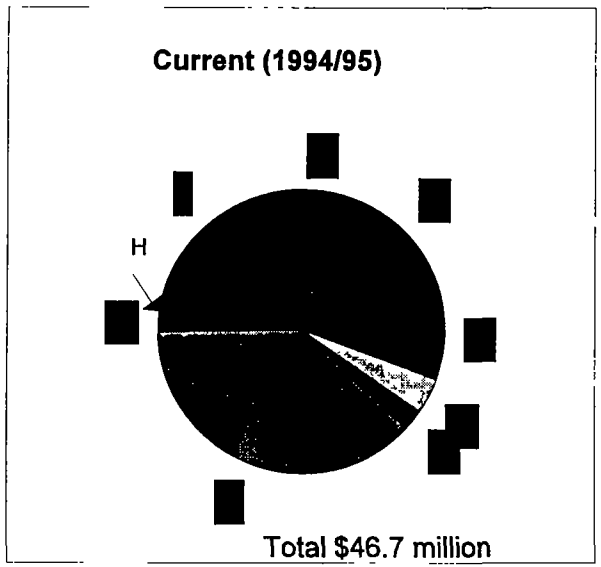
The Biosecurity Act directs that vector management should lie as near to the source of the problem as possible. Ultimately responsibility **should rest** with the land owners but as has been seen with the Rabbit **and Land** Management problem, this is probably an ideal

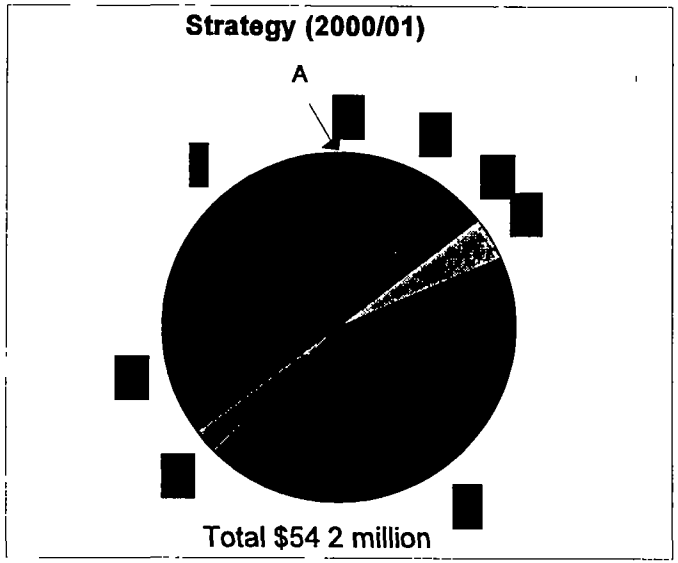
Figure 3: Comparing current funding contribution with that under the strategy in 2000/2001



Excludes public good and other Crown funded research of $9 5m

Figure 4: Comparing current expenditure to that under the strategy in 2000/2001.





	Current $		Strategy $
A	1 8m	Reactor Compensation (cattle	A 0 2m
B	8 0m	Cattle testing (levy)	B 1 0m
C	4 6m	Scheme management	C 4 9m
D	1 8m	Research	D 2 0m
E	1 0m	Education and Communications	E 2 1m
F	17 6m	Vector Control	F 23 5m
G	1 3m	Deer testing (direct payment)	G 1 3m
H	0m	Cattle testing (direct payment)	H 7 0m
I	10 6m	Other on-farm costs mustering, reactor losses, etc	I 12 2m

10. Strategy approval:

Steps towards Ministerial approval of the Pest Management Strategy are as follows

a) Three hundred and thirty written submissions have been received, and thirty individuals/groups made oral submissions to the AHB These submissions will be reviewed by the AHB at a meeting in May 1995

b) A revised draft PMS will be presented to the AHB for approval in June 1995 It will then be released to the major sector groups for comment

c) Any major concerns will be addressed, and the draft PMS will be presented to the Minister of Agriculture in August 1995

d) The Minister will publicly notify the draft PMS

SUMMARY

In summary, the discussion document 'TB beyond 2000', promotes the concept of individual responsibility for tuberculosis control Under the proposal, those affected will have to pay more, and as a consequence there will be a reduction in levies for those who do not have a problem

AHB proposes that this be achieved by direct payment for testing, reduced compensation and tighter movement control restrictions More technical information and self-help will be provided to farmers with a Th problem In addition, more resources will be allocated for vector control, but land owners will also be responsibility for vector maintenance

The role of the regional council in managing vector control is still to be identified.

REFERENCES

Animal Health Board (1995) Th Beyond 2000 Towards a National Pest Management Strategy Animal Health Board, Wellington 60p

O'Connor, R. A Lonway and M Murphy (1993) Study of Socio-Economic Impediments to Bovine Tuberculosis Eradication Economic and Social Research Institute, Ireland 215p