



 THE MANAGEMENT AGENCY
NATIONAL AMERICAN FOULBROOD
PEST MANAGEMENT PLAN

ANNUAL REPORT 2021/2022



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1. WELCOME

FROM BOARD CHAIRMAN MARK DINGLE AND
NATIONAL COMPLIANCE MANAGER CLIFTON KING

2021/22 has been another busy year for The Management Agency. Our primary focus has been to consult with beekeepers on the future of the National American Foulbrood Pest Management Plan which is expected to come into effect in 2024. We have achieved this while continuing to implement the current plan and work with beekeepers to protect the industry through the effective identification and management of AFB.

The National American Foulbrood Pest Management Plan (NPMP) is the beekeeping industry's plan for the elimination of AFB. The Management Agency was determined to provide all beekeepers with the opportunity to have their say on what the future of the plan should look like.

To achieve this goal The Management Agency undertook three rounds of consultation, hosted 11 webinars, and travelled the country to meet with beekeepers at 17 roadshow meetings. In total, 1,067 submissions were received and considered. The Management Agency would like to sincerely thank the beekeepers that participated in this process. Your insights and feedback have been critical to ensuring that the proposal we submit to the Minister recommends the most effective legal framework to support the detection and elimination of AFB.

Consultation on the revised Plan hasn't detracted from our core role, though. The Management Agency also achieved a 38% increase in the number of apiaries inspected: from 2,186 apiaries in 2020/21 to 3,024 apiaries in 2021/22. The increased inspection capacity provides us with much greater ability to investigate reports of suspected non-compliance, as well as finding unmanaged apiaries that are a source of AFB for other apiaries in the vicinity. This increased inspection rate and the ongoing emphasis from most beekeepers to identify and manage AFB in their hives has resulted in an increase in the level of AFB reported. This should be interpreted as a positive result and the reporting of AFB is to be encouraged if the industry is serious about making real progress toward the elimination of AFB.

To support this elimination objective The Management Agency is committed to applying evidence-based decisions and improvements that allow it to apply its limited resources in a way that will have the greatest effect. HiveHub, implemented in March 2021, is delivering real benefits and has enabled The Management Agency to easily transform the data collected into information that can be used to improve the implementation of the Pest Management Plan. We are pleased to share this information with beekeepers as part of this annual report.

The opportunity to engage and meet with beekeepers regarding the Pest Management Plan review also provided an opportunity for beekeepers to identify those areas where they would like to see improvement from The Management Agency. An emphasis on improved and more accessible training was highlighted. The Management Agency heard this message and has responded by developing revised, on-line, AFB recognition and refresher courses to support beekeepers with their identification, reporting and response obligations. The Management Agency anticipates that beekeepers will enjoy the new learning materials and find that the new courses significantly improve their ability to recognise and eliminate AFB. The new refresher course will be available online free of charge for those that have already passed the recognition course. This will enable beekeepers to easily refresh their knowledge at a time and place most convenient for them.

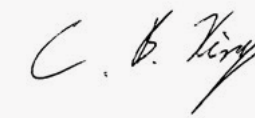
The Management Agency would also like to recognise and thank Russell Marsh for his six years of service on The Management Agency Board, the last two as Chair. As a Board member Russell has contributed to the leadership of a six-year programme of work that has delivered significant benefit to the apiculture industry. Russell stood down as Board Chair, effective June 2022, but will remain on the Board in the short-term.

Lastly, a special thank you to our staff, contractors, and all beekeepers who make the effort to eliminate AFB from their beehives. Your efforts and dedication do make a difference and we look forward to working with you over the coming year.

The Management Agency achieved a
38% increase in the number of apiaries inspected...



Mark Dingle
Chairman



Clifton King
National Compliance Manager

2. OBJECTIVES OF THE NATIONAL AMERICAN FOULBROOD PEST MANAGEMENT PLAN

The Biosecurity (National American Foulbrood Pest Management Plan) Order 1998 (NPMP) specifies the legal obligations and powers for the management of AFB in New Zealand. The current NPMP was amended on 18 September 2012 and supersedes the original NPMP made on 7 September 1998.

The primary objective of the NPMP is to manage AFB in order to reduce its reported incidence by an average of 5% each year in managed beehives.

The secondary objectives of the NPMP are:

- To locate all places where beehives are situated and ensure that each honeybee colony is inspected at least once each year for AFB
- To identify AFB cases in beehives
- To eliminate AFB in beehives by destroying any cases and associated bee products, as well as destroying or sterilising associated appliances

These secondary measures are implemented through six principal measures:

1. **All beehive locations are notified as an apiary.**
Explanation: Beekeepers are responsible for registering apiaries with The Management Agency.
2. **All beehives are inspected at least once per year by a competent person.**
Explanation: Beekeepers are responsible for ensuring that their beehives are inspected at least once per year by a person competent in recognising AFB as part of an annual Certificate of Inspection, or as agreed in their Disease Elimination Conformity Agreement with The Management Agency.
3. **All cases of AFB are notified to The Management Agency.**
Explanation: Beekeepers are responsible for notifying all cases of AFB to The Management Agency.
4. **All honeybees, bee products, and appliances associated with a case of AFB are destroyed; and other actions undertaken to prevent the spread of AFB.**
Explanation: Beekeepers are responsible for destroying cases of AFB and undertaking actions to prevent the spread of AFB.
5. **Disease Elimination Conformity Agreement (DECA) holders eliminate AFB from their beehives.**
Explanation: Beekeepers may enter into an agreement with The Management Agency whereby they agree to eliminate AFB from their beehives using the AFB elimination practices and procedures specified in the agreement. The Management Agency provides these beekeepers with an exemption from the annual Certificate of Inspection requirement in recognition of their commitment to eliminating AFB from their beehives.
6. **The Management Agency monitors beekeeper compliance with their AFB elimination obligations and undertakes enforcement actions when appropriate.**
The Management Agency is responsible for monitoring beekeepers' compliance with their legal obligations under the first five principal measures, and for undertaking enforcement actions where necessary.

