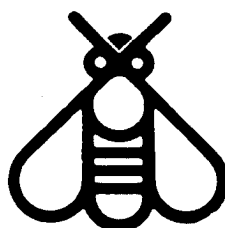


**NATIONAL PEST MANAGEMENT STRATEGY**

**AMERICAN FOULBROOD**

**NATIONAL BEEKEEPERS' ASSOCIATION OF  
NEW ZEALAND, INC.**



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To all of these people, a sincere vote a thanks. The beekeepers of New Zealand owe you a great debt, which I am sure they will repay in the future by eliminating American foulbrood from New Zealand beehives.

Nick Wallingford, President  
National Beekeepers' Association

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## TERMS AND ABBREVIATIONS USED FOR THE PURPOSES OF THIS STRATEGY

Accredited Person	A person appointed under Section 103 of the Biosecurity Act to perform American foulbrood inspection and disease elimination work under the supervision of an Authorised Person.
AFB	American foulbrood, a disease of <i>Apis mellifera</i> caused by the bacterium <i>Bacillus larvae</i> ; and “a case of American foulbrood” or “a case of AFB” means a honey bee colony displaying visual symptoms of the disease.
Annual Disease Declaration	An annual statutory declaration in which a beekeeper confirms and updates apiary location details and reports all clinical cases of American foulbrood found in his/her beehives during the proceeding twelve months; due June 1.
American foulbrood	A disease of <i>Apis mellifera</i> which causes brood mortality and in many cases colony collapse; caused by the bacterium <i>Bacillus larvae</i> .
apiary	Any place where beehives are kept for a period of more than 30 days, provided the place is more than 200m from any other such place occupied by beehives belonging to the same beekeeper.
apiary register	A register of beekeepers, apiary locations and reports of American foulbrood created and maintained for the purposes of this strategy.
<i>Apis mellifera</i>	The common or western honey bee, which is the only <i>Apis</i> species present in New Zealand; a highly structured social insect which produces surplus honey and is an efficient pollinator of a wide-range of flowering plant species.
appliance	Any beehive, honey bee comb, extractor, or other object that has been used in connection with beekeeping.
“Approved Beekeeper”	A beekeeper with a current Disease Elimination Conformity Agreement, or a beekeeping employee designated as responsible for disease elimination standards in an Approved Beekeeping Enterprise.
“Approved Beekeeping Enterprise”	A beekeeping enterprise which has a current Disease Elimination Conformity Agreement.
approved inspections	Inspections of beehives for the presence of clinical cases of American foulbrood carried out by an “Approved Beekeeper”.
Authorised Person	A person appointed under Section 103 of the Biosecurity Act to exercise powers conferred to Authorised Persons under this strategy.
<i>Bacillus larvae</i>	A spore-forming bacterium which is the causative agent of American foulbrood; spores of the bacterium are sometimes present in honey and can easily be transmitted between honey bee colonies by man or by the bees themselves.
beekeeper	A person who owns or leases beehives, or is employed in beekeeping activities.
beekeeping employee	A person who is employed in beekeeping activities.
beekeeping enterprise	A beekeeping partnership or beekeeping business employing labour.
beehive	An object which has been constructed for the keeping of honey bees; also the colony of honey bees for the time being living in such an object.
bee product	Honey, honey-dew, beeswax, venom, propolis, pollen, or royal jelly, and includes any other product collected by honey bees or derived from honey bees or bee products.
Certificate of Inspection	An annual statutory declaration that beehives owned by a person without a current Disease Elimination Conformity Agreement have been inspected for American foulbrood by an “Approved Beekeeper”; due December 15.

Chief Technical Officer	A person appointed by the Director-General of Agriculture to be in charge of and responsible for this strategy. The Director-General anticipates appointing the Chief Veterinary Officer as a chief technical officer for this strategy.
comb	Any structure of cells constructed from beeswax by honey bees.
contaminated	In relation to materials associated with honey bees, means to contain sufficient spores of <i>Bacillus larvae</i> to initiate a clinical infection if those materials were to come into contact with a colony of honey bees.
default inspection	An inspection of beehives for the presence of clinical cases of American foulbrood carried out by the Management Agency when an individual defaults on a notice given under the strategy rules to carry out such an inspection. All default inspections under this strategy are subject to the cost recovery provisions contained in the rules of this strategy.
Director-General	The chief executive of the Ministry of Agriculture.
disease	American foulbrood, the honey bee disease caused by the bacterium <i>Bacillus larvae</i> .
Disease Elimination Conformity Agreement	A document signed with the Management Agency in which a beekeeper details a personal plan for eliminating American foulbrood within his/her own beehives.
feral colony	A colony of honey bees which is not residing in a beehive or a sealed package used to ship honey bees.
frame	A device constructed for the purposes of holding comb in a beehive.
honey	The fluid, viscous, or crystallised substance produced by honey bees from the nectar of blossoms or from secretions of, or on, living parts of plants other than blossoms, which bees collect, transform, or combine with substances of their own, and store in honeycombs.
honey bee	The honey bee ( <i>Apis mellifera</i> ) including its eggs, larvae, pupae, and semen.
infected	Infected with a clinical case of American foulbrood.
land occupier	The person, group or organisation occupying a piece of land where an apiary or feral colony is located.
MAF Qual	MAF Quality Management.
MAF RA	The Regulatory Authority of the Ministry of Agriculture.
Management Agency	An organisation that administers and carries out a Pest Management Strategy under provisions of the Biosecurity Act. In relation to this strategy, the National Beekeepers' Association of New Zealand (Inc).
Minister	The Minister of Agriculture.
moveable frame hive	A beehive containing frames in which the combs are built, and which may be separately and readily removed from the beehive for examination without causing damage to the combs.
NBA	The National Beekeepers' Association of New Zealand, Inc.
occupier	In relation to any apiary the person by whom the beehives on that apiary are owned or leased and "occupied" has a corresponding meaning.
permanent apiary	An apiary where beehives are kept throughout the year.
PMS	A Pest Management Strategy. In relation to this strategy, the American Foulbrood National Pest Management Strategy seeking approval under Part V of the Biosecurity Act.



OIE	Office International des Epizooties.
registered apiary	An apiary registered under the rules of this pest management strategy.
registered beekeeper	A person who owns beehives and has registered the apiaries containing those hives as required under the strategy rules.
robbing	A behavioural response in which honey bees from a colony forcibly remove honey from another honey source.
robbing apiary	An apiary where extracted honey combs are purposely exposed so that they will be visited by foraging honey bees; used to dry "wet combs".
seasonal apiary	An apiary where beehives are kept for only part of a year.
spore test	A laboratory test used to determine the presence of <i>Bacillus larvae</i> spores in honey bees and bee products.
unregistered beekeeper	A person who owns beehives and who has failed for whatever reason to register the apiaries containing those hives as required under the strategy rules.
wet combs	Honey combs that have had the honey extracted from them, but which still retain small amounts of honey residue (ie., they have not been "dried out" by placing them in contact for a short time with honey bees).

## 1. PROPOSER OF STRATEGY AND NOTIFICATION OF STRATEGY

The National Beekeepers' Association of New Zealand, Inc. (NBA), 40 Niven St, PO Box 3079, Napier, is the proposer of this strategy. The NBA asks the Minister of Agriculture to notify this proposal for a National Pest Management Strategy for American foulbrood under section 62 of the Biosecurity Act.

## 2. ORGANISM TO WHICH THE STRATEGY APPLIES

The organism to which this strategy applies is the bacterium *Bacillus larvae* (White). *B. larvae* is the causative agent of American foulbrood disease of honey bees. The organism *B. larvae*, and the disease American foulbrood, are listed under Part 1 ("Organisms Known to be Present in New Zealand") of the Schedule of the Biosecurity (Notifiable Organisms) Order 1993. The pest is therefore a notifiable organism under the Biosecurity Act. For this strategy to be carried out, the proposer requests that *B. larvae* continue to be a notifiable organism under the Act.

While American foulbrood disease is caused by the bacterium *B. larvae*, more than 500,000 spores of the bacteria need to be fed to a honey bee colony for the disease to develop (Sturtevant, 1932; Goodwin et al, 1994a). There are three possible states for a honey bee colony which contains *B. larvae* spores (Goodwin et al, 1993b):

- Spores are frequently introduced to a colony through beekeeping practices or by foraging bees. However, the numbers of spores brought into the colony are insufficient to infect honey bee larvae. As a result, the spores are not able to reproduce. The spores which are present will eventually be eliminated from the colony. These colonies are defined as not having American foulbrood disease, but as being **contaminated with *B. larvae* spores**.
- Adult honey bees are able to detect diseased larvae before they exhibit any visual symptoms of American foulbrood. They may remove these larvae so that the colony will not appear to be diseased when inspected by a beekeeper. As larvae are being affected by the pathogen and *B. larvae* spores are being produced in the colony, the colony is considered to have American foulbrood disease. Such a colony is defined as having a **non-clinical case of American foulbrood**.
- Where there are larvae or pupae in a honey bee colony exhibiting visual symptoms of the disease, the colony is defined as having a **clinical case of American foulbrood**.

## 3. ORGANISM TO BE CONTROLLED IN THE STRATEGY

The common or western honey bee *Apis mellifera* (L.) is the organism to be controlled in this strategy. *Bacillus larvae* is specific to this species. No other plant or animal species is intended to be controlled in this strategy.

## 4. GOAL OF THE STRATEGY

The goal of this strategy is to eliminate American foulbrood disease in beehives in New Zealand. Throughout the development of this strategy, the beekeeping industry has strongly supported the goal of "eradication" of American foulbrood in New Zealand. However, the NBA has been advised by veterinary authorities that the term "eradicate" has a meaning in international animal health terms which includes not only the elimination of the animal disease, but also the elimination of the causative organism. This strategy seeks to eliminate the disease American foulbrood in beehives in New Zealand, but does not attempt to totally eliminate the causative organism (*Bacillus larvae*) from the New Zealand environment. The word "eradicate" in quotes, which appears elsewhere in this document, refers to those instances during the development of this strategy when the term was used in a formal or official capacity (eg., remits to NBA Annual Conference, publicity articles, changes to previous documents).

### 4.1 Justification in Support of Goal

Elimination of American foulbrood has never been achieved on a national scale, although there are a number of cases where other animal diseases have been eradicated within national boundaries. Elimination of American foulbrood from New Zealand is possible, however, for the following reasons:

- New Zealand has a relatively small population of the species which is affected by the disease. There are currently just under 300,000 registered beehives in New Zealand. There are also an unknown, but nevertheless small number of unregistered beehives, and an unknown number of feral honey bee colonies. The total number of colonies of honey bees is believed to be no greater than 400,000 (Goodwin, 1995), far less than other animal populations for which disease control programmes are carried out in this country.
- New Zealand is an isolated geographic area which receives no natural introductions of honey bees from outside its borders. As well, imports of honey bees and honey bee products into New Zealand are

restricted by agricultural quarantine measures. This makes the continual introduction of further *Bacillus larvae* into the country unlikely.

- *Bacillus larvae* has a low infectivity compared to many other pathogens (see 2. above). By destroying beehives with clinical cases of American foulbrood, carrying out proper and periodic inspections, and taking care with the transfer of beekeeping materials between hives, it is possible to reduce the concentration of *B. larvae* spores below the level where they can become infective. As a result, the occurrence of American foulbrood in beehives can be eliminated, even though spores of the causative organism can persist for long periods of time.
- There are a number of reported cases of New Zealand beekeepers successfully eliminating American foulbrood from their beehives. If such beekeepers can achieve the goal of eliminating the disease in their own outfits, it is theoretically possible for all beekeepers to achieve the same goal.

The goal of “eradication” of American foulbrood from New Zealand was the unanimous recommendation of the Disease Control Committee of the National Beekeepers' Association in its report to the Association Executive in March 1993 (National Beekeepers' Association, 1993). The report was based on a discussion paper on American foulbrood control which received full industry consultation in 1992. The committee's recommendation regarding “eradication” of American foulbrood was carried as a motion at the Association's Annual Conference of Delegates in July 1993.

## **4.2 Feral Colonies and the Goal of Elimination**

For the purposes of this strategy a beehive is defined as an object which has been constructed for the keeping of honey bees, as well as the colony of honey bees for the time being living in such an object. Feral colonies are those colonies of honey bees which are not beehives or sealed packages used to ship honey bees (ie., they have become established in trees, walls, etc.). The goal of this strategy is to eliminate the occurrence of clinical cases of American foulbrood in beehives, and does not include detailed plans for the elimination of the disease in feral colonies. Nevertheless, a rule has been included in the current strategy to deal with situations where it is determined that feral colonies in a particular place are likely to be a source of American foulbrood infection. Feral colonies can develop clinical infections of American foulbrood. However, they are not a major source of infection for beehives. A survey conducted in New Zealand suggested that feral colonies are less likely to have spores of *Bacillus larvae* than beehives (Goodwin et al, 1994b). This is because feral colonies are generally short-lived and usually only become infected with *B. larvae* spores when their foragers rob honey from infected colonies. Beekeepers who have eliminated American foulbrood from their own beehives are not usually subject to re-infections in their beehives from local feral colonies.

The proposed strategy concentrates on beehives because they have the highest incidence of clinical cases of American foulbrood in New Zealand, and are the most significant source of *B. larvae* spores. They are also the honey bee colonies which are capable of being managed by man in such a way as to eliminate clinical infections of the disease. The greatest reduction in the incidence of clinical cases of American foulbrood will therefore be achieved by implementing techniques relating to inspection and contaminated material destruction in beehives. As the incidence in the managed population decreases, so too will the incidence in feral colonies, since in most circumstances in New Zealand feral colonies are at a greater risk of becoming infected with the disease from beehives, than beehives are from ferals (Goodwin et al, 1994b).

The current strategy seeks to decrease the incidence of clinical cases of American foulbrood in beehives over a ten year term until the incidence is no greater than 0.1% (see 5.1 below). When that objective is achieved, it is likely that all honey bee colonies in large areas of the country will be free of the disease, while the greatest source of *B. larvae* spores will be in feral colonies and in bee products. The current strategy will then be reviewed (see 5.4 and 15.6 below), and a further strategy proposed under the Biosecurity Act which will include techniques for the elimination of feral colonies with *B. larvae* spores, as well as techniques which will control the sale and distribution of bee products containing infective concentrations of such spores.

## **5. OBJECTIVES OF THE STRATEGY**

### **5.1 Reduction of Clinical Cases of American Foulbrood**

To reduce the reported incidence of American foulbrood annually by an average of 10% of the first year reported incidence, over the first five year period of the strategy, and to 0.1% by the end of the second five year period to the end of the current strategy (2008).

[Note: It is likely that the reported incidence of the disease will actually increase in the first year of the strategy, since currently not all American foulbrood is declared by beekeepers, and it is believed that the change to Disease Elimination Conformity Agreements will result in a more honest reporting of disease.]

### **5.2 Adequate Inspection for American Foulbrood**

To ensure, by the use of Disease Elimination Conformity Agreements, Certificates of Inspection, inspection audits, and default inspections, that beginning in 1998 all beehives receive an adequate, baseline level of inspection for the presence of clinical cases of American foulbrood.

### 5.3 **Proper Diagnosis of American Foulbrood**

To ensure, by the use of a disease recognition and destruction competency test, an audited course on American foulbrood disease recognition and destruction, and audits of Disease Elimination Conformity Agreements and Certificates of Inspection, that by 2001 all beekeepers carrying out approved inspections under the strategy have a demonstrated ability to diagnose the clinical symptoms of the disease.

### 5.4 **Elimination of All Clinical Cases**

Following the achievement of 0.1% incidence of the disease by or before 2008, to review the strategy and put in place measures to achieve the final elimination of American foulbrood in all beehives in New Zealand.

## 6. **JUSTIFICATION IN SUPPORT OF OBJECTIVES**

### 6.1 **Location and Distribution of Pest**

*Bacillus larvae* is widely distributed in beehives and feral honey bee colonies throughout New Zealand, although evidence suggests that spores of the organism are found in a higher proportion of beehives than feral colonies (Goodwin et al, 1994b). Clinical cases of American foulbrood (cases showing visual symptoms) are reported in approximately 1% of the nation's beehives and 5% of apiaries annually, although the true incidence is higher, since not all cases are found, and not all cases found are reported (Goodwin, 1993a). (Note: beekeepers have a statutory requirement under the Apiaries Act to report all clinical cases of American foulbrood to the Ministry of Agriculture).

### 6.2 **Description of Problem to Be Solved**

The problem to be solved by this strategy is the continued occurrence of American foulbrood in beehives in New Zealand.

American foulbrood is a bee disease which can destroy the infected honey bee colony (Bailey and Ball, 1991). As well, spores of *Bacillus larvae* are easily spread between colonies by foraging honey bees attracted to the honey stores in weakened, diseased beehives.

Search and destroy techniques are used by beekeepers in this country in an effort to control the disease. The necessity to control American foulbrood is a major cost to the New Zealand beekeeping industry. The cost of the disease can be divided into four parts:

- the cost of inspecting beehives
- the cost of meeting zoo-sanitary conditions for exports of bees and bee products
- the cost of diseased beehives that have to be destroyed
- the loss of production from such beehives

The combined cost is estimated to be \$2.90 million per annum (minimum estimate: \$1.74 million; maximum estimate: \$4.07 million), or roughly 6% of the annual gross returns of the New Zealand industry (see 14.1 below). American foulbrood is therefore capable of causing a serious adverse and unintended effect in relation to the economic well-being of the New Zealand beekeeping industry.

The occurrence of American foulbrood in beehives is in most instances due to beekeeping practices, which if modified, result in fewer cases being found (Goodwin et al, 1993c). Beekeepers who are able to successfully eliminate American foulbrood in their beehives are those who carry out effective brood frame inspections and diseased hive destruction. They also understand that the most significant risk factors in spreading the disease are the transfer of wet combs between beehives, brood swapping, and the feeding of honey or pollen between hives, in each case without first knowing whether the frames are free of disease. Robbing is also an important disease-spread factor not under the complete control of the beekeeper, since honey bees may collect honey with high levels of *Bacillus larvae* spores from a beehive several kilometres away which has been weakened by American foulbrood.

New Zealand history has shown that beekeeping practices which lead to the spread of disease can also be modified by the use of legal powers to compel the keeping of bees in moveable frame equipment, the registration of apiaries to a management authority, the inspection of beehives by representatives of a management authority, the destruction of diseased hives, and the reporting of clinical cases of the disease to a management authority. The problem lies in designing a system where education ensures that suitable practices are carried out in a basic uniform manner for all beehives in New Zealand, and backing up the system with legal powers and easily applied penalties to ensure such uniformity.

*B. larvae* entered New Zealand early in the development of beekeeping in this country and by the 1880's American foulbrood disease had become widespread throughout the beekeeping industry. For the rest of the nineteenth century and during the early years of the twentieth there were no uniform control measures applied, and the spread of American foulbrood was given as a major reason for a decline in beekeeping in New Zealand. The disease finally began to come under some semblance of control with the enactment of the first of a series of Apiaries Acts beginning in 1905 and the appointment of government inspectors (Matheson, 1984).

By the mid-1960's, a strong government inspection and education/advisory programme and the efforts of beekeepers had reduced the reported incidence of the disease to less than 0.5% of beehives. However, in the ten year period 1981-1991, reported incidence of the disease nearly doubled (from .65% to 1.2%). This increase occurred at the same time as a rapid increase in beehive numbers in New Zealand (39% increase between 1981 and 1989) (Reid, 1990). In the later part of the same decade, government inspections of beehives for American foulbrood decreased markedly (Van Eaton, 1992).

In 1991, government removed funding for American foulbrood programmes. The National Beekeepers' Association therefore decided to contract MAF Quality Management to provide American foulbrood control services, including the inspection of a set percentage of apiaries by MAF Quality Management personnel, the organising of further inspections by volunteer NBA inspectors, the counselling of beekeepers with American foulbrood problems in their beehives, the issuance of legal notices to destroy diseased material, and the keeping of disease and inspection statistics. In the period 1991-1995, the reported incidence of the disease decreased from 1.2% to 0.8% of beehives per year, although a variety of factors besides the inspection programme (including export certification requirements) may have had an influence on disease reporting (MAF Quality Management, 1995).

For almost a century, organised control measures have been employed in New Zealand in an attempt to eliminate American foulbrood, with varying degrees of success. However, the beekeeping industry has never been given the ability by government to create a basic uniformity in approach to inspection and diseased beehive destruction in all beehives in the country. As a result, a limited number of beekeepers have either not taken the past measures seriously, or have not gained the necessary skills to bring about the reduction of the incidence of American foulbrood in their beehives. There is every reason to believe that if a national Pest Management Strategy is undertaken to ensure such a basic uniformity in approach, the goal of American foulbrood elimination in beehives in New Zealand can finally be achieved.

### **6.3 Necessity to Act in Relation to the Problem**

With the passage by Parliament of the Biosecurity Act in 1993, the remaining sections of the Apiaries Act 1969 pertaining to the control of American foulbrood were scheduled to expire on June 30 1996 (see Biosecurity Act, Section 185). The Biosecurity (Transition and Savings) Regulations 1996 have extended the remaining sections of the Apiaries Act which pertain to the control of American foulbrood to 30 September 1998.

The beekeeping industry is in general agreement that the Apiaries Act has been a significant factor in achieving a relatively low incidence of American foulbrood during the period of modern beekeeping in New Zealand (National Beekeepers' Association, 1993). The industry therefore does not want to see the disease control provisions of the Act lost.

### **6.4 Potential Economic, Social and Environmental Damage**

American foulbrood is capable of causing, now and in the future, serious adverse effects in relation to New Zealand's economic well-being.

Without a disease management strategy for American foulbrood, and the powers to enforce compliance in relation to disease control and beehive destruction, the incidence of American foulbrood would rise significantly (see 13.1 below). For every 1% increase in the incidence of beehives which are destroyed because of the disease, the resultant loss to the beekeeping industry is estimated to be \$854,500 (loss of hives, disposal cost, loss of production), approximately 1.8% of annual gross returns of the industry in New Zealand (see 14.1 below).

Failure to control (or even to reduce) the incidence of American foulbrood would also have an adverse effect on the New Zealand beekeeping industry's ability to export honey, bee products and live bees. A number of overseas government quarantine authorities currently require certification of such products for area freedom from the disease. These requirements restrict the amount of product which can be exported to these countries. If American foulbrood is not controlled and the incidence increases, such exports would be reduced even further.

As well, based on recent experience (eg., Korea, Japan and Germany), additional overseas government quarantine authorities may in the future adopt American foulbrood requirements, and current requirements of overseas governments may be intensified. It is acknowledged that recent world trade agreements are making some positive impact on the reduction of non-justifiable quarantine barriers. However, under the 1994 World Trade Organisation SPS Agreement, government quarantine authorities still have the right to impose sanitary requirements on diseases which already exist in their countries (such as American foulbrood) provided that the requirements are technically justified, necessary for the protection of honey bee health, based on sufficient scientific evidence, take into account a risk assessment of the disease and the ability of the products to transfer it, are equivalent in terms of levels of sanitary standard to that of the exporting country, and do not arbitrarily discriminate against countries where similar or identical conditions prevail.

Increases in the incidence of American foulbrood would result in decreased profitability for beekeeping enterprises and the eventual inability of beekeepers to safely move their beehives for pollination and honey

production purposes. Honey bees in New Zealand are directly responsible for the pollination of \$1.2 billion worth of export fruits, vegetables and seeds per annum (Matheson, 1987; National Beekeepers' Association, 1994). Honey bees also play an important role in maintaining high levels of white clover pollination and seed production in New Zealand pastures, especially in high country areas (Pearson, 1985; Ogden, 1988). Costs for commercial pollination of the horticultural crops would likely rise significantly, and there would be a reduced availability of beehives for commercial pollination, with many beekeepers putting their hives to alternative production uses to avoid areas of high hive density and concomitant high disease risk.

American foulbrood is therefore capable of causing at sometime in the future a serious adverse and unintended effect in relation to the sustainability of developed (ie., agricultural and horticultural) ecosystems. The potential economic damage or loss of not taking action on a national basis in relation to American foulbrood would be significant.

## 6.5 Beneficiaries of the Strategy

The extent to which the kinds and descriptions of persons likely to be beneficiaries of the strategy are identifiable is as follows:

- **All Beekeepers** - As of June 30 1996, there were 5306 registered owners of beehives in New Zealand (MAF Quality Management, 1996). Of this total, 502 were in the 50+ hive category (commercial or semi-commercial), and owned approximately 90% of the nation's beehives. Beekeepers owning 5 hives or less (hobbyist beekeepers), made up 67% of registered beekeepers, but kept only 2.3% of the beehives. Seventy three commercial units owned more than 1000 hives, and together kept 45% of the beehives. There are as well an unknown number of unregistered beekeepers, although it is a requirement of the Apiaries Act that all beekeepers register all their apiaries with the Ministry of Agriculture. American foulbrood has the potential to infect beehives kept by any beekeeper, no matter how many hives the beekeeper owns. As a result all beekeepers are likely to be beneficiaries of the strategy, and by law all such beneficiaries are currently required to identify themselves to, and register their apiaries with, MAF Quality Management.
- **Horticultural and Agricultural Industries** - As outlined in section 6.4, the New Zealand horticultural and agricultural industries are likely to be beneficiaries of the pollination provided by honey bees. A substantial portion of this benefit is indirect only to the extent that beekeepers are not paid for the pollination service their beehives provide to many crops. A lesser proportion of this benefit is direct and can be measured in relation to the fees paid to beekeepers to pollinate some crops (eg., kiwifruit, pip and stone fruits, berries). Members of horticultural and agricultural industries in general, and those members who pay for such services in particular, are beneficiaries of this strategy, in that if American foulbrood was not controlled and beekeepers suffered significant financial losses and/or found it impossible to safely move their beehives, horticultural and agricultural industries requiring honey bee pollination would be significantly affected. It is very difficult, if not impossible, to specifically identify individual members of these industries, however, apart from viewing the business records of beekeepers who provide paid pollination services, since no official national register is kept for this activity.
- **Exporters of Bees and Bee Products** - Importing countries' zoosanitary requirements relating to *Bacillus larvae* and American foulbrood affect both the ability of producers to export their products and the amounts they export each year. Any person who exports bees or bee products to an overseas country or territory which has a quarantine requirement relating to this disease and its causative agent are likely to be beneficiaries of a strategy which seeks to improve exporters' abilities to meet these requirements, and to meet them at a lower certification cost. Exporters of bees and bee products to countries or territories which require an export certificate issued by the New Zealand government identify themselves through an Application for Export Certification with MAF Quality Management, as do all exporters of such products to countries or territories with specific quarantine requirements relating to American foulbrood. New Zealand suppliers of bees and bee products to such exporters are also required to be identified to MAF Quality Management in these Applications for Export Certification.
- **The New Zealand Public** - The removal or easing of restrictions on the export of any type of product from New Zealand is of benefit to the national economy. The proposed strategy will result in the removal of an impediment to New Zealand's export trade in bees and bee products. All New Zealanders benefit to some extent from a pest management strategy that protects New Zealand's ability to trade.

## 6.6 Exacerbators of the Problems Proposed to be Resolved by the Strategy

The extent to which persons by their activities or inaction contribute to the creation, continuance, or exacerbation of the problems proposed to be resolved by this strategy are as follows:

- **Beekeepers Who Do Not Carry Out Their Legal Requirements Regarding American Foulbrood Control and Contaminated Materials Destruction** - Beekeepers who do not register their apiaries, do not inspect their beehives for American foulbrood, and/or do not take proper measures to eliminate the disease in order to prevent its spread, constitute a small percentage of beekeepers. However, according to apicultural authorities, infected beehives belonging to these beekeepers make up the majority of infected beehives found by MAF Quality Management and NBA volunteer inspectors each year. These beekeepers are therefore the primary exacerbators.
- **Beekeepers Lacking Disease Identification Skills Who Unknowingly Harbour and Spread American Foulbrood** - New and inexperienced beekeepers who lack disease identification skills constitute a larger percentage of the beekeeper population than the primary exacerbators. These beekeepers sometimes unwittingly spread American foulbrood from beehive to beehive as a result of management practices. As these beehives become weakened from the disease, they pose a threat to other beehives within foraging range. However, infected beehives belonging to these beekeepers make up a minority of the infected hives found by MAF Quality Management and NBA volunteer inspectors each year. These beekeepers are therefore the secondary exacerbators.
- **Occupiers of Land Where Feral Colonies with American Foulbrood Exist** - As stated in section 4.2, feral colonies can have cases of American foulbrood. However, feral colonies are less likely to be infected with the disease than beehives, and are in most cases a minor source of infection. From time to time there are some places, however, where feral colonies contribute to the spread of the disease. In such cases, the occupiers of land where these feral colonies exist are exacerbators.
- **Members of the New Zealand Public** - Two categories of the general public are potential exacerbators:
  - 1) Those persons who dispose of unwanted bee products (particularly honey) in such a way that the products are left accessible to foraging honey bees, and
  - 2) Those persons who inadvertently expose honey to foraging honey bees in the process of providing food sources for birds (especially in domestic gardens and aviaries).
 In both cases, the exposed product may contain concentrations of *Bacillus larvae* spores high enough to initiate an infection in a beehive if enough of the material is returned to the hive by foraging honey bees.

## 6.7 **Parties That Need to Be Involved**

All beekeepers must be involved in this Pest Management Strategy because the foraging area of honey bees cannot be controlled, and because American foulbrood is easily spread from colony to colony by foraging honey bees attracted to the honey stores in weakened, diseased colonies. All beehives are therefore capable of contracting American foulbrood and infecting other honey bee colonies.

## 6.8 **Extent to Which Occupiers of Places Would Be Required to Take Action In Respect of the Organism Intended to be Controlled**

Beekeepers, because their beehives occupy places (whether on their own land or others), would be the main individuals required to take action in respect to American foulbrood in this strategy. Occupiers of places where honey bee colonies exist (either as beehives or feral colonies) will be required to provide access for authorised Management Agency personnel whenever legally authorised inspection and/or beehive destruction work is carried out. Occupiers of places where feral colonies exist will be required to allow Management Agency personnel to destroy such colonies when in the opinion of an Authorised Person the colonies are believed to be sources of American foulbrood infection. Costs for the destruction of feral colonies will not be a charge on the occupier of any place. All such costs will be borne by the Pest Management Strategy.

## 6.9 **Need for a National Strategy**

Effective action in respect of American foulbrood would be impracticable without a national strategy. The proposed strategy must be nationally, rather than regionally based, because American foulbrood is distributed throughout all areas of New Zealand. Measures to control the disease must therefore also be applied throughout the country if the goal of elimination of American foulbrood is to be achieved.

As well, beehives are routinely moved long distances, and across regional boundaries, during normal beekeeping management (honey production and pollination services). The establishment of regionally based strategies for American foulbrood would likely attempt to regulate such movements into and out of the strategy area in an effort to control potential sources of disease infection. Regional movement control of beehives would adversely affect profitability for many beekeeping enterprises. The net benefits of national intervention would therefore exceed the net benefits of regional intervention.

## **7. PREFERRED MEANS OF ACHIEVING OBJECTIVE**

### **7.1 General Description of Preferred Means**

The strategy places a series of legal duties on all beekeepers, including apiary registration, apiary identification, the reporting and destruction of beehives with clinical cases of American foulbrood, and the supplying of an annual statutory declaration of apiary ownership and American foulbrood found. The duties specify the beekeeper practices which must be adhered to if the New Zealand beekeeping industry is to eliminate American foulbrood. These behaviours are therefore prescribed by law.

The strategy also uses legal powers present in the Biosecurity Act so that Authorised Persons can look for and destroy beehives with clinical cases of the disease. These legal powers provide the enforcement necessary to ensure that infections of American foulbrood are contained.

The strategy seeks to ensure that all beehives in New Zealand are inspected by beekeepers who have a proven ability to diagnose clinical cases of the disease. All beekeepers and beekeeping enterprises are offered the opportunity to demonstrate this ability in relation to their beehives by entering into auditable Disease Elimination Conformity Agreements with the Management Agency (beekeepers covered by such agreements are known as “Approved Beekeepers” under the Pest Management Strategy). Beekeepers who do not choose to enter into such agreements are required under the terms of the Pest Management Strategy to have their beehives inspected once a year by an “Approved Beekeeper”, with a statutory report on that inspection (Certificate of Inspection) sent to the Management Agency.

“Approved Beekeepers” demonstrate that they give the beehives they own or manage adequate levels of inspection and have the ability to diagnose clinical cases of American foulbrood by way of Disease Elimination Conformity Agreements. The agreements set out in detail the management plans the beekeepers or beekeeping enterprises use to eliminate American foulbrood in those beehives. The agreements are audited by means of an annual inspection programme carried out by the Management Agency during which a sample of beehives covered by the agreements are examined. The audits provide confirmation that the agreements are effective in achieving the goal of disease elimination.

When problems are identified in an audit, or when a beekeeper reports an increased incidence of American foulbrood in beehives covered under the Disease Elimination Conformity Agreement, provided the beekeeper/beekeeping enterprise shows a commitment to eliminate the infection, the Management Agency will work with the beekeeper/beekeeping enterprise to help solve the disease problem. The beekeeper/beekeeping enterprise and the Management Agency will together negotiate changes in the Disease Elimination Conformity Agreement. The agency will also expand the audit of the hives of the beekeeper/beekeeping enterprise to monitor the affect the changes have made on the subsequent occurrence of the disease.

If, however, the beekeeper/beekeeping enterprise does not show a commitment to eliminating the disease and/or does not agree to revise the conformity agreement, “Approved Beekeeper” status can be withdrawn by the Management Agency. A formal arbitration procedure exists under the strategy to deal with disputes regarding loss of “Approved Beekeeper” status.

To ensure competency in beehive inspection and disease diagnosis skills, every “Approved Beekeeper” is required, as a provision of the Disease Elimination Conformity Agreement, to either pass a disease recognition and destruction competency test, or attend a course in American foulbrood recognition and destruction and then pass the test. The test will use a standardised examination paper, and be available to all beekeepers who do not wish to first attend a course. However, persons who fail to achieve a pass mark for the examination will be required to attend a course before re-sitting the test.

The courses will be conducted by trainers certified and audited by the Management Agency. “Approved Beekeepers” may be required, as a provision of a renegotiated conformity agreement, to re-sit the course to improve and refresh their beehive inspection and disease diagnosis skills.

Beekeepers who fail to carry out their legal obligations under the strategy will be served with a notice under the rules of the strategy. If the beekeeper refuses to meet the provisions of the notice, Management Agency personnel will carry out the action on the beekeeper’s behalf. Powers contained in the Biosecurity Act will then be used to recover all costs associated with that work. The costs for default disease inspection and elimination work carried out by the Management Agency will not be borne by the Pest Management Strategy.

Movement control provisions contained in the Biosecurity Act will be used when it is necessary to restrict the movement of remaining beehives in a diseased apiary to control the further spread of American foulbrood. Depending on the circumstances, and at the discretion of an Authorised Person, beehives may be quarantined on site, or allowed to be moved in a controlled manner to another registered apiary.

### **7.2 Discussion in Support of the Preferred Option**

The strategy includes the essential components of the Apiaries Act 1969, (which the Biosecurity Act will repeal), including inspection and contaminated material destruction, an apiary register, statements of inspection, the reporting of disease, and the use of an apiary identification system. The Apiaries Act, together with the use of official apiary inspectors, has been shown to be very effective in containing the spread of



American foulbrood during the period of modern beekeeping in New Zealand. The National Beekeepers' Association believes that these components must therefore be retained in any effective Pest Management Strategy dealing with disease.

While legal duties and powers are necessary to contain infections of American foulbrood, to reduce the incidence of American foulbrood and eventually eliminate the disease it is also essential that adequate levels of inspection are carried out on all beehives in New Zealand.

To achieve this objective while at the same time meeting cost/benefit criteria, the beekeeping industry cannot rely solely on the use of Biosecurity Act Authorised Persons to search for and diagnose the disease. The strategy instead ensures that this objective is met by using the new concepts of Disease Elimination Conformity Agreements, and Certificates of Inspection (signed by an "Approved Beekeeper") for beehives owned by anyone who does not have such an agreement. By using these two techniques, which together cover every beekeeper in the country, all beehives in New Zealand will receive at the very least an adequate, baseline level of inspection for American foulbrood disease.

