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NATIONAL BEEKEEPERS' ASSOCIATION of NEW ZEALAND (INC.)

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Allen

The paper 'National Pest Management Strategy for American Foulbrood Disease' has been allocated to session two on day two of the Summit. That is, sometime about early/mid morning on **Wednesday 5 July**.

Richard Alspach, Chairman of Animal Health Board is on two before you...

Should you need to talk with anyone you can contact David Hamilton, Otago Regional Council, ph 474 0827, fax 479 0015.

Following is the abstract I prepared for the talk...

American Foulbrood National Pest Management Strategy

Nick Wallingford, President
National Beekeepers Association of NZ

1 Introduction

The National Beekeepers Association of New Zealand is well down the track toward a national pest management strategy (NPMS) in order to control and ultimately eradicate American foulbrood (AFB), a serious bacterial disease of honey bees. This paper describes some of the background and process of the development.

2 Nature of the Industry

There are 5,565 beekeepers in New Zealand who maintain a total of 289,875 bee hives. Most people who keep bees are hobbyists, owning only a small number of hives. The commercial industry, though smaller in numbers of beekeepers, owns the vast majority of the hives.

3 Nature of American Foulbrood

Bacillus larvae, the causative organism of AFB, is widely distributed in managed and feral honey bee colonies throughout New Zealand. Cases of AFB are reported in approximately 1% of the nation's beehives and 5% of apiaries annually. However, the true incidence of the disease is higher, since not all cases are found, and not all cases found are reported.

An unusual but significant aspect is that the disease spreads primarily within a beekeeper's hives through the transfer of equipment between the hives. New outbreaks are caused by bees 'robbing' the remaining honey from colonies that have died from the disease. All beekeepers, then, are part of the problem, and must share to some extent in the responsibilities of control.

4 AFB Control Costs and Goal of the NPMS

The necessity to control AFB is a major cost to the New Zealand beekeeping industry. The cost can be divided into two parts: the cost of the hives that have to be destroyed, and the cost of inspecting colonies. The combined cost is estimated to be \$2.96 million per annum or roughly 6.1% of the annual gross returns of the New Zealand industry.

Without a control programme for AFB, and the powers to enforce disease inspection and eradication, the incidence of AFB would rise significantly. For every 1% increase in the incidence of the disease in managed colonies, the resulting loss to the beekeeping industry is estimated to be \$760,000 (loss of hives, disposal cost and loss of production), or approximately 1.6% of the annual gross returns of the industry in New Zealand.

Increases in the incidence of AFB would result in decreased profitability for beekeeping enterprises and the eventual inability of beekeepers to safely move their hives to many areas for pollination and honey production purposes. Costs for pollination of horticultural crops would likely rise. Failure to control AFB would also have an adverse affect on the beekeeping industry's ability to export honey, bee products and live bees.

The goal of the NPMS is to eliminate the occurrence of AFB in beehives in New Zealand. The plan is to reduce the incidence of the disease from the present approximately 1% per annum to 0.1% by the year 2006.

5 The Need for an AFB NPMS.

The beekeeping industry has had an organised inspection and control programme for AFB since 1907. With removal of government support for AFB control in 1991, the NBA began contracting MAF Quality Management to provide AFB inspection and control services. An NPMS for AFB has had to be developed, however, because the Biosecurity Act will repeal all AFB control parts of the Apiaries Act in 1996.

The NBA is thus faced with developing a NPMS simply to continue running a disease control programme it already fully funds.

6 Difficulties on the Path to a NPMS

For an industry such as beekeeping, a NPMS is challenging and expensive but is still vitally necessary. The requirements related to consultation and communication and the actual process of development of the strategy are nearly as expensive for our industry as for considerably larger industries with greater resources. The consequent unit cost to beekeepers for NPMS development makes it therefore that much more important that it be done properly.

Working with new legislation is never easy. The NBA has experienced a noticeable reserve in obtaining clear advice and assistance from government in developing our NPMS. For an Act that purports to be 'enabling', at a minimum allowing an industry to recreate an existing disease control programme, we have experienced a conservative and guarded approach to advice to meet requirements of the Act.

Organisations desiring a NPMS require considerable amounts of patience, expertise, resources and persistence in order to surmount the hurdles of adequate consultation and documentation.

For many smaller industries, the resources will simply not be there for such a sustained endeavour, and a subsequent loss of pest and disease control programmes may result.