The Intervention Logic Map summarising how the plan's primary and secondary objectives will be achieved through the implementation of the plan's principal measures, monitoring measures, plan rules, and key activities is described in figure 1.



PRIMARY OBJECTIVE

To reduce the reported incidence of AFB by 5% per year

Measure: Annual incidence of AFB

SECONDARY OBJECTIVES

To locate all places where beehives are situated and ensure each honeybee colony is inspected at least once per year for AFB

To identify American foulbrood cases in beehives

To eliminate American foulbrood in beehives by destroying American foulbrood cases and associated products and destroying or sterilising associated appliances

PRINCIPAL MEASURES

All beehive locations are notified as an apiary

All beehives are inspected at least once per year by a competent person

All cases of AFB are notified to The Management Agency

All honey bees, bee products, and appliances associated with AFB are destroyed; and other actions are undertaken to prevent the spread of AFB

Disease Elimination Conformity Agreement (DECA) holders eliminate AFB from their beehives

The Management Agency monitors beekeeper compliance with their elimination obligations and undertakes enforcement actions when appropriate

MONITORING MEASURES

Number of apiaries registered
Number of unregistered apiaries identified

Number of apiaries and colonies inspected:
a) in accordance with COI requirements
b) on COI default by The Management Agency

Number of cases of AFB notified

Beekeeper compliance with plan rules 28, 29 and 31

% of beekeepers with a DECA
% of DECA holders implementing agreed AFB elimination procedures

The Management Agency monitoring and enforcement activity:
a) Number of apiaries inspected
b) Number of honey surveillance samples tested
c) Number and type of enforcement actions undertaken

PLAN RULES

Apiary registration and identification rules 15, 17, 18, 19, 20, 21, 22, 23, 24 & 25

Beehive inspection rules 11, 12, 13, 14, 32, 33, 34 & 35

AFB notification rule 26

Rules requiring the destruction of AFB beehives and other actions to prevent the spread of AFB 28, 29, 30 & 31

DECA rules for:
entering into a DECA 36 & 37 monitoring DECA holder AFB elimination performance 39
amendment and cancellation of DECAs 38 & 39

Rules for monitoring beekeeper compliance with their obligations 10, 27, 40

KEY ACTIVITIES

Registration of apiaries by beekeepers
Beekeepers report suspected unregistered apiaries

Beekeeper maintenance of apiary sites
Beekeepers ensure beehives are inspected in accordance with COI requirements
The Management Agency inspects beehives owned by COI defaulters

Beekeeper notification of AFB cases
Authorised Person notification of AFB cases

Beekeeper destruction of honey bees, bee products and materials associated with cases of AFB

AFB recognition and refresher training
Beekeepers enter into DECA
DECA holders eliminate AFB from their beehives as agreed
The Management Agency monitors DECA holder AFB elimination performance
Amendment and cancellation of DECA by The Management Agency

The Management Agency monitoring of beekeeper compliance
Enforcement of plan rules using Biosecurity Act 1993 powers

3. REPORTED INCIDENCE OF AMERICAN FOULBROOD OVER A 12-MONTH PERIOD

In the 12 months to 31 May 2022, 3,422 cases (0.46% of colonies) of AFB were notified compared with 2,526 cases (0.31% of colonies) of AFB notified in the 12 months to 31 May 2020.

The increase in the number of cases of AFB can be associated with increased AFB elimination efforts by beekeepers. This is in response to the new Overseas Market Access Requirements for exporting honeybee products to China, and industry rationalisation that is resulting in beehives with high levels of AFB being taken over by more competent beekeepers. The impacts of these changes are most apparent in the 48% increase in the incidence of AFB notified by Disease Elimination Conformity Agreement (DECA) holders that own more than 1,000 colonies. These beekeepers notified AFB in 0.32% of colonies in 2021/22, up from 0.21% of colonies the previous year (see table 5).

The number of colonies located on registered apiaries has decreased by 9.1% from 817,321 in 2020/21 to 739,707 (see figure 4). The decrease in the number of colonies in New Zealand is responsible for a greater increase in the incidence of AFB when expressed as a percentage of colonies (see figure 3).

An increase in the monthly notifications of AFB was observed from March 2021 (see figure 5), one month after the Ministry for Primary Industries notified beekeepers of the new Overseas Market Access Requirement (OMAR) for exporting honeybee products to China. The OMAR specified that honeybee products must be free from detectable levels of AFB. Anecdotal reports suggest that many beekeepers have responded to the OMAR by increasing their efforts to eliminate AFB, and that these beekeepers are finding and notifying more cases of AFB as a consequence.

The Management Agency has investigated the records of the 10 DECA holders experiencing the largest increases in AFB from 2020/21 to 2021/22 (see table 8). These beekeepers notified between 35 to 152 additional cases of AFB each and were collectively responsible for notifying an additional 751 cases of AFB. Further investigations revealed that eight out of 10 of these beekeepers had new ownership, management, or staff in 2021/22, and the new personnel were detecting high levels of AFB in beehives that were not reported by their predecessors.