The strategy also includes a substantial education component, which the Disease Control Committee of the National Beekeepers' Association identified in its March 1993 report as the key to achieving the goal of American foulbrood "eradication" (National Beekeepers' Association, 1993). For the strategy to succeed it is essential that every person carrying out approved inspections in New Zealand is able to recognize the clinical symptoms of American foulbrood, knows how to deal promptly and effectively with beehives showing these symptoms, and understands potential disease infection risks.

Another important part of the strategy is the use of cost recovery for inspection and disease elimination work carried out by Management Agency personnel on beehives owned by any beekeeper who fails to meet his/her legal obligations under the strategy. For some time it has been apparent that one of the main obstacles to reducing the incidence of American foulbrood in New Zealand is beekeepers who fail to carry out their required disease control responsibilities under the Apiaries Act.

With the introduction of user-pays for American foulbrood control in 1991, there was no recognition in the form of Hive Levy differentials for the majority of beekeepers who carried out effective disease control. At the same time, because of legal and administrative barriers, the cost recovery provisions of the Apiaries Act could not be used effectively to deal with those few beekeepers who did not carry out their legal requirements regarding disease control and contaminated materials destruction. Just the opposite occurred, and a substantial amount of disease control contract time is currently used to deal with these few recalcitrant members of the industry.

This strategy recognises the problems inherent in the previous system and provides a means of identifying and auditing those beekeepers who carry out effective disease control and elimination, while at the same time dealing directly, and on a cost-recovery basis, with those few beekeepers who continue to provide a significant vector for the spread of this disease. If the goal of American foulbrood elimination in New Zealand beehives is to be achieved, such beekeepers must be induced to either alter their beekeeping practices, or be faced with incurring the real costs of the work of Management Agency personnel who must deal with the problems their behaviour causes.

## **8. SYNOPSIS OF TACTICS AND TECHNICAL METHODS PROPOSED TO BE APPLIED**

### **8.1 Use of Enforcement Powers**

The following enforcement powers contained in the rules of the strategy will be used to carry out this strategy:

- the power to require beekeepers to provide information on their apiary locations and disease incidence
- the power to require beekeepers to register their apiaries with the Management Agency
- the power to enter onto land for the purposes of inspecting beehives and/or feral colonies
- the power of inspection to confirm the absence or presence of American foulbrood and the power to manage or destroy beehives and feral colonies containing the disease
- the power to request assistance in inspections and other work related to this strategy from those people who are not Authorised Persons
- the power to seize and destroy diseased beehives or contaminated equipment
- the power to give notice to destroy diseased beehives
- the power to destroy diseased feral colonies
- the power to direct the sterilisation of contaminated beehive components by an approved method
- the power to limit the use of "robbing apiaries" which may spread American foulbrood disease, at the discretion of the Authorised Person
- the power to take samples for testing
- the power to act on default of an individual not carrying out the terms of a destruction notice, including the power to recover costs and expenses associated with such destruction, either by invoice or as a lien
- the power to act on default of an individual not carrying out the terms of a notice to inspect beehives and the power to recover costs and expenses reasonably incurred, either by invoice or as a lien
- the power to charge interest on unpaid charges associated with costs and expenses

- the power to impose movement controls on beehives in apiaries found to be infected with American foulbrood

These powers are similar to those being repealed in the Apiaries Act and are essential for the proper execution of an effective strategy to eliminate American foulbrood from beehives.

## **8.2 Duties Relating to the Keeping and Sale of Beehives**

The following duties relating to the keeping and sale of beehives, contained in the rules of this strategy, will be required of all beekeepers:

- the duty to keep bees in moveable frame hives
- the duty to keep access to beehives clear
- the duty not to expose any bees, bee products, or appliances taken from or used in connection with any beehive with American foulbrood disease in such a manner as will allow access to those materials by bees
- the duty not to offer or sell any bees, bee products, or appliances taken from or used in connection with any beehive with American foulbrood disease
- the duty not to feed any drug or substance for the prevention or control of American foulbrood

All these duties are the same as those being repealed in the Apiaries Act and are essential for the proper execution of an effective strategy to eliminate American foulbrood from beehives. The duty to keep bees in moveable frame hives and to keep access to beehives clear were repealed with the enactment of the Biosecurity Act. To include these duties under the strategy, the duties will either need to be specified (using Section 43(1)(b) of the Biosecurity Act), or created as a new regulation under Section 165. In this document the duties have been specified as rules under the strategy.

## **8.3 Identification System to Mark Apiaries and Show Ownership of Beehives**

Under the strategy, beekeepers will be required to identify each of their apiaries with a beekeeper registration code issued by the Management Agency. The code will establish clear ownership of beehives in apiaries and will facilitate pest management by assisting with disease inspection audits.

The strategy will prohibit anyone other than the registered owner from removing, altering or defacing this registration code without the written permission of the Management Agency. The strategy will also prohibit any person from knowingly using such a code on beehives if they are not entitled to, or using any other code on beehives in a way which could be confused or mistaken for the registration code.

## **8.4 Register of Beekeepers, Apiary Locations and American Foulbrood Reports**

The strategy will require all owners of beehives to register their apiaries with the Management Agency. An apiary will be defined for the purposes of the register as any place where beehives are kept for a period of more than 30 days, provided the place is more than 200m from any other such place occupied by beehives belonging to the same beekeeper. Registration of an apiary shall include the name of the landowner, the road name and address of the landowner, a description of the location of the apiary on the piece of land, and a DOSLI 260 series grid reference for the location of the apiary on the piece of land. The registration shall also indicate the months of the year that the apiary is normally occupied with beehives.

An up-to-date pest agent register is important in an effective disease control programme for American foulbrood because beehives are easily transportable and are generally kept on land not belonging to the owner of the hives.

Specified uses of information in this register (as required by the Privacy Act 1993) will be:

- to eliminate clinical cases of American foulbrood in beehives;
- to identify beekeeper registration codes to landowners and members of the public by providing the beekeeper's name and address;
- to determine a levy for the funding of National Beekeepers' Association activities under the Commodity Levies (Bee Products) Order 1996;
- to be used by pest management strategies developed or supported by the NBA for other bee pests or diseases
- to be used for other purposes related to the control of bee diseases, such as for export certification purposes if it is deemed by the National Beekeepers' Association that these would not be detrimental to the purposes of this strategy;
- to assist in the administration of the strategy.

## **8.5 Annual Statutory Disease Declaration by All Beekeepers**

The strategy will require all owners of beehives to furnish a statutory declaration once a year on June 1, providing the following information:

- update and confirmation of registration details for all apiaries
- all findings of American foulbrood in beehives owned (on registered sites and elsewhere) in the proceeding twelve months (including date found and date destroyed).
- transfer of ownership of any beehives during the past 12 month
- total number of beehives owned (but not the number present at each apiary).

A self-carboning declaration form for this purpose will be provided to each beekeeper by the Management Agency at least six weeks prior to the declaration deadline.

In the case of "Approved Beekeepers" under the strategy (see 8.9), the beekeeper's Annual Disease Declaration will provide a benchmark against which to audit a beekeeper's Disease Elimination Conformity Agreement (ie., the Annual Disease Declaration will act as a cross-check against American foulbrood reports made by the beekeeper throughout the year - see 8.8). In the case of beekeepers without such agreements, the Annual Disease Declaration will act as a cross-check against "Certificates of Inspection" provided on December 15, and any default inspections carried out by authorised Management Agency personnel (see 8.13). The Annual Disease Declaration also provides an effective means of locating potential American foulbrood vectors.

The choice of June 1 as a deadline for such a declaration represents a change from the Apiaries Act requirement (December 7), and is based on the recommendation made by the NBA Disease Control Committee in its 1993 report. It is the time of year when the locations of beehives are most stable, since most movements of hives occur during the production months of September through March. June is also generally regarded as the end of the beekeeping year in New Zealand.

## **8.6 Unregistered and Abandoned Apiaries**

Under the strategy, provision will be made for the Management Agency to deal with apiaries which are unregistered, or for which no owner can be found.

Whenever an unregistered apiary is reported to the Management Agency or found by agency personnel, if the owner of that apiary can be found, an Authorised Person will serve a notice on the owner directing that the apiary be registered. If the owner fails to comply with the terms of that notice, the apiary will be registered on behalf of the owner by the Management Agency, and the Authorised Person will recommend to the executive of the agency that the owner be prosecuted under section 154(o) of the Biosecurity Act.

If the owner of the apiary cannot be found, the Authorised Person will serve the registration notice by a) fixing it to a beehive in the apiary in a weather-proof fashion, b) placing a copy of notice in the public notices column of a daily newspaper, and c) also placing a copy of the notice in the National Beekeepers' Association official journal.

If, after the completion of 60 days, the apiary remains unregistered, the Authorised Person may regard the apiary as abandoned, and with the consultation and permission of the land occupier where the apiary is situated, may destroy the bees, beehives and other materials associated with that apiary.

The power to seize and destroy abandoned apiaries is necessary to ensure that proper management and disease control is carried out in all beehives in New Zealand, and to deal promptly and effectively with hives which are not so maintained.

An amnesty programme will be conducted by the Management Agency at the start of the strategy giving beekeepers the opportunity to dispose of unwanted/abandoned beehives.

## **8.7 Destruction of Materials Associated With a Clinical Case of American Foulbrood**

The strategy will require beekeepers who find a clinical case of American foulbrood in any of their beehives to:

- kill the bees in that hive in a prescribed manner, and
- destroy within seven days all materials found with that hive (including its bees, honey, comb and frames) by burning in a prescribed manner.

The destruction of these materials will ensure that they do not act to further spread the disease.

If a legally imposed fire ban exists in the area where the American foulbrood is found, an Authorised Person may direct that the honey bees are killed and the beehives are sealed and removed to a bee-proof storage shed until such time that the fire ban is removed, at which time the contaminated materials will be destroyed.

As part of a beekeeper's Disease Elimination Conformity Agreement, the Management Agency may also allow certain designated materials to be sterilised by an approved method such as hot paraffin dipping (160°C for minimum of 10 minutes).

## **8.8 Reporting of Clinical Cases of American Foulbrood Found by Beekeepers, and the Reporting of the Destruction of Materials Associated with Any Such Case**

Beekeepers will be required to report to the Management Agency any clinical cases of American foulbrood found in their beehives within seven days, as well as the destruction of contaminated materials associated with such a case. Prompt reporting is required so that the Management Agency can take follow-up actions regarding possible disease vectors.

Although the Apiaries Act used the term "forthwith", this term has been subject to a wide range of interpretations. As a result, a set time limit for reporting has been included in the strategy.

## **8.9 Disease Elimination Conformity Agreements**

Under the strategy, all beekeepers will be asked by the Management Agency to enter into Disease Elimination Conformity Agreements. The agreement will detail a beekeeper's personal management plan for eliminating the disease in his/her beehives. Certain details of the agreement will be required of all beekeepers, while other details will be agreed upon through negotiation with the Management Agency.

The use of such agreements will ensure that there is a basic uniformity in approach to the elimination of American foulbrood by beekeepers throughout the country, and will allow for a modification in approach for those beekeepers who continue to have clinical cases of American foulbrood in their beehives.

Beekeepers with current Disease Elimination Conformity Agreements will be known as "Approved Beekeepers" under the strategy.

Disease Elimination Conformity Agreements will be reviewed on an annual basis, and will remain in effect unless terminated by the beekeeper or revoked by the Management Agency (for failure to adhere to the agreement).

Beekeepers may choose not to enter into a Disease Elimination Conformity Agreement with the Management Agency, or they may be unable to meet the requirements of their agreement (as determined by the Management Agency). In either case, such beekeepers will then be required to furnish to the Management Agency (by January 1 each year) a "Certificate of Inspection" for all beehives owned, signed by an "Approved Beekeeper" (see 8.13) or an Authorised Person.

### **8.9.1 Mandatory Components**

In addition to the duties of all beekeepers set out in the National Pest Management Strategy (points 8.2, 8.3, 8.4, 8.5, 8.7, and 8.8 above), the following mandatory components will be included in all Disease Elimination Conformity Agreements:

- agreement to attend a course on American foulbrood disease recognition and destruction approved by the Management Agency, or agreement to take a competency test in American foulbrood disease recognition and destruction issued by the Management Agency, or provision of a certificate showing the successful completion of that competency test
- agreement to supply samples of bees/honey for *Bacillus larvae* spore testing when requested by the Management Agency (at no charge to beekeeper)
- agreement to sign "Certificates of Inspection" for other beekeepers only when an inspection for American foulbrood has actually been performed in an approved manner

### **8.9.2 Negotiated Components**

In addition to the above listed compulsory components, a Disease Elimination Conformity Agreement will also include a number of negotiated components derived in consultation with the Management Agency, based on the size and nature of the beehive holdings, the disease history of those hives, and an analysis of the current disease elimination methods. These negotiated components could include:

- methods used to inspect beehives
- number of disease inspections required per year
- timing of inspections

- system used to record inspections, disease found and action taken (ie., diary)
- beehive movement control systems and records (disease control and elimination purposes only)
- beehive equipment traceback system in storage (disease control and elimination purposes only)
- method used to destroy diseased beehives (including the shifting of such hives away from the apiary site where the diseased beehive was found)
- salvaged hive woodenware sterilisation methods
- method used to sterilise and disinfect equipment used in beehive inspections
- sampling rates for bee/honey *Bacillus larvae* spore testing
- attendance at an annual NBA branch American foulbrood elimination field day

### **8.9.3 Beekeeping Enterprises**

Provision is also made in the strategy for beekeeping enterprises that wish to enter into Disease Elimination Conformity Agreements. In such cases a beekeeper or beekeeping employees working in the enterprise shall be designated in the agreement as the person(s) responsible for disease elimination standards. The person(s) will also agree to attend a course on American foulbrood disease recognition and elimination, or agree to take a competency test in American foulbrood disease recognition and destruction issued by the Management Agency, or provide a certificate showing the successful completion of that competency test. Any such person will be designated as an “Approved Beekeeper” for the enterprise.

One person, who may or may not be an “Approved Beekeeper”, will be responsible for negotiating on behalf of the enterprise with the Management Agency and ensuring that all mandatory and negotiated components of the agreement are adhered to by the enterprise.

Enterprises with a current Disease Elimination Agreement will be known as “Approved Beekeeping Enterprises” under the strategy.

### **8.9.4 Failure to Meet Agreement Specifications**

If an “Approved Beekeeper/Enterprise” fails to continue to meet the criteria set out in the Disease Elimination Conformity Agreement, the beekeeper/enterprise has the option of either:

- developing in association with the Management Agency a revised Disease Elimination Conformity Agreement approved by the Management Agency, together with an increased sampling rate of bees/honey for *Bacillus larvae* spore testing, or
- cancelling the Disease Elimination Conformity Agreement and no longer being an “Approved Beekeeper/Enterprise” under the strategy.

### **8.9.5 Arbitration Process**

An arbitration process will be available to handle disputes regarding loss of “Approved” status under the strategy. The process will use the normal arbitration procedures set out in the Arbitration Act 1908, with the beekeeper/enterprise and Management Agency supplying one representative each, and a third representative agreed upon by both parties. Costs for the arbitration will be borne by the individual parties for their representatives, and jointly for the mutual third representative. Decisions arising from the arbitration will be final and binding on the Management Agency.

## **8.10 Educational Programmes**

Under the auspices of the strategy, educational activities will be carried out to ensure that 1) every person carrying out approved inspections of beehives in New Zealand is able to inspect those hives properly, recognise the clinical symptoms of American foulbrood, and effectively destroy beehives showing such symptoms, and 2) every new registered beekeeper receives instructional materials showing the clinical symptoms of American foulbrood, detailing how to effectively destroy beehives showing such symptoms, and describing their required duties under the Pest Management Strategy.

### **8.10.1 Disease Recognition and Destruction Competency Test**

By 1999, the Management Agency will develop and offer to beekeepers and beekeeping employees an examination to determine competency in American foulbrood recognition and destruction. The examination will test an individual's ability to identify the visual symptoms of the disease, properly inspect beehives for those symptoms, properly collect bee/honey samples for spore testing, and properly destroy diseased beehives and sterilise beehive components. The Management Agency will employ a contractor to develop a standardised examination paper.

Persons may decide to take the examination either as part of an approved course on American foulbrood recognition and destruction (see below), or if they feel they already have sufficient competency in the skills to be tested, they may choose to sit the examination without such prior study. For those persons wishing to take the examination outside of an approved course, the Management Agency will furnish a copy of the exam paper to a testing centre arranged by that person (council office, public school, etc.) where the sitting of the examination can be supervised.

Marking of the examination paper will be carried out by a central authority acting on behalf of the Management Agency. The Management Agency will be responsible for determining the pass mark for the examination.

Individuals who achieve the pass mark will be issued with a competency certificate by the Management Agency. The Management Agency retains the right to withdraw such a certificate at any time and may require an individual to re-sit the examination as part of an approved course on American foulbrood recognition and destruction.

Individuals who fail to achieve the pass mark for the examination determined by the Management Agency will be required to attend an approved course on American foulbrood recognition and destruction before re-sitting the exam.

Costs for the development of the examination will be borne by the Management Agency. Individuals who wish to sit the exam will be charged a minimal administration fee to cover the costs of posting the examination paper, marking the paper and issuing the competency certificate.

### **8.10.2 Disease Recognition and Destruction Course**

By 2000, the Management Agency will approve courses on American foulbrood disease recognition and destruction. The course material will be required to be based on the American Foulbrood Elimination Manual, and will include segments on identification of visual symptoms of the disease, beehive inspection methods, methods of bee/honey sample collection, and diseased hive destruction and sterilisation techniques. The course will be skills-based and concentrate on practical techniques. It will be a requirement of approval of such courses that the disease recognition and destruction competency examination will be offered to all course participants at the completion of the course. Course fees will be the sole responsibility of course participants and will not be paid for by the Pest Management Strategy.

The Management Agency will also hold an instructors' training workshop for the American foulbrood disease recognition and destruction course prior to the start-up of such courses. The agency will provide certification to individuals who successfully complete the course. All costs associated with these workshops will be borne by the individuals taking the course.

The Management Agency will be responsible for carrying out audits of American foulbrood identification and destruction courses to ensure there is uniformity and competency in the material presented. Audits will also be conducted on certified instructors who conduct such courses. The Management Agency retains the right to withdraw approval for any course not found to pass audit, and to withdraw certification for any instructor conducting such a course.

### **8.10.3 Education Publications and Activities**

The following education activities will be carried out by the Management Agency:

- Brood Diseases AgLink - by 1999, re-write and publish AgLink FPP124 (Brood Diseases in Honey Bees), showing visual symptoms of American foulbrood, and distinguishing these symptoms from other brood diseases and abnormalities (including the exotic disease European foulbrood).
- Starting With Bees Booklet - by 1999, publish a "Starting with Bees" booklet, to be included with AgLink FPP124 and distributed to every new registered beekeeper by the Management Agency.
- American Foulbrood Elimination Manual - by 1999, produce an American Foulbrood Elimination manual, including details of successful American foulbrood elimination programmes used by other beekeepers, and other worthwhile management techniques such as hive materials sterilisation using paraffin wax.
- Annual NBA Branch American Foulbrood Disease Elimination Workshop - hold one annual American foulbrood disease elimination workshop per NBA branch for all beekeepers in their area, including hands-on experience and practical demonstrations. The workshop will use an American Foulbrood Education Kit prepared each year by the Management Agency to ensure consistency in the educational approach throughout the country.

### **8.11 Inspection Audit Programme**

During each year of the strategy, a national American foulbrood inspection audit programme will be carried out by the Management Agency. The programme will use Authorised Persons and Accredited Persons appointed under provisions of Section 103 of the Biosecurity Act. The Authorised Persons will use the powers identified in section 8.1 of this document. Accredited Persons will work under the direction and supervision of Authorised Persons, and will have more limited responsibilities specifically relating to beehive inspection.

The inspection programme will have the following purposes:

- to audit statements regarding American foulbrood made in Annual Disease Declarations, Certificates of Inspection, and Disease Elimination Conformity Agreements
- to ensure compliance with the duties of beekeepers relating to the reporting and destruction of beehives found to have American foulbrood disease
- to detect new sources of American foulbrood
- to provide an independent measure of the success of the Pest Management Strategy in achieving its objective of disease incidence reduction.

Authorised Persons employed by the Management Agency, and appointed under Section 103 of the Biosecurity Act, will organise the inspection programme, carry out inspections, and supervise inspections by Accredited Persons working on behalf of the agency. "Approved Beekeepers" under the strategy will be

considered for appointment as an Accredited Person under Section 103(7) of the Biosecurity Act, for the purposes of inspecting beehives for American foulbrood, and will be remunerated by the Management Agency for work performed.

Selection of beekeepers whose beehives will be inspected, and the number and location of those hives, will be based on an analysis of disease declarations, honey/bee spore tests, past disease histories, failures to meet provisions of Disease Elimination Conformity Agreements, and known disease areas. The Management Agency will use a sampling regime for inspections to verify the statements made in the Certificates of Inspection and Annual Disease Declarations.

Whenever a beehive is found by an Authorised Person or Accredited Person to have a clinical case of American foulbrood, a sample of diseased larvae will be collected and retained by the Management Agency. The sample will be analysed by an approved laboratory for spores of *Bacillus larvae* if there is any dispute regarding the validity of the visual diagnosis.

“Approved Beekeepers/Enterprises” found during these inspections to have a) clinical cases of American foulbrood disease, or b) high levels of *B. larvae* spores, in their beehives, will be counselled by Management Agency personnel concerning their current disease elimination programme. Corrective action may be requested by the Management Agency, including increased inspections by the beekeeper/enterprise, further sampling of hives for *B. larvae* spores, and alterations to their Disease Elimination Conformity Agreement.

Beekeepers who are found during these inspections to have clinical cases of American foulbrood disease in their beehives will be issued with notices to destroy such hives, with compliance audited by Management Agency personnel.

### **8.12 Sample Testing for the Presence of *Bacillus larvae* Spores**

As part of the inspection programme, samples of bees/honey will be taken for testing for the presence of *B. larvae* spores. As well, the Management Agency will require designated beekeepers to provide such samples. In both cases, costs for sample processing will be borne by the strategy.

The Management Agency will also make provision for the testing of a budgeted number of samples of bees/honey sent in by beekeepers on a voluntary basis. Costs for this service will also be borne by the Management Agency, provided the results are made available on request to the Management Agency.

Bee/honey samples will be collected by Authorised Persons and/or Accredited Persons as part of the annual inspection programme to audit Disease Elimination Conformity Agreements. Honey samples will be predominately collected from larger-scale commercial enterprises, generally from bulk lines. Bee samples will be collected from smaller scale, hobbyist beekeepers. In both cases, the samples will be used as a routine screening tool. If abnormally high spore levels are found in samples, further investigation and possible visual inspections will be carried out by Management Agency personnel.

The testing of bees/honey for the presence of *B. larvae* spores is a cost-effective means of determining the possible existence of clinical cases of American foulbrood in beehives, and their potential development in the future. However, the presence of *B. larvae* spores in a beehive does not necessarily mean that the hive has a clinical case of the disease. So while such testing will be used in this strategy to enhance American foulbrood elimination, no beehive will be ordered to be destroyed without an Authorised Person's visual confirmation of a clinical case of the disease.

A testing service for suspect larval samples will also be made available by the Management Agency to assist beekeepers in making correct diagnoses of clinical cases of American foulbrood. Costs for this service will be borne by the strategy.

### **8.13 Certificates of Inspection**

Beekeepers who do not have a current Disease Elimination Conformity Agreement will be required by a notice from the Management Agency to furnish a “Certificate of Inspection” for all beehives owned, signed by an “Approved Beekeeper” or Authorised Person. The certificate must be received by the Management Agency no later than December 15 each year.

It will be the responsibility of beekeepers without a current Disease Elimination Conformity Agreement to contact an “Approved Beekeeper” or Authorised Person, and employ the individual, if necessary, to carry out the beehive inspections necessary to sign the certificate. The certificate must be furnished to the Management Agency no later than 14 days after the completion of the inspections to ensure that the statements made in the certificate are timely when received by the agency.

(Note: this “Certificate of Inspection” does not take the place of the Annual Disease Declaration, which must be furnished by all owners of beehives on June 1 each year).

### **8.14 Cost Recovery for Inspection and Disease Elimination Work**

Under the strategy, the Management Agency will seek to recover all costs incurred by Management Agency personnel when taking action in cases of individuals defaulting on notices issued under the strategy rules. Notices will be issued to individuals, and costs will be recovered from those individuals for work carried out when such notices are not complied with, under the following circumstances:

- inspections of beehives belonging to beekeepers who fail to furnish a Certificate of Inspection” by the deadline of December 15
- inspections of beehives belonging to beekeepers who fail to supply an Annual Disease Declaration by the deadline of June 1
- destruction of contaminated materials associated with a clinical case of American foulbrood
- inspection work carried out in apiaries under movement control to ensure that further clinical cases of American foulbrood are found
- work carried out on beehives belonging to beekeepers who fail to comply with any other compulsory requirements of the strategy.

Unpaid charges for work done in cases of individuals defaulting on notices issued under the strategy will be subject to penalty provisions included in the strategy rules (after 20 working days, 10 percent of the debt or unpaid portions; for every complete period of 6 months during which the debt or portion remains unpaid, a further 10 percent). All unpaid charges will be subject to lien.

## 8.15 **Movement Controls**

Where an Authorised Person believes or suspects on reasonable grounds that American foulbrood is, or has been found, in an apiary, powers outlined in section 17 of this strategy may be used to impose controls restricting the movement of remaining beehives in the apiary to reduce the further spread of American foulbrood.

Movement control restrictions will be placed on an apiary when, in the opinion of an Authorised Person:

- management of the remaining beehives in the apiary, in conjunction with management of other apiaries owned by the beekeeper, poses a serious threat of spread of the disease, or
- uncontrolled movement of the remaining hives in the apiary to an area containing beehives without a known infection of the disease, poses a serious threat of spread of the disease.

At the discretion of the Authorised Person, beehives may be allowed to be moved from a restricted apiary to another registered apiary, provided that the Management Agency is notified within 24 hours of the movement, and provided that all such hives, their boxes, lids and floor boards, are marked indelibly in such a way as to identify them as coming from the restricted apiary. A Certificate of Inspection may be required before the hives can be moved.

Controlled movement of beehives may be allowed when, in the opinion of an Authorised Person:

- movement of the beehives is required for essential management reasons (eg., pollination or honey production), and
- the management of the beehives would not pose a serious threat of spread of the disease to other hives owned by the beekeeper, or those in the area of the new apiary location.

Any movement controls imposed by an Authorised Person will remain in force until revoked by a notice of revocation given by an Authorised Person.

## 9. **MANAGEMENT AGENCY**

The National Beekeepers' Association of New Zealand, Inc. (NBA) will be the Management Agency that is to be responsible for implementing this Pest Management Strategy.

The NBA is an organisation incorporated under the Incorporated Societies Act, and until 1 January 1997 represented the interests of 495 beekeepers in New Zealand liable to pay levies under the Hive Levy Act (beekeepers owning more than 50 beehives). It also represented 397 non-levy paying members who pay an annual subscription to be members of the association.

With the establishment of a Commodity Levy Order to fund NBA services in 1997, the levy-paying membership of the NBA is increasing to approximately 1300 (beekeepers liable to pay a levy). Under the levy order all beekeepers who have more than 3 apiary sites (provided they own more than 10 beehives) are liable to pay the levy. Under the rules of the NBA all levy payers are automatically eligible to be members of the NBA.

The NBA was founded in 1914, and has been traditionally regarded as the single organisation representing the interests of all beekeepers in the country. Because it is an organisation with a democratic structure run by beekeepers, it is an acceptable agency to the persons who will provide funds to implement the strategy and to those who will be subject to management provisions under the strategy. It is also therefore capable of providing the accountability needed by those who will provide funds to implement the strategy.

The NBA has a branch structure, and elects a national executive. It also employs an executive secretary. The NBA funds an American Foulbrood Control Programme, and provides administrative support for a contract with MAF Quality Management, the contract supplier of disease control services. As such, the NBA has demonstrated capacity, competence and expertise necessary to manage this Pest Management Strategy, along with the specialist services provided by contract suppliers.



## **9.1 Financial Provisions**

Until 1 January 1997 the NBA funded its activities from a levy collected under the Hive Levy Act. Revenue collected under the levy was sufficient to fully meet expenditure for all activities carried out by the association (1996 budget: \$370,300 income,050). The NBA also maintains a reserve currently equal to approximately 45% of annual expenditure.

Beginning in 1997, the NBA is funding its activities from a levy collected under the Commodity Levies Act (see 10.3 below). Revenue collected under this levy will also be sufficient to fully meet expenditure for all activities carried out by the association (including this Pest Management Strategy).

## **9.2 Current Functions of Agency**

The NBA seeks to encourage beekeepers to work together for the betterment of the industry and to plan for its future growth. Important functions and activities of the NBA include:

- national and local government liaison
- submissions to governmental agencies on matters affecting the beekeeping industry
- monitoring legislation and government decisions affecting the beekeeping industry
- American foulbrood disease control
- beekeeping products promotion
- publicity and public relations
- educational and communication activities, including a national magazine (*The New Zealand Beekeeper*), a beekeeping library, and field days, branch meetings and national conferences
- beekeeping research support.

## **9.3 Legal Responsibilities**

The NBA is responsible by Order in Council to administer the provisions of Commodity Levies (Bee Products) Order 1996 on behalf of the Minister of Agriculture. The NBA is also responsible to carry out the provisions of its constitution on behalf of its membership.

## **9.4 Relationships Under Pest Management Strategy**

The NBA, as Management Agency, will have the following relationships under the strategy:

- responsible to the Minister of Agriculture for preparing an operational plan for the strategy within 3 months of the strategy being approved, supplying the plan to the Minister and every other Minister whose responsibilities are affected by this strategy, and making copies of the plan available to the public at cost (Biosecurity Act, Section 85).
- responsible to the Minister of Agriculture for reviewing the operational plan annually, amending it if the Management Agency sees fit, and if amended supplying a copy of the amended plan to the Minister and every other Minister whose responsibilities are affected by this strategy (Biosecurity Act, Section 85).
- responsible to the Minister of Agriculture for preparing a report on the operational plan and its implementation no later than 5 months after the end of each financial year (including statistical information on outcomes and expectations in order to measure performance), supplying a copy to the Minister and every other Minister whose responsibilities are affected by this strategy, and making the report available to the public at cost (Biosecurity Act, Section 85).
- responsible to all NBA members through the constitutional provisions of the association. These provisions include an annual report of the association and remits to the annual conference.
- responsible to beekeepers for appointing a Pest Management Strategy Review Committee to set and review "Approved Beekeeper" and Disease Elimination Conformity Agreement criteria, and review the progress of the strategy itself.
- responsible to beekeepers for appointing a Pest Management Strategy Disputes Arbitrator to represent the NBA in disputes relating to "Approved Beekeeper" status.

## **9.5 Functions Under Pest Management Strategy**

The NBA, as the Management Agency, has the overall responsibility for ensuring that the activities specified in the strategy are carried out. To that end, the Management Agency will use industry resources as well as contracted services from outside organisations. The following functions will be performed by the NBA and its contractors:

### **9.5.1 NBA Executive Functions**

- approves initial operational plan
- makes operational plan public and submits to Ministers
- approves annual review of operational plan
- approves and orders changes to operational plan, and submits amended plan to Ministers
- approves annual reports on operational plan
- makes annual report on operational plan public and submits to Ministers
- appoints Pest Management Strategy Review Committee members
- makes recommendations to the Minister for any changes to the rules of the strategy
- appoints Disputes Arbitrator to represent NBA in disputes relating to "Approved Beekeeper" status

- oversees activities of Pest Management Strategy Review Committee
- approves annual Pest Management Strategy budget
- allocates sufficient funds from general NBA budget to cover all Pest Management Strategy expenditure
- monitors all Pest Management Strategy expenditure
- appoints Pest Management Strategy financial auditor
- approves annual financial audit of Pest Management Strategy expenditure
- appoints NBA administrative personnel
- oversees activities of NBA administrative personnel
- approves specifications for all Pest Management Strategy contractors
- approves the appointment all Pest Management Strategy contractors
- oversees activities of all Pest Management Strategy contractors
- considers recommendations made by administrative officers not to proceed to recover costs in cases where work is carried out by the Management Agency when an individual has defaulted on a notice under the strategy
- decides on cases where the Management Agency will not proceed to recover costs for work done by the agency when an individual has defaulted on a of notice under the strategy rules
- considers recommendations made by Authorised Persons regarding offences against the Act, and decides whether information relating to the offence should be laid on behalf of the Management Agency

#### **9.5.2 NBA Administrative Personnel Functions**

- maintains financial accounts for all Pest Management Strategy expenditure
- reports to NBA Executive on Pest Management Strategy financial expenditure
- conducts tenders for Pest Management Strategy contracted services
- makes payments to all Pest Management Strategy contractors
- monitors performance of all Pest Management Strategy contractors in meeting contractor specifications (in conjunction with Pest Management Strategy Review Committee)
- reports to NBA Executive on performance of all Pest Management Strategy contractors in meeting contractor specifications (in conjunction with Pest Management Strategy Review Committee)
- implements changes to contractor specifications when approved by NBA Executive
- supervises financial expenditure of Pest Management Strategy Review Committee
- supervises financial expenditure of NBA Pest Management Strategy Disputes Arbitrator
- distributes information and communication relating to Pest Management Strategy as directed by NBA Executive
- makes recommendations to the NBA Executive not to proceed to recover costs in cases where work is carried out by the Management Agency when an individual has defaulted on a notice under the strategy

#### **9.5.3 Pest Management Strategy Review Committee Functions**

- prepares the initial draft operational plan
- submits initial draft operational plan to NBA Executive
- carries out an annual review of the operational plan
- submits annual review of operational plan to NBA Executive
- proposes changes to operational plan to make the Pest Management Strategy more effective in achieving its goal and objectives
- proposes changes to Pest Management Strategy contractor specifications in line with changes to operational plans
- proposes changes to the rules of the strategy
- submits proposals for changes to operational plan and rules to NBA Executive
- prepares draft annual reports on the operational plan and its implementation
- submits draft annual reports to NBA Executive
- prepares draft annual budgets for the running of strategy
- submits draft Pest Management Strategy annual budget to NBA Executive
- monitors performance of all Pest Management Strategy contractors in meeting contractor specifications (in conjunction with NBA administrator)
- reports to NBA Executive on performance of all Pest Management Strategy contractors in meeting contractor specifications (in conjunction with NBA administrator)

#### **9.5.4 Association Membership Functions**

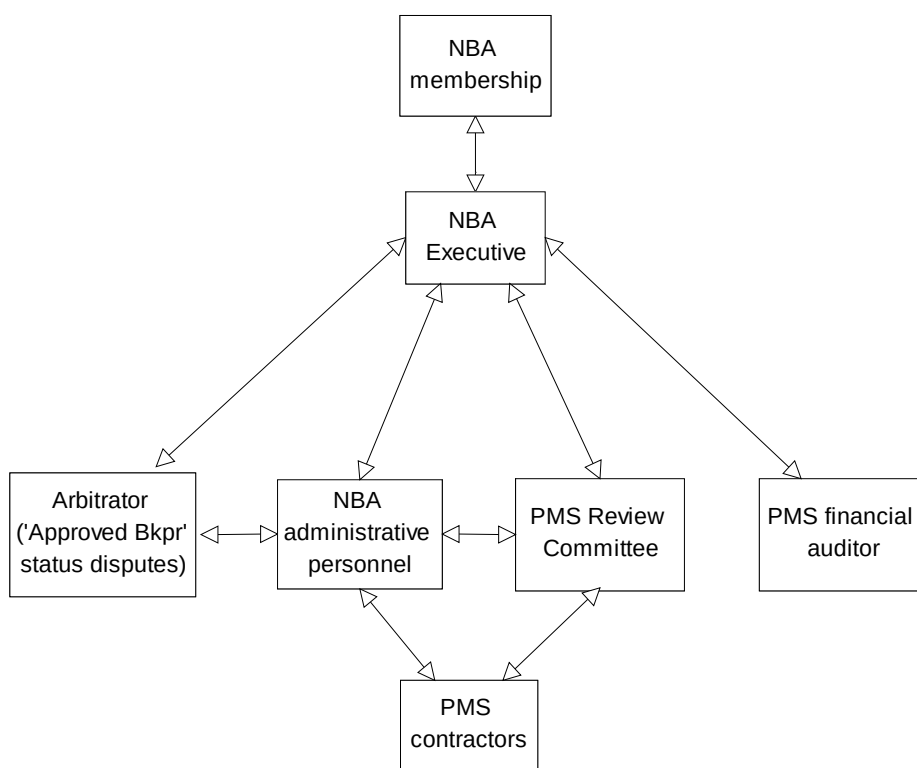
- attends annual NBA branch American foulbrood elimination workshops
- provides members for Pest Management Strategy Review Committee
- provides members for NBA Executive