AMERICAN FOULBROOD NATIONAL PEST MANAGEMENT STRATEGY
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Paper for Pest '95 Summit

(4 tables included in text)

Prepared by Nick Wallingford, President - National Beekeepers Assn

Presented by Allen McCaw, Disease Committee

INTRODUCTION

Thank you for the opportunity to describe the development of a national pest management strategy for American foulbrood for the beekeeping industry.

The National Beekeepers Association of New Zealand is well down the track toward a national pest management strategy (PMS) in order to control and ultimately eradicate American foulbrood (AFB), a serious bacterial disease of honey bees. This paper describes some of the background and process of the development.

I believe you'll see that most of our experiences will be similar to those of other agencies trying to navigate their way through the Biosecurity Act. Hopefully, I will be able to highlight a few differences that might be useful in broadening and refining the approaches taken by potential management agencies, policy advisors and the government officials who deal with such organisations as ours.

THE BEEKEEPING INDUSTRY - SIZE AND HISTORY

Beekeeping is not well known or accurately perceived as a primary production and servicing industry. We are not just a group of people who keep a few hives in their backyard. Commercial beekeepers are highly skilled managers of insects, with interests and abilities ranging from population biology to botany through to food technology and sales.

There are 5,565 beekeepers in New Zealand who maintain a total of 289,875 bee hives. Most people who keep bees are hobbyists, owning only a small number of hives. The commercial industry, though smaller in numbers of beekeepers, owns the vast majority of the hives.

The semi- and fully commercial beekeepers, only about 500 in number, manage 90% of the beehives.

Table 1: NZ Beekeeping at 30 June 1994

Category	Beekeepers	Apiaries	Hives
1-5 hives	3,729	4,301	8,197
6-50 hives	6,326	3,235	20,068
51-250 hives	255	3,122	32,151
251-500 hives	98	2,403	35,687
501-1000 hives	90	4,473	69,189
1,001 hives plus	67	7,797	124,583
Totals	5,565	25,331	289,875

As well as producing honey for both local and export markets, the industry produces a number of other products from the beehive.

The sales of package bees (literally 'packages' of worker bees and a queen to stock hives in the northern hemisphere spring) has been a significant development for the industry.

Beekeepers provide a paid pollination service, hiring over 90,000 hives annually for pollination purposes, at a value of \$8.8 million to the beekeeping industry.

Table 2: Income Produced for the NZ Beekeeping Industry (1993 figures, \$ in millions)

Product/service	Income
Honey (domestic)	27.8
Honey (export)	7.5
Beeswax	1.1
Pollination services	8.8
Live bees	2.3
Health products	0.7
Total	\$48.2

The unpaid pollination work honey bees do has an even greater benefit to the New Zealand agricultural system. The value of honey bees to the environment is worth up to 100 times the value of the actual honey and bee products they directly produce.

Table 3: Value of Honey Bee Pollination to NZ Primary Production (1992 figures, \$ in millions)

Crop	Value
Vegetables, seed crops	211.3
Fruit crops	1,004.8
Replacement nitrogen from pollination of pasture legumes	1,872.4
Total	\$3,088.5

Honey bees were first brought to New Zealand by Miss Mary Bumby in 1839. Bees were kept in traditional straw skeps or wooden boxes with frames. The use of moveable frame hives in the 1880s provided the foundation for modern commercial beekeeping.

The National Beekeepers Association was founded in 1914, and is the principal beekeeping industry organisation in New Zealand. The NBA represents the interests of beekeeping at a national level. It encourages beekeepers to work together for the betterment of the industry and to plan for its future growth.

Membership is open to any individual or organisation, and is automatic for beekeepers owning 50 hives or more, who pay a levy under the Hive Levy Act 1978.

AMERICAN FOULBROOD

American foulbrood is the disease the beekeeping industry has addressed in the development of our proposed National Pest Management Strategy.

Bacillus larvae, the causative organism of AFB, is widely distributed in managed and feral honey bee colonies throughout New Zealand. The disease spreads primarily within a beekeeper's hives through the transfer of equipment between the hives. It leads to the death of the bee colony. New outbreaks are caused by bees 'robbing' the remaining honey from colonies that have died from the disease.

The disease is specific to honey bees; it has no effect on the food safety of honey. It is not a disease of humans in any form.

American foulbrood is widespread throughout the world's beekeeping countries. In almost all other countries, antibiotics are fed to bees as a matter of course for prevention and treatment.

Antibiotic use has come compelling operational and marketing disadvantages.

The current Apiaries Act requires steps to eradicate the disease and prevent its spread. For most beekeepers this means burning the bees, combs, honey and hive equipment, and burying the remains.