These observations suggest that much of the increase in the reported incidence of AFB is a consequence of increased inspections and reporting by beekeepers, and not an increase in the true level of AFB. However, analysis of the proportion of AFB cases notified by beekeepers suggests that beekeepers are only finding and destroying 73% of AFB cases in a timely manner (see figure 6.) This highlights that the under-reporting of AFB by beekeepers is a continuing issue, and that additional effort is required to improve the timely notification and destruction of AFB cases.

HOTSPOT MAP 2021/2022

AFB is spread throughout New Zealand.

This hotspot map highlights locations where the annual incidence of AFB for 2020/21 is significantly higher than the national average.



Figure 2. 2021/2022 Hotspot Map

Figure 3.

REPORTED INCIDENCE OF AFB, 1998 - 2022

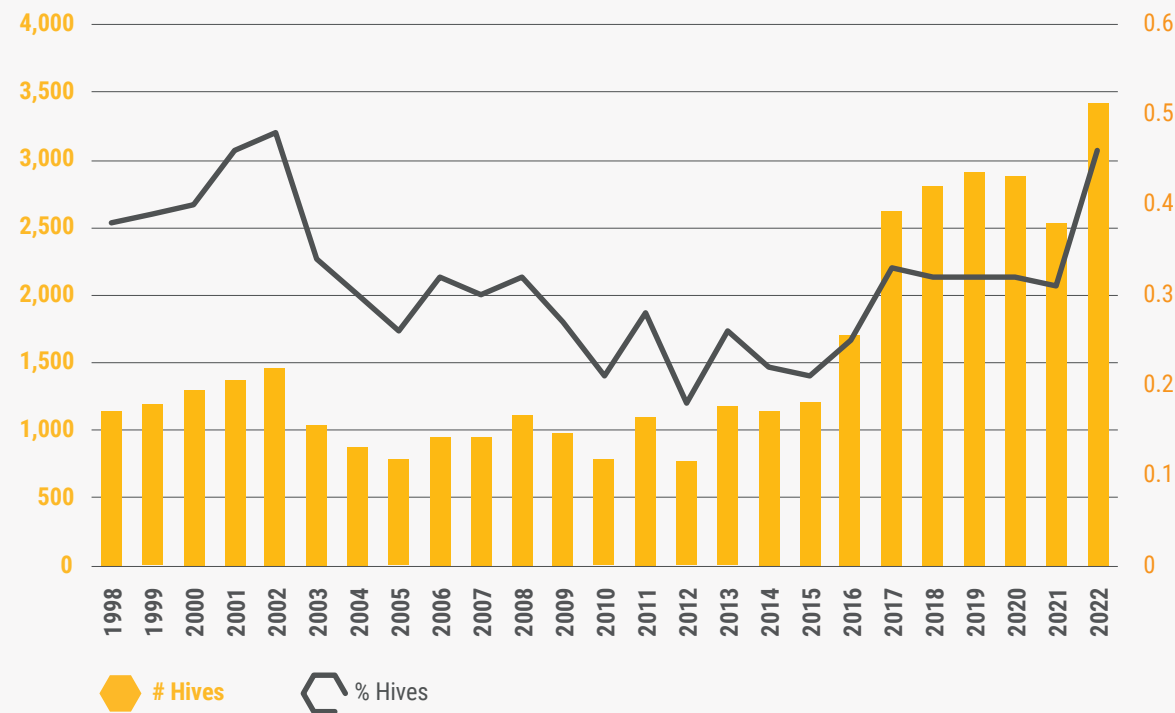


FIGURE 4.