#### **9.5.5 Contractors Services**

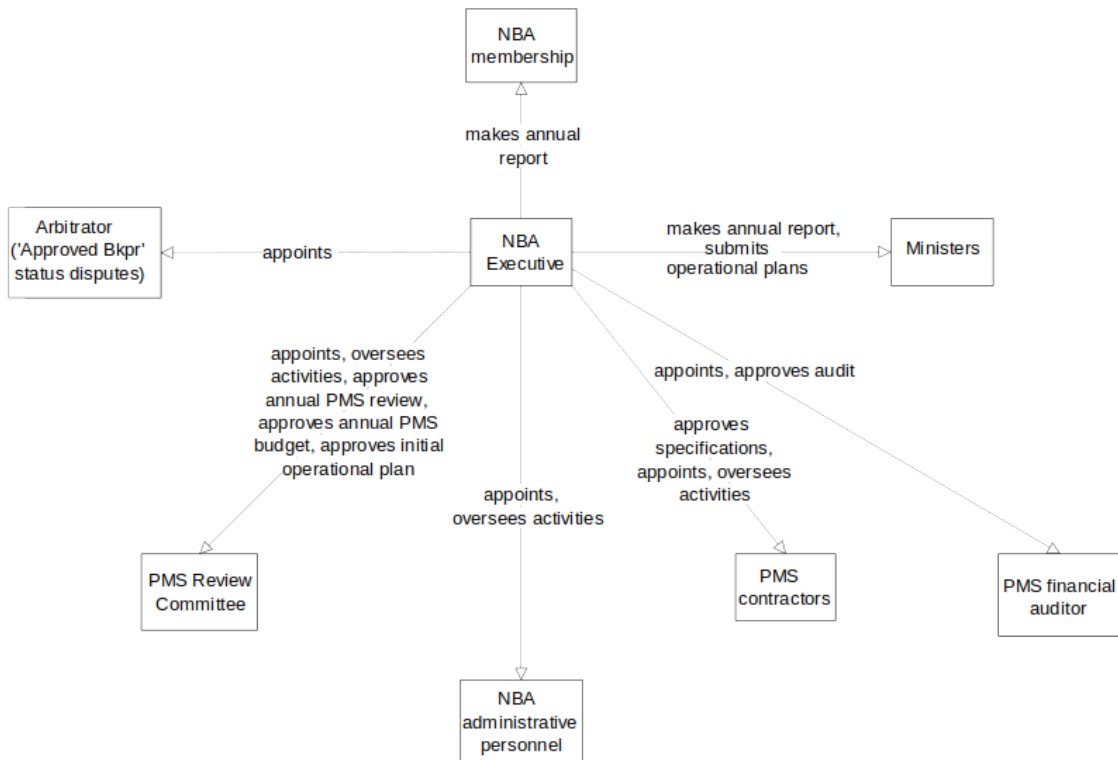
- management of Disease Elimination Conformity Agreements
- supervision of inspection audit programme
- counselling of "Approved Beekeepers" in disease elimination management

- maintenance of apiary register and processing of Annual Disease Declarations and Certificates of Inspection
- *Bacillus larvae* sample testing
- production of educational materials and resources (books, pamphlets and annual NBA branch American foulbrood elimination workshop materials)
- organisation and running of annual NBA branch American foulbrood elimination workshops
- production and marking of an examination to determine American foulbrood disease recognition and elimination competency
- approval and audit of courses on American foulbrood disease recognition and elimination
- legal services
- financial audit of Pest Management Strategy annual accounts

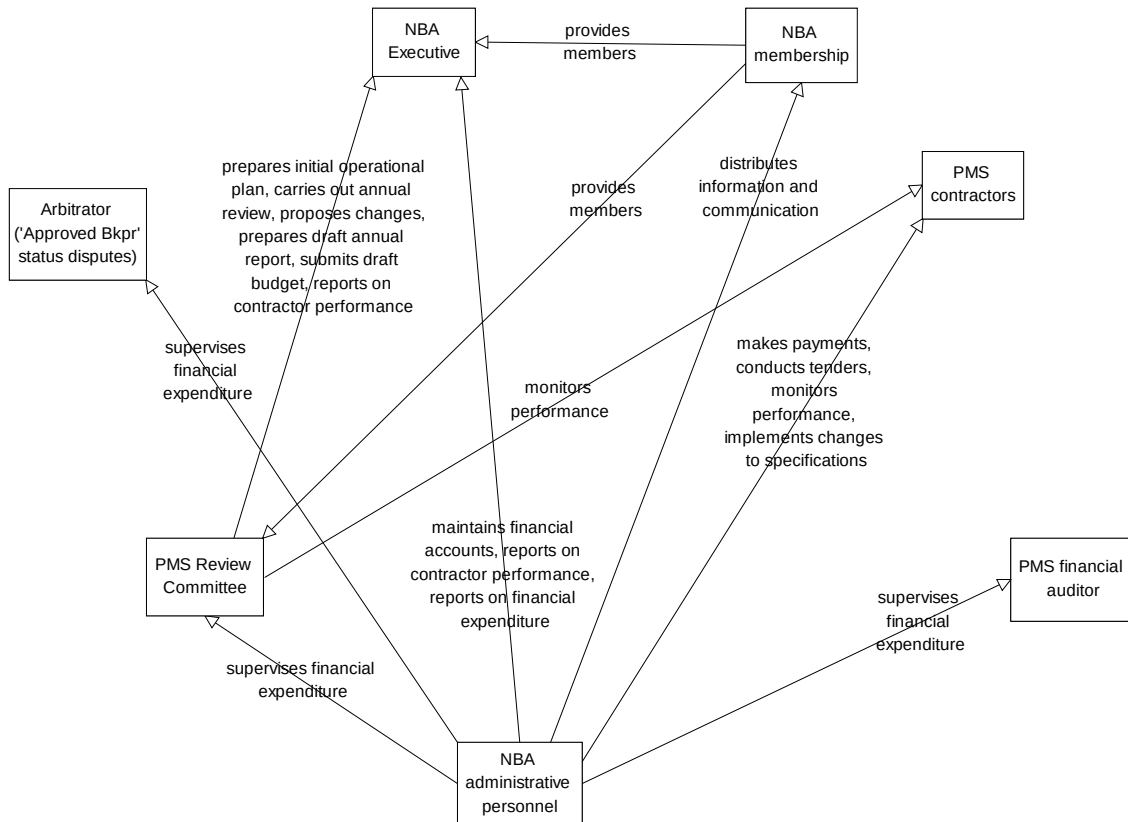
### Management Agency Relationships: American Foulbrood Pest Management Strategy



## NBA Executive Responsibilities: American Foulbrood Pest Management Strategy



## Other Responsibilities: American Foulbrood Pest Management Strategy



## **9.6 Pest Management Strategy Review Committee**

The management of the Pest Management Strategy will be overseen by an Pest Management Strategy Review Committee, composed of NBA members appointed by the executive of the NBA. The committee will consist of individuals chosen to represent a cross-section of the NBA membership from throughout the country. The committee will have a chairman and vice-chairman. Members will donate their time spent on the committee, but will be reimbursed from the Pest Management Strategy budget for all expenses incurred when carrying out committee duties.

## **10. FUNDING**

### **10.1 Funding Source**

The costs of implementing this Pest Management Strategy will be funded by an annual payment made by the National Beekeepers' Association. With the revoking of the Hive Levy Act on 1 January 1997, income for this payment is generated by a levy struck under the Commodities Levy (Bee Products) Order 1996 for the purposes of running the National Beekeepers' Association.

Costs recovered from work carried out by the Management Agency when taking action in cases of individuals defaulting on notices issued under the strategy will not be a source of funding for the strategy. Such recovered costs will only be used to ensure that the funds made available to implement the strategy will not be used to pay for works or measures which all beekeepers are legally required to perform at their own cost under the rules of the strategy.

### **10.2 Negotiation and Rationale for Allocation of Costs of the Strategy**

The National Beekeepers' Association, being the recognised body representing the beekeeping industry in New Zealand, has accepted the full costs of implementing the strategy, as it perceives the strategy to benefit all beekeepers in the country. This is the rationale for the allocation of costs of funding the strategy among the parties involved. The National Beekeepers' Association is the only party involved in funding the strategy.

When government withdrew funding for American foulbrood control in 1991, the National Beekeepers' Association undertook negotiation at the branch, national executive and national conference levels, and as a consequence decided to fund an American foulbrood programme from within its own resources.

At the National Beekeepers' Association annual conference in 1993, delegates voted both to support the goal of "eradication" of American foulbrood and to continue to allocate funds obtained through the Hive Levy Act for the American foulbrood control programme.

In 1995, the association's annual conference voted 775 to 181 to adopt the proposed Pest Management Strategy.

In April 1996 a ballot paper was sent to all registered beekeepers asking them to vote on whether they support a compulsory levy on bee products, collected on a "per apiary basis", to fund the National Beekeepers' Association. One of the purposes of the levy, which was identified on the ballot paper, was to fund this Pest Management Strategy. The proposal received support from 72% of the potential levy payers participating, representing ownership of 73% of the apiaries of the participants in the referendum.

### **10.3 Levy Information**

No levy will be imposed under the Biosecurity Act to fund this strategy. Therefore information relating to levies as specified in Sections 90-96 of the Biosecurity Act does not need to be included in this document.

The following information on the NBA Commodity Levy is provided to show that the Pest Management Strategy will have an adequate source of funding and that the funding will be secure for the duration of the strategy. The information satisfies Sections 5 and 6 of the Commodity Levies Act and is a requirement of the NBA striking such a levy:

- The levy will be paid to the National Beekeepers' Association.
- The commodity to be levied is honey, pollen, beeswax, propolis, bee venom and any other bee product.
- The persons primarily responsible for paying the levy are beekeepers who have registered apiaries or those beekeepers who would have an obligation to register their apiaries.
- The levy will be calculated on the basis of the number of apiary sites registered by the beekeeper on 1 June of each year. Permanent and seasonal apiary sites will be levied, regardless of whether there are hives on the sites on the date for calculation.
- The levy will be paid on the number of apiary sites.
- Beekeepers who provide a statutory declaration declaring that they own 10 beehives or less, and keep them on 3 apiary sites or fewer, will be exempt from paying the levy.
- The levy will be paid directly to the National Beekeepers' Association by beekeepers, the persons primarily responsible for paying the levy. A third party collector system will not be used.
- Members of the association will refrain from divulging details of levies paid unless required to divulge these matters by other provisions of the Act or the levy order.

- The National Beekeepers' Association will spend the money on a bee disease control/elimination programme, generic promotional and marketing programmes and administration of the Association. In general terms, 30% of the levy collected will be used for a bee disease control/elimination programme, 20% for generic promotional and marketing programmes and 50% for administration of the association (including the costs associated with producing the industry journal to communicate with and inform members).
- The levy will be spent by the head office of the Association and by the branches of the Association.
- The levy will be paid annually on the apiary sites that were registered (or were liable to be registered) on the previous 1 June.
- The levy will be paid at two rates. Each leviable beekeeper's first apiary site will be levied at one rate. A second levy rate applies for each additional apiary site.
- The rate for the first year of the levy will be \$50 (excluding GST) for the first apiary site and \$22 (excluding GST) for each subsequent apiary. The levy rate for the first apiary includes the costs associated with the National Beekeepers' Association's journal, the *New Zealand Beekeeper*. This magazine will be used to inform and communicate with levy payers about the levy and the Pest Management Strategy.
- Either levy rate could only be changed in future years by a vote at the National Beekeepers' Association Annual Meeting or any Special Meeting called specifically for the purpose. An increase to either levy rate will also require approval of the Minister.
- The levy rates will be notified by publication in the *New Zealand Beekeeper* (the industry journal, sent to each levy payer) and in the *New Zealand Gazette*.
- The levy will be paid on an annual basis based on the information of apiary numbers from the previous 1 June.
- The levy will be due on 20 February of each year. The final date for payment will be 31 March. Provision for payment by instalments will be made. If a levy is not paid when due it will incur a 10% penalty for each 12 month period it remains unpaid.

As required under the Commodity Levies Act, a ballot was sent to all registered beekeepers in 1996 asking them to vote on whether they support a compulsory levy, collected on a 'per apiary basis', to be spent by the National Beekeepers' Association. Results of the vote were used to satisfy Part 1 of the Commodity Levies Act. Following the completion of the ballot, a formal application was made to the Minister of Agriculture for a imposition of the levy, beginning in 1997. This resulted in the Commodity Levies (Bee Products) Order 1996.

#### **10.4 Administrative Problems Associated with Funding**

Since the Management Agency and the funding source for this strategy are the same organisation, no unusual administrative problems or costs are expected when obtaining this funding.

#### **10.5 Budget**

##### **10.5.1 Development of Proposed Budget**

The proposed budget for the Pest Management strategy was determined by the Disease Control Committee. The committee identified the various expenditure areas of the Management Agency and its contractors and then set a series of specifications for work to be carried out in each expenditure area. Potential service providers were then contacted and asked to:

- review the specifications associated with the given service,
- determine the number of hours and other expenditure required to carry out all tasks identified in the service specification, and
- provide an indication of any further tasks the provider believed would be necessary to adequately perform the service.

## 10.5.2 Proposed Costings -- AFB Pest Management Strategy

CATEGORY/ITEM	TASK	COST	ITEM TOTALS		
			Year 1	Year 2-5	
<b>A. ADMINISTRATION</b>					
<b>1. Contractor Supervision</b>	a. setting contract specifications	\$2,000			
	b. tendering for contracts	\$1,625			
	c. audit of contractor performance	\$3,000			
	d. directing corrective action	\$1,625			
	=		\$8,250	\$8,250	
<b>2. Financial Accounting</b>	(costs borne by NBA)	nil	nil	nil	
<b>3. Financial Auditing</b>	(costs borne by NBA)	nil	nil	nil	
<b>4. Reporting (Gov. &amp; NBA)</b>	a. production of report - Minister of Ag.	\$800			
	b. production of report - NBA	\$400			
	=		\$1,200	\$1,200	
<b>5. Legal Expenses</b>	a. writing/negotiating contracts	\$1,000	\$1,000	\$1,000	
<b>B. OPERATIONAL</b>					
<b>1. Disputes Arbitration</b>	a. payment of NBA Arbitrator	\$2,000			
	b. half-payment of 3rd Arbitrator	\$1,000			
	c. communication of decisions	\$200			
	=		\$3,200	\$3,200	
<b>2. Review Committee</b>	a. meals/accommodation/airfares	\$3,000			
	b. conference calls	\$4,200			
	c. report production	\$480			
	=		\$7,680	\$7,680	
<b>3. Beekeeper Communication</b>	a. NZ Bkpr article	\$2,750			
	b. miscellaneous communications	\$1,000			
	=		\$3,750	\$3,750	
<b>4. Beekeeper Education</b>	a. Competency Exam development -yr. 1	\$500			
	b. Competency Exam administration	\$500			
	c. Aglink to new beekeepers	\$875			
	d. Beginning with Bees booklet	\$525			
	e. postage	\$280			
	f. production of Annual Field Day Packet	\$2,100			
	g. production of disease control manual	\$2,500			
	=		\$7,280	\$6,780	
	<b>5. DECA Scheme Maintenance</b> (year 2-5: 30% less)	a. maintenance of commercial beekeeper/enterprise DECA's	\$22,300		
b. maintenance of smaller scale DECA's		\$32,400			
=			\$54,700	\$38,290	
<b>6. Certificates of Inspection</b>	a. processing Col's - 50 hive+ non-Approved Beekeepers - hobbyist non-Approved Beekeepers	\$250 \$7,250			
	=		\$7,500	\$7,500	
	<b>7. AFB Recognition Courses</b>	a. audit of courses	\$1,350		
b. tutor training course - yr. 1 (cost recovery)		nil			
=		\$1,350	\$1,350		
<b>8. Counselling</b>	a. Approved commercial beekeepers w/ AFB problems	\$7,500			
	b. Approved hobbyists beekeepers w/ AFB problems	\$1,050			
	=		\$8,550	\$8,550	
<b>9. Audit Programme</b>	a. inspections - 2% of apiaries (labour/km)	\$25,000			
	b. assignment of inspections	\$2,750			
	c. spore testings (bees) - 502 tests	\$5,020			
	d. spore tests (honey) - 500 tests	\$5,000			
	e. processing of results (tests, inspections)	\$1,100			
	=		\$38,870	\$38,870	
<b>10. Apiary and Disease Register</b>	a. inputting beekeeper information/new beekeepers	\$3,850			
	b. sending Annual Disease Declarations/follow-up	\$3,350			
	c. filing/ collating Annual Disease Declarations	\$4,700			
	d. keeping log of AFB reports	\$1,500			
	e. paper, labels, envelopes, postage	\$7,850			
	(\$10,000 of cost to Com Levy admin.)	=		\$11,250	\$11,250
	<b>11. Abandoned Apiaries Destruction</b>		\$750	\$750	\$750
<b>TOTALS</b>			<b>\$155,330</b>	<b>\$138,420</b>	

10.5.3 PMS Costings Summary

	Item Totals	
	Year 1	Year 2-5
<b>A. ADMINISTRATION</b>		
1. Contractor Supervision	\$8,250	\$8,250
2. Financial Accounting	--*	--*
3. Financial Auditing	--*	--*
4. Reporting (Gov. & NBA)	\$1,200	\$1,200
5. Legal Expenses	\$1,000	\$1,000
<b>TOTAL</b>	<b>\$10,450</b>	<b>\$10,450</b>

	Year 1	Year 2-5
<b>B. OPERATIONAL</b>		
1. Disputes Arbitration	\$3,200	\$3,200
2. Review Committee	\$7,680	\$7,680
3. Beekeeper Communication	\$3,750	\$3,750
4. Beekeeper Education	\$7,280	\$6,780
5. DECA Scheme	\$54,700	\$38,290
6. Certificates of Inspection	\$7,500	\$7,500
7. AFB Recognition Courses	\$1,350	\$1,350
8. Counselling	\$8,550	\$8,550
9. Audit Programme	\$38,870	\$38,870
10. Apiary/Disease Register	\$11,250	\$11,250
11. Abandoned Apiaries	\$750	\$750
<b>TOTAL</b>	<b>\$144,880</b>	<b>\$127,970</b>

\*(costs borne by NBA)

	Year 1	Year 2-5
<b>AFB PMS BUDGET</b>		
<b>A. Administration</b>	<b>\$10,450</b>	<b>\$10,450</b>
<b>B. Operational</b>	<b>\$144,880</b>	<b>\$127,970</b>
<b>TOTAL</b>	<b>\$155,330</b>	<b>\$138,420</b>

10.5.4 PMS Income and Expenditure

	Year 1	Year 2-5
<b>Income</b>		
Annual Payment - NBA	+\$155,330	+\$138,420
<b>Expenditure</b>		
Administration and Operational	-\$155,330	-\$138,420
<b>SURPLUS/DEFICIT</b>	<b>\$0</b>	<b>\$0</b>



## **10.6 Pest Management Strategy Budget Determination**

The annual budget for the strategy will be determined by an annual review of the Pest Management Strategy carried out by the Pest Management Strategy Review Committee in July each year. The committee will determine what changes, if any, need to be made to contractor specifications, and will analyse the current year's expenditures for both contractor services and all other activities carried out by the Management Agency in relation to the Pest Management Strategy.

Based on this analysis, a draft Pest Management Strategy budget will be submitted to the NBA Executive in August each year, together with recommendations on changes to contractor specifications. The NBA Executive will be responsible for amending and approving the Pest Management Strategy budget in accordance with its annual budget-setting process, and for approving and implementing changes to contractor specifications. The NBA Executive will also be responsible for allocating sufficient funds from the full NBA budget to meet the Pest Management Strategy expenditure requirements.

## **11. COMPENSATION AND PROCEEDS OF STRATEGY RECEIPTS**

No compensation will be payable in respect of losses incurred as a direct result of the implementation of the strategy. This includes goods necessarily destroyed or damaged in implementing the strategy.

Proceeds from any and all receipts arising in the course of implementing the strategy will be used to offset costs of the Management Agency and its personnel in carrying out activities mandated in the rules of the strategy. Proceeds from such receipts will not be disposed of in any other way.

## **12. REVIEWS AND MEASURES OF PERFORMANCE**

The Minister of Agriculture will monitor the effect of the strategy and the performance of the Management Agency by annual audit to ensure that the objectives of the strategy are being met. This monitoring may be based on performance criteria agreed to by the Minister and the National Beekeepers' Association.

### **12.1 Annual Review**

As required under Section 85 of the Biosecurity Act, the Management Agency will make an annual report on the operational activities of the strategy. This report will include the following measures of performance:

- a general critical analysis of work carried out in relation to the various parts of the strategy, including the "Approved Beekeeper" programme and Disease Elimination Conformity Agreements, counselling activities, educational activities, and work carried out by the Management Agency on beehives owned by individuals defaulting on notices issued under the strategy rules (together with costs recovered).
- a detailed statistical analysis of information gathered from Annual Disease Declarations, disease reports, inspection audit results, and bee/honey spore tests. This information will be analysed to determine disease trends in relation to the disease reduction target set for the year.
- an expenditure analysis, including a proposed budget for the following year.

The following statistical information would be included in the report:

- number of "Approved Beekeepers"
- number of beekeepers who lost "Approved Beekeeper" status
- number of beekeepers without Disease Elimination Conformity Agreements
- number of beekeepers who became "Approved Beekeepers" during year
- number/% of beehives with American foulbrood found and destroyed
- number/% of beehives with American foulbrood found during inspection audit programme
- number/% of beehives reported with American foulbrood in "Certificates of Inspection"
- number of test samples taken and results of tests
- number of unregistered apiaries found/notices to register issued
- number of abandoned apiaries/beehives found/destroyed
- number of movement control notices issued and beehives/beekeepers involved
- number of beekeepers, apiaries and beehives from Annual Disease Declarations
- number of beekeepers receiving disease elimination counselling
- number of "Certificates of Inspection" received and the number of beehives inspected belonging to such beekeepers
- number/% of beekeepers without current Disease Elimination Conformity Agreements not returning "Certificates of Inspection"
- number of such apiaries/beehives inspected by Management Agency personnel
- total of recovered costs from such inspections
- total of recovered costs for destruction of beehives and materials associated with a clinical case of American foulbrood.

The annual review will be carried out by the Pest Management Strategy Review Committee. Their report, together with recommendations for changes to contractor specifications and the operational plan, will be submitted to the NBA Executive for their approval.

The NBA Executive will amend and approve the report and issue an annual report on the Pest Management Strategy to the Minister and to the membership of the NBA. The NBA Executive will also implement changes to contractor specifications and the operational plan.

## **12.2 Five Year Review**

Before the end of the first 5 years of the strategy, the Pest Management Strategy Review Committee will carry out a full review of the strategy. The review will measure the performance of the strategy in achieving its objectives. The review will include an analysis of yearly reviews of the strategy, the effect of changes to contractor specifications, the operational plan, and the rules of the strategy, on subsequent functioning of the strategy, and an analysis of budgets and spending related to the strategy during this 5 year period. The review will make recommendations for the second 5 year period of the strategy (which is required to achieve the objective of 0.1% incidence by the year 2006).

The review will be submitted to the NBA Executive who will consider the review and make a decision regarding activities to be undertaken in the second 5 years. The NBA Executive will then submit the review to the Minister.

## **12.3 Ten Year (PMS Term) Review**

Before the end of the 10 year term of the strategy, the Pest Management Strategy Review Committee will carry out a full review of the strategy. The review will measure the performance of the strategy in achieving its objectives. The review will include an analysis of yearly reviews of the strategy, the effect of changes to contractor specifications, the operational plan, and the rules of the strategy, on subsequent functioning of the strategy, and an analysis of budgets and spending related to the strategy during its term. The review will make recommendations regarding a request to the Minister for an extension of the strategy for a given length of time if the objectives are not yet achieved

The review will be submitted to the NBA Executive who will consider the review and make a decision regarding any recommendations and/or requests to the Minister. The NBA Executive will then submit the review and any recommendations to the Minister.

## **13. IDENTIFICATION AND ANALYSIS OF ALTERNATIVE STRATEGIC OPTIONS**

There are broadly four alternative options to the proposed Pest Management Strategy: 1) deregulation of American foulbrood control, 2) search and destroy using legal powers, 3) antibiotic feeding, and 4) fumigation/sterilisation.

### **13.1 Deregulation**

The deregulation option was due to occur by default on 30 June 1996. On that date, Section 185 of the Biosecurity Act was to repeal all provisions of the Apiaries Act pertaining to the control of American foulbrood unless a Pest Management Strategy for American foulbrood has been approved by the Minister. The Biosecurity (Transition and Savings) Regulations 1996 have extended the remaining sections of the Apiaries Act which pertain to the control of AFB to 30 September 1998. Under this option it would no longer be illegal to keep beehives with clinical cases of American foulbrood. No one would have the legal power to inspect another person's beehives for the presence of the disease, and no one could legally force anyone else to destroy hives and/or materials contaminated with *Bacillus larvae*.

As well, beekeepers would no longer have to provide information on the location of their apiaries for American foulbrood control purposes, nor report the presence of the disease to any disease control agency. No Management Agency or government department would have any regulatory responsibility for the disease whatsoever.

The predicted outcome resulting from this option would be an increase in the incidence of the disease in beehives in New Zealand. Many beekeepers would continue to inspect their hives for the disease and destroy hives whenever a case was found. Some beekeepers, however, would not carry out inspections or destroy diseased beehives. These beehives would become weakened by the disease and would be "robbed-out" by other hives. Spores of *Bacillus larvae* would be transferred to these hives creating new infections.

The economic consequences of this option are outlined in section 6.4 of this document. It is estimated that every 1% increase in the incidence of American foulbrood would result in a loss to the New Zealand beekeeping industry of \$854,500, or approximately 1.8% of annual gross returns. There would also be significant increases in the cost and availability of beehives for pollination services and the ability to export bees and bee products would be adversely affected.

The possibility exists that beekeepers, either as individuals or groups, would employ persons who have professional skills in diagnosing American foulbrood and controlling disease spread to carry out disease control programmes. However, because these professionals would not have powers to inspect or carry out any other measures on beehives without the permission of their owners, or enter on to land to inspect hives without similar permission, they would be unable to isolate and remove the source of infection in apiaries belonging to beekeepers who did not give their permission.

## 13.2 Search and Destroy Using Legal Powers

The search and destroy approach using legal powers is very similar to the Pest Management Strategy that is being proposed. However, there are important differences in several areas. It is necessary to discuss both this approach and the proposed strategy to highlight the differences.

The aim of the search and destroy approach is to control American foulbrood, rather than to eliminate it. The approach is currently being used in New Zealand and has been applied in varying degrees during the past 50 years (Goodwin et al, 1993d; Matheson and Reid, 1993).

The approach and the proposed strategy both rely on 1) the detection and destruction of beehives which have clinical symptoms of American foulbrood, 2) beekeepers inspecting their own beehives for the disease, and 3) retention of necessary statutory powers and authority for dealing with the disease.

The search and destroy approach has also always had an outside inspection component. Early on this consisted of MAF inspecting upwards of one third of registered apiaries in the country each year (1964-65 figure). However, with the advent of user-pays, just under 8% of apiaries are inspected by MAF Quality supervised personnel annually. The cost of the current annual contract with MAF Quality Management for an American foulbrood control programme is \$105,000 plus administration.

Although the search and destroy approach also had an education component, the size of which varied between years and areas in New Zealand, it did not attempt to ensure that beekeepers did their disease inspections properly. The emphasis in recent years has been on finding those beekeepers who do not do the job effectively (or at all). This process consists of inspecting apiaries in problem areas and instructing beekeepers to destroy any diseased beehives that are found.

The proposed strategy differs from the search and destroy option in that it ensures that every beehive in the country receives (as a minimum) an adequate, baseline level of inspection and proper diagnosis for American foulbrood disease. The strategy also concentrates on providing incentives to change management practices which spread the disease. In the past, except where major disease problems were found, there has been limited effort applied to changing such management practices.

The strategy uses an inspection programme backed by legal powers mainly to audit "Approved Beekeeper" performance in relation to their Disease Elimination Conformity Agreements and the Certificates of Inspection they sign on behalf of beekeepers without such agreements. Legal powers are also used by Management Agency personnel to inspect beehives and destroy materials associated with clinical infections of the disease in cases of individuals defaulting on notices issued. Unlike in previous programmes, the full costs of any such default work carried out by the Management Agency will be recovered from the owner.

## 13.3 Antibiotic Feeding

This approach consists of managing American foulbrood levels in beehives by administering antibiotics. The approach could be used in conjunction with the deregulation approach, in which case there would be no legal requirements to destroy infected beehives or administer antibiotics. It could also be used in conjunction with the search and destroy approach, in which case there would still be some legal powers to either destroy or treat diseased beehives. In either case, the Minister would be required to approve the use of any antibiotic in relation to American foulbrood by way of a *Gazette* notice, since the section of the Apiaries Act relating to drugs (Section 25 - "Prohibition on use of drugs") is retained by Section 171 of the Biosecurity Act.

The feeding of antibiotics is generally not assumed to cure or eliminate existing clinical infections of American foulbrood in beehives, at least under normal commercial beekeeping practices (Hornitzky, 1990; Wilson, et al, 1973; Matheson and Reid, 1992). The use of antibiotics alone is therefore not a direct alternative to achieving the goal of elimination proposed in this strategy.

Comparisons can however be made between antibiotic feeding and the current search and destroy approach used in New Zealand. Antibiotics are used extensively overseas in attempts to control the occurrence of American foulbrood. There are a range of approaches, which can be divided into several categories:

- 1) The feeding of antibiotics as a preventative. In this case, all beehives are fed, usually in the spring and autumn, and minimal inspection and hive destruction is undertaken.
- 2) The feeding of drugs as a preventative, in conjunction with inspections. All beehives are fed at least twice a year, and some inspections are conducted (government and/or beekeeper). Invariably in such circumstances, a percentage of beehives are found to have clinical symptoms of the disease and are destroyed.
- 3) Inspection, and the quarantine and treatment of beehives and apiaries where American foulbrood is found.

The best figures available on losses of beehives to American foulbrood are for approach 2), since this approach is used widely in the US and Canada, and there are often government control programmes in place which provide reliable statistics on disease incidence. The approach has been shown to maintain the incidence of clinical cases of American foulbrood at approximately 2% of hives per year (Matheson and Reid, 1992). This is more than double the loss currently reported in New Zealand, with the additional cost of antibiotic feeding at \$1.12-\$3.28 for two feeds for each beehive treated (Reid, 1990).

Approach 1) is also used in US states where American foulbrood control is deregulated. Since in such cases there are no government programmes collecting reliable disease incidence statistics, it is impossible to reliably gauge the percentage of beehives lost to American foulbrood each year. It can be reasonably assumed, however, that the rate of loss would be no less than in areas where approach 2) is used, since the use of antibiotics is approximately the same. The costs would therefore be at least as great.

It has also been estimated that in areas where antibiotics are used as an American foulbrood preventive, between 10 and 20% of beehives would break down with the disease if antibiotic feeding ceased (Hornitzky, 1989; Cantwell, 1980). To avoid devastating economic losses, beekeepers in the United States have found that they must feed antibiotics on a continuing basis (Morse et al, 1965). If, based on that experience, we had a totally deregulated approach to American foulbrood control in this country, the cost to administer drugs to all beehives in New Zealand would be between \$324,660 and \$950,790 per annum (excluding labour and carrier agent).

No reliable information is available on the costs associated with approach 3). The approach would nevertheless require an inspection programme with legal powers similar to the one in use currently in New Zealand to ensure that beehives with clinical cases of American foulbrood were found and quarantines were imposed. Added to this would be the cost of antibiotic feeding at between \$34,460 and \$100,919 (4 feeds x number of infected apiaries x average beehives/apiary) as well as the cost of administering the drug if authorised personnel were used to ensure the drugs were properly applied (estimated to be at least \$134,610). It would also still be necessary to destroy beehives that did not respond to the antibiotic feeding programme.

Nevertheless, antibiotics are the option chosen by beekeepers in many parts of the world. The choice is based on a) the perceived low cost of the drug per beehive compared to the significant economic losses that would be suffered if drug feeding ceased, b) an incidence of the disease in the area honey bee population much higher than is present in New Zealand, c) the lack of geographic isolation leading to continual introductions of the disease-causing organism from outside the area, d) the unwillingness of beekeepers to cooperate to control the disease by other means.

Antibiotic treatment also has at least three important disadvantages. These are the problems typically associated with most antibiotic programmes used to control animal diseases: 1) bacterial resistance, 2) drug residues, and 3) applicator error/negligence.

With prolonged antibiotic use, it is possible that resistant strains of *Bacillus larvae* could become a problem. A leading authority on the subject has predicted the appearance of such strains in the future (Shimanuki, 1990), and in 1994 strains resistant to oxytetracycline were reported in Argentina (Alippi, 1994). Resistant strains would require regular changes in the antibiotics used to maintain acceptable levels of control. For that reason, Shimanuki has recommended that other control practices be researched as soon as possible.

There is also the problem of antibiotic residues in honey. Information from countries where antibiotics are fed indicates that antibiotic residues will end up in honey produced for the export and local markets (Matsuka and Nakamura, 1990). This may result in honey having to be tested, which would increase product costs. Antibiotics used for the control of American foulbrood have been detected in retail honey overseas in contravention of local food purity regulations (Canadian Beekeeping, 1987). Under New Zealand legislation, there is currently no minimum allowable level in honey for the two most common antibiotics used to control American foulbrood.

The most significant problem with the antibiotic treatment approach, however, is that everywhere such antibiotics are used, applicator error/negligence results in a continuing incidence of American foulbrood in beehives. In states and provinces in North America where a government-sponsored inspection programme is employed in addition to routine antibiotic treatment, non-treated or poorly treated beehives which develop clinical symptoms of the disease can result in an American foulbrood incidence equal to or greater than that experienced in New Zealand, where antibiotic treatment for American foulbrood control is prohibited by law (Rendall, 1981; Mungari and Jamnback, 1991). It is perhaps self-evident, but still worth noting, that the same behavioural change this Pest Management Strategy contends is necessary to eliminate American foulbrood in New Zealand would also be required if an antibiotic treatment programme were to have any similar chance of success.

## **13.4 Fumigation/Sterilisation**

This approach involves inspecting beehives for American foulbrood, killing the bees in the hive when a clinical case of the disease is found, and then fumigating or sterilising the combs, woodenware and other associated materials so that they are no longer contaminated with viable spores of *Bacillus larvae*, the causative organism. The approach could be used in conjunction with the deregulation approach, in which case beekeepers would carry out fumigation/sterilisation on a voluntary basis. The approach could also be used in association with legal powers to ensure that such materials are fumigated/sterilised by law (and in the proposed Pest Management Strategy). As well, the approach could be used in association with antibiotic feeding.

The main benefit from fumigation/sterilisation is that wax combs and their wooden frames do not have to be destroyed, as is the case in the proposed strategy. Under the proposed strategy, provision is made, however, for the sterilisation of other woodenware such as boxes, lids and bases using paraffin dipping, provided it is done under a Disease Elimination Conformity Agreement. The benefit is therefore limited to the savings of combs and frames only, at approximately \$1 per comb (or \$18 to \$20 for a standard two-box beehive).

Several types of fumigation/sterilisation methods have been tested overseas. These include fumigation with ethylene oxide, methyl bromide, and sterilisation by exposure to gamma radiation.

Ethylene oxide has been trialed extensively in North America. However, while laboratory trials have shown the substance to be effective in destroying spores of *B. larvae* (Michael, 1964), little progress has been made in developing commercial applications to fumigate contaminated hive parts. Commentators believe the outlook for ethylene oxide fumigation is not promising (Morse and Shimanuki, 1990), and the material has now been withdrawn from use as a general purpose fumigant because of its carcinogenic properties.