About 5% of apiaries (1% of the hives) are infected nationally. However, the true incidence of the disease is higher, since not all cases are found, and not all cases found are reported.

Table 4: Incidence of American Foulbrood to 30 June 1994 (1993 figures in brackets)

Diseased Apiaries	Diseased Hives	Apiaries Inspected by NBA Programme
1,282 (1,276)	2,226 (2,663)	1,871 (1,963)
5.1% (5.1%)	0.9% (0.9%)	7.5% (7.8%)

American foulbrood has been with New Zealand beekeepers for over a century. The first attempt to legislate for its control was in 1906.

Most provisions of the current legislation, the Apiaries Act 1969, will be repealed by the Biosecurity Act in 1996, compelling us to work with the Biosecurity Act provisions.

DEVELOPMENT OF A PEST MANAGEMENT STRATEGY

The necessity to control AFB is a major cost to the New Zealand beekeeping industry. The cost can be divided into two parts: the cost of the hives that have to be destroyed, and the cost of inspecting colonies. The combined cost is estimated to be \$2.96 million per annum or roughly 6.1% of the annual gross returns of the New Zealand industry.

Without a control programme for AFB, and the powers to enforce disease inspection and eradication, the incidence of AFB would rise significantly. For every 1% increase in the incidence of the disease in managed colonies, the resulting loss to the beekeeping industry is estimated to be \$760,000 (loss of hives, disposal cost and loss of production), or approximately 1.6% of the annual gross returns of the industry in New Zealand.

Increases in the incidence of AFB would result in decreased profitability for beekeeping enterprises and the eventual inability of beekeepers to safely move their hives to many areas for pollination and honey production purposes. Costs for pollination of horticultural crops would likely rise. Failure to control AFB would also have an adverse affect on the beekeeping industry's ability to export honey, bee products and live bees.

The costs, direct and indirect, of management and treatment led us to approach American foulbrood as an 'undesirable organism' under the Biosecurity Act, and

develop a Pest Management Strategy to deal with it. It should be remembered that the control has been an on-going programme for many years, and the Biosecurity Act has only necessitate a re-statement of a pre-existing requirement.

The beekeeping industry has had an organised inspection and control programme for AFB since 1907. With removal of government support for AFB control in 1991, the NBA began contracting MAF Quality Management to provide AFB inspection and control services. An PMS for AFB has had to be developed, however, because the Biosecurity Act will repeal all AFB control parts of the Apiaries Act in 1996.

Our attempts to ensure the adequacy and continuity of a disease control programme led to one paid for by the National Beekeepers Association, which has placed quite a financial burden on beekeepers.

The attempt to obtain a Pest Management Strategy for American foulbrood is to some extent a formalisation of policy direction (and payment) from the industry which has been the case for the last few years. The NBA is faced with developing a PMS simply to continue running a disease control programme it already fully funds.

In several important areas, however, development of the proposed PMS allows for an industry initiated vision of disease control to emerge.

When the long-expected Biosecurity Act finally appeared, our industry formed the Disease Committee to prepare the NBA for the new and demanding requirements. The committee has worked effectively over several years, doing the preparation and consultation work required for PMS development.

The goal of the PMS that has emerged is to eliminate the occurrence of AFB in beehives in New Zealand. The plan is to reduce the incidence of the disease from the present approximately 1% per annum to 0.1% by the year 2006.

Our strategy has so far gone through 6 major versions changes, with opportunities for input and comment. The contents of version 5 were used as the basis for a Roadshow involving numerous presentations and discussions around the country. The final version of the strategy will be presented and discussed at the NBA Conference next week. The Disease Committee is currently developing the PMS 'Rules' and 'Regulatory Management' sections.

FUNDING FOR THE BEEKEEPING PMS

As fate and politicians would have it, our organisation had to face another change at the same time. While most of the Apiaries Act was lost to the Biosecurity Act, the Commodity Levies Act was eliminating our funding base.

We have had to put forward proposals, consult and demonstrate overall acceptance for both a levy to maintain our organisation and for a PMS.

To reduce costs in obtaining and complying with both Acts, we have chosen to raise all levies using the Commodities Levy Act. That is, the levy will cover administration, marketing and disease control programmes.

We have not used the less demanding requirements for levying contained in the Biosecurity Act, but rather used that Act for the powers required to carry out the PMS.