BEEKEEPER, APIARY AND COLONY STATISTICS, 1998 - 2022

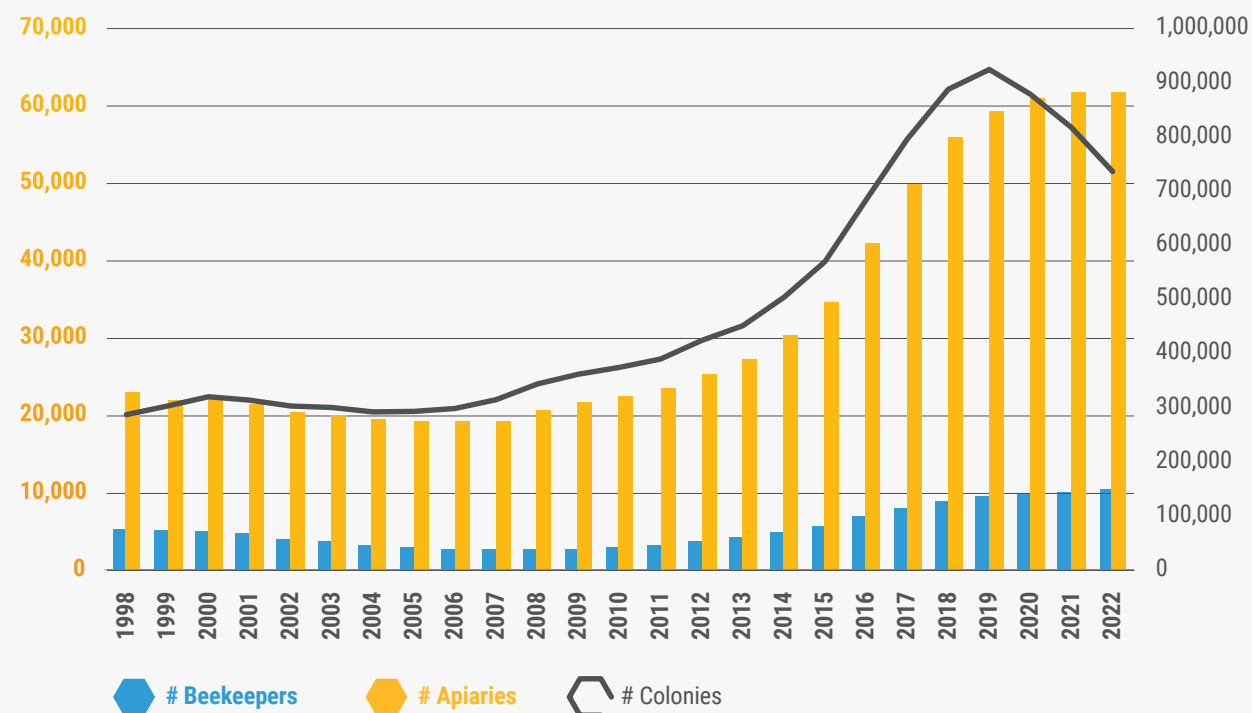
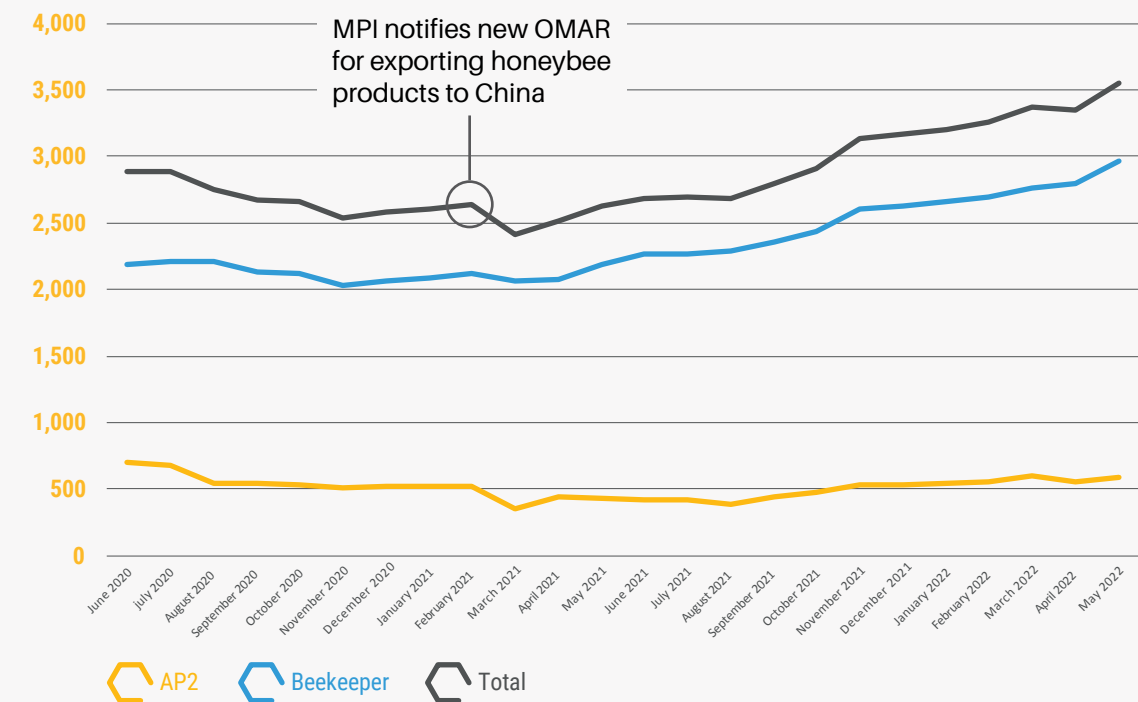


FIGURE 5.

REPORTED 12-MONTH ROLLING AFB, JUNE 2020 - MAY 2022



4. PROGRESS UPDATE

Implementation of the National American Foulbrood Pest Management Plan

The Management Agency continued to implement the National American Foulbrood Pest Management Plan (NPMP) in 2021/22 while focussing on consulting with beekeepers over the proposal to extend the plan order for another ten years.

Apiary inspections

A total of 3,024 apiaries were inspected in 2021/22, up 38% from 2,186 apiaries in 2020/21 to 3,024 apiaries in 2021/22. Of those inspected, 2.6% of beehives and 9.2% of apiaries were found to have cases of AFB. An additional 19 high-risk beekeeping operations were identified with AFB in more than 10% of beehives. The Management Agency's enforcement actions resulted in 177 beehives owned by these beekeepers being destroyed. A further 11 high-risk beekeepers identified in previous years continue to be monitored via 6-monthly inspections of all beehives.

Honey surveillance

The Management Agency has changed its approach to honey surveillance to identify beekeepers that are doing a good job of eliminating AFB from their beehives. Honey surveillance is an inexpensive method for screening beehives that are likely to be free of AFB, as a single negative test can be used to assess the AFB status of hundreds of beehives.

A total of 314 honey samples were collected from 103 commercial beekeeping operations that reported significantly less AFB than other beekeepers. Of those, 277 (88%) samples tested negative, 46 (15%) samples were positive to one DNA marker, and 18 (6%) samples were positive to both DNA markers.