Methyl bromide has also been shown to kill *B. larvae* spores in laboratory conditions (Faucon et al, 1982). However, further work has shown that while the fumigant deactivates spores in honey, it does not do so completely in the bodies of capped and uncapped larvae (Goodwin, 1991). Methyl bromide is now also in the process of being withdrawn as a fumigant because of its environmental risks.

Exposure of contaminated combs and hive parts to gamma radiation kills all *B. larvae* spores, both in the laboratory and in commercial situations (Hornitzky and White, 1983). The technique is now used on an industry-wide basis in Australia, and especially in New South Wales. Cost for the treatment is \$20 per three-box hive. The availability of gamma radiation has not led to a reduction in the incidence of American foulbrood, however. The incidence of the disease in Australia has increased in recent years, possibly because of the masking effects on American foulbrood caused by an antibiotic used to control European foulbrood (Hornitzky, 1990; Woodward and Brown, 1991). There is currently no gamma radiation facility in New Zealand large enough to process commercial amounts of beekeeping equipment. Significant opposition has been shown to the proposed building of such a plant in at least two areas in New Zealand.

## 14. ECONOMIC EVALUATION OF STRATEGY

### 14.1 Estimated Cost of American Foulbrood to the New Zealand Beekeeping Industry (per annum)

	No. Hives	\$/hive	Total
<u>Loss of Hives</u>			
reported incidence (0.8%)	2,319	\$ 128 *	\$ 296,832
possible incidence (2%)	5,798	\$ 128	\$ 742,144

(\*Replacement cost for four storey hive)

<u>Loss of Income</u> (Honey, pollination, bees and bee products)			
reported incidence	2,319	\$ 144.77 *	\$266,152
possible incidence	5,798	\$ 144.77	\$ 665,436

(\*Weighted according to the number of each type of hive in the industry)

#### Beekeeper Labour & Mileage (based on an eight beekeeper consensus, NBA Disease Control Committee)

a. disposal			
reported incidence	2,319	\$ 52	\$ 120,588
possible incidence	5,798	\$ 52	\$ 301,496

b. inspection*			
minimum (2 p.a.)	289,875	\$ 3.00	\$ 869,625
maximum (5 p.a.)	289,875	\$ 7.50	\$ 2,174,063
(* \$1.50/inspection)			

NBA Inspections (labour and mileage based on 1993 Bay of Plenty branch statistics)

a. labour	5,828	\$ 3.60	\$ 20,980
b. mileage	5,828	\$ 0.82	\$ 4,778

MAF Disease Control Contract (1995-96)

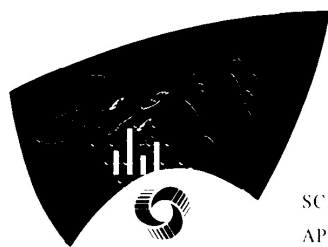
a. contract			\$ 105,000
b. NBA administrative cost for contract (estimated)			\$ 15,000

Export Certification

a. lab tests			\$ 8,000
b. collection time	400x20	\$ 1.50	\$ 12,000

Research into AFB \$ 20,000

<b>TOTALS</b>	<b>minimum</b>		<b>\$ 1,738,955</b>
	<b>maximum</b>		<b>\$ 4,068,897</b>



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**An Analysis of the Benefits and Costs of the Introduction of a Pest Management  
Strategy to Eradicate American Foulbrood Disease.**

**Prepared for the National Beekeepers' Association  
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**July 1995**

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# **An Analysis of the Benefits and Costs of the Introduction of a Pest Management Strategy to Eradicate American Foulbrood Disease.**

## **I. Introduction**

An analysis of the benefits and the costs of the introduction of a Pest Management Strategy to control American Foulbrood disease has been performed. The analysis compares the scenario that might occur *without* the Pest Management Strategy and the scenario *with* control as specified by the proposed Pest Management Strategy.

The results are discussed in detail in section II. To comment briefly, they show first that the benefits of the Pest Management Strategy outweigh the costs of its implementation and second that the net benefits of the Pest Management Strategy are greater than the net benefits of the *without* scenario.

As stated in the National Pest Management Strategy for American Foulbrood Eradication document there are four alternative options to the proposed Pest Management Strategy; deregulation of American Foulbrood disease control; a search and destroy policy using legal powers; antibiotic feeding; fumigation and sterilisation. Since, as the document also points out, the deregulation option will occur by default on June 30 1996, if there is no Pest Management Strategy in place, this will be the alternative used as the *without* case for comparison in the analysis.

Setting up both scenarios is naturally difficult as there is little or no experimental or historical data to show what would happen in both scenarios. We have therefore made some very conservative assumptions about the *without* scenario and taken the projections made in the Pest Management Strategy document for the *with* scenario.

Some benefits would require extensive data collection to estimate their contribution (those often denoted the 'intangible' benefits). These are discussed in section III but are not included in the analysis.

The information and known parameters supplied by the industry are presented in Table 1; the assumptions made and the parameters they affect are provided in Table 2. The parameters, and thus the assumptions, can be easily varied to perform a sensitivity analysis looking at the impacts of different scenarios and assumptions on the benefit and cost streams.



**Table 1. Information and known parameters**

- The initial incidence of clinical AFB under current management is assumed to be 2% of hives per annum.
- The target decrease in clinical AFB incidence, proposed under the new Pest Management Strategy, is 10% per annum (10% of the 2% incidence), down to a final incidence target of 0.1%.
- Ten percent of hives destroyed are 4-box hives and 90% are 2-box hives. The costs to replace these hives are \$212 and \$119 respectively. Therefore, the cost to replace a hive is taken as the weighted average of the two costs, \$128.30 per hive, shown in Table 5, provided by MAF Quality Management, Tauranga.
- Disposal of hives with clinical AFB costs \$52 per hive.
- The number of beekeeper visits to inspect for clinical AFB is assumed to be a conservative two visits per annum under the proposed Pest Management Strategy and also two visits per annum without the strategy, even though the number of visits would probably increase if the strategy were not in place. Each visit costs \$1.50 per hive. These visits are assumed to be additional to production costs, as are the costs of hive disposal when the hive has a clinical case of AFB.

**Table 2. Assumptions made for the analysis**

When AFB strikes a hive, the following is assumed regarding costs involved:

- One year's production is lost. Since in most cases a large proportion of the yearly costs of operating a hive have been expended, this loss is taken to be equal to the gross income lost (i.e. no operating costs are saved).
- The physical asset is lost (the hive) and its loss is represented by its replacement cost.
- The hive is assumed to be destroyed and for simplicity this has been assumed for both scenarios. It is possible that boxes, lids and floorboards could be fumigated or sterilised under the Pest Management Strategy.

With regard to the industry we assume the following:

- In the *with* scenario all destroyed hives are replaced.
- In the *without* scenario, the loss of hives due to AFB will be as follows, 2.5 percent in year 1 increasing at 2.5 percent to a peak of ten percent in year 4 and declining thereafter at 2.5 percent to a stable 5 percent per annum. This is a conservative estimate.
- The seriousness of the disease will cause some beekeepers to leave the industry and therefore a proportion of the destroyed hives will not be replaced. In the *without* scenario therefore, 99 percent of hives destroyed are replaced, i.e. hives are lost to the industry at a rate of one percent per year. How far this process may go is an unknown. For the purpose of the analysis it continues to year ten.

With regard to costs and prices:

- Production costs are assumed to remain proportional to the number of hives and do not change whether the Pest Management Strategy is in place or not.
- Production costs are all costs except those incurred to control AFB. They are shown in Table 6, provided by MAF Quality Management, Tauranga.
- Prices are assumed to remain at the current level irrespective of changes to the industry. The gross income per hive is given in Table 6.
- The Pest Management Strategy will cost \$143630 in year 1 and \$126830 in years 2 to 5. It is assumed that the Pest Management Strategy will continue to cost \$126830 for years 6 to 10. These figures were provided by MAF Quality Management, Tauranga.

## II. Results and Discussion

The results of the analysis are presented in Table 3. The *with* case represents the scenario *with* the Pest Management Strategy while the *without* case represents the deregulation alternative.

The data present what would happen to the net income flow for the industry (simply calculated as the number of hives times the gross margin per hive (with pest control costs taken out)) under different assumptions about the incidence of AFB disease and the associated costs. As such this is a financial analysis rather than a full economic analysis. A full economic analysis would demand that all costs and benefits are taken into account. A full economic analysis also looks at the costs and benefits from society's point of view rather than just the industry. This means that it could be assumed for instance that resources which move out of the industry will be employed elsewhere. This is a feature that is taken into account in the financial analysis produced here however.

Benefits less costs (net benefits) are produced for each strategy and show that in both cases the industry as a whole would continue to break even, that is, net income is positive. However, we want to compare both scenarios. This is done by looking at the difference between the two income flows. The income flow for the *with* scenario is greater than the *without* in years two to ten and is illustrated as the Benefits PMS - Resources Unemployed line in the graph in Figure 1. This assumes that resources move out of the industry and are not employed elsewhere and is the result for the industry. The Benefits PMS - Resources Employed line however assumes that labour and capital (the resources) are employed elsewhere. If this is the case, that the resources are employed elsewhere, then taking the figures from the first instance, where resources are not employed, would overestimate the benefits of the PMS from society's point of view. The Benefits - Resources Employed scenario also assumes that the resources released would be able to roughly earn the same net income as they did in the bee industry. Figure 2 illustrates the number of hives in the industry in the *with* and *without* scenarios.

The results show that from an industry's point of view the introduction of the Pest Management Strategy will clearly benefit the industry as a whole, i.e. there is a positive difference indicating that the decrease in costs, due to a lower incidence of AFB, outweighs the cost of the strategy. The PMS is also desirable in terms of net benefit from a national point of view.

It should be noted that in this analysis we only considered the impact of the presence or absence of the Pest Management Strategy on the industry. The products of this industry go into value-adding enterprises and taken together, all honey-based products contribute significantly to New Zealand's Gross Domestic Product. The scenario of a declining industry would also cause a decline in the value-adding industry. The relocated resources will of course contribute to other value-adding enterprises elsewhere, but will they produce the same value-added? If they do not, then the benefits of the Pest Management Strategy to society will be even greater.

**Table 3. Results of the Analysis**

Parameters	2%	10%	Net Present Value of the Benefits																	
Initial incidence of AFB with current management			<i>With the PMS</i>																	
Annual decrease in AFB incidence with Pest Management Strategy (PMS)			<i>Without the PMS</i>																	
Size of industry: number of hives	289875																			
Cost to replace a hive with AFB	\$128.30																			
Gross income per hive	\$114.77																			
Production costs (not including AFB control costs)	\$70.42																			
Disposal of hives with clinical AFB	\$52.00	2																		
Number of inspections per annum with PMS		2																		
Number of inspections per annum without PMS																				
Beekeeper inspection cost for AFB	\$1.50																			
Rate of decline of industry to year 10 if no PMS	1%																			

Flow of Net Benefits Years 1 to 10	1	2	3	4	5	6	7	8	9	10
<b>With</b>										
hives lost = hives replaced	5798	5218	4638	4058	3479	2899	2319	1739	1159	580
net income	12855956	12855956	12855956	12855956	12855956	12855956	12855956	12855956	12855956	12855956
replacement value of hives	743819	669437	595055	520673	446292	371910	297528	223146	148764	74382
production loss	665379	598841	532303	465765	399227	332690	266152	199614	133076	66538
disposal of diseased hives	301470	271323	241176	211029	180882	150735	120588	90441	60294	30147
inspection of hives	869625	869625	869625	869625	869625	869625	869625	869625	869625	869625
Pest Management Strategy costs	143630	126830	126830	126830	126830	126830	126830	126830	126830	126830
Benefits-Costs	10132033	10319900	10490967	10662033	10833100	11004167	11175234	11346301	11517368	11688434
<b>Without</b>										
loss pattern	0.025	0.05	0.075	0.1	0.075	0.05	0.05	0.05	0.05	0.05
industry size	289875	286976	284106	281265	278453	275668	272912	270182	267481	264806
permanent loss in industry	2899	2870	2841	2813	2785	2757	2729	2702	2675	2648
annual total loss in industry	7247	14349	21308	28127	20884	13783	13646	13509	13374	13240
hives replaced	4348	11479	18467	25314	18099	11027	10916	10807	10699	10592
net income	12855956	12727397	12600123	12474121	12349380	12225886	12103628	11982591	11862765	11744138
replacement value of hives	557864	1840953	2733815	3608635	2679412	1768412	1750728	1733220	1715888	1698729
production loss	831724	1646813	2445518	3228083	2396852	1581922	1566103	1550442	1534938	1519588
disposal of diseased hives	226103	746138	1108015	1462580	1085966	716737	709570	702474	695450	688495
inspection of hives	869625	860929	852319	843796	835358	827005	818735	810547	802442	794417
Benefits-Costs 1, Resources Unemployed	10370640	7632564	5460456	3331026	5351793	7331810	7258492	7185907	7114048	7042908
Benefits-Costs 2, Resources Employed	10370640	7761123	5716289	3712861	5858369	7961880	8010821	8059272	8107239	8154726
<b>Benefits PMS - Resources Unemployed</b>	-238608	2687336	5030511	7331007	5481308	3672357	3916742	4160393	4403319	4645527
<b>Benefits PMS - Resources Employed</b>	-238608	2558776	4774677	6949172	4974732	3042287	3164413	3287028	3410128	3533708

### III. Non-Quantified Effects

The analysis incorporates only financial benefits. However there are other benefits, less easily quantified, which would support the findings and would increase the overall benefits of the introduction of a strategy. Two such benefits are discussed.

#### Impact of the horticultural and agricultural industry

It is acknowledged that honey bee pollination is a major benefit to the horticultural industry. Some of these benefits have been incorporated in the analysis in terms of the payments of the horticultural industry to bee-keepers for pollination services. In a declining industry these returns will also decrease, but how will the horticultural industry deal with this? From discussion with people in the industry it appears that currently there is a balance between the demand and supply for bees for pollination. A significant decline in the bee industry could seriously affect this balance. The specific impacts are difficult to gauge but one impact would be likely to be a drop in production and an attendant drop in income.

The bees in hives which primarily produce honey and honey products also provide pollination benefits which are not included in the above analysis because they are not paid for and further data would be required to estimate them. Nor have all beneficiaries been identified. It is known for instance that pollination by honey bees is also of importance to the pastoral industry, with its dependence on clover, and this industry is therefore also clearly a beneficiary from the proposed Pest Management Strategy.

#### Trade effects

New Zealand currently exports honey, honey products and live bees to a number of countries, including the United Kingdom, Japan, Korea, Germany, Malaysia, Singapore, Australia, Hong Kong, Canada, the United States, Taiwan, the Netherlands, Switzerland, Yemen, Austria and Saudi Arabia. New Zealand does not import honey or honey products.

Two issues arise. Currently the industry controls AFB without the use of antibiotics, which contributes to the strong export demand for its products. An increase in the incidence of AFB or a major outbreak could necessitate the use of antibiotics. This would then require that New Zealand honey and honey products be tested for antibiotic residues, a cost which is currently not incurred, and New Zealand would lose its current reputation for honey and honey products produced without the use of antibiotics.

The second issue involves quarantine requirements when clinical AFB is present. These are multiple and relate to several countries (see Table 4). A Pest Management Strategy reduces the risk of any trade backlashes and the benefits to the New Zealand bee industry, and to New Zealand as a whole, are significant when noting the value of export of honey products and live bees.

In conclusion, this analysis and discussion shows that the benefits of a Pest Management Strategy clearly outweigh the costs (and the cost of doing nothing). Even though the analysis was simple, a more sophisticated analysis would not show a different result since the non-quantifiable benefits are all positive.

**Table 4. Quarantine Requirements for Clinical AFB.<sup>1</sup>**

Product	Country and Description of Requirement
Honey	<p>Japan - that the honey is free of antibiotics fed to control American Foulbrood. New Zealand is the only major honey exporting country which has been able to negotiate a "blanket" certificate relating to freedom of antibiotics. All other countries have to have their honey tested and supply a laboratory report.</p> <p>France and French Territories - apiaries free of American Foulbrood, and the area within a 5km radius of the apiaries free of AFB during the last six months</p> <p>Cyprus - apiaries free of AFB, and 5km radius free during season of honey production</p> <p>Italy - apiaries situated in a zone of 3km radius which has been free of AFB for last 6 months</p> <p>Spain - apiaries situated in a zone of 3km radius which has been free of AFB for last 6 months</p> <p>Israel - apiaries supplying product free of AFB</p> <p>Germany - no requirement from federal government, but German importers require the producing apiaries to be situated within a 3km radius where there have been no outbreaks of AFB for the past six months (outbreak defined as no official reports). They require this because they often on-sell product to countries which do have this as an official requirement (e.g., France, Spain)</p>
Live bees	<p>Canada - producing apiaries free of American Foulbrood at date of production.</p> <p>Japan - apiaries inspected by an inspector and tested within 30 days of shipment and found to be free of symptoms of AFB; no outbreaks of AFB found in 3km radius for 8 months (outbreak defined as no reported cases).</p> <p>France and French Territories - producing apiaries free of AFB, and radius of 5km free</p> <p>Israel - producing apiaries free of AFB</p> <p>Korea - apiaries inspected by an inspector and tested within 30 days of shipment and found to be free of symptoms of AFB; no outbreaks of AFB found in 10 km radius of producing apiaries during the previous two years (outbreak defined as no AFB in producing apiaries, no "robbed out" AFB hives within 10 km radius).</p>

<sup>1</sup> Information supplied by MAFQual, Tauranga

Figure 1. Net Benefits

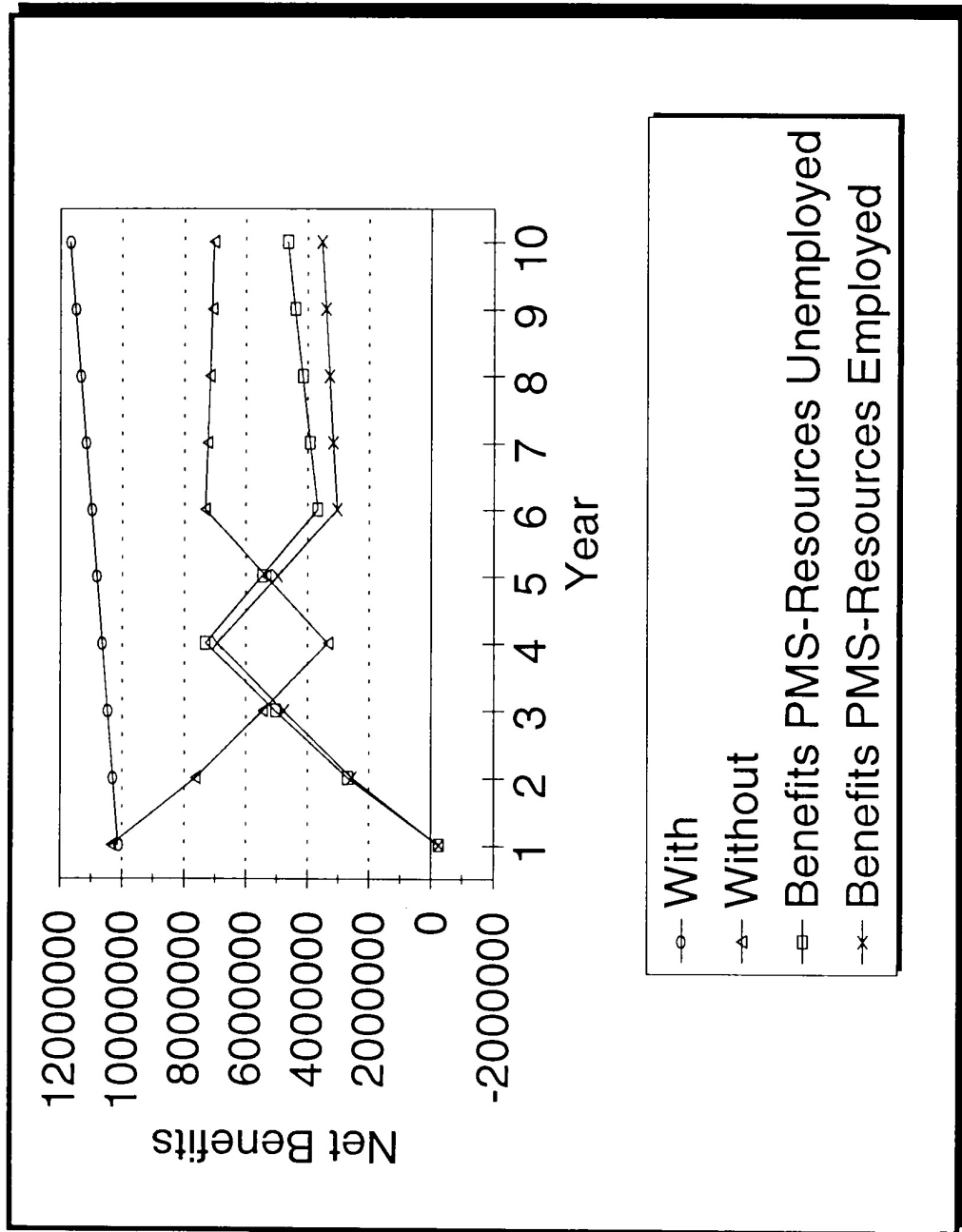
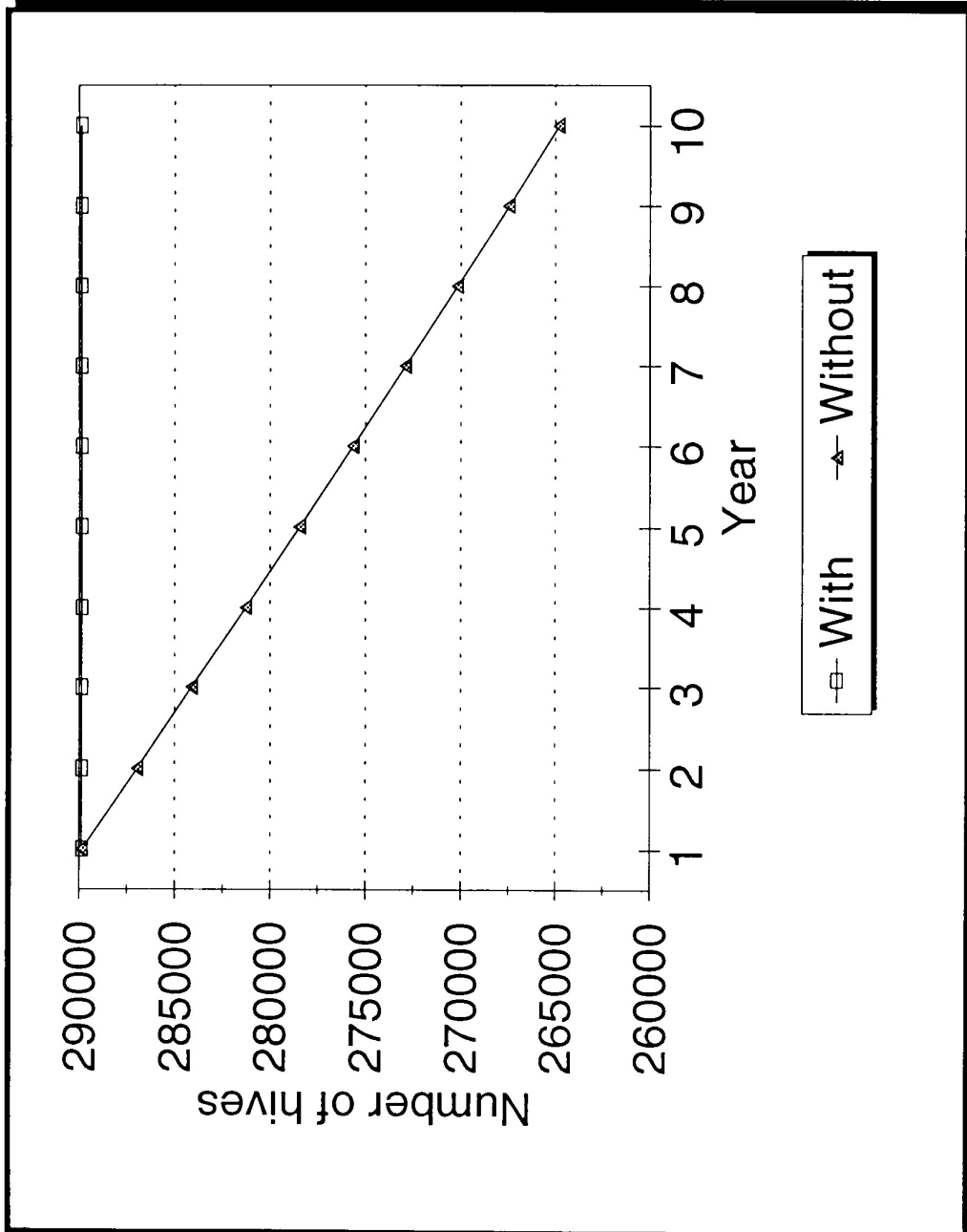


Figure 2. Size of the Industry



**Table 5. Costs to Build a 4 Box and 2 Box Beehive<sup>2</sup>**

Item	Cost	4 Box Beehive		2 Box Beehive	
		Number	Total Cost	Number	Total Cost
storeys	\$10.62 ea.	400	\$4,248.00	200	\$2,124.00
lids with iron	\$16.35 ea.	100	\$1,635.00	100	\$1,635.00
bottom boards	\$9.28 ea.	100	\$928.00	100	\$928.00
frames	\$659.56 /1000	3600	\$2,374.42	1800	\$1,187.21
kg wax foundation	\$10.76 /kg	206	\$2,216.56	103	\$1,108.28
reels frame wire	\$23.41 /reel	3.6	\$84.28	1.8	\$42.14
kg frame nails	\$17.33 /kg	8.3	\$143.84	4.15	\$71.92
kg super nails	\$7.72 /kg	28.6	\$220.79	14.3	\$110.40
units/wood preservative	\$0.40 /unit	600	\$240.00	300	\$120.00
units/paraffin	\$0.10 /unit	600	\$60.00	300	\$30.00
kg/sugar/draw foundation	\$0.08 /kg	1800	\$1,440.00	900	\$720.00
hrs/labour/hive	\$9.50 /hr	8	\$7,600.00	4	\$3,800.00
<b>Total Costs</b>			<b>\$21,190.88</b>		<b>\$11,876.94</b>
<b>Costs Per Hive</b>			<b>\$211.91</b>		<b>\$118.77</b>

<sup>2</sup> supplied by MAFQual, Tauranga.



**Table 6. Gross Margins for the Beekeeping Industry<sup>3</sup>**

<b>Gross Income</b>			
	Gross Income Per Hive	Number of Hives	Total Gross Income
Pollination Hives <sup>4</sup>	\$132.90	108700	\$14446230
Non-Pollination Hives <sup>5</sup>	\$103.89	181175	\$18822271
Pollination and Non-Pollination Hives <sup>6</sup>	\$114.77		

<b>Production Costs</b>			
	Production Costs Per Hive <sup>7</sup>	Number of Hives	Total Production Costs
Pollination Hives	\$82.36	108700	\$8952532
Non-Pollination Hives	\$63.26	181175	\$11461131
Pollination and Non-Pollination Hives	\$70.42		

<sup>3</sup> supplied by MAFQual, Tauranga.

<sup>4</sup> Includes door sales of 10% of honey crop at wholesale price.

<sup>5</sup> Pollination hives produce 22kg honey per hive; non-pollination 30 kg per hive; total honey production is 27kg per hive (5 year average).

<sup>6</sup> Weighted by number of each type of hive in the industry.

<sup>7</sup> Production costs do not include the current costs of AFB control estimated to be \$0.59 per hive.

### 14.3 Modifications to Original Cost/Benefit Analysis

Since the original cost benefit analysis was prepared, a number of changes have been proposed. The following material was prepared by the National Beekeepers' Association. It identifies significant changes to the original analysis and should be read in conjunction with the original analysis.

#### I. Introduction

The Introduction of the Cost/Benefit Analysis refers to the date of 30 June 1996, as the date of effective deregulation. The Biosecurity (Transition and Savings) Regulations 1996 have extended the remaining sections of the Apiaries Act which pertain to the control of AFB to 30 September 1998.

We have also provided two versions of the *without* scenario: a version (Version 1) including the assumptions relating to increased AFB incidence in beehives provided by a technical expert, and a "best case" version (Version 2) with significantly lower increases in AFB incidence.

**Table 2. Assumptions made for the analysis (changed paragraphs only included)**

When AFB strikes a hive, the following is assumed regarding costs involved:
<ul style="list-style-type: none"><li>• If a hive is found by the beekeeper to be infected with AFB, the hive is assumed to be destroyed and for simplicity this has been assumed for both scenarios. It is impossible to determine what, if any, difference in beekeepers' commitment to destroy such diseased hives there would be in the <i>with</i> and <i>without</i> scenario. It is also possible that boxes, lids and floorboards could be fumigated or sterilised under the Pest Management Strategy.</li><li>• In the 1993/94 and 1994/95 years of the NBA disease control programme, an average of 744 beehives were found by MAFQual and NBA inspectors to be infected with AFB each year (MAF Quality Management, 1996). It is assumed in this analysis that each year 700 of these hives would not be disposed of in the <i>without</i> scenario (although the asset value and production would be lost), since if such hives were detected and disposed of by their owners, they would in most cases have been disposed of prior to the official inspections. In the <i>without</i> scenario, these non-disposed hives are assumed to infect other hives, leading to increases in disease incidence.</li><li>• In the <i>without</i> scenario, no increase in the number of AFB hives not disposed of is assumed in years 2 through 10, even though the total number of hives infected with AFB will increase. This is a conservative assumption.</li></ul>
With regard to the industry we assume the following:
<ul style="list-style-type: none"><li>• In the <i>without</i> scenario, two versions of the increase in AFB incidence in beehives are presented. In the first, the destruction and disposal of hives found to have clinical cases of AFB will be as follows: 2.5 percent in year 1 increasing at 2.5 percent to a peak of 10 percent in year 4 and declining thereafter at 2.5 percent to a stable 5 percent per annum. This increase in incidence in beehives is based on information provided by a technical expert (see Appendix). In the second, the destruction and disposal of hives found to have clinical cases of AFB will be 2.5 percent in year 1, increasing to 3 percent in year 2, and remaining at that level per annum through to year 10. This is a "best case" situation which is regarded as overly conservative by the technical expert. However, it is presented to show that even with an increase per annum of from 2 to 3 percent in disease incidence in beehives in the <i>without</i> scenario, the net benefits of the proposed strategy are still greater than the net benefits of the <i>without</i> scenario.</li></ul>
With regard to costs and prices:
<ul style="list-style-type: none"><li>• The Pest Management Strategy will cost \$155,330 in year 1 and \$138,420 in years 2 to 5. It is assumed that the Pest Management Strategy will continue to cost \$126,830 for years 6 to 10. These figures were provided by MAF Quality Management, Tauranga.</li></ul>

## II. Results and Discussion

The results of the analysis are presented in Table 3. The *with* case represents the scenario *with* the Pest Management Strategy while the *without* case represents the deregulation alternative. Version 1 presents the *without* case with increases in disease incidence in beehives as proposed by the technical expert. Version 2 presents a “best case” version with significantly lower increases in AFB incidence in beehives.

The results show that from an industry’s point of view the introduction of the Pest Management Strategy will clearly benefit the industry as a whole, i.e. there is a positive difference indicating that the decrease in costs, due to a lower incidence of AFB, outweighs the cost of the strategy. This is true when compared against both the suggested increase in AFB incidence in beehives (Version 1) and the overly conservative “best case” increase in AFB incidence in beehives (Version 2). The PMS is desirable even with a assumption of a rise in disease incidence in beehives per annum of from 2 percent to 3 percent in the *without* scenario. The PMS is also desirable in terms of net benefit from a national point of view.

## Appendix: Justification for Assumptions Made in Cost/Benefit Analysis

### A. The initial incidence is assumed to be 2% of hive per annum

There is lack of reliable nation-wide survey data which can be used to determine the actual incidence of American foulbrood in beehives in New Zealand. For the purpose of this analysis, it has been assumed that the actual incidence is approximately 2% of hives per annum for the following reasons:

1. The reported incidence is 0.8% of hives per annum.
2. Not all hives with cases of American foulbrood are reported to MAF Quality Management (based on personal communications with beekeepers who admit to under-reporting American foulbrood).
3. Not all honey bee colonies with cases of American foulbrood are found and destroyed each year. If they were, the incidence of hives reported with cases of the disease would decrease very rapidly. As well, inspections carried out by competent inspectors after some beekeepers have completed their own inspections usually reveal additional cases of American foulbrood.
4. An inspection of an area targeted because of known American foulbrood infections was carried out in 1995 as part of an exotic disease preparedness training (EDPR) exercise at Palmerston North. A total of 1066 hives were inspected, with a disease incidence of 3.6% of inspected hives reported.
5. Another area inspection not targeted on known American foulbrood infections was carried out in 1995 as part of another EDPR exercise at Tauranga. A total of 1786 hives were inspected, with a disease incidence of 0.8% of inspected hives reported.
6. An area inspection not targeted on known American foulbrood infections was conducted as part of the Nelson EFB emergency in 1991. A total of 4163 hives were inspected, with a disease incidence of 1.7% of hives reported.
7. The average of the incidences of these three surveys is 2.03%.

### B. Losses Due to American Foulbrood in the “Without” Scenario

The increase in the percentage of beehives destroyed and disposed of because of cases of American foulbrood of from 2% to 2.5% in year one, to 5% in year two, 7.5% in year three, and peaking at 10% in year four, declining thereafter at a rate of 2.5% p.a. to a stable point of 5% p.a. is necessarily an assumption, since there is little verifiable information in New Zealand or overseas that can be used to predict what would occur. The following reasoning and information was used to make the prediction:

1. Even with the Apiaries Act in place, but with varying amounts of government inspection and education/advisory programmes, the percentage of beehives reported to be infected with American foulbrood per annum has increased five-fold in the last 30 years (with the exception of the last three years where there has been a disincentive to report the disease due to area freedom export certification requirements).
2. Most of the 700-750 beehives infected with American foulbrood currently found each year by MAF Qual and NBA volunteer inspectors (724 in 1994, 764 in 1995) would likely remain undetected in the “without” scenario, since if they had been detected by their hive owners, they would in most cases have been destroyed prior to these official inspections.
3. If it is assumed for the purposes of argument that such hives do not act as a source of infection for further hives and are not destroyed, the hives by themselves represent 0.25 of the 0.8% of hives found or reported to have AFB each year.
4. If it is assumed, on the other hand, that each of these hives would infect on average at least one further hive (an assumption which the currently steady national disease levels of approximately 0.8% for the last three years suggests may happen), the disease incidence in beehives would increase to 1.05% for year one, and if those hives were also not destroyed and they infected one further hive each, to 1.3% in year two, 1.8% in year 3, 2.8% in year 4 and 4.8% in year 5. If we assume that the initial incidence in beehives is 2%, the figures would be 2.25% for year one, 2.5% for year 2, 3% for year 3, 4% for year 4 and 6% in year 5. It should also be remembered that this increase is only based on the infected hives that organised inspectors have found.

5. Discussions with amateur beekeepers suggest that they frequently only carry out one inspection per year, which is done because they are required to do so under the Apiaries Act, and because they are reminded by letters sent to them by permanent inspectors under that Act. With no regulation on American foulbrood inspection and control, it can safely be assumed that inspection levels would decrease for some beekeepers, leaving further infected hives unrecognised and not destroyed. The number which would be left, and the consequence of such hives on national disease levels, is unknown.
6. Deregulation of the handling of diseased material (such as combs and honey) would also result in increasing levels when owners of such material disposed of that material inappropriately. This is also a problem from time to time currently, with the Apiaries Act used to enforce proper disposal.

Some beekeepers would be forced out of the industry because of poor disease control practices. This currently happens with the Apiaries Act. It can therefore be assumed that it would become even more frequent in a deregulated disease control environment. Diseased and dead hives would have little or no value, as is currently the case. However, under the Apiaries Act, when a beekeeper abandons such hives because of a disease problem, inspectors either destroy them when they are found, or ensure that the beekeeper does so. With deregulation of disease control, some dead and diseased hives would remain in situ until they rotted away. Apiaries containing such hives would then become a potentially major source of infection for all other beehives within a area of 50km<sup>2</sup>. There are already occasional documented cases of such problems occurring with regulation, with affected beekeepers identifying such apiaries to government inspectors when they notice their disease rates in the area begin to increase. The consequences of such cases on national disease incidence in a deregulated environment can only be guessed at, but would probably be of major significance.