USING BIOSECURITY - THE GOOD AND THE BAD

In many ways, the process of PMS development for the beekeeping industry has been an exciting and interesting one. We have provided a mechanism to develop an industry strategy for American foulbrood, describing what it is we want to do and why.

We have been able to discuss and speculate on many ways of approaching and solving the problems and issues that have arisen.

We appreciated the fact that since we were paying we could decide the nature and operation of the programme required.

A PMS for a small industry is a particularly expensive exercise. The requirements related to consultation and communication and the actual process of development of the strategy are nearly as expensive for our industry as for considerably larger industries with greater resources. The consequent unit cost to beekeepers for PMS development makes it therefore that much more important that it be done properly.

We have developed our strategy with a clear belief that as beekeepers wanted the strategy and beekeepers would be paying for it, beekeepers should be able to use this 'empowering' and 'enabling' legislation with relative ease. We have not always found that to be the case.

New legislation is often difficult in operation. We feel, however, that our work to date has been more difficult and demanding than should be the case if the Act is to be effectively used. Note how few PMSs are being developed by industries such as ours. I am sure many of those industries do have requirements for their own PMSs.

Organisations desiring a PMS require considerable amounts of patience, expertise, resources and persistence in order to surmount the hurdles of adequate consultation and documentation. For many smaller industries, the resources will simply not be there for such a sustained endeavour, and a subsequent loss of pest and disease control programmes may result.

A PMS for American foulbrood involves an unwanted organism already present in NZ. A PMS for an exotic outbreak poses some particular and expensive problems, and our industry has so far not had time to consider them all.

We believe, however, that a more 'seamless' approach to biosecurity is required for industries such as ours. One cannot change risk levels or cost apportionment among any of the related activities without considerable impact on the others.

We want clear recognition of biosecurity as a national asset for an industry such as beekeeping. We believe a more equitable approach to the overall problem is required and can be negotiated.

CONCLUSION

As described, the process of developing a PMS and the costs of running one are substantial for an industry such as beekeeping, even with general agreement on the necessity.

We have faced the funding issues differently than most proposers of national strategies.

We have proposed and consulted on our PMS, and expect to successfully make use of the Biosecurity Act.

We do, however, believe there is a real need for more timely, consistent and reliable advice for those of us making serious efforts to work with the Biosecurity Act.

The NBA has experienced a noticeable reserve in obtaining clear advice and assistance from government in developing our PMS. For an Act that purports to be 'enabling', at a minimum allowing an industry to recreate an existing disease control programme, we have experienced a conservative and guarded approach to advice to meet requirements of the Act.

American Foulbrood National Pest Management Strategy

Prepared by Nick Wallingford, President -
National Beekeepers Assn
Presented by Allen McCaw, Disease
Committee



Nature and size of industry...

'Bug keepers'

Hobbyists: 90% of beekeepers, but only
10% of the beehives

Commercial: 10% of beekeepers, but
90% of the beehives



Products and services...

Honey

Other products of the hive (beeswax,
propolis, pollen)

Live bees and queens

Pollination (paid and unpaid)



History of the industry...

Beginnings

Hive Levy Act 1978

Current structure



American foulbrood (AFB)...

Causative organism is a bacteria

Transmission of infections

Specific to honey bees

Early legislation to control

Apiaries Act 1969



Distribution and control methods for AFB...

In other countries

Almost universal distribution

Treatment with antibiotics

In New Zealand

Present in all parts of the country

Treated by destroying bees, burning most
of the equipment



Movement towards Biosecurity Act...

Intent to make the service a charge to
beekeepers signaled almost 10 years
ago

Industry paying for last 3 or 4 years for
services received



NBA Disease Committee...

Formation of committee

Development of early drafts

Intention to eradicate

Consultation involved

PMS Roadshow

Current status

Presentation to NBA Conference

Development of associated rules for
operation



Funding a PMS for AFB...

Involvement with Commodity Levies

Intention to apply for variety of levies
using Commodity Levies

Inclusion of levying abilities in
Biosecurity Act



Positive aspects of developing a PMS...

Focus on problem

Focus on solutions available

Recognition of 'who pays the piper'...



Difficulties and negative aspects...

Cost of development for small industry

Not so 'empowering' and 'enabling' as it
was intended

Need for timely, consistent and reliable
policy advice



Future biosecurity for beekeeping...

PMS for exotics even more difficult

Desire for 'seamless' approach to
biosecurity

Import control

Border protection

Surveillance

Emergency response



Conclusion...

Small industries face special problems
in developing a PMS

Different approach to funding

Need for good advice if Biosecurity Act
to be used into the future