Analysis of the honey surveillance results by beekeepers demonstrated that:

- All samples collected from 67 (65%) of beekeepers surveyed were negative
- 22 (21%) of beekeepers returned a positive to a single DNA marker for one or more samples
- 14 (14%) of beekeepers returned a positive to both DNA markers for one or more samples, and seven of those beekeepers returned multiple positive test results.

These results provide evidence that the majority of commercial beekeepers that report significantly less AFB than other beekeepers do so because they are effectively eliminating AFB from their operation.

The results are used to prioritise apiary inspections in 2022/23. Apiaries owned by beekeepers where all honey samples were negative are unlikely to be inspected by The Management Agency, and follow up inspections are prioritised for beekeepers with multiple positive test results.

Supporting beekeepers to eliminate AFB

The Management Agency team provided beekeepers with extensive support to assist beekeepers to comply with their legal obligations in 2021/22 including reviewing and approving:

- 1,644 new beekeeper registrations
- 1,508 beekeeper deregistrations
- 10,156 new apiary registrations
- 10,027 apiary deregistrations
- 2,826 Certificates of Inspection
- 1,954 AFB notifications
- 551 DECA approvals, and
- 9,064 Annual Disease Returns

The Management Agency team responded to 10,755 beekeeper requests for assistance made via HiveHub or email, answered 5,465 phone calls, and made a further 3,891 outgoing phone calls to provide beekeepers with the assistance sought.

5. RECOGNITION TRAINING

The Management Agency is developing online training courses in response to reduced course registrations as a consequence of COVID-19.

COVID-19 continued to impact the number of in-person training courses offered, as well as course attendance in 2021/22. The Management Agency ran 64 AFB recognition courses attended by 705 full course participants, and further 132 attending the course as a refresher. Of those, 681 (96.6%) participants passed the course test at the first attempt. A further 123 participants completed the two hour refresher training offered over nine courses.

It is vital that all beekeepers are aware of their obligations and have the required knowledge to eliminate AFB. The Management Agency is developing online AFB recognition and refresher courses to mitigate the impact of COVID-19 on course registrations and to provide beekeepers with enhanced learning materials. The new online courses will be available in December 2022.

6. DETAILED DISEASE MANAGEMENT STATISTICS

Delivery of the NPMP's elimination objective is achieved through beekeeper actions to implement the plan's principal measures, namely to:

- Register apiaries,
- Inspect beehives for AFB,
- Notify cases of AFB,
- Destroy cases of AFB and associated products and appliances, and
- Eliminate AFB from their beehives as agreed in their Disease Elimination Conformity Agreement.

The Management Agency is responsible for monitoring beekeepers' compliance with these obligations and for maintaining the register of apiaries.

This section presents detailed disease management statistics for each of these principal measures using information The Management Agency has collected as part of its monitoring, enforcement, and apiary register maintenance responsibilities.

Apiary registration

739,707 colonies were recorded on registered apiaries as of 31 May 2022, down 9.1% from 817,321 colonies recorded one year earlier.

61,752 apiaries were registered as of 31 May 2022, up slightly from 61,623 registered apiaries one year earlier. A total of 10,156 new apiaries were registered, and 10,027 apiaries were deregistered during the year.

These apiaries were owned by 10,170 registered beekeepers as of 31 May 2022, up slightly from 10,034 registered beekeepers one year earlier. A total of 1,644 new beekeepers registered, and 1,508 beekeepers deregistered during the year.

164 unregistered apiaries were identified by The Management Agency. 159 of these apiaries were subsequently registered or removed by the beekeeper, and the remaining five were destroyed under clause 25 of the NPMP or section 119 of the Biosecurity Act 1993.

DETAILED DISEASE MANAGEMENT STATISTICS

Inspection of beehives by beekeepers

Beehive inspections are completed as part of the Certificate of Inspection (COI) programme, and the Disease Elimination Conformity Agreement programme.

The Certificate of Inspection programme is reported here, and readers should refer to the ‘Disease Elimination Conformity Agreement (DECA) holders eliminate AFB from their beehives’ subsection for information about DECA holders on pages 21 and 22.

A total of 4,737 beekeepers were required to complete a COI on their beehives in 2021. 2,673 (56.4%) completed their COI by 15 December 2021, and 922 beekeepers (19.5%) defaulted on their obligations. The balance either deregistered without completing a COI, declared they had no live colonies or agreed a DECA with The Management Agency during the COI period as described in table 1 below.

Table 1. 2021 Certificate of Inspection outcomes

Certificate of Inspection outcome	Number of beekeepers
COI completed by 15/12/2021	2,673 (56.4%)
Declared they had no live colonies	264 (5.6%)
Deregistered without completing COI	743 (15.7%)
Agreed DECA during COI period	135 (2.9%)
Defaulted on COI obligations	922 (19.5%)
Total	4,737 (100.0%)

An additional 153 beekeepers completed a late COI to bring the total number of COIs completed to 2,826.

203 cases of AFB were found in 25,784 beehives inspected for COIs, a 0.79% prevalence. A breakdown of the AFB statistics by size of beekeeping operation is provided in table 2.