7. The incidence of American foulbrood in beehives in New Zealand before the introduction of the first Apiaries Act in 1905 was very high, although because of a lack of statistics, the actual percentage is unknown. However, in the state of Michigan, which had a similar type and size of beekeeping industry, 20% of beehives were found to be infected with the disease before the equivalent of New Zealand's Apiaries Act was initiated in the 1920's (Hoopinger, 1977).

In conclusion, there can be no doubt that the incidence of American foulbrood in beehives would increase in New Zealand without regulation. The size of the increase can only be guessed at, since there is no record of any country with a large beekeeping industry that has ever deregulated American foulbrood control without also resorting to the use of antibiotics for such control. Considering the disease levels currently in New Zealand and elsewhere in the world, a 10% maximum of hives found to be infected with AFB and disposed of per annum (without the use of antibiotics) is probably an under-estimate. It is also impossible to determine the speed at which such a disease incidence level would be reached, as again no reliable information exists. The decline in levels of hives disposed of as result of the disease to a stable 5% of hive per annum, as people are forced out of the industry, is overly-conservative, since hives belonging to such people could remain as a source of infection long after they gave up beekeeping.

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## **15. OTHER ACTUAL OR POTENTIAL EFFECTS OF STRATEGY**

### **15.1 Effects on Relationship of Maori and Their Culture and Traditions With Their Ancestral Lands, Waters, Sites, Waahi Tapu, and Taonga**

In the proposer's opinion, the implementation of the strategy is unlikely to have any detrimental effects, either actual or potential, on the relationship of Maori and their culture and traditions with their ancestral lands, waters, sites, waahi tapu, and taonga. In the proposer's opinion, the implementation of the strategy is likely to only have beneficial effects on this relationship.

*Apis mellifera* was first introduced into New Zealand in 1839, during the initial wave of European immigration and settlement. The insect exists as a feral animal in all parts of New Zealand, and honey bee colonies have been hunted as a food source by Maori on their ancestral lands.

In the opinion of the proposer, this strategy is unlikely to reduce the population of feral colonies, unless they are found to have American foulbrood disease. In this case, the destruction of such colonies would likely lead to an increase in feral colony numbers once the limitation imposed by American foulbrood infection is eliminated.

*A. mellifera*, whether managed or feral, is recognised as a beneficial insect. Honey bees pollinate a wide variety of native and introduced plant species, many of which are of significant cultural value to Maori.

### **15.2 Effects on Environment**

#### **15.2.1 Ecological Effects**

*Apis mellifera* is a beneficial insect, the keeping of which has not been shown to cause any significantly detrimental environmental effects. On the contrary, large populations of honey bees in the New Zealand environment provide significant positive (and for the most part non-chargeable) benefits in the form of pollination of almost all pasture legumes and a wide variety of native and introduced flowering plants. It can in fact be said with considerable justification that honey bees are an essential part of the developed New Zealand ecosystem, particularly its pastoral and horticultural systems.

This positive benefit to the environment from honey bees is particularly significant when compared to alternatives to the strategy which would see an increased incidence of American foulbrood in beehives in New Zealand. In that case, pollination would likely suffer as beekeepers began to withdraw their hives from areas of the country with significant American foulbrood problems.

Since *A. mellifera*, the only species affected by American foulbrood, is an introduced species, and is already wide-spread in New Zealand, it is unlikely that there would any detrimental effects to the New Zealand ecosystem caused by this strategy.

#### **15.2.2 Physical Environment and Pollution**

The strategy would not have any potential or actual affects, either beneficial or detrimental, on the physical environment, nor would it have any significant affects on pollution.

#### **15.2.3 Residue Effects**

Honey is currently one of the purest food products produced in New Zealand. Only one antibiotic substance is allowed to be fed to honey bees (fumagillin), and all other chemical controls commonly used overseas to treat honey bee diseases are prohibited in this country. The strategy has the potential to ensure that oxytetracycline and sulphathiazole drugs are never used with honey bees in New Zealand, thus providing assurance to consumers that our honey and bee products remain free of these potentially serious food contaminants (see 13.3 for documentation relating to antibiotic residues found in honey).

#### **15.2.4 Public Health**

See "Residue problems" (section 15.2.3) above. No other likely public health effects, either beneficial or detrimental. Stinging incidents from honey bees would likely remain at the same level.

#### **15.2.5 Mitigation Measures**

None required

#### **15.2.6 Environmental Monitoring**

None required

### **15.3 Animal Welfare**

The destruction of honey bee colonies infected with American foulbrood by exposure to fumes of gasoline, and the burning of such colonies once the bees have succumbed, is a recognised and accepted practice in all countries in the world where honey bees are kept. Such destruction in the early stages of disease infestation is far preferable to colonies perishing from the effects of the disease, and thus spreading infective material to

other, non-diseased colonies. As well, honey bees are not included in any animal welfare legislation in New Zealand.

#### **15.4 Effects on the Marketing Overseas of New Zealand Products**

The strategy would have significant beneficial effects on the marketing of honey, bee products, and live bees to overseas markets. Currently, a number of countries require imports of such products to have certification for area freedom from American foulbrood. Such requirements restrict the volume of products which can be exported from New Zealand.

With the finalisation of GATT agreements, and the resulting increased emphasis on phyto and zoosanitary requirements for export commodities, American foulbrood area freedom requirements may be adopted by further importing countries (particularly in the EU). The requirements may also be intensified (eg., increased area size; longer time period free of the disease), with the possibility of end-point testing of product for the presence of *Bacillus larvae* spores.

The elimination of American foulbrood in New Zealand would remove current and potential export restrictions relating to the disease, and would give New Zealand a competitive trade advantage over other countries in which the disease is endemic. It is anticipated that the strategy would have no detrimental effects on marketing overseas of New Zealand products.

#### **15.5 The Effect on New Zealand's International Obligations, Assurances, and Reputation**

The New Zealand government is from time to time called upon to make reports on the incidence of American foulbrood to overseas governments (eg., Korea, Japan) and regularly reports on the disease to international authorities (eg., OIE). It has also negotiated a range of export protocols relating to the disease.

Without an organised control programme for American foulbrood, any reports or official statements on the incidence of the disease made by the New Zealand government could be called into question (although it is acknowledged that the government could still report on the presence or absence of the disease in the country).

However, with a Pest Management Strategy which eliminates the occurrence of clinical cases of American foulbrood, New Zealand's reputation as a country capable of managing significant animal diseases would be heightened. At the same time, New Zealand would be one of the few countries in the world able to make assurances to international authorities on the absence of this disease.

The implementation of the proposed strategy would not be contrary to New Zealand's international obligations concerning disease control and trade. The proposal is expected to enhance our trading reputation and to have no adverse effect on our ability to provide adequate assurances to our trading partners. The international animal health code of the OIE has specific requirements regarding general sanitary surveillance of apiaries. The proposed strategy is judged to be equivalent to the requirements in the code as they may be applied to American foulbrood. It is anticipated that the strategy would have no detrimental effects on New Zealand's international obligations, assurances and reputation.

#### **15.6 The Effect on the Long-Term Management of the Pest to Which the Strategy Relates**

Currently beehives are the most important source of *Bacillus larvae* spores in New Zealand. Feral colonies and bee products are relatively less significant sources. The proposed strategy therefore provides techniques which concentrate on eliminating clinical infections of American foulbrood in beehives.

However, when the objective of 0.1% incidence in beehives is achieved, controlling and eliminating spores in previously less significant sources will become critical to achieving the final goal of total elimination of clinical infections in beehives.

A new strategy will therefore be required which will provide techniques for eliminating feral colonies with *B. larvae* spores, (See 4.2 above), and techniques for controlling the sale and distribution of bee products containing infective concentrations of *B. larvae* spores. A control programme ensuring that such products will not come into contact with beehives will be based on Section 53, 121 and 122 of the Biosecurity Act. The strategy will be proposed by the National Beekeepers' Association, and will be developed using the review process outlined in section 12.2 of this document.

While elimination of clinical cases of American foulbrood from beehives is an achievable goal, eradication of *Bacillus larvae* itself from New Zealand will require a time frame longer than the current and future proposed strategies. Reasons include the spore-forming nature of the bacteria and the fact that such spores have been shown to remain viable for more than thirty years. There will therefore also need to be a surveillance programme, which may be required to run beyond the term of the second strategy, to monitor background spore levels in beehives, feral colonies and bee products. If any new clinical cases of the disease are reported, the Small Scale Management of Unwanted Organisms provisions of the Biosecurity Act may be required to eliminate those infections.

## 15.7 The Effect on the Long-Term Management of Other Pests or Unwanted Organisms

The elimination of clinical cases of American foulbrood from managed beehives in New Zealand is likely to reduce substantially the amount of beehive inspection carried out by beekeepers. This may reduce the chances of beekeepers finding an infection of the notifiable pest European foulbrood (*Melissococcus pluton*), a disease currently listed as exotic to New Zealand. On the other hand, with the absence of clinical cases of American foulbrood, brood abnormalities of any kind may be more obvious to beekeepers, which may in fact slightly increase the chances of European foulbrood being detected. Whatever the case, the National Beekeepers' Association believes that an organised surveillance programme for European foulbrood and other exotic bee diseases will need to continue in New Zealand so that the government can provide assurances to other countries about the status of these diseases in this country.

The effect of the strategy on other beekeeping pests, either endemic or exotic, is likely to be negligible. As well, there is not likely to be any effect on pests and unwanted organisms not directly associated with honey bees. It is therefore expected that the proposed Pest Management Strategy would have no effects on any other pest management strategies not directly related to honey bees.

## 15.8 Consistency with Existing or Proposed Pest Management Strategies Already Notified

There are no existing or proposed pest management strategies relating to honey bee diseases or pests which have already been notified under section 62 of the Biosecurity Act. Therefore, the proposed strategy cannot be inconsistent with any such existing or proposed strategy already notified. Because American foulbrood is a disease specific to honey bees, the proposed strategy is not likely to be inconsistent with existing or proposed pest management strategies notified under section 62 of the Biosecurity Act relating to non-honey bee pests and diseases.

## 16. CONSULTATION WITH PARTIES POTENTIALLY OR ACTUALLY AFFECTED BY STRATEGY

### 16.1 Industry Consultation

#### 16.1.1 Industry Consultation Meetings

The National Beekeepers' Association carried out a series of PMS Industry Consultation meetings throughout the country in February and March, 1995. Each meeting was advertised in a daily paper in the local area two weeks prior to the meeting date. Meeting dates were also published in the February issue of the *New Zealand Beekeeper* magazine.

The meetings included presentations on all important aspects of the proposed strategy, question and answer periods, and a discussion session where those attending could clarify issues, express their opinions, and offer alternative suggestions on specific points. The strategy was presented as a draft only, and it was made clear at each meeting that industry input was being sought to improve the strategy and make it workable and cost-efficient.

The following meetings were held:

Date	NBA Branch	Venue	Attendance
23/2/95	Southland Branch	Gore	29
24/2	Otago Branch	Dunedin	26
27/2	South Canterbury/North Otago	Timaru	38
28/2	Canterbury	Christchurch	51
1/3	West Coast	Greymouth	21
2/3	Nelson	Nelson	29
3/3	Marlborough	Blenheim	29
6/3	Southern North Island	Wellington	29
7/3	Southern North Island	Wanganui	39
8/3	Hawkes Bay	Hastings	31
9/3	Poverty Bay	Gisborne	20
10/3	Bay of Plenty	Tauranga	24
13/3	Waikato	Hamilton	57
14/3	Auckland	Auckland	65
15/3	Northland/ Far North	Paihia	47

Total attendance for the industry consultation meetings was 535. This attendance is equal to 60% of the membership of the National Beekeepers' Association.

Strong support was expressed at all meetings for the concept of a Pest Management Strategy using the powers of the Biosecurity Act. Very few (less than 5%) expressed a contrary opinion. Support was also



expressed for the goal of American foulbrood “eradication”, the use of Disease “Eradication” Conformity Agreements, the need for inspection audits, and the imposition of user-pay charges for beekeepers failing to meet their legal obligations in relation to American foulbrood.

Significant discussion took place on a variety of specific elements contained in the draft strategy, including the definition of hobbyist beekeepers (since removed), the definition of apiaries (since changed to accommodate pollination sites), inequities involved in the reliance on voluntary inspectors for inspection audits (since changed to paid only), and details and costs for the American foulbrood disease recognition course.

A detailed synopsis of discussions for each meeting was prepared and presented to the Disease Control Committee of the NBA. The information was used to alter a variety of provisions of the strategy itself and the strategy proposal document.

### **16.1.2 Pest Management Strategy Digests**

A seven page digest of the draft Pest Management Strategy (“The American Foulbrood Pest Management Strategy and You”) was produced by the NBA and distributed to all members in the February 1995 issue of the *New Zealand Beekeeper*. The digest was written in a question-and-answer format and provided information on all significant facets of the strategy as it related to beekeepers. The digest was used in conjunction with the Industry Consultation Meetings held during February and March, 1995. Copies of the digest were made available to all persons attending those meetings.

A second digest was also produced by the NBA which explained changes to the draft strategy which were recommended by the Disease Control Committee. The changes were based on feedback from the Industry Consultation meetings, as well as written submissions made by individuals and groups. The digest (“Recommended Changes to the AFB Pest Management Strategy”) was distributed to all NBA members in a mailout as well as in the June 1995 issue of the *New Zealand Beekeeper*.

### **16.1.3 Other Publicity and Information Provided**

An article (“Towards an AFB-Free Future”) was produced by the NBA and published in the August 1993 issue of *Buzzwords*, the NBA newsletter. The newsletter was sent to all members of the National Beekeepers’ Association. The article presented details of the final report of the Disease Control Committee, which was tabled at the 1993 NBA Annual Conference in Gore. The committee recommended to the NBA that the beekeeping industry set a goal of AFB “eradication”.

An item was included in the NBA president's notes (“From the President”) in the October 1993 issue of *Buzzwords* announcing the appointment of Mr. Terry Gavin as the chairman of the Disease Control Committee. The item also notified NBA members that the NBA Executive had assigned the committee the task of preparing a draft National Pest Management Strategy for consideration by the NBA.

An article (“AFB Pest Management Strategy Draft Prepared”) was produced by the NBA and published in the June 1994 issue of the *New Zealand Beekeeper*. The issue was sent to all registered beekeepers in New Zealand. The article explained the need for a Pest Management Strategy for American foulbrood, explained the process being used by the NBA to develop a draft strategy, and detailed the basic strategy components being developed by the Disease Control Committee.

An article (“Eradication” of AFB and the Pest Management Strategy”) was produced by Mr. Terry Gavin, chairman of the Disease Control Committee, and published in the October 1994 issue of the *New Zealand Beekeeper*. The issue was sent to all members of the NBA. The article provided an up-date on work being carried out by the committee in developing a draft strategy.

An article (“Bee Disease Control Strategy Proposed”) was produced by the NBA and published in the February 1995 issue of the *New Zealand Beekeeper*. The issue was sent to all members of the NBA. The article provided details regarding the up-coming Industry Consultation Meetings.

An article (“Can We Afford Voluntary, Deregulated AFB Control?”) was produced by the Disease Control Committee and published in the May 1995 issue of the *New Zealand Beekeeper*. The issue was sent to all members of the NBA. The article provided justification for a Pest Management Strategy using legal powers. The article was in response to a submission to the Committee suggesting deregulation of AFB control and the use of professionals to assist beekeepers with AFB problems.

A presentation on the draft Pest Management Strategy was made by Disease Control Committee members to the 1994 NBA Annual Conference. The presentation outlined the process being used to develop the strategy draft and included a question-and-answer session for NBA members.

A further presentation on the draft Pest Management Strategy was made by Disease Control Committee members to the 1995 NBA Annual Conference. The presentation outlined changes made to the draft strategy document as a result of feedback from PMS Industry Consultation meetings and various other submissions. The committee also presented a draft budget based on estimates from potential service providers.

At the 1996 NBA Annual Conference Mr Terry Gavin described the work of the last year of the Disease Control Committee. He described how the PMS had been through a period of public submissions, and that after more changes were made to it, it was presented to the Minister in February 1996. He reported that with changes pending to the Biosecurity Act the Minister had not yet made comment on the proposal.

## **16.2 Industry Support**

### **16.2.1 Remits to NBA Annual Conferences**

1996 Conference, remit 1 (Terry Gavin for the Disease Control Committee): That this Conference recommends to the Executive that it continue to support the work of the Disease Control Committee toward a Pest Management Strategy, express satisfaction with the consultation and communication carried out by the Committee, and affirm support for the objectives and methods proposed for the PMS. CARRIED 839-214 by poll vote.

1995 Conference, remit 1 (Southland branch): That this Conference recommends to the Executive that the industry be shown full costings of the proposed Pest Management Strategy, for discussion, before approval for its implementation is sought. CARRIED 9-6.

1995 Conference, remit 2 (Terry Gavin for Disease Committee): That this Conference recommends to Executive that the NBA adopts the National Pest Management Strategy for AFB "eradication" as presented by the Disease Committee, and offers the full support of NBA members in its implementation. CARRIED 775-181 (7 abstentions) by poll vote, 12-3 by branches.

1995 Conference, remit 3 (Terry Gavin for Disease Committee): That this Conference recommends to Executive that the National Pest Management Strategy for AFB "eradication" be submitted to the Minister of Agriculture by October 7, 1995, for his approval. CARRIED 13-0 (1 abstention).

1994 Conference, remit 17 (Southland branch): That this Conference recommends to the Executive that a user-pays system of beehive health certification be investigated by the NBA AFB Disease "Eradication" Sub-committee and that: a) the cost of disease control be met by all beehive owners and, b) all hives to be inspected annually by an accredited person. CARRIED 14-0.

1993 Conference, remit 4 (Canterbury branch): That this Conference recommends to Executive that the New Zealand industry aim for total "eradication" of American foulbrood disease by the year 2000. CARRIED 14-0.

1993 Conference, remit 5 (Hawkes Bay branch): That this Conference recommends that the Executive fully supports the Disease Control Committee's goal of total "eradication" of AFB from NZ by the year 2000. CARRIED 12-0.

1993 Conference, remit 6 (Marlborough branch): That this Conference recommends to Executive to show their support to the Disease Committee efforts to have AFB "eradicated" from NZ by the year 2000. CARRIED 12-1.

1993 Conference, remit 7 (N Wallingford): That this Conference recommends to Executive that an effective AFB control programme remains an industry requirement. That the 50 cents per hive raised by the Hive Levy Act for disease control purposes continue until a Pest Management Strategy is achieved under provisions of the soon to be enacted Biosecurity Bill. That the industry continue to develop strategies through the process of communication and co-operation, using methods similar to that used by the Disease Control Committee. CARRIED 11-3.

1992 Conference, remit 22 (Bay of Plenty branch): That this Conference recommends to Executive that this industry strongly resist any pressure to totally transfer disease control to individual branches. CARRIED 12-1.

1992 Conference, remit 23 (Bay of Plenty branch): That this Conference recommends to Executive to negotiate with MAF to maintain an effective disease control programme at the best possible price to the beekeeper, and backed by the statutory powers of the Apiaries Act, 1969, and a working party be convened. CARRIED 13-0.

1992 Conference, remit 24 (Canterbury branch): That this Conference recommends to the Executive that all non-hive levy payers, hives, and undeclared hives, which are disease inspected by MAF, be charged for that inspection. CARRIED 12-1.

1992 Conference, remit 29 (Waikato branch): This Conference requests the NBA Executive to investigate the setting up of a system for the random taking of honey samples from honey producer or packers' premises; these samples to be examined for AFB spores and where above a level to be determined, action to be taken against the producer. CARRIED 7-5.

## **16.3 Submissions**

### **16.3.1 Strategy Proposal Drafts 1 and 2**

Strategy drafts Versions 1 (January 1994) and 2 (March 1994) were drafts for internal use only. The drafts were used by the NBA Executive and the Disease Control Committee in developing the strategy. The Disease Control Committee met for a three-day workshop in April 1994 to create Version 3 of the strategy, which was the first draft proposal sent out by the NBA Executive for comment.

### **16.3.2 Strategy Proposal Drafts 3 and 4**

Copies of Version 3 (May 1994) of the Pest Management Strategy proposal were sent by the NBA Executive to the following groups and organisations:

- all branches (16) of National Beekeepers' Association

- Export Certification Committee, NBA
- Auckland Beekeepers Club
- Franklin Beekeepers Club
- Whangarei and Districts Beekeepers Club
- Wellington Beekeepers Association
- Hamilton Domestic Beekeepers Association
- New Plymouth Amateur Beekeepers Club
- Wanganui Beekeepers Club
- North Canterbury Hobbyist Beekeepers Club
- South Canterbury Beekeepers Club
- Christchurch Beekeepers Club
- Dunedin Hobbyist Beekeepers Club
- Associate Minister of Agriculture
- MAF Regulatory Authority
- MAF Policy

The organisations and groups were asked to provide initial comment on the strategy proposal. Written comments were received from eight groups, organisations and individuals. As a result of these comments, the following significant changes were incorporated into Version 4 (November 1994) of the strategy proposal (commenter name in brackets):

- beehive destruction allowed away from apiary site (R. Berry)
- alteration of quarantine powers (R. Berry)
- increase in costs of AFB inspection (R. Berry)
- number of beehives constituting hobbyist beekeeper (Wellington Beekeepers Club)
- re-writing of objectives and justifications (Franklin Beekeepers Club)
- addition of Certificates of Inspection (Southland NBA Branch)
- change to "Approved Beekeepers" (MAF Regulatory Authority; MAF Policy)
- change from Biosecurity Act First Schedule outline (MAF Regulatory Authority)
- clarifying Biosecurity Act powers and duties used in strategy (MAF Regulatory Authority)
- clarification of goal - "eradication" of clinical cases; not "eradication" of *Bacillus larvae* (MAF Policy)

### 16.3.3 Strategy Proposal Draft 5

Version 5 (December 1994) of the proposal was a draft incorporating changes relating to strategy funding. The changes were required because the NBA Executive decided to fund the strategy with a single Commodity Levy for running the affairs of the NBA, rather than a separate Biosecurity Act levy. In all other substantial respects Version 5 was the same as Version 4.

Copies of Version 5 of the Pest Management Strategy proposal were sent to all individuals who made previous submissions on the strategy, as well as the following groups and organisations:

- All branches (16) of National Beekeepers' Association
- Export Certification Committee, NBA
- Auckland Beekeepers Club
- Franklin Beekeepers Club
- Whangarei and Districts Beekeepers Club
- Wellington Beekeepers Association
- Hamilton Domestic Beekeepers Association
- New Plymouth Amateur Beekeepers Club
- Wanganui Beekeepers Club
- North Canterbury Hobbyist Beekeepers Club
- South Canterbury Beekeepers Club
- Christchurch Beekeepers Club
- Dunedin Hobbyist Beekeepers Club
- Associate Minister of Agriculture
- MAF Regulatory Authority
- MAF Policy
- MAF Quality Management

Version 5 was also used as the basis for Industry Consultation Meetings held throughout New Zealand in February and March 1995.

The Disease Control Committee met for a three-day workshop in April 1995 to consider comments from the industry consultation meetings and written submissions received. As a result of this workshop the following significant changes were made to the strategy proposal as a result of comments at industry consultation meetings and/or written submissions (commenter name in brackets):

- re-writing of goals and objectives (Industry Consultation Meetings; MAF Regulatory Authority)
- feral colonies requiring another strategy (Industry Consultation Meetings; MAF Regulatory Authority)
- treatment of honey with *Bacillus larvae* spores (Industry Consultation Meetings)
- limitations on robbing apiaries (Industry Consultation Meetings)

- definition of apiary; length of time (Industry Consultation Meetings; R. Berry)
- register not to be used for export certification purposes (Industry Consultation Meetings; Export Certification Committee)
- change in time for destruction of AFB hives (Export Certification Committee; R. Berry)
- removal of “Approved Hobbyist Beekeeper” (Industry Consultation Meetings; MAF Regulatory Authority)
- Disease Elimination Conformity Agreements for partnerships and beekeeping businesses employing labour (Industry Consultation Meetings)
- arbitration process for disputes related to loss of “Approved” status (Industry Consultation Meetings)
- removal of voluntary inspections from audit programme (Industry Consultation Meetings; R. Berry)
- types of sample testing available; how used (Industry Consultation Meetings)
- change of deadlines for Certificates of Inspection (Industry Consultation Meetings)
- revision of movement controls to “at the discretion of inspector” (Industry Consultation Meetings; MAF Regulatory Authority)
- revision of PMS budget to provide more detailed break-down and to take into account administrative cost savings from single levy (Industry Consultation Meetings; MAF Regulatory Authority)
- addition of other options in section discussing alternatives to proposed strategy (R. Berry; G. Jeffery; MAF Regulatory Authority)
- removal of section comparing strategy costs with current AFB control contract (R. Berry)
- addition of information regarding consultation (MAF Regulatory Authority)
- addition of material relating to funding (MAF Regulatory Authority)
- information on infrastructure of NBA and relationships in running the strategy (MAF Regulatory Authority)
- addition of information on audit function (MAF Regulatory Authority)
- AFB to remain notifiable organism (MAF Regulatory Authority)
- removal of benefits relating to pasture pollination (MAF Regulatory Authority)

#### **16.3.4 Formal Submission Process**

Version 6 of the strategy was approved by the NBA Executive as the official Pest Management Strategy document, and was also approved by the Conference of Delegates at the 1995 NBA Annual Conference (Christchurch, July 11-14). On 19 October 1995, this official NBA document was sent as a “Public Discussion Document” to all individuals, organisations and groups who had made previous submissions on the strategy, as well as the following groups and organisations. The document was accompanied by a letter signed by the president of the National Beekeepers’ Association requesting comments and letters of support:

##### Beekeeping Groups

- All branches (16) of National Beekeepers’ Association
- Apicultural Research Advisory Committee, NBA
- Honey Marketing Committee, NBA
- Export Certification Committee, NBA
- New Zealand Queen Bee Producers Association
- New Zealand Honey Packers Association
- New Zealand Honey Exporters Association
- New Zealand Comb Honey Producers Association
- Beech Honeydew Association
- Commercial Pollination Association
- New Zealand Honey Producers’ Association
- Kiwifruit Pollination Association
- Hawkes Bay Pollination Association
- Auckland Pollination Association
- Franklin Beekeepers Club
- Whangarei Beekeepers Club
- Wellington Beekeepers Club
- Hamilton Beekeepers Club
- Christchurch Beekeepers Club

##### Government Departments and Boards

- MAF Regulatory Authority
- MAF Policy
- MAF Quality Management
- MAF Quality Management Apiculture Business
- Department of Conservation
- Ministry of Health
- Ministry of Forestry
- Ministry for the Environment
- Animal Health Board
- Pesticides Board
- Parliamentary Commissioner on the Environment

- Te Puni Kokiri - Ministry of Maori Development

#### Research Organisations

- Horticulture and Food Research Institute
- Ruakura Apicultural Research and Advisory Unit
- AgResearch
- Landcare Research New Zealand
- New Zealand Institute for Crop and Food Research

#### Agricultural/Horticultural Groups and Organisations

- New Zealand Fruitgrowers Federation
- New Zealand Vegetable and Potato Growers' Federation
- New Zealand Berryfruit Growers' Federation
- Pipfruit Growers New Zealand Inc.
- New Zealand Nashi/Asian Pear Growers' Association
- New Zealand Avocado Growers' Association
- Summerfruit New Zealand Inc.
- New Zealand Apple and Pear Marketing Board
- New Zealand Kiwifruit Marketing Board
- Federated Farmers of New Zealand
- New Zealand Association of Smallfarmers

#### Animal Health and Welfare Organisations

- Animal Welfare Advisory Committee
- Royal NZ Society for the Prevention of Cruelty to Animals
- New Zealand Veterinary Association

#### Maori Organisations

- NZ Maori Congress

Written submissions were received from nineteen groups, organisations and individuals. As a result of these submissions, the following significant changes were incorporated into this version of the strategy proposal document (commenter name in brackets):

- definition of beehive altered to allow for inclusion of dead-out gear (HortResearch)
- definition of feral colony changed to exclude shipping packages of honey bees (R. Berry)
- Inspector/Authorised Person replaced with Authorised Person (MAF Regulatory Authority)
- replaced "eradicate" with "eliminate" to coincide with veterinary definition (MAF Regulatory Authority)
- references to specific Biosecurity Act sections deleted in some instances, since the rules of the strategy will have a legal status equivalent to a regulation under the Act (MAF Regulatory Authority)
- powers to deal with unregistered and abandoned apiaries altered (MAF Regulatory Authority)
- lists identifying strategy beneficiaries and exacerbators added (MAF Regulatory Authority)
- requirement that employees of enterprises must have their own beehives to become an "Approved Beekeeper" removed (R. Berry)
- disease recognition and destruction course provisions altered to allow persons to sit a competency test (Auckland NBA Branch)
- costs recovered from default inspection and elimination work removed from sources of PMS funding (MAF Regulatory Authority)
- apiary register budget item added (MAF Regulatory Authority)
- all references to education provider deleted (Bay of Plenty NBA Branch)
- specifications to beehive branding altered (C. McLean)
- exemptions from duties for research organisations added (Apicultural Research Advisory Committee)
- dates of financial year and annual review changed (Disease Control Committee)
- explanations of cost/benefit analysis assumptions included (MAF Regulatory Authority)
- addition of a second "best case" scenario in the cost/benefit analysis (MAF Regulatory Authority)

This document was once again approved by the NBA Executive, and in February 1996, was officially submitted to the Minister of Agriculture, along with a letter asking that the proposal be notified as a National Pest Management Strategy under section 62 of the Biosecurity Act.

The NBA received a response from the Director-General of Agriculture in October 1996. In March 1997, the NBA Executive prepared a final version of the PMS document, incorporating changes requested by the Director-General of Agriculture in his official submission. This version was further amended in light of advice from the Director-General in early June 1997. The changes incorporated since the original submission to the Minister include:

- acknowledgement of the Director-General's intention to appoint the Chief Veterinary Officer as the chief technical officer for this strategy
- acknowledgement that section 19 contains operating instructions that could be regarded as part of the narrative of the proposal and/or may eventually be included in the operational plan, statements about how it is proposed that the powers in the Act could be exercised, obligations, prohibitions, powers and controls

already in the Act, and new obligations, prohibitions, powers and controls that could eventually form rules in a strategy as proposed by the No 4 Amendment Bill

- anticipation of a ten year time period rather than two periods of five years
- provision for both a five year review and a ten year (full term) review, with provision for a request to the Minister for an extension of the PMS for a given length of time if the objectives are not yet achieved after the term of the strategy
- revision of all dates related to the achievement of particular aspects of the strategy by extending them into the future by two years from the dates in the document that was initially provided to the Minister, reflecting the change in expected implementation date from June 1996 to the date currently anticipated, June 1998
- deletion of the reference to NZ Government Authorities being a beneficiary of this strategy
- clarification of a reference to restrict the stated necessity for a register to a disease control programme for American foulbrood
- provision for the use of a register of apiaries for any other PMS's developed by the NBA, and for export certification purposes, specifying that the latter use must not conflict with the purposes of the PMS
- reference to an accredited person's "powers" has been changed his/her "responsibilities" to refer to the activities carried out when assisting an authorised person
- change of reference from "the strategy rules" to 'section 17'
- clarification of revocation provisions for Authorised and Accredited Persons
- definitions rationalised and made consistent in their two locations
- statistics, references to the NBA's levy system and recent publicity and information provision updated
- addition of information related to the prohibition on the feeding of drugs to control disease.

#### **16.4 Method for Revising Strategy Based on Consultation Process**

All submissions relating to the proposed strategy received by the NBA are forwarded to the chairman of the Disease Control Committee. The chairman of the committee is responsible for ensuring the submissions are discussed by the committee. Where the committee decides that the submission requires a change to the text of the strategy draft, the committee will recommend that the change is made in the next version of the strategy document. All individuals and groups making a written submission relating to the strategy will receive a letter from the chairman acknowledging receipt of the submission, and are sent the next version of the strategy, following its approval by the NBA Executive.

### **17. POWERS UNDER THE BIOSECURITY ACT TO BE CONFERRED FOR THE PURPOSES OF IMPLEMENTING THE STRATEGY, INCLUDING IDENTIFICATION OF THOSE PERSONS ON WHOM THE POWERS ARE TO BE CONFERRED**

#### **17.1 Necessary Powers for Authorised Persons**

Power to require provision of information (Section 43)  
Power to require (ie., request) assistance (Section 106)  
Power of inspection (Section 109)  
Power to seize abandoned goods (Section 119)  
Power to examine organisms (Section 121)  
Other powers in respect of risk goods (Section 122)  
Declaration of restricted place (Section 130)  
Duration of place and area declarations (Section 133)

#### **17.2 Necessary Powers for a Chief Technical Officer**

Inspectors, authorised persons, and accredited persons (Section 103)

#### **17.3 Necessary Powers for the Management Agency**

Power to act on default (Section 128)  
Liens (Section 129)  
Options for cost recovery (Section 135)  
Failure to pay (Section 136)

#### **17.4 Appointment of Authorised Persons**

Under Section 101 of the Biosecurity Act, the Director-General of the Ministry of Agriculture shall appoint chief technical officers for the purposes of the Act. The strategy anticipates that the Director-General will appoint a chief technical officer to be responsible for the strategy, ensuring that that person has the appropriate experience, technical competence and qualifications relevant to the position. The Director-General anticipates appointing the Chief Veterinary Officer as a chief technical officer for this strategy.

Under Section 103 of the Act, the chief technical officer may appoint Authorised Persons for the purposes of exercising functions, powers, and duties under the Act in relation to a national pest management strategy. The strategy anticipates that the chief technical officer will appoint individuals recommended by the

Management Agency to be Authorised Persons for the purpose of exercising all statutory powers required by this strategy.

The Management Agency will provide documentation for each recommended person showing that person's experience, technical competence, and qualifications in beekeeping, disease recognition, and disease control. Every Authorised Person appointed under the strategy will have either a certificate showing the successful completion of a competency test in American foulbrood disease recognition and destruction issued by the Management Agency, or agreement to take such a test, or agreement to attend a course on American foulbrood disease recognition and destruction approved by the Management Agency when one is made available.

Under the Biosecurity Act, there is the presumption that the chief technical officer may rescind the appointment of such Authorised Persons at whatever time and for whatever reason deemed appropriate. Under these rules, all decisions made by the chief technical officer relating to appointment of Authorised Persons shall be final, and not subject to mediation by any party.

### **17.5 Appointment of Accredited Persons**

Under Section 103 of the Biosecurity Act, the chief technical officer may accredit individuals, to be known as Accredited Persons, for the purposes of performing functions consequential upon the exercise of powers under the Act by an Authorised Person. The strategy anticipates that the chief technical officer will accredit persons recommended by the Management Agency for the sole purposes of carrying out paid inspection audits of beehives and destroying diseased beehives and associated materials. The Management Agency will provide documentation for each recommended person showing that the person has:

- either a certificate showing the successful completion of a competency test in American foulbrood disease recognition and destruction issued by the Management Agency, or agreement to take such a test, or agreement to attend a course on American foulbrood disease recognition and destruction approved by the Management Agency when one is made available, and
- five or more years experience in beekeeping.

Under the Biosecurity Act, there is the presumption that the chief technical officer may rescind the appointment of such an Accredited Person at any whatever time and for whatever reason deemed appropriate. Under the rules of the strategy, the Management Agency may recommend that the appointment of such an Accredited Person be rescinded, and especially if the person has carried out activities as an Accredited Person contrary to the directions of an Authorised Person. Under the rules, all decisions made by the chief technical officer relating to appointment of Accredited Persons shall be final, and not subject to mediation by any party.

### **17.6 Compensation Regulations Required**

Not applicable

### **17.7 Approval of Operators**

Not applicable

## **18. STATUTORY DUTIES IMPOSED**

Bees to be kept in frame hives (Section 7, Apiaries Act)

Access to hives, etc. to be kept clear (Section 8, Apiaries Act)

Changing location of bees (Section 9, Apiaries Act)

Duty to provide information (Section 43, Biosecurity Act)

Duty to report notifiable organisms (Section 46, Biosecurity Act)

Duties relating to identification of organisms (Section 51, Biosecurity Act)

Communication of pest or notifiable organism (Section 52, Biosecurity Act)

Duties of owners of organisms (Section 53, Biosecurity Act)

Declaration of restricted place (Section 130, Biosecurity Act)

## **19. STRATEGY RULES**

The Biosecurity Act does not provide for the inclusion of enforceable strategy rules. However, the National Beekeepers' Association understands that policy has now been approved by government to amend the Act in order to give strategy rules a legal status equivalent to that of a regulation. In anticipation of the proposed amendment, the National Beekeepers' Association has identified the rules that it considers are necessary to make the strategy effective.

These proposed rules contain:

- a. operating instructions that can be regarded as part of the narrative of this proposal and/or may eventually be included in the operational plan,
- b. statements about how it is proposed that the powers in the Act could be exercised,

- c. obligations, prohibitions, powers and controls already in the Act, and
- d. new obligations, prohibitions, powers and controls that could eventually form rules in a strategy as proposed by the No 4 Amendment Bill.

## 19.1 Definition of Terms Used

(1) In these strategy rules, unless the context otherwise requires

Accredited Person means a person appointed under Section 103 of the Biosecurity Act to perform American foulbrood inspection and disease elimination work under the supervision of an Authorised Person.

AFB means American foulbrood, a disease of *Apis mellifera* caused by the bacterium *Bacillus larvae*; and “a case of American foulbrood” or “a case of AFB” means a honey bee colony displaying visual symptoms of the disease.

Annual Disease Declaration means an annual statutory declaration in which a beekeeper confirms and updates apiary location details and reports all clinical cases of American foulbrood found in his/her beehives during the proceeding twelve months; due June 1.

American foulbrood means a disease of *Apis mellifera* which causes brood mortality and in many cases colony collapse; caused by the bacterium *Bacillus larvae*.

apiary means any place where beehives are kept for a period of more than 30 days, provided the place is more than 200m from any other such place occupied by beehives belonging to the same beekeeper.

apiary register means a register of beekeepers, apiary locations and reports of American foulbrood created and maintained for the purposes of this strategy.

*Apis mellifera* means the common or western honey bee, which is the only *Apis* species present in New Zealand; a highly structured social insect which produces surplus honey and is an efficient pollinator of a wide-range of flowering plant species.

appliance means any beehive, honey bee comb, extractor, or other object that has been used in connection with beekeeping.

“Approved Beekeeper” means a beekeeper with a current Disease Elimination Conformity Agreement, or a beekeeping employee designated as responsible for disease elimination standards in an Approved Beekeeping Enterprise.

“Approved Beekeeping Enterprise” means a beekeeping enterprise which has a current Disease Elimination Conformity Agreement.

approved inspections means inspections of beehives for the presence of clinical cases of American foulbrood carried out by an “Approved Beekeeper”.

Authorised Person means a person appointed under Section 103 of the Biosecurity Act to exercise powers conferred to Authorised Persons under this strategy.

*Bacillus larvae* means a spore-forming bacterium which is the causative agent of American foulbrood; spores of the bacterium are sometimes present in honey and can easily be transmitted between honey bee colonies by man or by the bees themselves.

beekeeper means a person who owns or leases beehives, or is employed in beekeeping activities.

beekeeping employee means a person who is employed in beekeeping activities.

beekeeping enterprise means a beekeeping partnership or beekeeping business employing labour.

beehive means an object which has been constructed for the keeping of honey bees; also the colony of honey bees for the time being living in such an object.

bee product means honey, honey-dew, beeswax, venom, propolis, pollen, or royal jelly, and includes any other product collected by honey bees or derived from honey bees or bee products.

Certificate of Inspection means an annual statutory declaration that beehives owned by a person without a current Disease Elimination Conformity Agreement have been inspected for American foulbrood by an “Approved Beekeeper”; due December 15.

Chief Technical Officer means a person appointed by the Director-General of Agriculture to be in charge of and responsible for this strategy. The Director-General anticipates appointing the Chief Veterinary Officer as a chief technical officer for this strategy. clinical infection means Larvae or pupae in a honey bee colony exhibiting visual symptoms of American foulbrood disease, and “clinical case” has a similar meaning.

comb means any structure of cells constructed from beeswax by honey bees.

contaminated in relation to materials associated with honey bees, means to contain sufficient spores of *Bacillus larvae* to initiate a clinical infection if those materials were to come into contact with a colony of honey bees.

default inspection means an inspection of beehives for the presence of clinical cases of American foulbrood carried out by the Management Agency when an individual defaults on a notice given under the strategy rules to carry out such an inspection. All default inspections under this strategy are subject to the cost recovery provisions contained in the rules of this strategy.

Director-General means the chief executive of the Ministry of Agriculture.

disease means American foulbrood, the honey bee disease caused by the bacterium *Bacillus larvae*.

Disease Elimination Conformity Agreement means a document signed with the Management Agency in which a beekeeper details a personal plan for eliminating American foulbrood within his/her own beehives.

feral colony means a colony of honey bees which is not residing in a beehive or a sealed package used to ship honey bees.

frame means a device constructed for the purposes of holding comb in a beehive.

honey means the fluid, viscous, or crystallised substance produced by honey bees from the nectar of blossoms or from secretions of, or on, living parts of plants other than blossoms, which bees collect, transform, or combine with substances of their own, and store in honeycombs.

honey bee means the honey bee (*Apis mellifera*) including its eggs, larvae, pupae, and semen.

infected means infected with a clinical case of American foulbrood.

land occupier means the person, group or organisation occupying a piece of land where an apiary or feral colony is located.

MAF Qual means MAF Quality Management.



MAF RA means the Regulatory Authority of the Ministry of Agriculture.

Management Agency means an organisation that administers and carries out a Pest Management Strategy under provisions of the Biosecurity Act. In relation to this strategy, the National Beekeepers' Association of New Zealand (Inc).

Minister means the minister of Agriculture.

moveable frame hive means a beehive containing frames in which the combs are built, and which may be separately and readily removed from the beehive for examination without causing damage to the combs.

NBA means the national Beekeepers' Association of New Zealand, Inc.

occupier means in relation to any apiary the person by whom the beehives on that apiary are owned or leased and "occupied" has a corresponding meaning.

permanent apiary means an apiary where beehives are kept throughout the year.

PMS means a Pest Management Strategy. In relation to this strategy, the American Foulbrood National Pest Management Strategy seeking approval under Part V of the Biosecurity Act.

OIE means Office International des Epizooties.

registered apiary means an apiary registered under the rules of this pest management strategy.

registered beekeeper means a person who owns beehives and has registered the apiaries containing those hives as required under the strategy rules.

robbing means a behavioural response in which honey bees from a colony forcibly remove honey from another honey source.

robbing apiary means an apiary where extracted honey combs are purposely exposed so that they will be visited by foraging honey bees; used to dry "wet combs".

seasonal apiary means an apiary where beehives are kept for only part of a year.

spore test means a laboratory test used to determine the presence of *bacillus larvae* spores in honey bees and bee products.

unregistered beekeeper means a person who owns beehives and who has failed for whatever reason to register the apiaries containing those hives as required under the strategy rules.

wet combs means honey combs that have had the honey extracted from them, but which still retain small amounts of honey residue (ie., they have not been "dried out" by placing them in contact for a short time with honey bees).

## **19.2 Duties Relating to the Keeping of Beehives**

### **19.2.1 Honey Bees to be Kept in Moveable Frame Hives**

(1) No person shall keep any honey bees except in moveable frame hives.

(2) Notwithstanding anything in subsection (1) of this section, an Authorised Person may give written permission for a person to keep honey bees in a non-moveable frame hive for a specified length of time, provided the person has made a written application to the Management Agency requesting an exemption, and provided that in the opinion of Management Agency the exemption is required for either —

(a) Scientific research purposes, or,

(b) Honey bee queen rearing purposes, or  
(c) Packages of honey bees used or sold for the purposes of stocking beehives, or  
(d) Public display purposes.

(3) Where an Authorised Person or Accredited Person finds that the combs in any beehive containing frames cannot, without cutting, be separately and readily removed from the beehive for examination, an Authorised Person may direct the beekeeper to transfer the honey bees to a moveable frame hive within a specified time.

(4) Where honey bees are kept or have become established in a beehive other than a moveable frame hive, an Authorised Person may —

(a) Direct the beekeeper within a specified time to transfer the bees, honey, and combs contained in the first-mentioned hive to a moveable frame hive; or

(b) Destroy that first-mentioned beehive, and the honey bees, honey, combs, and appliances contained in that hive.

(5) If any person fails within the time specified to carry out any directions of the Authorised Person as aforesaid, the Authorised Person, or an Accredited Person authorised in writing by the Authorised Person, may enter upon the land or premises and may destroy any beehive referred to in those directions and the honey bees, honey, and appliances contained in the beehive.

(6) Nothing in subsection (4) or subsection (5) of this section shall relieve any person from any other liability the person may have incurred under these rules.

Cf. Apiaries Act 1969, s. 7; Biosecurity Act 1993, s. 43(1)(b)

### **19.2.2 Access to Beehives, etc., to be Kept Clear**

(1) A beekeeper shall at all times keep the normal access to beehives, honey bees, honey and appliances reasonably clear from obstructions caused by the growth of vegetation which would impede or prevent the inspection by an Authorised Person or Accredited Person.

(2) If a beekeeper fails to comply with the requirements of subsection (1) of this section, an Authorised Person may direct the beekeeper to comply with those requirements within a specified time. If the beekeeper fails to comply with those requirements within the time so specified, an Authorised Person, or Accredited Person authorised in writing by the Authorised Person, may enter on the land and carry out all or any of the work necessary to comply with those requirements.

Cf. Apiaries Act 1969, s. 8(1),(2); Biosecurity Act 1993, s. 43(1)(b)

### **19.2.3 Apiaries to be Registered**

(1) No person shall keep beehives in any place for a period of more than 30 days, provided that place is more than 200m from any other such place occupied by beehives belonging to the same person, unless that place is registered as an apiary under this strategy.

(2) It shall be the responsibility of the owner of beehives kept in any apiary to register that apiary with the Management Agency.

(3) The Management Agency shall keep a register of apiaries, including all information supplied in every application for registration of any apiary and each and every report of a case of American foulbrood either reported to the Management Agency or found by Management Agency personnel.

(4) Application for the registration of any apiary shall be made in a form provided for the purpose by the Management Agency, and shall be made to the Management Agency.

(5) Every application for the registration of any apiary shall state the full name of the occupier of the parcel of land where the apiary is situated, the road name and address of the said parcel of land, a written description of the location of the apiary on the said parcel of land, and a Department of Survey and Land Information 260 series grid reference for the location of the apiary.

(6) Every application for the registration of any apiary shall state whether the apiary is to be registered as a permanent apiary or a seasonal apiary.

(a) Every application for the registration of a seasonal apiary shall state the months of the year when the seasonal apiary is normally occupied by beehives owned or leased by the person making the application.

(7) The Management Agency may from time to time insert, amend, correct, cancel or delete any entry in the register, whether from particulars supplied in a Certificate of Inspection, Annual Disease Declaration, report of American foulbrood, or upon such documentary or other evidence the Management Agency may consider sufficient.

(8) Specified uses for information contained in the register shall be —

(a) To eliminate cases of American foulbrood in beehives; and

(b) To identify the allocation of any apiary registration code to persons making an application for such information, by providing the name and address of the person allocated that apiary registration code; and

(c) To assist in determining a levy for the funding of National Beekeepers' Association activities under the Commodity Levies Act; and

(d) To assist in the administration of this strategy and any other pest management strategy undertaken by this management agency or supported by this management agency for the beekeeping industry;

(e) To assist in export certification matters so long as these do not hinder the achievement of the PMS goals and objectives as determined by this management agency.

(9) Notwithstanding the uses specified in subsection (9) of this section, no person shall be entitled to inspect or search the register except by permission of the Management Agency.

Cf. Apiaries Act 1969, s. 4; Biosecurity Act 1993, ss. 43, 165(a-e,x)

#### **19.2.4 Identification of Apiaries**

(1) The Management Agency shall allocate a registration code to every beekeeper who registers an apiary, and shall notify the beekeeper of the registration code so allocated.

(2) Where any registration code is allocated to any beekeeper pursuant to subsection (1) of this section, the beekeeper shall —

(a) In the case of every apiary occupied by beehives owned by the beekeeper on the date on which the beekeeper is notified by the Management Agency that the registration code has been allocated, within 30 days after that date;

(b) In the case of an apiary registered by the beekeeper after that date, within 7 days after the registration of that apiary:

mark the registration code clearly and conspicuously on the outside of at least one beehive within every such apiary occupied by beehives owned by the beekeeper, or on a sign placed in a conspicuous position within the apiary so occupied.

(3) Every registration code marked on any beehive or on any sign pursuant to this section shall be in an indelible colour contrasting with the colour of the beehive or sign, or shall be

branded in a legible fashion into the wood of the beehive or sign.

(4) Every marker post placed in any apiary pursuant to this section shall be at least 5 centimetres by 5 centimetres in dimension, and shall be fixed securely in a vertical position so that the sign extends above the ground in which it is placed for a distance of not less than 60 centimetres.

(5) No person other than the registered beekeeper shall remove, alter, or deface any registration code marked on any beehive or sign in any apiary registered to that beekeeper, except with the written permission of the Management Agency.

(6) Notwithstanding anything in subsection (5) of this section, in all cases where any beehive marked with any registration code is disposed of to any other person, the registration code shall be removed, or defaced by branding in an indelible fashion, by the person disposing of the beehive, who shall notify the Management Agency of the action within 30 days.

(7) No person shall knowingly use in relation to any apiary or beehive any registration code that that person has not been allocated by the Management Agency, or any mark that is likely to be mistaken for or confused with any registration code allocated by the Management Agency.

(8) Notwithstanding anything in this section of these rules, any apiary which has not been identified in the manner prescribed in this section shall be deemed by the Management Agency to be unregistered for the purposes of this strategy, and shall be dealt with in accordance with section 19.2.6 of these rules.

Cf. Apiaries Act 1969, s. 5; Biosecurity Act 1993, ss. 50, 51, 165(a-d, x)

#### **19.2.5 Cancellation and Change of Apiary Registration**

(1) Where any registered beekeeper ceases to be the occupier of an apiary registered as a permanent apiary, the beekeeper shall within 30 days thereafter give notice thereof in writing to the Management Agency.

(2) Where any person becomes the occupier of a registered apiary as a consequence of transfer of ownership of beehives located on that apiary, that person shall give notice in writing of transfer of occupation to the Management Agency within 30 days of commencing occupation.

(3) Where any registered beekeeper sees fit to transfer the registration of any seasonal apiary to any other person, the transfer must be made in the form of a notice in writing thereof to the Management Agency.

Cf. Apiaries Act 1969, s. 6; Biosecurity Act 1993, ss. 43(1)(a), 165(c,x)

#### **19.2.6 Unregistered and Abandoned Apiaries**

(1) Where an Authorised Person is satisfied on reasonable grounds that an apiary on any land or premises is unregistered, if the owner of the beehives located in that apiary can be found and identified within a time reasonable in the circumstances, the Authorised Person will serve written notice on the owner of those beehives, instructing the owner to register the apiary containing those beehives within 30 days.

(2) If after the completion of that 30 days the owner of the beehives in that apiary has failed to comply with this notice, the Authorised Person shall instruct the Management Agency to register the apiary in the name of the owner, and shall recommend to the executive of the Management Agency that the information in this regard for an offence against section 154(o) of the Biosecurity Act be laid on behalf of the Management Agency.

(3) Where an Authorised Person is satisfied on reasonable grounds that an apiary on any land or premises is unregistered, and an owner cannot be found and identified within a time reasonable under the circumstances, the Authorised Person will fix a weather-proof notice to a beehive in that apiary, instructing the owner to register the apiary containing those beehives within 30 days, and will place a copy of that same notice in the Public Notices column of a daily newspaper circulated in the area where the apiary is located, and will place a copy of that same notice in the current issue of the official journal of the National Beekeepers' Association.

(4) If, after the completion of 60 days of the issuance of the notice in subsection (3) of this section, the apiary remains unregistered, the Authorised Person may regard the apiary as abandoned, and may, after consultation with the occupier of the land where the apiary is situated, and with the permission of that occupier, destroy any honey bees, beehives or appliances found in that apiary.

Cf. Apiaries Act 1969, s. 10; Biosecurity Act 1993, ss. 128, 154(o), 165(x)

### **19.2.7 Feral Colonies**

(1) Where a feral honey bee colony has become established in any place, an Authorised Person may enter that place, and may sample, test, or destroy the honey bees, honey and all combs connected with the colony, when, in the opinion of an Authorised Person or Accredited Person, the colony is, or may be, contaminated with *Bacillus larvae* spores.

(2) An Authorised Person shall not enter a dwellinghouse, a marae, or a building associated with a marae, under subsection (1) of this section, except with the consent of an occupier.

(3) No costs associated with the testing, sampling or destruction of any feral honey bee colony will be a charge on the occupier of the premises or land where the colony has become established.

Cf. Apiaries Act 1969, s. 11; Biosecurity Act 1993, ss. 109, 121(1), 165(r,x)

## **19.3 Duties Relating to American Foulbrood**

### **19.3.1 Reporting of American Foulbrood**

(1) Where any beekeeper finds in any beehive that beekeeper owns or leases, any case of American foulbrood, the beekeeper shall within 7 days send or make a report to an Authorised Person employed by the Management Agency and acting on behalf of the Chief Technical Officer, providing details of the location of the apiary containing the infected beehive.

Cf. Apiaries Act 1969, s. 18(1)(a); Biosecurity Act 1993, ss. 46(1), 105

### **19.3.2 Annual Disease Declaration**

(1) At June 1 each year, every beekeeper shall send to an Authorised Person employed by the Management Agency, in an Annual Disease Declaration form provided for the purpose by the Management Agency, a statutory declaration, signed by the beekeeper, setting forth for each apiary registered to the beekeeper —

- (a) Any changes in information required in subsections (5) and (6) of section 19.2.3 of these rules, and;
- (b) The location, date, and number of beehives found by the beekeeper, the beekeeper's agents, Authorised Persons, or Accredited Persons, to be infected with American foulbrood during the previous 12 months, and;
- (c) Any transfers of ownership of beehives in the previous

12 months;

and making a declaration setting forth the total number of beehives owned on that date by the beekeeper.

(2) The Management Agency shall send an Annual Disease Declaration form to the last known address of every registered beekeeper no later than April 20 of each year.

(3) In every case where a beekeeper fails to send to an Authorised Person employed by the Management Agency an Annual Disease Declaration by June 1, the Authorised Person shall issue the beekeeper a notice under these rules requiring the beekeeper to provide the Annual Disease Declaration within 14 days of the date of the notice.

Cf. Apiaries Act 1969, s. 18(2); Biosecurity Act 1993, ss. 43, 165(e,t,x)

### **19.3.3 Destruction of Materials Associated with American Foulbrood**

(1) Where any beekeeper finds in any beehive that beekeeper owns or leases, any case of American foulbrood, the beekeeper shall within 7 days —

- (a) Kill the honey bees associated with the infected beehive, and destroy by burning any and all materials associated with the infected beehive, including honey bees, bee products, combs and appliances, or;
- (b) Take in respect of any materials associated with the infected beehive such measures as in the opinion of an Authorised Person are necessary to eliminate the disease or remove the infection.

(2) Provided that for the purpose of taking measures directed by an Authorised Person for the elimination or the prevention of the spread of the disease, and where a legally imposed fire ban exists in the area where the infected beehive has been found, the beekeeper may, with the consent of an Authorised Person and subject to the conditions or in such a manner as an Authorised Person specifies, kill the honey bees in the beehive, and remove the said honey bees, appliances, and honey associated with the infected beehive to a place approved by an Authorised Person, until such time as the fire ban is removed.

(3) Provided that for the purpose of taking measures directed by an Authorised Person for the elimination or the prevention of the spread of the disease, or where the beekeeper has negotiated such a measure in his/her Disease Elimination Conformity Agreement with the Management Agency, the beekeeper may, subject to either the conditions or in such a manner as an Authorised Person specifies, or subject to the conditions in that agreement, kill the honey bees in the beehive, and remove the said honey bees, appliances, and honey associated with the infected beehive to a place approved in the agreement, provided that the bees, appliances, and honey are either destroyed by fire at that place, or are sterilised in a manner approved under section 19.3.5 of these rules.

Cf. Apiaries Act 1969, s. 18(1)(b); Biosecurity Act 1993, ss. 53(1)(c), 122(b,c)

### **19.3.4 Destruction of Diseased Materials Found by an Authorised Person**

(1) Where any beehive on any land or premises is found by an Authorised Person or Accredited Person to be infected with a case of American foulbrood, an Authorised Person —

- (a) Where the land or premises is a registered apiary, shall, by written notice, direct the occupier of the apiary within a specified time to —
  - (i) Destroy by such means as the Authorised Person specifies all materials associated with the infected

beehive, including honey bees, bee products, combs and appliances;

(ii) Take in respect of all materials associated with any such beehive, including honey bees, bee products, combs and appliances, such measures as in the opinion of the Authorised Person are necessary to eliminate the disease or remove the infection:

(b) Where the land or premises are not a registered apiary, shall, after consultation with the occupier of the land or premises, and provided the beekeeper cannot be readily identified or contacted, destroy all materials associated with any such beehive, including honey bees, bee products, combs and appliances;

(c) May, if in the opinion of the Authorised Person the circumstances so demand, and whether or not he has given notice to the beekeeper or the occupier of the land or premises, destroy or cause to be destroyed by any person authorised in writing by him in that behalf all materials associated with any such beehive, including honey bees, bee products, combs and appliances.

(2) Where, pursuant to subsection (1) of this section, an Authorised Person destroys or causes to be destroyed any honey bees, bee products, combs or appliances without having given prior notice to the beekeeper or occupier of the land or premises, the Authorised Person shall as soon as practicable give notice in writing to the beekeeper or occupier of the action taken.

Cf. Apiaries Act 1969, s. 19(1)(2)(3); Biosecurity Act 1993, ss. 119, 121(1), 122(b,c), 128(1), 165(r,x)

### **19.3.5 Exposure of Materials Associated with American Foulbrood**

(1) No person shall expose any honey, combs, or appliances taken from or used in connection with any infected beehive in such a manner as will allow access thereto by honey bees, unless or until after those materials have been sterilised by a method approved by the Management Agency.

Cf. Apiaries Act 1969, s. 20 (1); Biosecurity Act 1993, s. 53 (1)(c)

### **19.3.6 Dealing in Diseased Honey Bees and Infected Bee Products, etc.**

(1) No person shall sell, barter, lend, or give to any other person, or remove from the place in which they are for the time being situated, any honey bees, bee product or appliance from a beehive infected with American foulbrood disease, except with the written consent of an Authorised Person and subject to such conditions or in such manner as the Authorised Person specifies.

Cf. Apiaries Act 1969, s. 20 (2); Biosecurity Act 1993, s. 53 (1)(b)

### **19.3.7 Certificate of Inspection**

(1) In August, September, October or November in each year, every beekeeper not having a current Disease Elimination Conformity Agreement with the Management Agency, shall cause to be inspected by a person with a current Disease Elimination Conformity Agreement or an Authorised Person, all beehives owned by the beekeeper, the inspection being for the purposes of detecting the presence of American foulbrood disease, and to consist of an examination of all frames containing brood in each hive so inspected.

(2) Within 14 days of that inspection being completed, and in any event not later than the 15th day of December in each year, every beekeeper not having a current Disease Elimination Conformity Agreement with the Management Agency, shall send to the Management Agency, in a form provided for the purpose by the Management Agency, and

detailing how such an inspection shall be conducted, a statutory declaration signed by the person with a current Disease Elimination Conformity Agreement or Authorised Person who has inspected the beehives owned by the beekeeper, setting forth —

(a) Confirmation that the inspection was made; and

(b) The location and number of beehives inspected, including all information required in subsections (5) and (6) of section 19.2.3 of these rules; and

(c) The location and number of beehives (if any) in which American foulbrood was found during the course of the inspection, the date or dates on which the disease was found, and the action taken in respect of the disease; and

(d) Such other particulars relating to the disease, or to the registration of the apiary, or to the location of the site of the apiary as may be requested in the form.

(3) The Management Agency shall send a Certificate of Inspection form to the last known address of every registered beekeeper not having a current Disease Elimination Conformity Agreement no later than August 1 of each year.

(4) In every case where a beekeeper required under this section to furnish a Certificate of Inspection, fails to send to the Management Agency such a certificate by December 15, an Authorised Person shall issue the beekeeper a notice under these rules requiring the beekeeper to provide the Certificate of Inspection within 14 days of the date of the notice.

Cf. Apiaries Act 1969, s. 18 (2); Biosecurity Act 1993, ss. 43, 165(e,t,x)

### **19.3.8 Exemptions from Duties for Research Purposes**

(1) An exemption from duties relating to American foulbrood contained in sections 19.3.3, 19.3.4 or 19.3.5 of these rules may be granted by the Management Agency to bone fide research organisations engaged in investigations regarding the disease American foulbrood and the causative agent *Bacillus larvae*, provided that:

(a) An application is made in writing to the Management Agency; and

(b) The exemption is for a specified number of beehives in a specified land area; and

(c) The organisation submits a management plan for such beehives to the Management Agency; and

(d) The exemption is granted on no greater than an annual basis;

(e) The exemption will not, in the opinion of the Management Agency, allow the exposure or spread of the disease or its causative agent to beehives not owned or leased by the organisation carrying out the investigation; and

(f) The exemption stipulates that no honey bees, bee products or appliances infected with the disease may be removed from the area identified in sub-subsection (b) of this subsection except with the written consent of an Authorised Person and subject to such conditions as the Authorised Person specifies.

(2) The Management Agency retains sole rights over the granting of any such exemption specified in subsection (1) of this section, including, but not limited to —

(a) The right to withdraw the exemption at any time and for any reason, provided that reason is communicated in writing to the organisation that has made the application for exemption; and

(b) The right to alter, amend, or add conditions to the management plan submitted by the organisation at any time and for any reason, provided that reason is communicated in writing to the organisation that has submitted the management plan.

Cf. Biosecurity Act 1993, ss. 52(a,c), 53(2)

## **19.4 Movement Control**

### **19.4.1 Declaration of Restricted Apiary**

(1) Where an Authorised Person believes or suspects on reasonable grounds that American foulbrood is, or has been, in an apiary, the Authorised Person may, by notice given in accordance with subsections (2) and (3) of this section, declare the apiary to be a restricted apiary.

(2) The notice shall be in a form approved for the purpose by the Management.

(3) The notice shall be given by mailing a copy to the registered occupier of the apiary to which the notice refers.

Cf. Apiaries Act 1969 s. 19(4); Biosecurity Act 1993 s. 130(1-3)

### **19.4.2 Reasons for Declaration of Restricted Place**

(1) A restricted place may be declared when, in the opinion of an Authorised Person —

(a) Management of the remaining beehives in the apiary, in conjunction with management of other apiaries owned by the beekeeper, poses a serious threat of spread of American foulbrood; or

(b) Uncontrolled movement of the remaining hives in the apiary to an area containing beehives without a known infection of American foulbrood, poses a serious threat of spread of the disease.

Cf. Apiaries Act 1969 s. 19(4); Biosecurity Act s. 130(1-3)

### **19.4.3 Controlled Movement of Beehives Outside the Restricted Place**

(1) At the discretion and under the direction of an Authorised Person, beehives may be allowed to be moved from the restricted apiary to another registered apiary, provided that —

(a) The owner of the beehives applies for and receives written permission from the Authorised Person to move such hives outside the restricted area; and

(b) The Management Agency is notified within 24 hours of the movement of the beehives outside the restricted area; and

(c) The beehives, their boxes, lids, frames and floor boards, are marked indelibly in a way approved by the Authorised Person so that they can be identified as coming from the restricted apiary; and

(d) The registered apiary which will receive the beehives is also declared a restricted place by the Authorised Person to restrict the movement of those beehives to any other location.

(2) The Authorised Person may require the beekeeper owning the restricted apiary to provide a Certificate of Inspection for that apiary signed within the previous 14 days prior to granting permission for the beehives to be moved.

(3) Beehives may be allowed to be moved from the restricted apiary to another registered apiary when, in the opinion of the Authorised Person —

(a) Movement of the beehives is required for essential management reasons; and

(b) The management of the beehives would not pose a serious threat of spread of American foulbrood to other beehives owned by the beekeeper, or to beehives located in the neighbourhood of the new apiary location.

Cf. Apiaries Act 1969 s. 19(4); Biosecurity Act s. 130(4)

### **19.4.4 Duration of a Restricted Apiary Declaration**

(1) A declaration of a restricted apiary shall remain in force until it is revoked by a notice of revocation given substantially

in the same manner as the declaration of the area concerned was notified.

Cf. Apiaries Act 1969 s. 19(4); Biosecurity Act 1993 s. 133

## **19.5 Use of Drugs**

(1) No person shall use any drug, substance, or mixture of substances, in, on, or otherwise in relation to apiaries, bees, beehives, appliances or bee products, which could have the effect of masking, obscuring or concealing symptoms of American foulbrood disease or making detection of the disease or of *Bacillus larvae* more difficult than it would have been otherwise.

(2) Nothing in subsection (1) prohibits or otherwise affects the use, subject to specified conditions if any, of any specified drug for the prevention or treatment of any specified disease, as approved by the Minister of Agriculture pursuant to section 25(2) of the Apiaries Act 1969.

(3) Sections 25, 26, 27, 28 and 29 of the Apiaries Act 1969 are saved, and shall continue in full effect to the extent necessary for the proper administration of those sections, by Section 171 of the Biosecurity Act.

## **19.6 Management Agency Operational Duties**

### **19.6.1 Disease Elimination Conformity Agreements**

(1) The Management Agency shall offer to every beekeeper and beekeeping enterprise the opportunity to enter into a Disease Elimination Conformity Agreement with the agency.

(2) The Management Agency shall provide a standard agreement form or forms for this purpose, which can be altered and added to by either the beekeeper/beekeeping enterprise or Management Agency or both.

(3) The Disease Elimination Conformity Agreement shall include the following mandatory components —

(a) Agreement to attend a course on American foulbrood disease recognition and destruction approved by the Management Agency, or agreement to take a competency test in American foulbrood disease recognition and destruction issued by the Management Agency, or provision of a certificate showing the successful completion of that competency test; and

(b) Agreement to supply samples of honey bees and bee products for spore testing when requested by the Management Agency, provided there is no charge to the beekeeper for this testing; and

(c) Agreement to sign Certificates of Inspection only when an inspection for American foulbrood has been performed in a manner approved by the Management Agency; and

(d) Agreement to perform all duties set forth in sections 19.2.1-19.2.5, sections 19.3.1-19.3.3, 19.3.5-19.3.6, and section 25 of the Apiaries Act 1969 (retained by section 171 of the Biosecurity Act 1993).

(4) The Disease Elimination Conformity Agreement may include the following components negotiated with the Management Agency —

(a) The methods to be used to inspect beehives for American foulbrood; and

(b) The number of disease inspections to be performed each year; and

(c) The times when disease inspections will be performed during the year; and

(d) The system to be used to record when inspections are performed, if disease is found, and what action is taken with the diseased beehive; and

(e) The system to be used to record movements of beehives between apiaries; and

(f) The system to be used to record movements of appliances and bee products used or produced in

conjunction with an apiary; and

(g) The method to be used to destroy diseased beehives, including the shifting of such hives away from the apiary site where the diseased beehive was found; and

(h) The method to be used by the beekeeper to sterilise appliances salvaged in relation to any case of American foulbrood; and

(i) The method used to sterilise and disinfect equipment used in inspecting beehives for American foulbrood; and

(j) The sampling system and number of to be provided to the Management Agency for spore testing; and

(k) Attendance at annual National Beekeepers' Association American foulbrood elimination field days.

(5) The Management Agency shall make provision for Disease Elimination Conformity Agreements for beekeeping enterprises, provided that —

(a) At least one person in the enterprise shall agree to be designated in the agreement as the person responsible for disease elimination standards in the enterprise; and

(b) One person in the enterprise shall agree to negotiate with the Management Agency on behalf of the enterprise regarding the agreement and be responsible for ensuring that all components of the agreement are adhered to by all individuals comprising or employed by the enterprise; and

(c) All persons in the enterprise agreeing to be responsible for disease elimination standards in the enterprise shall agree to attend a course on American foulbrood disease recognition and destruction approved by the Management Agency, or agree to take a competency test in American foulbrood disease recognition and destruction issued by the Management Agency, or provide a certificate showing the successful completion of that competency test.

(6) A beekeeper with a current Disease Elimination Conformity Agreement with the Management Agency made under the rules of this strategy shall be known as an "Approved Beekeeper" for the purposes of this strategy.

(7) A beekeeping enterprise with a current Disease Elimination Conformity Agreement with the Management Agency made under the rules of this strategy shall be known as an "Approved Beekeeping Enterprise" for the purposes of this strategy.

(8) Persons in an "Approved Beekeeping Enterprise" who have agreed to be responsible for disease elimination standards in the enterprise under sub-subsections (5)(a) and (5)(c) of this section shall also be known as an "Approved Beekeeper" for the purposes of this strategy, provided that should that enterprise for whatever reason no longer have a current Disease Elimination Conformity Agreement, such "Approved Beekeeper" status shall be withdrawn from the person by the Management Agency, unless that person shall also have a current Disease Elimination Conformity Agreement for beehives he/she owns or leases in his/her own right.

(9) All Disease Elimination Conformity Agreements will be reviewed by the Management Agency on an annual basis, and shall remain in effect unless terminated by the beekeeper or enterprise subject to that agreement, or revoked by the Management Agency.

(10) If an "Approved Beekeeper" or "Approved Beekeeping Enterprise" fails to meet the criteria set out in the Disease Elimination Conformity Agreement, as determined by the Management Agency, the beekeeper or enterprise may —

(a) Negotiate with the Management Agency and revise the Disease Elimination Conformity Agreement, provided that the agreement includes a provision for an increase in the number of samples provided by the beekeeper or enterprise for spore testing; or

(b) Cancel the Disease Elimination Conformity Agreement.

(11) The Management Agency may revoke a Disease Elimination Conformity Agreement at whatever time and for whatever reason, provided that —

(a) The Management Agency gives notice in writing of the revocation to the beekeeper or enterprise subject to the agreement; and

(b) The Management Agency identifies in the notice the reasons for the revocation of the agreement; and

(c) The Management Agency explains in the notice the process available to the beekeeper or enterprise to arbitrate the decision.

(12) Upon the request of any beekeeper or enterprise which has had a Disease Elimination Conformity Agreement revoked by the Management Agency, the Management Agency shall, at a time agreeable to both parties, and using the procedures set forth in the Arbitration Act 1908, enter into arbitration on the revocation of that agreement with that beekeeper or enterprise, provided that —

(a) The Management Agency shall receive such a request from that beekeeper or enterprise in writing; and

(b) The Management Agency shall appoint no more than one representative to act on its behalf; and

(c) The beekeeper or enterprise shall appoint no more than one representative to act on its behalf; and

(d) The Management Agency and that beekeeper or enterprise shall appoint a further one representative agreeable to both parties; and

(e) Payments for this representation shall be borne by the individual parties for their representatives, and equally and jointly shared for the mutual representative.

(13) Any decisions regarding a revocation of a Disease Elimination Conformity Agreement made as a result of arbitration shall be final and binding on the Management Agency.

Cf. Biosecurity Act 1993 s. 165 (a-d,t,x)

### **19.6.2 Disease Recognition and Destruction Competency Test**

(1) The Management Agency shall develop and offer to beekeepers and beekeeping employees an examination to determine competency in American foulbrood recognition and destruction, provided that the examination shall determine the person's ability to —

(a) Identify the visual symptoms of the disease; and

(b) Properly inspect beehives for those symptoms; and

(c) Properly collect bee/honey samples for spore testing; and

(d) Properly destroy diseased beehives and sterilise beehive components.

(2) The Management Agency shall employ a technically competent contractor to develop a standardised examination paper for the competency test.

(3) Any beekeeper or beekeeping employee may decide to sit the examination paper either —

(a) As part of an approved course on American foulbrood recognition and destruction; or

(b) Independent of such a course.