Table 2. Results of 2021 Certificate of Inspections

Beehives	#Beekeepers	#Beehives Inspected	# Cases of AFB detected	%AFB
1 to 5	2,368	4,871	62	1.27%
6 to 10	187	1,380	11	0.80%
11 to 50	180	4,326	27	0.62%
51 plus	91	15,207	103	0.68%
Total	2,826	25,784	203	0.79%

The Management Agency prioritised default Certificates of Inspection for beekeepers owning one or more apiaries in an area with high levels of AFB. A total of 12 cases of AFB were found in 967 beehives inspected on default: a 1.24% prevalence. The higher prevalence of AFB found during default COI inspections is not comparable to the COI inspections, as the prioritisation process selected apiaries that were more likely to have AFB. A breakdown of the AFB statistics by size of beekeeping operation is provided in table 3.

Table 3. Results of 2021 Default Certificates of Inspection

Beehives	#Beekeepers	#Beehives Inspected	# Cases of AFB detected	%AFB
1 to 5	73	157	5	3.18%
6 to 10	8	61	2	3.28%
11 to 50	16	401	5	1.25%
51 plus	3	348	0	0.00%
Total	100	967	12	1.24%

DETAILED DISEASE MANAGEMENT STATISTICS

Notification of AFB cases

In the 12 months to 31 May 2022, 3,422 cases (0.46% of colonies) of AFB were notified to The Management Agency. 2,962 of these cases were notified by beekeepers and 585 cases were notified by AP2s.

Beekeeper ability to detect and destroy cases of AFB can be estimated by comparing the number of cases of AFB notified by beekeepers to the total number of cases of AFB found in their apiaries. 244 registered beekeepers recorded one or more cases of AFB and had at least one or more apiaries inspected by an AP2 in 2021/22. These beekeepers notified 73% (1,408 of 1,917) of the AFB cases recorded in their apiaries.

47% (115 of 244) of these beekeepers notified and destroyed more than 95% of their cases of AFB. However, 35% (85 of 244) of these beekeepers notified and destroyed less than 5% of their cases of AFB, and the remaining 18% (44 of 244) notified and destroyed between 5% and 95% of their cases of AFB as shown in figure 6.

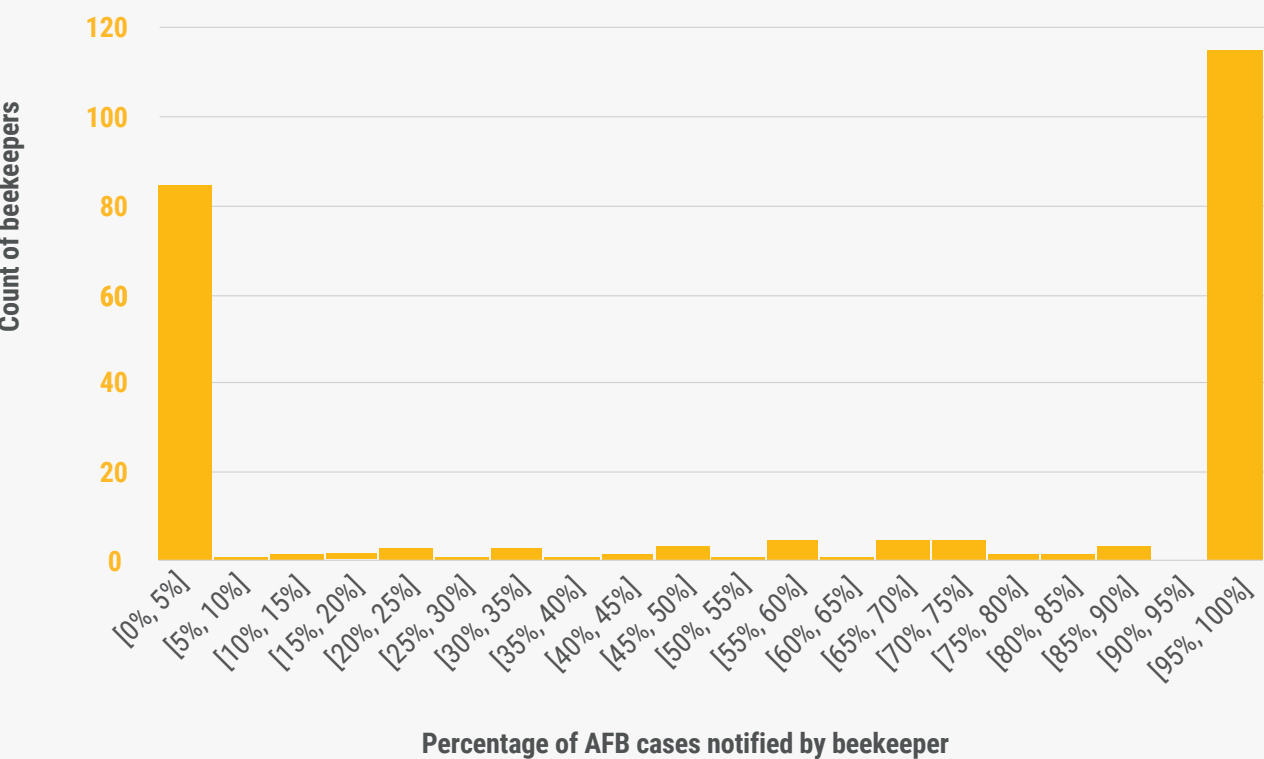


Figure 6. Histogram of percentage of AFB cases notified by beekeeper

This finding suggests that there is significant variation in beekeeper ability to identify and destroy cases of AFB in a timely manner, with most beekeepers being either highly capable or highly incapable of detecting and destroying cases of AFB in their beehives. The significant proportion of beekeepers that are not detecting and destroying a high proportion of their cases of AFB in a timely manner poses a serious risk to the AFB elimination goal, as their infected beehives become an ongoing source of AFB transmission for other beehives.