(4) Any beekeeper or beekeeping employee who may decide to sit the examination paper outside of an approved course on American foulbrood recognition and destruction will notify the Management Agency of that decision in writing, on an application form provided by the Management Agency, the application to include —

(a) The name, address and phone number of the person requesting to sit the exam; and

(b) The name, street address, postal address and contact

person for the examination site chosen by the person requesting to sit the exam; and

(c) A fee to cover postage of the examination paper to and from the examination site, the marking of the test paper, and the issuance of a competency certificate.

(5) No examination paper shall be administered to any person unless the examination site provides due and proper supervision and security throughout the entire period the beekeeper shall sit the examination paper.

(6) No papers, books or any other sort of visual, audio or written aid pertaining to the examination paper or the subjects covered in the paper shall be in the possession of any person sitting the examination paper at any time during the sitting of the examination paper.

(7) It shall be the responsibility of the person or persons supervising the examination site to ensure that the provisions outlined in subsection (6) of this section are met.

(8) All marking of any and all examination papers will be carried out by a central authority acting on behalf of the Management Agency.

(9) The Management Agency retains sole responsibility for determining the pass rate for the examination paper, and the material and questions contained in that paper.

(10) Any person who is determined by the central marking authority to have achieved a pass on the examination paper will be issued with a certificate of competency in American foulbrood recognition and destruction by the Management Agency.

(11) Notwithstanding anything in subsection (10) of this section, the Management Agency reserves the right to withdraw from any person any such certificate at any time and for whatever reason, provided that the person may re-sit an examination paper on American foulbrood elimination and destruction competency as part of an approved course on American foulbrood elimination and destruction, in which case a competency certificate shall be re-issued to the person by the Management Agency upon the achievement of a pass on that examination paper.

(12) Any person who is determined by the central marking authority to have not achieved a pass for the examination paper shall not be entitled to re-sit the examination paper unless and until that person has attended a course on American foulbrood recognition and destruction approved by the Management Agency.

(13) All costs associated with this competency examination will be borne by the Management Agency, except the costs associated with the postage of the examination paper to and from the examination site, the marking of the test paper and the issuance of a competency certificate.

Cf. Biosecurity Act 1993 s. 165 (a-d,x)

### 19.6.3 Educational Courses

(1) The Management Agency shall approve courses, including, but not limited to correspondence courses, on American foulbrood disease recognition and destruction, provided that —

(a) The course is taught by a person or persons who are certified to teach such a course by the Management Agency; and

(b) The course meets the criteria set by the Management Agency, including —

(i) The use of an American Foulbrood Elimination Manual written by the Management Agency; and

(ii) The reference of all technical information provided in the course to that manual; and

(iii) The inclusion of training modules on identification of visual symptoms of American foulbrood, beehive inspection methods, methods of collection for spore testing samples, and diseased beehive destruction and sterilisation techniques.

(c) The course is, in the opinion of the Management Agency, skills-based and concentrates on practical techniques; and

(d) Successful completion of the course is determined by persons passing the disease recognition and destruction competency examination administered by the Management Agency; and

(e) In the opinion of the Management Agency, persons successfully completing the course have the ability to inspect beehives by the method set out in the American Foulbrood Elimination Manual, are able to correctly identify the visual symptoms of American foulbrood, and can explain in detail the method of diseased beehive destruction set out in the American Foulbrood Elimination Manual; and

(f) The certified instructor makes written application to the Management Agency for such approval, specifying that the course to be offered will meet the requirements set forth in (a)(b) and (d) of this sub-section.

(2) The Management Agency shall conduct one training course for American foulbrood identification and destruction course instructors, which shall be held no later than 12 months from the inception of this strategy, and shall provide an instructor's certificate for all individuals successfully completing the course.

(3) The Management Agency shall audit —

(a) Each and every person or organisation offering a course approved in subsection (1) of this section at least once every year, provided that that person or organisation has actually held a course in American foulbrood disease recognition and destruction in that year; and

(b) Each and every course instructor certified in subsection (2) of this section at least once every year, provided that that instructor has actually conducted a course in American foulbrood disease recognition and destruction in that year;

the audit to be conducted according to the requirements set forth in subsection (1) of this section, with a written copy of the audit made available to the person, organisation, or course instructor so audited.

(4) Notwithstanding anything in subsection (1) of this section, the Management Agency reserves the right to withdraw approval from any person or organisation for any course on American foulbrood identification and destruction, provided that —

(a) The Management Agency gives notice of the withdrawal in writing to the person or organisation; and

(b) The Management Agency provides written documentation, by way of the course audit carried out on the person or organisation in subsection (3) of this section, that the person or organisation has not met the requirements for the course set forth in subsection (1) (a) (b) and (d) of this section; or

(c) The Management Agency believes the person or organisation has not met the requirements in subsection (1)(c) and (e) of this section.

(5) Notwithstanding anything in subsection (2) of this section, the Management Agency reserves the right to withdraw certification from any instructor of any course on American foulbrood identification and destruction, provided that —

(a) The Management Agency gives notice of the withdrawal in writing to the course instructor; and

(b) The Management Agency provides written

documentation, by way of the audit carried out on the course instructor under subsection (3) of this section, of the reasons for the withdrawal of certification, that the course instructor has not met the requirements for the course set forth in subsection 1 (b)(c)(d) and (e) of this section.

Cf. Biosecurity Act 1993 s. 165 (a-d,x)

#### 19.6.4 Educational Publications and Activities

(1) The Management Agency shall, within 12 months of the inception of the strategy, write, publish, and distribute to all beekeepers registering apiaries for the initial time during the term of the strategy, a pamphlet which depicts the visual symptoms of American foulbrood, and which distinguishes such symptoms from other brood diseases and abnormalities of honey bees, including European foulbrood (*Melissococcus pluton*).

(2) The Management Agency shall, within 12 months of the inception of the strategy, write, publish, and distribute to all beekeepers registering apiaries for the initial time during the term of the strategy, a booklet entitled "Starting with Bees", which sets out a beekeeper's duties under these rules, and which provides basic information on the keeping of honey bees.

(3) The Management Agency shall, within 12 months of the start of the strategy, write, publish and distribute to all "Approved Beekeepers" and "Approved Beekeeping Enterprises", a manual entitled "American Foulbrood Elimination Manual", which describes —

(a) The method approved by the Management Agency for inspecting beehives for the presence of American foulbrood; and

(b) The method approved by the Management Agency for killing the honey bees in a beehive infected with American foulbrood; and

(c) The method approved by the Management Agency for destroying the honey bees, bee products, combs and appliances of a beehive infected with American foulbrood so that such materials are not exposed in contravention of Section 19.3.6 of these rules; and

(d) The sampling method approved by the Management Agency to collect samples to provide to the Management Agency for spore testing; and

(e) The method(s) approved by the Management Agency to sterilise appliances salvaged in relation to any case of American foulbrood; and

(f) Systems used by beekeepers to record when inspections are performed, if disease is found, and what action is taken with the diseased beehive; and

(g) Systems used by beekeepers to record movements of beehives between apiaries; and

(h) Systems used by beekeepers to record movements of appliances and bee products used or produced in conjunction with an apiary; and

(i) Case studies of beekeepers who have successfully contained and eliminated American foulbrood infections in their beehives; and

(j) The methods used by beekeepers to avoid spreading American foulbrood disease.

(4) Every year during the month of August, the Management Agency shall produce and distribute to every branch of the National Beekeepers' Association of New Zealand, an American Foulbrood Education Kit for use in regional American foulbrood elimination field days.

(5) Every year during the months of September or October, the Management Agency shall hold a public field day in a town centre within the area of membership of every branch of the National Beekeepers' Association of New Zealand on the subject of American foulbrood elimination.

Cf. Biosecurity Act 1993 s. 165(p,x)

#### 19.6.5 Inspection Audit

(1) Every year during the months of September through May, the Management Agency shall use Authorised Persons and Accredited Persons to —

(a) Carry out an audit of statements regarding American foulbrood made by beekeepers in compliance with sections 19.3.2, 19.3.7 and 19.6.1 of these rules; and

(b) Audit compliance by beekeepers with sections 19.3.1, 19.3.3, 19.3.5 and 19.3.6 of these rules; and

(c) Detect new infections of American foulbrood in beehives; and

(d) Provide an independent measure of the success of the strategy in achieving its objective of disease incidence reduction.

(2) Authorised Persons employed by the Management Agency shall —

(a) Determine, by way of analysis of American foulbrood reports, statements regarding American foulbrood made by beekeepers and bee/honey spore tests, the beekeepers whose beehives shall be inspected, and the apiaries which shall be inspected; and

(b) In reference to subsection 1(a) of this section, use a sampling regime which shall verify the statements made by beekeepers; and

(c) Designate whether samples shall be taken from beehives for spore testing; and

(d) Direct Accredited Persons to carry out inspections on such apiaries; and

(e) Supervise the performance of Accredited Persons in carrying out such inspections.

(3) The Management Agency shall inform, by notice in writing, any "Approved Beekeeper" or "Approved Beekeeping Enterprise" found during such inspections to have an infection of American foulbrood in the beehives that beekeeper or enterprise owns, and may, if in the opinion of an Authorised Person the situation warrants, negotiate changes to the Disease Elimination Conformity Agreement with the beekeeper or enterprise, including, but not limited to, an increase in the number of samples provided by the beekeeper or enterprise for spore testing.

(4) Beekeepers found during such inspections to have an infection of American foulbrood in beehives owned, will be subject to the provisions set forth in Section 19.3.4 of these rules.

Cf. Apiaries Act, 1969 s. 37; Biosecurity Act, 1993 ss. 109, 121, 165(p,x)

#### 19.6.6 Spore Testing

(1) As part of the inspection audit set forth in Section 19.6.5 of these rules, Authorised Persons, or Accredited Persons directed by Authorised Persons, may take samples of honey bees or bee products, from beehives, appliances, or containers holding products, for the purposes of determining the presence or absence of, and the indicative levels of, *Bacillus larvae* spores, provided that the results of such tests are made available to the beekeeper from whose beehives the samples were taken.

(2) As part of the inspection audit set forth in Section 19.6.5 of these rules, Authorised Persons, or Accredited Persons directed by Authorised Persons, may require a beekeeper to provide a sample of honey bees or bee products, for the purposes of determining the presence or absence of, and the indicative levels of, *Bacillus larvae* spores, provided that the costs of analysis of such samples are not borne by the beekeeper, and provided that the results of such tests are made available to the beekeeper from whose beehives the samples were taken.



(3) As part of the inspection audit set forth in Section 19.6.5 of these rules, the Management Agency may —

- (a) Use sample testing to audit the statements made by beekeepers in compliance with sections 19.3.2, 19.3.7 and 19.6.1 of these rules; and
- (b) Use honey sample testing to audit the statements made by beekeepers in compliance with sections 19.3.2, 19.3.7 and 19.6.1 of these rules, when such beekeepers are large-scale producers of honey; and
- (c) Use honey bee sample testing to audit the statements made by beekeepers in compliance with sections 19.3.2, 19.3.7 and 19.6.1 of these rules, when such beekeepers are small-scale beekeepers or beekeepers who are not large-scale producers of honey; and
- (d) Use the results of such spore testing to direct Authorised Persons and Accredited Persons to carry out visual inspections of beehives for the presence of American foulbrood.

(4) The Management Agency shall every year make provision for the testing of samples of honey bees or bee products, for the purposes of determining the presence or absence of, and the indicative levels of, *Bacillus larvae* spores, for a specified number of samples received by beekeepers on a voluntary basis, and with the costs of analysis of such samples borne by the Management Agency, provided that the results of such tests are made available to the Management Agency as well as the beekeeper who sends in the sample.

(5) The presence or absence of, and the indicate levels of, *Bacillus larvae* spores, will not be sufficient to order the destruction of any beehive, or any honey bees, bee products, combs, or appliances, under the rules of this strategy, unless the honey bees, bee products or combs are part of a feral colony.

(6) The Management Agency shall every year make provision for the diagnosis of larval samples of honey bees, for the purposes of determining the presence or absence of *Bacillus larvae* bacteria, for a specified number of samples received by beekeepers on a voluntary basis, and with the costs of analysis of such samples borne by the Management Agency, provided that the results of such tests are made available to the Management Agency as well as the beekeeper who sends in the sample.

Cf. Biosecurity Act, 1993 ss. 121, 165(p,x)

#### **19.6.7 Amnesty Programme for Unwanted Beehives**

(1) The Management Agency shall at the start of this strategy, and for a period of six months —

- (a) Advertise in the association magazine an amnesty programme for unwanted beehives; and
- (b) Receive communications from any and all beekeepers who wish to dispose of unwanted beehives; and
- (c) Liaise with branches of the National Beekeepers' Association in the area where any unwanted beehives are located to ensure that such hives are either destroyed or transferred to the ownership of a beekeeper who has indicated in writing to the branch that he/she is willing to maintain such hives according to section 19.2 of these rules.

Cf. Biosecurity Act, 1993 s.165(p,x)

#### **19.7 Management Agency Administrative Duties**

##### **19.7.1 Duties of the Executive of the National Beekeepers' Association**

(1) The executive of the National Beekeepers' Association shall act as the executive of the Management Agency.

(2) The executive of the Management Agency shall once every year —

- (a) Approve the annual review of the operational plan of the strategy made by the Strategy Review Committee; and
- (b) Approve changes to the operational plan of the strategy recommended by the Strategy Review Committee; and
- (c) Approve the annual report on the operational plan of the strategy; and
- (d) Make recommendations to the Minister for any changes to the rules of the strategy, provided that the changes shall, in the opinion of the executive, improve the effectiveness of the strategy in achieving its goal and objectives; and
- (e) Appoint each and every member of the Strategy Review Committee; and
- (f) Appoint an arbitrator to represent the Management Agency in arbitration as set forth in subsection (12) of section 19.6.1 of these rules; and
- (g) Approve the annual budget of the strategy; and
- (h) Appoint the financial auditor for the strategy; and
- (i) Approve the annual financial audit of strategy expenditure; and
- (j) Approve contract specifications for all contractors to the Management Agency; and
- (k) Approve the appointment of all contractors to the Management Agency.

(3) The executive of the Management Agency shall at all times and throughout the year —

- (a) Oversee and be responsible for the activities of the Strategy Review Committee; and
- (b) Allocate sufficient funds from the general National Beekeepers' Association budget to cover any and all strategy expenditure; and
- (c) Oversee and monitor all strategy expenditure; and
- (d) Appoint and discharge National Beekeepers' Association administrative personnel carrying out duties under the strategy; and
- (e) Oversee and be responsible for the activities of National Beekeepers' Association administrative personnel carrying out duties under the strategy; and
- (f) Oversee and monitor all activities of all contractors to the Management Agency; and
- (g) Consider recommendations made by administrative officers regarding individual cases where work has been carried out by the Management Agency and its contractors when an individual has defaulted on a notice given under these rules, and decide on individual cases where the Management Agency will not proceed to recover costs for such work; and
- (h) Consider recommendations made by Authorised Persons regarding offences against the Biosecurity Act in relation to the rules of this strategy, and decide whether information for that offence should be laid on behalf of the Management Agency; and
- (i) Where a decision has been made to lay an information of an offence against the Biosecurity Act in relation to the rules of this strategy, make a formal, written request to the Management Agency solicitor asking that such information be laid on behalf of the Management Agency.

Cf. Biosecurity Act 1993 s. 165(p,x)

##### **19.7.2 Duties of The National Beekeepers' Association Administrative Personnel**

(1) The administrative personnel of the National Beekeepers' Association shall act as the administrative officers of the Management Agency.

(2) The administrative officers of the Management Agency shall once every year —

- (a) Conduct tenders for all contracts to the Management

Agency to carry out operational duties under the strategy; and

(b) Implement changes to contractor specifications when approved and authorised by the executive of the Management Agency.

(3) The administrative officers of the Management Agency shall at all times and throughout the year —

(a) Maintain in an orderly and current fashion the financial accounts for all strategy expenditure; and

(b) Provide timely and accurate reports to the management executive on all strategy expenditure; and

(c) Make timely and correct payments to all contractors to the Management Agency; and

(d) Supervise the financial expenditure of the Strategy Review Committee; and

(e) Supervise the financial expenditure of the arbitrator representing the Management Agency in arbitration as set forth in subsection (12) of section 19.6.1 of these rules; and

(f) Monitor, in conjunction with the Strategy Review Committee, the performance of all contractors to the Management Agency in meeting contractor specifications; and

(g) Provide timely and informed reports to the management executive, in conjunction with the Strategy Review Committee, on the performance of all contractors to the Management Agency in meeting contractor specifications; and

(h) Distribute information and communication relating to the strategy as directed by the Management Agency executive; and

(i) Make recommendations to the executive regarding cases where work is carried out by the Management Agency when an individual has defaulted on a notice under these rules and, in the opinion of the administrative officer, the Management Agency may decide not to proceed to recover costs for that work.

Cf. Biosecurity Act 1993 s. 165(p,x)

### 19.7.3 Duties of Strategy Review Committee

(1) The Strategy Review Committee of the National Beekeepers' Association shall act on behalf of, and be responsible to, the executive of the Management Agency.

(2) The Strategy Review Committee shall be composed of persons who are members of the National Beekeepers' Association.

(3) The executive of the Management Agency shall have the power to appoint and dismiss any and all members of the Strategy Review Committee, and shall ensure that members appointed to the committee represent, as much as possible, a cross-section of association membership, including —

(a) The range of beehive holdings of association members; and

(b) The geographic distribution of association members.

(4) The executive of the Management Agency shall appoint one member of the Strategy Review Committee to act as chairman of that committee, and one member of the committee to act as vice-chairman of that committee.

(5) No member of the Strategy Review Committee shall receive any remuneration for any time spent conducting business with, or on behalf of, the committee.

(6) Notwithstanding anything in subsection (5) of this section, the executive of the Management Agency shall ensure that any and all members of the Strategy Review Committee are fully reimbursed for all expenses incurred when conducting committee business.

(7) The Strategy Review Committee shall once every year —

(a) Undertake a full and thorough review of the operational plan of the strategy; and

(b) Submit a written report of that review to the executive of the Management Agency; and

(c) Propose in writing to the executive of the Management Agency any and all recommended changes to the operational plan, provided that the changes shall, in the opinion of the committee, improve the effectiveness of the strategy in achieving its goal and objectives; and

(d) Propose in writing to the executive of the Management Agency any and all recommended changes to Management Agency contractor specifications, where those changes are required for the purposes of item (c) of subsection (7); and

(e) Propose in writing to the executive of the Management Agency any and all recommended changes to the rules of this strategy, provided that the changes shall, in the opinion of the committee, improve the effectiveness of the strategy in achieving its goal and objectives; and

(f) Prepare a draft annual report on the operational plan and its implementation during the previous year; and

(g) Submit the draft annual report to the executive of the Management Agency; and

(h) Prepare a draft annual budget for the running of the strategy; and

(i) Submit the draft annual budget to the executive of the Management Agency.

(8) The Strategy Review Committee shall at all times and throughout the year —

(a) Monitor the performance of all Management Agency contractors in meeting contractor specifications; and

(b) Report to the executive of the Management Agency on the performance of any Management Agency contractor in meeting contractor specifications, when, in the opinion of the committee, the contractor has failed in whatever way to meet any such specification.

Cf. Biosecurity Act 1993 s. 165(p,x)

### 19.7.4 Operational Plan

(1) The executive of the Management Agency shall immediately upon receiving written notification from the Minister of the approval of the strategy —

(a) Direct the Strategy Review Committee to prepare a draft operational plan for implementation of the strategy; and

(b) Direct the Strategy Review Committee to prepare written specifications for any and all Management Agency contractor services to be performed as part of that operational plan.

(2) The Strategy Review Committee shall, within 1 month of being directed by the executive of the management agency, submit to that executive —

(a) A draft operational plan for implementation of the strategy; and

(b) Draft specifications for any and all management contractor services to be performed as part of that operational plan.

(3) The executive of the Management Agency shall, within 3 months after the strategy is approved —

(a) Approve an operational plan for the implementation of the strategy; and

(b) Make copies of the operational plan available to the public at cost; and

(c) Supply copies of the operational plan to the Minister of Agriculture, and every other Minister whose responsibilities are affected by the strategy.

(4) Providing that the executive of the Management Agency shall not receive, either before the operational plan is

submitted to the Minister of Agriculture, or within 21 days of the submission of the plan to the Minister, a written notice from the Minister that the Minister intends to disallow the plan, or any proposal in that plan, the executive of the Management Agency shall immediately following the 21st day after the submission of the operational plan to the Minister, proceed without delay to implement the strategy and its rules.

(5) Following the completion of the initial 12 months of the operational plan, and annually thereafter for the duration of the strategy, the executive of the Management Agency shall —

- (a) Publish and make available to the public the annual report on the operational plan of the strategy; and
- (b) Submit the annual report on the operational plan of the strategy to the Minister, and every other Minister whose responsibilities are affected by the strategy, no later than 5 months after the end of the financial year of the strategy.

(6) Any and all changes made to the operational plan of the strategy shall be —

- (a) Made only following the approval, by the executive of the Management Agency, of the annual report on the operational plan; and
- (b) Implemented only through written changes to specifications for Management Agency contractor services, or written changes to these rules; and
- (c) Supplied as an amended operational plan to the Minister and every Minister whose responsibilities are affected by the strategy.

(7) Any and all changes to the rules of this strategy shall be made only —

- (a) On written recommendation of the executive of the Management Agency, as contained in the Management Agency's annual report on the operational plan, and as submitted to the Minister; and
- (b) On recommendation of the Minister, following a review of the annual report of the operational plan of the strategy; and
- (c) By the Governor-General, by Order in Council published in the *Gazette*.

Cf. Biosecurity Act 1993, ss. 85, 165(p,x)

(Note: The rule in subsection (7) allowing the Minister to make changes to the rules other than in a circumstance where the strategy is to be extended in an amended form may require a regulation under ss. 165(p,x) and 166(1) of the Biosecurity Act)

#### **19.7.5 Duties Relating to Management Agency Contractors**

(1) The Management Agency may enter into contracts with individuals or companies to perform services as part of the operational plan, including but not limited to —

- (a) Management of Disease Elimination Conformity Agreements,
- (b) Supervision of inspection audits,
- (c) Counselling of "Approved Beekeepers" in disease elimination management,
- (d) Processing of Annual Disease Declarations and Certificates of Inspection,
- (e) Spore testing of bee and bee product samples,
- (f) Production of educational materials and resources,
- (g) Approval and audit of courses on American foulbrood disease recognition and elimination,
- (h) Legal services,
- (i) Financial audit of Management Agency annual accounts,
- (j) Production and marking of an examination to determine competency in disease recognition and destruction.

(2) The Management Agency shall offer, by way of public tender, any and all contracts to perform services for and on behalf of the Management Agency.

(3) The executive of the Management Agency shall retain sole responsibility for making any and all decisions relating to the letting of any and all contracts to perform services for and on behalf of the Management Agency.

(4) The Management Agency will in no way be limited in entering into any contract to perform services for and on behalf of the Management Agency based either on the cost of any individual tender or the number of tenders received.

(5) All contracts to perform services for and on behalf of the Management Agency shall be —

- (a) In writing; and
- (b) For the period of not longer than 12 months; and
- (c) Based on a written set of performance specifications for the service to be provided, the specifications to be attached to and form part of the contract.

(6) Any and all changes to contracts to perform services for and on behalf of the Management Agency shall be —

- (a) Only as a result of changes to the operational plan approved by the executive of the Management Agency, or
- (b) Upon the mutual agreement of both parties.

(7) It shall be the responsibility of the Strategy Review Committee and the administration officers to review the performance of any and all contractors performing services for and on behalf of the Management Agency, and to report any and all instances, when in the opinion of the Strategy Review Committee or the administration officer, the contractor has failed to meet any performance specification or contractual obligation.

(8) The executive of the Management Agency shall ensure that in all cases financial penalties for failure to meet performance specifications are included as a part of any contract to perform services for and on behalf of the Management Agency.

(9) Arbitration for any and all disputes relating to contractors meeting performance specifications shall be conducted in the normal manner according to the Arbitration Act 1908.

Cf. Biosecurity Act 1993 s. 165(p,x)

#### **19.7.6 Financial Duties**

(1) The financial year of the Management Agency in relation to all activities associated with the strategy shall begin on September 1 of each year, and extend to August 31 of the following year.

(2) The executive of the Management Agency, through the administrative officers, shall be responsible for all financial matters relating to the implementation and running of the strategy.

(3) The executive of the Management Agency shall ensure that sufficient financial resources are provided as an appropriation from the general revenues of the National Beekeepers' Association of New Zealand, Inc., to meet all legitimate and necessary expenditure relating to the implementation and running of the strategy.

(4) The executive of the Management Agency, through the administrative officers, shall —

- (a) Maintain in an orderly and current fashion the financial accounts for all strategy expenditure; and
- (b) Provide timely and accurate reports on all strategy expenditure; and
- (c) Make timely and correct payments to all contractors to the Management Agency; and
- (d) Supervise the financial expenditure of the Strategy Review Committee; and
- (e) Supervise the financial expenditure of the arbitrator

representing the Management Agency in arbitration as set forth in subsection (12) of section 19.6.1 of these rules.

(5) The executive of the Management Agency shall at the time of the implementation of the strategy, and at the beginning of each subsequent financial year of the strategy, appoint an independent auditor to audit the financial accounts of the strategy and the Management Agency, provided the auditor is a current member of the Association of Chartered Accountants of New Zealand.

(6) The auditor shall audit all financial accounts and records of the strategy and the Management Agency at the completion of each and every financial year of the term of the strategy, and shall provide a timely and professional written assessment of the accuracy and correctness of those financial accounts and records within 3 months of the end of each such financial year.

(7) The executive of the Management Agency shall receive and approve all financial audits submitted by the financial auditor, and shall include a copy of the audit in the annual report on the operational plan of the strategy.

(8) The Strategy Review Committee shall prepare a draft annual budget for the running of the strategy, 3 months prior to the implementation of the strategy, and in July of each year for the next financial year of the strategy, provided that each draft budget subsequent to the draft budget for the initial year of the strategy shall —

- (a) Be based on the annual review of the strategy and the strategy expenditure; and
- (b) Make changes to strategy expenditure where required as determined by an analysis of the previous year's expenditure for all strategy services and activities; and
- (c) Incorporate changes to strategy expenditure required as a result of any changes to the operational plan recommended by the committee.

(9) The Strategy Review Committee shall submit the draft annual budget for the running of the strategy to the executive of the Management Agency 3 months prior to the implementation

of the strategy, and in August of each year for the next financial year of the strategy.

(10) The executive of the Management Agency shall approve the draft annual budget for the running of the strategy 3 months prior to the implementation of the strategy, and in September of each year for the next financial year of the strategy.

Cf. Biosecurity Act 1993 s. 165(p,x)

#### **19.7.7 Duties of Disputes Arbitrator**

(1) Every year in September, for the term of the strategy, the executive of the Management Agency shall appoint a person to represent the Management Agency in any and all arbitrations regarding the revoking of a Disease Elimination Conformity Agreement by the Management Agency.

(2) In accepting the position of arbitration representative of the Management Agency, the person shall agree to —

- (a) Fairly and honestly represent the interests of the Management Agency in all matters relating to the revoking of any Disease Elimination Conformity Agreement; and
- (b) Undertake in all cases to assist the Management Agency in its goal of elimination of American foulbrood.

(3) The Management Agency Arbitrator shall —

- (a) Maintain a written record of any and all arbitration carried out on behalf of the Management Agency; and
- (b) Provide a written report to the executive of the

Management Agency for any and all arbitration carried out on behalf of the Management Agency within 10 working days of the completion of any arbitration; and

(c) Submit to the administrative officers of the strategy on a monthly basis an invoice for any work and expenditure made by the Arbitrator in relation to any and all arbitration carried out on behalf of the Management Agency.

(4) The Management Agency Arbitrator shall retain sole discretion on the part of the Management Agency in the selection of any person to act as a person mutually agreed by the two parties to take part in such an arbitration.

Cf. Biosecurity Act 1993 s. 165(p,x)

#### **19.7.8 Annual Review**

(1) The Strategy Review Committee shall be responsible for carrying out an annual review of the operational plan of the strategy during the month of July of every year of the term of the strategy, including —

- (a) An analysis of the success of the operational plan in achieving the goal and objectives of the strategy; and
- (b) An analysis of the success of all contractors performing services for and on behalf of the Management Agency in fulfilling their performance specifications; and
- (c) An analysis of the expenditure of the Management Agency and its contractors compared to the current budget of the strategy.

(2) The Strategy Review Committee shall submit a written report on the annual review to the executive of the Management Agency during the month of August of every year of the term of the strategy.

(3) The written report on the annual review of the operational plan of the strategy will be known as the annual report of the strategy, and shall contain —

- (a) A general critical analysis of all areas of work carried out in relation to the strategy, including, but not limited to, Disease Elimination Conformity Agreements, counselling activities, educational activities, and work carried out by the Management Agency in cases of individuals defaulting on notices issued under these rules; and
- (b) A statistical analysis of information relating to American foulbrood control and elimination provided in Annual Disease Declarations, disease reports, inspection audit reports, spore tests, and any other reports or information the Management Agency deems fit; and
- (c) Any and all recommended changes to the operational plan, provided that the changes shall in the opinion of the committee, improve the effectiveness of the strategy in achieving its goal and objectives; and
- (d) Any and all recommended changes to the rules of the strategy, provided that the changes shall in the opinion of the committee, improve the effectiveness of the strategy in achieving its goals and objectives; and
- (e) Any and all recommended changes to Management Agency contractor specifications, where those changes are required for the purposes of item (c) of this subsection; and
- (f) An analysis of all financial expenditure made during the year to carry out all provisions of the strategy; and
- (g) The proposed budget for the next financial year of the strategy.

(4) The annual report on the operational plan of the strategy shall contain the following statistical information —

- (a) Number of "Approved Beekeepers",
- (b) Number of beekeepers who lost "Approved Beekeeper" status,
- (c) Number of beekeepers without Disease Elimination Conformity Agreements,
- (d) Number of beekeepers who became "Approved Beekeepers" during year,

- (e) Number/% of beehives with American foulbrood found and destroyed,
- (f) Number/% of beehives with American foulbrood found during inspection audit programme,
- (g) Number/% of beehives reported with American foulbrood in "Certificates of Inspection",
- (h) Number of test samples taken and results of tests,
- (i) Number of unregistered apiaries found/notices to register issued
- (j) Number of abandoned apiaries/beehives found/destroyed
- (k) Number of movement control notices issued and beehives/beekeepers involved,
- (l) Number of beekeepers, apiaries and beehives from Annual Disease Declarations,
- (m) Number of beekeepers receiving disease elimination counselling,
- (n) Number of "Certificates of Inspection" received and the number of beehives inspected belonging to such beekeepers,
- (o) Number/% of beekeepers without current Disease Elimination Conformity Agreements not returning "Certificates of Inspection",
- (p) Number of such apiaries/beehives inspected by Management Agency personnel,
- (q) Total of recovered costs from such inspections,
- (r) Total of recovered costs for destruction of beehives and materials associated with a clinical case of American foulbrood.

(5) The executive of the Management Agency shall be responsible for approving the annual report on the operational plan of the strategy in September of every year of the term of the strategy, and publishing and making available to the public the annual report at cost, and submitting the annual report to the Minister and every other Minister whose responsibilities are affected by the strategy no later than 5 months after the end of the financial year of the strategy.

Cf. Biosecurity Act 1993 ss. 165(p,x), 85 (1, 3)

#### **19.7.9 PMS Five Year Review**

(1) In the month of March of the fifth year of the term of the strategy, the Strategy Review Committee shall carry out a full review of the strategy beginning from the date of its implementation, including —

- (a) An analysis of the success of the operational plan in achieving the goal and objectives of the strategy; and
- (b) An analysis of all annual reviews and annual reports of the operational plan of the strategy; and
- (c) The effect of changes to performance specifications for any and all contractors performing services for and on behalf of the Management Agency, and the subsequent change in functioning of the operational plan in achieving the goal and objectives of the strategy; and
- (d) The effect of changes to the operational plan of the strategy made during the term of the strategy, and the subsequent change in functioning of the operational plan in achieving the goal and objectives of the strategy; and
- (e) The effect of changes to the rules of the strategy made during the first five years of the strategy, and the subsequent change in functioning of the operational plan in achieving the goal and objectives of the strategy; and
- (f) An analysis of budgets and expenditure of the Management Agency and its contractors during the first five years of the strategy.

(2) The Strategy Review Committee will submit a written report on this review to the executive of the Management Agency in April of the fifth year of the term of the strategy.

(3) The executive of the Management Agency shall consider the review of the strategy, and shall make a decision regarding operations of the strategy for a further 5 years.

(4) The executive shall submit the review and recommendations to the Minister.

Cf. Biosecurity Act 1993, ss. 88, 165(p,x)

#### **19.7.10 PMS Term Review**

(1) In the month of March of the last year of the term of the strategy, the Strategy Review Committee shall carry out a full review of the strategy beginning from the date of its implementation, including —

- (a) An analysis of the success of the operational plan in achieving the goal and objectives of the strategy; and
- (b) An analysis of all annual reviews and annual reports of the operational plan of the strategy; and
- (c) The effect of changes to performance specifications for any and all contractors performing services for and on behalf of the Management Agency, and the subsequent change in functioning of the operational plan in achieving the goal and objectives of the strategy; and
- (d) The effect of changes to the operational plan of the strategy made during the term of the strategy, and the subsequent change in functioning of the operational plan in achieving the goal and objectives of the strategy; and
- (e) The effect of changes to the rules of the strategy made during the term of the strategy, and the subsequent change in functioning of the operational plan in achieving the goal and objectives of the strategy; and
- (f) An analysis of budgets and expenditure of the Management Agency and its contractors during the term of the strategy.

(2) The Strategy Review Committee will submit a written report on this review to the executive of the Management Agency in April of the last year of the term of the strategy.

(3) The executive of the Management Agency shall consider the review of the strategy, and shall make a decision regarding an application for an extension of the strategy for whatever period of time the executive shall deem necessary to achieve the goal of the strategy.

(4) Provided the executive of the Management Agency shall decide in favour of an application for an extension of the strategy, the executive shall instruct the Strategy Review Committee to redraft the American foulbrood Pest Management Strategy proposal document.

(5) Provided the executive of the Management Agency shall approve the redrafted strategy proposal document, the executive shall instruct the Strategy Review Committee to consult with individuals likely to be affected by the strategy, and shall instruct the committee to amend the strategy proposal document based on comments received by likely affected individuals.

(6) Provided the executive of the Management Agency shall approve the final version of the strategy proposal document, the executive shall submit the proposal to the Minister and formally request an extension of the strategy for a further term as specified in the proposal document.

Cf. Biosecurity Act 1993, ss. 88, 165(p,x)

### **19.8 Authorised Persons**

#### **19.8.1 Chief Technical Officer**

(1) For the purposes of this strategy the Director-General shall appoint a person as Chief Technical Officer to be responsible for the strategy, ensuring that such person has the appropriate experience, technical competence, and qualifications to be the officer responsible for the strategy. The Director-General would anticipate appointing the Chief Veterinary Officer as a chief technical officer for this strategy.

(2) For the purposes of this strategy, the Chief Technical Officer may delegate to an Authorised Person nominated by the Management Agency, authority to receive notifications of cases of American foulbrood made by individuals under section 19.3.1 of these rules.

Cf. Biosecurity Act 1993, ss. 46, 101(1), 105

### **19.8.2 Appointment of Authorised Persons**

(1) The Chief Technical Officer may appoint from time to time such Authorised Persons as may be necessary for the purposes of exercising functions, powers, and duties under the Biosecurity Act in relation to the rules of this strategy, in so far as they affect the responsibilities of the Chief Technical Officer.

(2) The Chief Technical Officer shall only appoint persons recommended by the Management Agency to become Authorised Persons to carry out functions, powers and duties under the Biosecurity Act in relation to the rules of this strategy.

(3) The Management Agency shall provide evidence for each person recommended to the Chief Technical Officer to become an Authorised Person, documenting the person's experience, technical competence, and qualifications in beekeeping, bee disease recognition, and bee disease control.

(4) Every Authorised Person appointed by the Chief Technical Officer for the purposes of this strategy shall provide a certificate showing the successful completion of a competency test in American foulbrood disease recognition and destruction issued by the Management Agency, or a signed agreement to take such a test, or a signed agreement to attend a course on American foulbrood disease recognition and destruction approved by the Management Agency when one is made available.