Destruction of cases of AFB

The effectiveness of destruction of cases of AFB by beekeepers is a combination of their ability to detect cases of AFB and to destroy these cases once found. Beekeepers' ability to detect cases of AFB is described in the previous subsection, and this subsection describes detected non-compliances with beekeeper obligations to destroy honey bees, bee products and appliances associated with cases of AFB, as well as failures to take the action required to prevent the spread of AFB.

287 routine notices to destroy AFB beehives were issued subsequent to AP2 inspection. Six (2.1%) of these notices were not complied with within seven days and required The Management Agency to destroy these beehives on default.

Disease Elimination Conformity Agreement (DECA) holders eliminate AFB from their beehives

A total of 5,258 (52%) registered beekeepers had entered into a DECA with The Management Agency as at the end of 2021/22. These beekeepers owned 693,286 (94%) colonies.

Beekeepers that enter into a Disease Elimination Conformity Agreement (DECA) make a legal commitment to eliminate AFB from their beehives using the AFB elimination practices and procedures specified in the agreement. The Management Agency is obliged to ensure that beekeepers applying for a DECA have passed the AFB recognition course and also be satisfied that the beekeeper is likely to implement the AFB elimination practice and procedures specified in the agreement. The AFB elimination practices and procedures specified in the agreement, if carried out, must be sufficient to eliminate AFB from the beehives owned by the beekeeper.

The Management Agency is required to monitor the level of AFB in beehives owned by DECA holders and may amend DECAs in the event that insufficient AFB elimination progress is being made. It may cancel DECAs for breaches of the agreement or increasing levels of AFB.

774 beekeepers passed the AFB recognition course in 2021/22.

551 Disease Elimination Conformity Agreements were agreed in 2021/22. 443 of these agreements were with hobbyists with fewer than 11 beehives, and 108 were with semi-commercial and commercial beekeepers with 11 or more beehives.

17 DECAs were amended by The Management Agency to ensure that the AFB elimination practice and procedures specified in the agreement are sufficient to eliminate AFB, and that the beekeeper named in the agreement had passed the AFB recognition course.

Five beekeepers requested that their DECA be cancelled, and 68 DECAs were cancelled as the beekeepers either breached the conditions of their DECA or had an increasing incidence of AFB. A summary of the reasons for DECA cancellation is provided in table 4. 12 DECAs were cancelled because the beekeeper was found to be a high risk beekeeper with AFB found in greater than, or equal to 10% of beehives at the time of AP2 inspection. These high risk beekeepers had an average annual AFB incidence of 30% of colonies (6.6 cases per beekeeper).

DETAILED DISEASE MANAGEMENT STATISTICS

Table 4. 2021/22 Summary of DECA cancellations

DECA cancellation reason	Number of agreements cancelled
Annual Disease Return default	36
Primary beekeeper has not passed AFB Recognition course because of changes in ownership or management	18
High Risk Beekeeper	12
Failure to comply with direction from authorised person to comply with plan rules and DECA conditions	2
Total	68

The annual incidence of AFB in colonies owned by registered beekeepers with DECAs at the end of 2021/22 (DECA holders) was 0.39%. The incidence of AFB decreases with increasing number of colonies owned as described in table 5. Annual incidence of AFB was significantly higher than average for beekeepers with 11 to 50 and 51 to 250 colonies ($p<0.01$) and significantly lower than average for beekeepers owning 250 to 500, 500 to 1,000 and 1,001 plus colonies ($P<0.01$). The average incidence of AFB for DECA holders with 0 to five and six to 10 colonies is not statistically different from the national average due to the small number of colonies owned by each beekeeper ($p>0.1$).

Table 5. AFB annual incidence summary for DECA holders 2021/22

# of Colonies	0-5	6-10	11-50	51-250	250-500	501-1000	1001 +	All
# of DECA holders	3,023	571	719	491	184	127	143	5,258
Total Colonies	6,798	4,432	17,103	57,671	66,490	91,203	449,589	693,286
Total cases of AFB	140 ¹	39	180 ¹	273	241	169	1,450	2,678
Annual incidence of AFB 2021/22	1.97% ¹	0.88%	1.05% ^{1,2}	0.47% ²	0.36% ²	0.19% ²	0.32% ²	0.39%
% DECA holders with nil cases of reported AFB	96.73%	95.27%	90.68%	83.50%	60.87%	56.69%	31.47%	90.51%
% DECA holders with annual incidence of AFB > 1%	3.21%	4.73%	9.18%	13.03%	9.24%	3.94%	7.69%	5.52%

¹ Beekeepers where the number of cases of AFB exceed the number of colonies at year end have been excluded.

² Average incidence of AFB is statistically different from the national average ($p<0.01$).

90.51% of DECA holders reported no cases of AFB in 2021/22. The proportion of DECA holders reporting nil cases of AFB decreased with increasing number of colonies owned.

5.52% of DECA holders reported an annual incidence of AFB of over 1% of colonies. DECA holders owning 51 to 250 colonies had the highest proportion (13.03%) of beekeepers reporting an annual incidence of AFB over 1%. The lowest proportion of DECA holders reporting an annual incidence of AFB above 1% was reported by those owning 0 to 5, five to 10 and 501 to 1,000 colonies at 3.21%, 4.73%, and 3.94% respectively.