(5) The Chief Technical Officer may rescind the appointment of any Authorised Person appointed for the purposes of the strategy at whatever time and for whatever reason deemed appropriate.

(6) All decisions made by the Chief Technical Officer relating to the appointment of Authorised Persons for the purposes of the strategy shall be final, and not subject to mediation by any party.

(7) At the time of their appointment, any Authorised Person appointed for the purposes of the strategy, shall be authorised in writing by the Chief Technical Officer to exercise all those powers included in the Biosecurity Act which have been identified in these rules as necessary for the proper administration and enforcement of this strategy.

Cf. Apiaries Act 1969 s. 36; Biosecurity Act 1993 ss. 103, 105, 165(l,x)

### **19.8.3 Duties of Authorised Persons**

(1) The Management Agency shall, as part of the operational plan, produce a written performance and technical standard for any and all work carried out by Authorised Persons appointed for the purposes of this strategy.

(2) Every Authorised Person appointed for the purposes of this strategy shall use his or her best endeavours to comply with and give effect to this performance and technical standard.

(3) Any and all complaints received by the Management Agency from persons affected by the strategy relating to purported breaches of this performance and technical standard by an Authorised Person, shall be communicated to the Chief Technical Officer in writing within 5 working days of the receipt of any such complaint.

Cf. Biosecurity Act 1993 ss. 103(8), 165(n,x)

### **19.8.4 Powers of Authorised Persons**

(1) The following powers contained in the Biosecurity Act shall be available to Authorised Persons appointed for the purposes of this strategy, in order to carry out necessary administration and proper enforcement under the strategy —

- (a) Power to require provision of information (s. 43)
- (b) Power to require (request) assistance (s. 106)
- (c) Power of inspection (s. 109)
- (d) Power to seize abandoned goods (s. 119)
- (e) Power to examine organisms (s. 121)
- (f) Other powers in respect of risk goods (s. 122)
- (g) Declaration of restricted place (s. 130)
- (h) Duration of place and area declarations (s. 133)

Cf. Apiaries Act 1969, s. 37; Biosecurity Act, s. 103(6)

### **19.8.5 Notices Given By Authorised Persons**

(1) Every direction given by an Authorised Person to any beekeeper or other person when carrying out any work required by this strategy, shall be in writing under the Authorised Person's hand, and shall be either delivered personally to the beekeeper or other person, or left for or posted to the beekeeper or other person at that person's last-known place of abode, or affixed to a conspicuous part of the land, premises or apiary to which the notice relates, or placed as a notice in the Public Notices column of a daily newspaper circulated in the area where the apiary is located and placed as a notice in the official journal of the National Beekeepers' Association.

(2) Every notice sent by post shall be deemed to have been received when it would be delivered in the ordinary course of post.

Cf. Apiaries Act 1969, s. 39; Biosecurity Act 1993, s. 165(n,x)

### **19.8.6 Liability of Authorised Persons**

(1) An Authorised Person, or someone acting under the instruction of an Authorised Person, who does any act or omits to do any act in pursuance of any of the functions, powers, or duties conferred on that person by the Biosecurity Act or these rules, shall not be under any civil or criminal liability in respect of that act or omission, unless the person has acted, or omitted to act, in bad faith or without reasonable cause.

Cf. Biosecurity Act 1993, s. 163

## **19.9 Accredited Persons**

### **19.9.1 Appointment of Accredited Persons**

(1) The Chief Technical Officer may from time to time accredit persons under the Act (to be known as Accredited Persons) for the purposes of performing functions consequential upon the exercise of powers under these rules by an Authorised Person in relation to these rules, provided that the Accredited Person shall only carry out —

- (a) Inspection audits of beehives paid for by the Management Agency; or
- (b) Destruction of beehives and associated materials paid for by the Management Agency;

and provided that any such work shall be only at the written direction of an Authorised Person under this Act.

(2) The Chief Technical Officer shall only accredit persons recommended by the Management Agency to become Accredited Persons in relation to this strategy.

(3) The Management Agency shall provide evidence for each person recommended to the Chief Technical Officer to become an Accredited Person documenting that the person —

(a) Possesses either a certificate showing the successful completion of a competency test in American foulbrood disease recognition and destruction issued by the Management Agency, or a signed agreement to take such a test, or a signed agreement to attend a course on American foulbrood disease recognition and destruction approved by the Management Agency when one is made available; and

(b) Has five or more years experience in beekeeping.

(4) The Chief Technical Officer may rescind the appointment of any person accredited for the purposes of the strategy —

(a) On the recommendation of the Management Agency, or

(b) If the person carries out activities as an Accredited Person contrary to the directions of an Authorised Person, or

(c) At whatever time and for whatever reason the Chief Technical Officer deems appropriate.

(5) All decisions made by the Chief Technical Officer relating to the accrediting of persons for the purposes of the strategy shall be final, and not subject to mediation by any party.

Cf. Apiaries Act 1969, s. 36 (2, 3); Biosecurity Act 1993 ss. 103(7), 165(m,x)

### **19.9.2 Duties of Accredited Persons**

(1) The Management Agency shall, as part of the operational plan, produce a written performance and technical standard for any and all work carried out by persons accredited as Accredited Persons for the purposes of this strategy.

(2) Every person accredited as an Accredited Person for the purposes of this strategy shall use his or her best endeavours to comply with and give effect to this performance and technical standard.

(3) Any and all complaints received by the Management Agency from persons affected by the strategy relating to purported breaches of this performance and technical standard by an Accredited Person, shall be communicated to the Chief Technical Officer in writing within 5 working days of the receipt of any such complaint.

Cf. Biosecurity Act 1993 ss. 103(8), 165(n,x)

## **19.10 Enforcement and Prosecution**

### **19.10.1 Cost Recovery**

(1) Where a notice given to a person under these rules fully directing or requiring that person to carry out specified works or measures, or take some other specified action, has not been complied with:

(a) On the expiry of the time allowed by the notice for compliance; or,

(b) If no such time was specified in the notice, within a reasonable time,

the Management Agency may cause such works or measures to be carried out or action taken as is reasonably necessary and appropriate for achieving the purposes of the notice.

(2) The Management Agency may recover the costs and expenses reasonably incurred by the Management Agency and its contractors in carrying out works or measures when a person or persons defaults on a notice given to that person under these rules, as a debt due from the person to whom the notice was given.

(3) In all cases where the Management Agency or its contractors carries out works or measures when a person defaults on a notice given to that person under these rules,

the Management Agency shall furnish to the person to whom the notice was given, within 20 days of the completion of the work, —

(a) A written statement detailing the work or measures carried out; and

(b) An invoice for the work or measures carried out.

Cf. Apiaries Act 1969 s. 45; Biosecurity Act 1993 ss. 128, 165(p,q,s,x)

### **19.10.2 Failure to Pay**

(1) Where all or part of an invoice made under this section remains unpaid after 20 working days since the invoice was posted, the debt shall be deemed to have been increased by an amount calculated in accordance with subsection (2) of this section.

(2) The amount by which an unpaid charge is deemed to have increased is the sum of —

(a) Ten percent of the debt, or that part of it that remains unpaid after the expiration of the period of 20 working days referred to in subsection (1) of this section; and

(b) For every complete period of 6 months after the expiration of that period during which the debt or any part of it (including any deemed increase under this section) has remained unpaid, 10 percent of the debt or that part.

Cf. Biosecurity Act 1993 ss. 136, 165(p,q,s,x).

### **19.10.3 Liens**

(1) All costs recoverable by the Management Agency under section 19.10.1 of these rules shall be a charge (in this section referred to as the recovery charge) against the land owned by the person to whom the notice was given; and —

(a) Subject to paragraph (b) of this section, the recovery charge shall have priority over all existing or later mortgages, charges, and incumbrances over the land, however they may have been created (included mortgages, charges, and incumbrances in favour of the Crown):

(b) If the land is or becomes subject to some other charge (being a charge created by an enactment other than this section), the charges shall rank equally unless the enactment provides that the other charge is to be deferred to the recovery charge.

Cf. Biosecurity Act 1993, ss. 129, 165(p,q,s,x)

### **19.10.4 Offences**

(1) Every person commits an offence against the Biosecurity Act who —

(a) Fails to keep honey bees in moveable frame hives, in contravention of Section 19.2.1 of these rules; or

(b) Fails to keep access to beehives clear, in contravention of Section 19.2.2 of these rules; or

(c) Fails to register an apiary, in contravention of Section 19.2.3 of these rules; or

(d) Fails to identify an apiary, in contravention of Section 19.2.4 of these rules; or

(e) Fails to cancel or change an apiary registration, in contravention of Section 19.2.5 of these rules; or

(f) Fails to report a case of American foulbrood, in contravention of Section 19.3.1 of these rules; or

(g) Fails to furnish an Annual Disease Declaration, in contravention of Section 19.3.2 of these rules; or

(h) Fails to carry out the instructions of an Authorised Person in relation to the destruction of a case of American foulbrood, in contravention of Section 19.3.3 of these rules; or

(i) Exposes materials in association with a case of American foulbrood, in contravention of Section 19.3.5 of these rules; or

(j) Deals in diseased honey bees or contaminated bee

products, in contravention of Section 19.3.6 of these rules; or

(k) Fails to furnish a Certificate of Inspection, in contravention of Section 19.3.7 of these rules; or

(l) Uses drugs not approved for the control of bee diseases, in contravention of Section 19.5 of these rules; or

(m) Takes any action, or fails to carry out any action, in respect to an Authorised Person, Accredited Person, or an assistant to an Authorised Person, in contravention of Section 154 (a-e) of the Biosecurity Act; or

(n) Takes any action, or fails to carry out any action, in respect of any other matter in relation to this strategy, in contravention of Section 154 (f-k) of the Biosecurity Act; or

(o) Knowing that a Restricted Apiary Declaration has been imposed under Section 19.4.1 of these rules, without the permission of an Authorised Person —

(i) Removes any beehive, bees, appliances or bee products from that apiary; or

(ii) Introduces any beehives, bees, appliances or bee products into that apiary.

(2) If an offence is committed against any of the provisions of these rules by any person acting as the agent or employee of another person, that acting person shall, without prejudice to the liability of the first-named person, be liable under the Biosecurity Act, in the same manner and to the same extent as if he or she had personally committed the offence, if it is proved that the act that constituted the offence took place with his or her authority, permission, or consent, or that he or she knew the offence was to be or was being committed and failed to take all reasonable steps to prevent or stop it.

(3) Where any body corporate is convicted of an offence against these rules, every person, being a director or a person concerned in the management of the body corporate, shall be guilty of the same offence if it proved that the act that constituted the offence took place with that person's authority, permission, or consent, or that the person knew the offence was to be or was being committed and failed to take all reasonable steps to prevent or stop it.

Cf. Apiaries Act 1969, s. 43; Biosecurity Act 1993, ss. 154, 156, 165(v,x)

#### **19.10.5 Proof of Permission**

Where it is proved in any proceeding under the Biosecurity Act in respect to this strategy that a person has done or omitted to do any act and such person would commit an offence or be liable for a debt or damages unless the act was done or omitted with the permission of a Minister, the Director-General, the Chief Technical Officer, the Management Agency, or an Authorised Person appointed for the purposes of carrying out functions, powers and duties under the Biosecurity Act in relation to the rules of this strategy, the onus shall be on the person who did or omitted to do the act to prove that he or she had that permission.

Cf. Apiaries Act 1969 s. 44; Biosecurity Act 1993 s. 155

#### **19.10.6 Penalties**

(1) Every person who commits an offence against any of paragraphs (a), (b), (c), (d), (e), (g), and (k) in section 19.10.4.1 of these rules is liable on conviction to the penalty set out in Section 157(3) of the Biosecurity Act.

(2) Every person who commits an offence against any of paragraphs (f), (h), (i), (j), (n) and (o) in section 19.10.4.1 of these rules is liable on conviction to the penalty set out in Section 157(1) of the Biosecurity Act.

(3) Every person who commits an offence against paragraph (m) in section 19.10.4.1 of these rules is liable on conviction to the penalty set out in Section 157(2) of the Biosecurity Act.

(4) Every person who commits an offence against paragraph (l) in section 19.10.4.1 of these rules is liable on conviction to the penalty set out in Section 43(2) of the Apiaries Act, as an extent necessary for the proper administration of sections 25 to 29 of the Apiaries Act (as saved by Section 171 of the Biosecurity Act).

Cf. Apiaries Act 1969 s. 43; Biosecurity Act 1993 ss. 157, 165(v,x)

#### **19.10.7 Payment of Fines**

(1) Subject to subsection (2) of this section, where a person is convicted of an offence under the Biosecurity Act where the information was made on behalf of the Management Agency in respect to this strategy, and the Court imposes a fine, the Court shall order that the fine be paid to the Management Agency.

(2) There shall be deducted from every amount payable to a Management Agency under subsection (1) of this section, a sum equal to 10 percent of it, which shall be credited to the Crown Bank Account.

(3) Notwithstanding anything in subsection (2) of this section, where any money awarded by a Court in respect of any loss or damage is recovered as a fine, and that fine is ordered to be paid to a Management Agency under subsection (1) of this section, no deduction shall be made under subsection (2) of this section in respect of that money.

(4) Subject to subsection (2) of this section, an order of the court made under subsection (1) of this section shall be sufficient authority for the Court Registrar receiving the fine to pay it to the Management Agency entitled to it.

Cf. Biosecurity Act 1993, ss. 158, 165(q,x)

#### **19.11 Compensation**

No compensation shall be payable in respect of losses incurred as a direct result of the implementation of the strategy, including goods necessarily destroyed or damaged by the Management Agency or its contractors in implementing the strategy.

Cf. Biosecurity Act 1993, s. 60(1)(j)

#### **19.12 Disposal of Receipts**

Proceeds from any and all receipts arising in the course of this strategy shall be disposed of solely and only for the purposes of implementing this strategy.

Cf. Biosecurity Act 1993, s. 60(1)(j)



## **20. REGULATORY MANAGEMENT**

### **20.1 Responsibility for Making Decisions**

#### **20.1.1 Issue of Legal Directions**

All legal directions to beekeepers to carry out duties specified in the rules of this strategy will be in the form of a written notice issued by an Authorised Person. The Authorised Person will determine, by reviewing Annual Disease Declarations, Statements of Inspection, and/or the circumstances found in beehives in an apiary owned by the beekeeper, whether a notice is required under the strategy rules. Such Authorised Persons will have the authority to make all decisions regarding the issuance of notices under the rules of this strategy.

#### **20.1.2 Application of Coercive Measures**

All decisions to apply coercive measures to beekeepers who fail to comply with a notice to carry out any duty specified under the rules of this strategy will be made by an Authorised Person under the Act. The Authorised Person will determine, by reviewing Annual Disease Declarations, Statements of Inspection, and/or the circumstances found in the apiary for which a notice pertains, whether in fact the legal direction contained in the notice has been carried out by the beekeeper. If the Authorised Person determines that the direction to perform the legally required duty has not been carried out by the beekeeper, the coercive measure applied will be in the form of work carried out by Management Agency personnel to perform that duty. Such Authorised Persons will have the delegated authority on behalf of the Management Agency to make decisions regarding whether work is carried out when the beekeeper defaults on a legal notice issued under the rules of this strategy.

#### **20.1.3 Recovery of Costs of Measures Taken**

The Management Agency will in all cases employ its best endeavours to recover the full costs incurred whenever work is carried out in a case of a beekeeper defaulting on a legal notice issued under the rules of this strategy. Any decisions to the contrary will be the sole responsibility of the executive of the Management Agency.

#### **20.1.4 Prosecution Action**

A recommendation to lay an information regarding someone committing an offence against the Biosecurity Act in relation to this strategy will be made by an Authorised Person, and will be considered on a formal basis by the executive of the Management Agency. If the executive decides to lay an information regarding an offence against the Act in relation to this strategy, the executive will make a formal, written request to the Management Agency solicitor outlining the case in question and asking that the information be laid on behalf of the Management Agency.

#### **20.1.5 Other Court Action**

Decisions to take or defend any other court action on behalf of the Management Agency will be the sole responsibility of the executive of the Management Agency.

### **20.2 Responsibility for Implementing Decisions**

#### **20.2.1 Issue of Legal Directions**

Authorised Persons appointed under the Biosecurity Act for the purposes of this strategy will have the statutory responsibility for issuing legal directions.

#### **20.2.2 Application of Coercive Measures**

Authorised Persons will also have the delegated responsibility, on behalf of the Management Agency, for carrying out work in cases of beekeepers defaulting on a notice issued under the rules of this strategy. Authorised Persons will also have the delegated responsibility, on behalf of the Management Agency, for hiring additional labour and equipment which may be required for carrying out any such work when a notice has not been complied with by a beekeeper.

#### **20.2.3 Recovery of Costs of Measures Taken**

Whenever such coercive measures are taken, the administrative officers of the Management Agency will record the amount of money paid out in wages, travel and consumables to Management Agency contractors who perform the work in cases of beekeepers defaulting on notices issued, and will issue an invoice to the beekeeper who has failed to comply with notice for the amount of money paid out. The Management Agency administrative officers will have delegated responsibility to act on behalf of the Management Agency in decisions regarding how the costs will be recovered. The Management Agency will apply the unpaid charges provisions of the strategy rules for any debt outstanding for coercive measures taken, and will employ the services of a professional debt collection agency, if necessary, to recover any such debts outstanding.

#### **20.2.4 Prosecution Action**

Implementation of decisions regarding the laying of information regarding an offence of the Biosecurity Act in relation to the rules of this strategy will be made by the Management Agency solicitor and the Crown Prosecutor.

#### **20.2.5 Other Court Action**

Implementation of decisions regarding other court action taken on behalf or against the Management Agency will be carried out by private legal counsel employed by the Management Agency.

### **20.3 Financial Responsibility and Funding Source**

The financial responsibility and funding source for regulatory management under the strategy will be the same as for the strategy itself; namely an annual payment made by the National Beekeepers' Association (with income for this payment generated by a levy struck under the Commodity Levies Act for the purposes of running the National Beekeepers' Association). Costs recovered from work carried out by the Management Agency when taking action in cases of beekeepers defaulting on notices issued under the rules of this strategy will be used only to offset the costs incurred by the Management Agency in carrying out that work.

## APPENDIX I. SYNOPSIS OF TECHNICAL INFORMATION OBTAINED

American foulbrood is caused by *Bacillus larvae* (White), which is a gram-positive, catalase negative, rod-shaped bacterium about 2.5 to 5  $\mu\text{m}$  by 0.5 to 0.8  $\mu\text{m}$ . It is motile, with peritrichous flagella, and forms oval endospores which measure about 1.3 x 0.6  $\mu\text{m}$ . The endospores are very resistant to heat and chemical disinfectants. They can also resist desiccation for at least 35 years (Haseman, 1961). *B. larvae* is specifically associated with the honey bee *Apis mellifera*, and attacks the larvae of workers, queens and drones. Microscopic examination of larval remains shows masses of oval spores with no other organisms present. "Giant whips", the coalesced flagella of vegetative rods, are readily seen under a dark-ground illumination or phase contrast microscope.

### Symptoms and Diagnosis

American foulbrood almost always kills larval honey bees after they have spun their cocoons and stretched out on their backs with their heads towards the cell cappings (Bailey and Ball, 1991). Larvae are usually affected at the propupal stage, but dead pupae are sometimes also found. The larval remains turn brown, putrefy and give off an objectionable fish glue-like smell. After about a month, the remains desiccate to a hard, adherent scale (White, 1920). The average time before an infected larva shows signs of disease is 12.5 days after hatching, with almost all diseased larvae becoming visibly discoloured between 10 and 15 days after hatching (Park, 1953). The wax cappings covering such larvae quickly become moist and dark coloured. They then sink inwards and adult bees begin to remove them, first forming small holes, and finally leaving the cell fully open. When a matchstick is thrust into the larval remains and then removed, it draws out as a brown, ropy thread.

Dry scales fluoresce strongly in ultraviolet light and this characteristic can be used to help diagnosis badly preserved material. When a dry scale is placed in 6 drops of milk warmed to about 74°C, the milk curdles in about 1 minute and then begins to clear, with all the curd dissolving after 15 minutes. This effect is caused by stable proteolytic enzymes liberated by *B. larvae* when it sporulates (Holst and Sturtevant, 1940).

### Epidemiology

Honey bee larvae become infected with *B. larvae* by swallowing spores that contaminate their food. Millions of spores are required to infect a larva more than 2 days old, but larvae up to 24 hours old become infected with ten spores or fewer (Woodrow, 1942). Vegetative cells of *B. larvae* are not infective (Tarr, 1937a; Woodrow and Holst, 1942), probably because the food surrounding the young larvae has a bactericidal effect. The bactericidal effect, which is in part, if not entirely, due to 10-hydroxydecanoic acid (Blum et al., 1959), decreases when the acid food is neutralised in the larval intestine, where the pH is about 6.6.

The spores germinate soon after they enter the larval gut, probably stimulated by CO<sub>2</sub> given off from the tissues. Rods, presumed to be vegetative forms of *B. larvae*, were found by Woodrow and Holst (1942) in larval intestines within 24 hours of the larvae having their food inoculated with spores. The rods do not multiply in the lumen of the intestine, but eventually penetrate to the haemolymph and then multiply abundantly. The bacteria do not usually penetrate the gut wall until the larva pupates.

Conditions in the youngest larvae are optimal for germination of spores, but soon become unsuitable for vegetative growth. The rods are motile, however, and many migrate to the gut epithelium, possibly because conditions there are most aerobic. Spores seem able to germinate in old larvae, although less readily than in young ones (Barrick, 1967), and the vegetative rods may not have time to reach the gut epithelium and invade the tissues before they are evacuated in the faeces along with the gut contents. Larvae of queens are more susceptible to infection than larvae of workers of the same genotype, which in turn are more susceptible than larvae of drones (Rinderer and Rothenbuhler, 1969).

The bacteria proliferates in the tissues of larvae which have become quiescent prior to pupation. Infected larvae then quickly die and new spores form. The most common stage where death occurs is in propupae 11 days after hatching. About 2500 million spores form in one larval individual (Sturtevant, 1932). The resulting spores are invariably found in pure culture. Secondary organisms are unable to grow, probably because of the antibiotic released by *B. larvae* as it sporulates (Holst, 1945).

There is no obvious seasonal outbreak of American foulbrood. Disease occurs at any time of the year when brood is present. The disease has the reputation of invariably killing the colony (Bailey and Ball, 1991). However, colonies may show some disease and then recover for an indefinite period (White, 1920), although when more than about 100 cells of dead larvae are seen at any one time, the colony is likely to succumb (Woodrow and States, 1943). Spores may be transmitted to larvae by adult bees engaged in cleaning combs. Or the larvae that subsequently occupy the same cells may become infected by spores that still remain. However, reinfection is surprisingly infrequent in larvae reared in cells that have just previously contained infected larvae. The spores and remains of such dead larvae in the cell are efficiently removed by adult bees, and it seems that most infection is transmitted to larvae residing in other cells. This is probably done by those bees mainly engaged in cell-cleaning who are also in the process of changing over their age-related task to that of brood-rearing.

Infected larvae can be detected by adult bees very soon after infection has occurred. In one series of tests, 10-40% of such larvae were removed by nurse bees before their cells were sealed over, the amount varying according to the

number of spores (1-105) with which they were infected (Woodrow, 1942). In other tests, about 50% of the larvae were removed at a later stage, but before they were 11 days old; i.e. before most of them contained spores (Rothenbuhler, 1958; Woodrow and Holst, 1942).

Infection may sometimes be eliminated by the action of adult bees, but it seems unlikely that all spores will be removed from a colony once it has had American foulbrood. Spores remain infective for at least 35 years (Haseman, 1961), and some could easily become lodged in unused parts of the colony nest or in food stores, which may sometimes remain untouched for many years.

Diseased colonies that recover seem to do so most successfully during good nectar flows (Ibragimov, 1958; Reinhardt, 1947). Out of 14 diseased colonies observed by Ryan and Cunningham (1950) in Tasmania, eight had less disease, and four had shown no increase, after the main nectar flow. Spores may become so diluted by the incoming nectar that young, susceptible larvae have little chance of receiving them in their food. Pollen collected by bees and added to brood food protects young larvae from infection to some extent (Rinderer et al., 1974). This may well happen when pollen is abundant, as it usually is during nectar flows. Moreover, up to 80% of spores that contaminate nectar are removed by the proventriculus of adult bees (Sturtevant and Revell, 1953), so relatively few become lodged in honey. When 500 million spores were fed in 1 litre of syrup daily for 10 days to colonies allegedly susceptible to disease, and then followed by 5000 million spores fed per day for a further 20 days after a lapse of 20 days, only 1 or 2 of the several thousand individually identified larvae became visibly diseased, and only about 10% of larvae were ejected (Thompson and Rothenbuhler, 1957). Out of 187 samples of commercial honey tested by one researcher in the United States, only 15 contained spores. Only one sample had more than the 50 million spores/litre researchers found was necessary to cause disease by feeding (Sturtevant, 1932).

Contrary to popular belief, therefore, the natural rate of spread of infection of *B. larvae* is low, mainly because most spores are removed from circulation by adult bees and because only the youngest larvae are susceptible. Some, and perhaps many infected colonies survive with little evidence of disease. Hornitzky and Karlovskis (1989) detected *B. larvae* as a contaminant of adult bees in 26% of the many colonies that had been without symptoms of American foulbrood for 6 months, and from about 4% of colonies with no history of the disease. However, when the disease kills a few hundred larvae in a colony, the infection then usually spreads quickly and the colony dies.

### **Factors Influencing Disease Spread**

Both Goodwin (1993c) and Matheson (1992) have outlined the significant factors influencing the spread of American foulbrood between honey bee colonies. Goodwin (1993d) makes it clear that most infections are due to beekeeping practices, and that the alteration of such practices can either increase or decrease the rate of spread of the disease.

Factors include: 1) movement by beekeepers of contaminated bees, brood or hive parts between colonies, 2) placement of extracted honey supers taken from a beehive with high levels of *B. larvae* spores onto another hive without such high levels of spores, 3) bees from colonies without infections robbing a colony infected with American foulbrood, 4) feeding a colony with honey or pollen contaminated with *B. larvae* spores.

Significantly, Goodwin found that drift of bees from colonies with light clinical infections to uninfected colonies was not a major factor in the spread of American foulbrood. According to Matheson, there is also no evidence to show that American foulbrood can be spread between beehives on beekeepers' gloves, hands or hive tools, or by foraging wasps moving between colonies. Wilson and Alzubaidy (1975) were also unable to transfer infection by feeding queen bees with high amounts of *B. larvae* spores before introducing them into colonies.

Trials conducted by a variety of researchers (Gochnauer, 1981; Hansen and Rasmusen, 1991; Goodwin et al, 1993c) have shown that wax foundation is an unlikely means of American foulbrood transmission, and Gochnauer also showed that the soil in front of beehives is not likely to be the source of *B. larvae* spores.

Both Goodwin and Matheson also review recognised control measures for the disease. Goodwin (1993d) contends that thorough brood inspections, coupled with culture tests for *B. larvae* spores and hive/apiary quarantines, are the most effective methods to eliminate the disease from managed colonies.

### **Occurrence**

American foulbrood occurs in the temperate and sub-tropical regions of all continents, in Japan (Sano, 1982), New Zealand, Hawaii and some of the West Indies. According to Matheson (1993), however, it has not been found in some parts of South America, in most of Africa, or on the Indian subcontinent, although it was once reported in India (Singh, 1961).

### **Cultivation of *Bacillus larvae***

The easiest method of cultivation, and the one most convenient one for routine diagnoses carried out by bacteriological laboratories, is that given by Lloyd (1986). Larval remains are emulsified in sterile water and then several drops of the resultant material is streaked on blood agar (7% sterile defibrinated bovine, ovine or equine blood + Columbia agar base) and incubated at 37°C. The spores germinate well, especially in an atmosphere of 5 to 10% CO<sub>2</sub>, and soon give rise to grey colonies of gram-positive rods. Typically, spores of *B. larvae* begin to form after only 2 days. The colonies are catalase-negative, in contrast with those of almost all other aerobic spore-forming bacilli. Hornitzky and Karlovskis (1989) describe a very similar method, but use a high concentration (7%) of agar which prevents overgrowth by swarming cells of *Bacillus alvei*.

Apart from this, few media have been found that will induce germination or sporulation. Successful media include extract of larvae (White, 1907); unheated egg yolk (White, 1920); egg yolk with yeast, carrot extract and peptone (Sturtevant, 1932); and glucose-peptone with thiamine and trace elements (Lochhead, 1942), although it was later found necessary to add soluble starch, or to extract it with activated charcoal to get reliable growth (Foster et al., 1950). Some or all of these media may be improved in an atmosphere of 5 or 10% CO<sub>2</sub>, the same as used with the blood agar. However, an inoculum of many millions of spores is usually needed to start growth on these other media (Tarr, 1937b). In contrast, an inoculum of very few spores will germinate in semi-solid agar of the following medium (1% yeast extract ("Difco"), 1% glucose, 1% starch, 0.136% KH<sub>2</sub>PO<sub>4</sub>, adjusted to pH 6.6 with KOH and autoclaved at 116°C in closed screw-capped tubes for 20 minutes), provided it is inoculated while molten and incubated at 34°C. The spores germinate between 5 and 10 mm below the surface, within a few days, and vegetative growth later extends to the surface. The vegetative cells may then be transferred to agar plates of the same medium, but without glucose. Sporulation then occurs within a few days (Bailey and Lee, 1962).

Virulence or infectivity of *Bacillus larvae* decreases rapidly after it has been cultivated on artificial media (Tarr, 1937a). Some other cultural characteristics of *B. larvae* include: colonies are whitish, somewhat transparent and slightly glistening; nitrites are usually produced from nitrates (Hitchcock and Wilson, 1973); purine bases are essential for growth; thiamine replaces some of the essential growth factors of vegetable or yeast extracts; acid but no gas is produced from xylose, glucose, fructose, galactose, salicin and sometimes from lactose and sucrose; acid and curdling form in carrot-milk; and carrotgelatin is slowly liquified (Claus and Berkeley, 1986).

### **Adult Bee and Honey Tests**

It has been demonstrated that it is possible to test bees and honey to determine the presence of *Bacillus larvae* spores in a colony (Hornitzky, 1988; Hornitzky and Karlovskis, 1989), and to determine the likelihood of that colony having American foulbrood disease either now or in the future (Goodwin et al, 1993b). In most cases the testing procedures appear to be more sensitive than visual examinations. The use of honey and bee testing could therefore be used to enhance an elimination programme.

### **Disease Eradication**

Eradication of American foulbrood has never been attempted on a national scale. It is, however, theoretically possible, especially in a geographic area such as New Zealand which is not subject to natural migrations of honey bees from outside the eradication zone. A number of beekeepers appear to have successfully eliminated the disease from their own beehives. This, along with the relatively small number of honey bee colonies in New Zealand (350,000 - 400,000 including ferals), the low incidence of the disease, and the relatively low infectivity of *B. larvae* as an organism, all support the idea of eradication.

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## APPENDIX II. INDEX TO BIOSECURITY ACT REQUIREMENTS FOR A PEST MANAGEMENT STRATEGY

<u>Biosecurity Act Section</u>	<u>Summary of Requirement</u>	<u>Pest Management Strategy Section</u>
55(2)	Act powers required to implement PMS	17; 19.8.2; 19.8.4; 19.9.1; 19.10
55(3)	Persons identified in relation to each power	17; 19.8; 19.9; 19.10
57(1)(a)	PMS benefits outweigh costs	14.2
57(1)(b)	Net benefits of national strategy exceed net benefits of regional strategy	6.9
57(1)(c)(i)	Organism capable of causing adverse effect on economic well-being	6.2; 6.4
57(1)(c)(ii)	Organism capable of causing adverse effect on sustainability of developed ecosystem	6.4
57(1)(d)	PMS not contrary to NZ's international obligations	15.5
57(2)(c)	AFB widely distributed	6.1
57(2)(c)(i)	Effective action impracticable with a national strategy	6.9
57(2)(c)(ii)	Potential economic damage	6.4
58(1)	Request to Minister to notify strategy proposal	1
59(c)	Not inconsistent with existing or proposed PMS already notified under the Act	15.8
59(e)	Merit in relation to management or eradication of organism	4.1; Appendix I
60(1)(a)	Proposer of strategy identified	1
60(1)(b)	Organism to which strategy is to apply	2
60(1)(b)	Any other organism to be controlled	3
60(1)(c)	Is organism notifiable under Act	2
60(1)(d)	Management agency for PMS identified	9.; 19.1
60(1)(e)	PMS objectives	5
60(1)(e)	Tactics and technical methods to be applied in implementing the PMS	8; 19.2; 19.3; 19.4; 19.6
60(1)(f)	Actions required of land occupiers	6.8; 19.2.7
60(1)(g)	Effects on Maori relationships to their taonga, etc.	15.1
60(1)(h)(i)	Effects on environment	15.2
60(1)(h)(ii)	Effects on overseas trade	15.4
60(1)(h)(iii)	Effects on NZ international obligations	15.5
60(1)(h)(iv)	Effects on long-term management of other pests	15.7
60(1)(h)(iv)	Effects on long-term management of PMS pest	15.6
60(1)(i)	How costs of PMS to be funded	10; 19.7.6
60(1)(j)	Compensation basis and disposal of proceeds	11; 19.11; 19.12
60(1)(k)	Act powers conferred/persons with powers	17; 19.8; 19.9; 19.10
60(1)(l)	How minister monitors PMS effectiveness	12; 19.7.8; 19.7.9
60(1)(m)	Effect on other PMS's	15.7; 15.8
60(2)	Matters referred to in First Schedule	see below
61(1)(a)	Identification of PMS beneficiaries	6.5
61(1)(b)	Identification of problem exacerbators	6.6
61(1)(c)	Negotiation and rationale for allocating costs of funding	10.2
61(1)(d)	Administrative problems involving funding	10.4
61(2)(a)	Benefits outweigh costs of PMS	14.2
84(1)	Management agency specified	9.; 19.1
84(2)	Management agency is a body corporate	9.; 19.1

84(3)(a-c)	Agency accountability, etc.	9.
85(1)(a-d)	Management agency operational plan	9.4; 19.7.4
85(3)(a-b)	Copies of plan supplied, etc.	9.4; 19.7.4

<u>First Schedule</u>	<u>Summary of Requirement</u>	<u>Pest Management Strategy Section</u>
1.1	Identification of pest to be managed	2
1.2	Species involved in PMS	3
1.3	Location/distribution of pest	6.1
1.4	Description of problem to be solved	6.2
1.5	Parties affected by problem	6.5
1.5(a)	Necessity to act in relation to problem	6.3
1.5(b)	Parties that need to be involved	6.7
2.1	Desired end results/date to achieve results	4.; 5
2.2	Necessary stages to achieve objective	5
3.1(a)	Synopsis of technical information	Appendix I
3.1(b)	Identification of alternative strategic options	13
3.2(a)	General description of preferred means	7.1
3.2(b)	Discussion in support of preferred option	7.2
3.2(c)	Synopsis of techniques to be used	8
4.1	Summary of environmental effects	15.2
4.1(a)	Ecological problems	15.2.1
4.1(b)	Problems to physical environment	15.2.2
4.1(c)	Pollution problems	15.2.2
4.1(d)	Residue problems	15.2.3
4.1(e)	Public health	15.2.4
4.1(f)	Mitigation measures to be undertaken	15.2.5
4.1(g)	Environmental monitoring	15.2.6
5	Effects on animal welfare	15.3
6.1	Cost/benefit analysis of strategy	14.2
6.2	Most cost-effective option chosen	13; 14.2
7	Funding source	10.1
7.2	Funding adequate during PMS	9.1; 10.3
8.1	Name of management agency	9.; 19.1
8.2	Functions/responsibilities of agency	9; 19.6; 19.7
9	Compensation payable	11; 19.11
10	Strategy rules	19
11	Measures of performance	12; 19.7.8; 19.7.9
12.1	Powers of authorised persons	17.1; 19.8
12.2	Powers of chief technical officer	17.2; 17.4; 17.5; 19.8; 19.9.1
12.3	Compensation regulations	17.6; 19.11
12.4	Approval of operators	17.7
13	Regulatory management	20

### APPENDIX III. REFERENCES USED IN THIS DOCUMENT

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