331 DECA holders that reported AFB in 2020/21 made progress towards the elimination of AFB on 2021/22. These DECA holders achieved an average 73.98% reduction in the annual incidence of AFB from 2020/21 to 2021/22 as described in table 6. The average rate of AFB elimination achieved decreased with increasing number of colonies owned.

DETAILED DISEASE MANAGEMENT STATISTICS

Table 6. AFB elimination progress by DECA holders

# of Colonies	0-5	6-10	11-50	51-250	250-500	501-1000	1001 +	All
# of DECA holders	70	26	56	57	38	30	53	331
Total change in AFB cases	-113	-50	-162	-189	-149	-88	-337	-1,089
Change in AFB cases per DECA holder	-1.62	-1.92	-2.89	-3.32	-3.92	-2.93	-6.36	-3.29
% Change in AFB cases since 2020/21	-95.76%	-87.72%	-90.00%	-86.30%	-82.78%	-72.73%	-56.54%	-73.98%

368 DECA holders reported an average 361.41% increase in the incidence of AFB in 2021/22 compared to 2020/21. The rate of increase for beekeepers owning fewer than 1,000 colonies ranged between 1.35 and 3.69 cases of AFB per affected beekeeper as described in table 7. Beekeepers owning more than 1,000 colonies that reported an increased incidence of AFB, reported an average increase of 14.70 AFB cases per DECA holder.

Table 7. Increasing AFB reported by DECA holders

# of Colonies	0-5	6-10	11-50	51-250	250-500	501-1000	1001 +	All
# of DECA holders	87	23	51	65	48	36	54	368
Total change in AFB cases	126	31	137	192	177	88	794	1,789
Change in AFB cases per DECA holder	1.45	1.35	2.69	2.95	3.69	2.44	14.70	4.86
% Change in AFB cases since 2020/21	3,150%	3,100%	978.57%	480.00%	842.86%	400.00%	211.73%	361.41%

The 368 DECA holders that reported an increased incidence of AFB in 2021/22 reported an additional 1,789 cases of AFB compared to 2020/21. 751 of these additional AFB cases were reported by 10 DECA holders that reported the largest increase in AFB as described in table 8.

DETAILED DISEASE MANAGEMENT STATISTICS

Table 8. Ten DECA holders reporting the largest increase in AFB in 2021/22

Bk	#Colonies	AFB 20/21	AFB 21/22	Comment
A	1,001+	13	165	New management cleaning up AFB
B	11-50	0	150	New management cleaning up AFB
C	1,001+	21	118	New management cleaning up AFB
D	1,001+	3	73	Beekeeper spread AFB
E	1,001+	36	99	Owner cleaning up AFB in purchased beehives
F	1,001+	6	61	New management cleaning up AFB
G	251-500	0	50	Beekeeper spread AFB
H	1,001+	12	60	New staff cleaning up AFB in one area
I	11-50	0	35	New owner cleaning up AFB
J	1,001+	6	37	New management cleaning up AFB
Total		97	848	

The increase in AFB incidence for eight out of 10 of these beekeepers is a consequence of additional effort by new owners, managers and/or staff to identify and destroy pre-existing AFB cases. The increased efforts of these eight DECA holders and others like them is critical for the elimination of AFB.

7. THE MANAGEMENT AGENCY BOARD AND STAFF

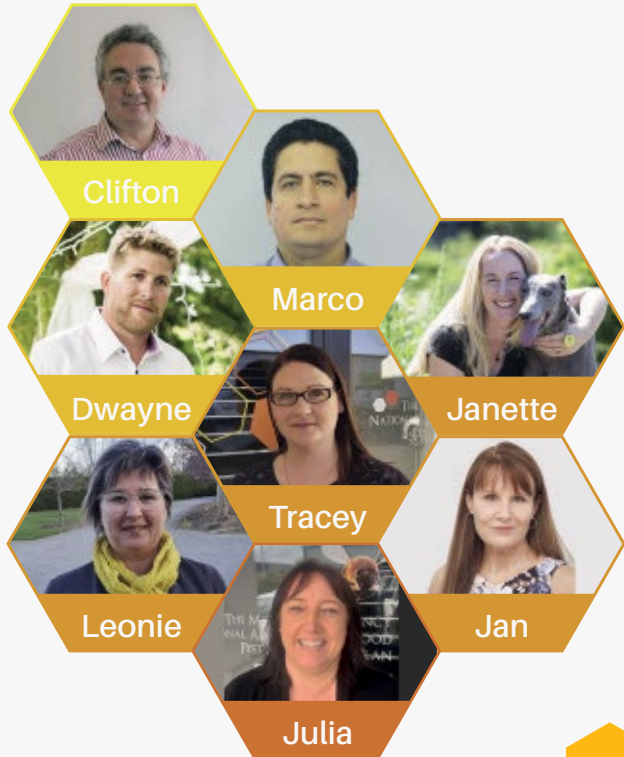
2022 Board Members

- Chair: Mark Dingle
- Deputy Chair: Val Graham
- Gabriel Torres
- Russell Marsh
- Jason Ward
- Jane Röllin
- Murray Lewis
- Dennis Crowley
- Advisor to Board: Hayley Pragert
- MPI Observer: John Sanson



The Management Agency Staff

- Clifton King
- Marco Gonzalez
- Dwayne Hill
- Janette Gwilliam
- Tracey Gonzalez
- Leonie Elliot-Mason
- Jan MacKay
- Julia Bell





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