

**Meeting the Criteria of a Disease Free Zone for European  
Foulbrood Disease of honeybees**

**Western Australia**

**23 May 2000**

**Agriculture Western Australia (AgWA)**

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## **PART 1 – EXECUTIVE SUMMARY**

Honey production is worth between \$4.7 million and \$6 million in Western Australia and production varies between 2,800 (1998 -99) to 3,800 (1995-96) tonnes per annum depending upon the season. Approximately fifty percent of annual production is sold interstate or overseas.

Western Australia's favourable disease status for honeybees provides a significant advantage in the international marketplace. Some export markets require that the apiary from which the honey is produced is free of American Foulbrood disease while access to other markets (eg New Zealand) depends on the State being recognized as a disease free zone for European Foulbrood (EFB). There has been a request by New Zealand that Western Australia provide a detailed case to substantiate WA's claim to freedom from European Foulbrood disease.

This report describes the natural and legal boundaries that make Western Australia a separate zone from the eastern states of Australia for the purpose of animal and bee disease control. The concept of regionalisation is not new to Western Australia. Historically the State's geographical isolation from other parts of the country has greatly assisted Western Australia in protecting the disease status of the State's livestock and apiary industries. Effective boundary controls have been in place over a number of decades as described in the report. In September 1999, Western Australia gained recognition nationally (under the National Johnes Disease Program) as a disease free zone with respect to Johnes's disease in cattle, sheep, goats and camelids.

A network of Government veterinarians and apiary inspectors provides a comprehensive animal and bee health service to all parts of Western Australia. The infrastructure and role of the State Veterinary Authority relevant to bee disease management is described in the report. The professional expertise available in the areas of epidemiology, risk assessment and laboratory diagnosis is outlined. Technical and financial support for apiary inspectors includes training in recognition of endemic and exotic bee diseases, funding for disease surveillance and response to disease emergencies.

The role played by apiary inspectors in Western Australia includes the inspection of apiaries, liaison with beekeepers and honey processors and the maintenance of a register of beekeepers. A database linked to the Beekeepers Register also records the disease status and specific details on each apiary owned by every commercial apiarist in the State. This disease recording capacity is described under the section that details veterinary capability in Western Australia and forms an essential component of WA's claim for recognition as a disease free zone with respect to European Foulbrood.

Transparent and scientifically defensible risk assessments are a feature of modern international trade in agricultural commodities. Western Australia has conducted detailed risk assessments, including computer model simulations to provide quantitative estimates of the risk of importing European Foulbrood disease in honey, live bees, used beekeeping equipment, hive products and food items. Summaries of these models are included in this report.

European Foulbrood disease has never been diagnosed in Western Australia. EFB is present in the eastern states of Australia having first been diagnosed in South Australia in November 1977. The continued absence of European Foulbrood from WA provides tangible evidence that the protocols adopted to prevent the introduction of this disease have proven effective over more than 20 years.

To further enhance confidence of the State's freedom from European Foulbrood disease, WA has conducted targeted surveillance studies described in this report.

In summary, the report provides:

- (i) evidence from disease surveillance and monitoring that Western Australia is free from European Foulbrood disease.
- (ii) information on the quarantine measures applied by Western Australia to minimise the risk of introduction of European Foulbrood disease;
- (iii) information on the State's ongoing disease surveillance and monitoring capability to detect an incursion of European Foulbrood disease;
- (iv) information on how trading partners would be notified should European Foulbrood disease be detected and how a disease incursion would be managed.

## PART 2 - MEETING THE CRITERIA FOR A FREE ZONE

### 2.1) OIE zoning and regionalisation – Code 1995.

Western Australia meets the OIE general requirements for zoning, under Article 1.4.4.3, and under Article 1.4.4.4, a) as a disease free zone without vaccination.

#### Article 1.4.4.3.

##### General requirements for zoning

In a country wishing to set up a system of zoning for controlling an animal disease, the disease must be compulsorily notifiable.

The requirements for different types of *zones* vary with the disease for which they are established. Size, location and delineations will depend on the disease, its method of spread and its status in the country. Separate conditions will be developed for each disease for which zoning and regionalisation are considered appropriate. The extent of a zone and its limits should be established by the *Veterinary Administration* and enforced by legislation. They should be clearly delineated by natural, artificial or legal boundaries, which must be effective.

Constant supervision to prevent livestock from crossing the boundaries is essential. In addition, it may be necessary to control movement of *animal products*, animal genetic material, *biological products*, *pathological material* and animal feedstuffs within and between zones.

Countries wishing to set up a system of zoning must have an effective veterinary organisation and infrastructure. There must be adequate administrative structures, provided with legal and financial resources to give adequate cover for the development of the different actions required.

The Veterinary Service must have the necessary resources at its disposal and must be able to supervise the boundaries, maintain clinical and epidemiological surveillance and carry out the necessary diagnostic tests. There must be prompt reporting of *outbreaks* of the disease to the OIE, and documented evidence must be provided, that an effective system of disease control and surveillance is in operation, at least in the different zones if not in the whole country.

#### Article 1.4.4.4.

##### Types of *zones*

The following types of zones are recognised:

- a) disease free zones without vaccination,
- b) surveillance zone,
- c) disease free zone with vaccination,
- d) buffer zone,
- e) infected zone.

- a) *A disease free zone without vaccination* can be established in a country where the infection is still present. In the disease free zone, there must be official knowledge of the location of all *establishments*. Suspected *outbreaks* of the disease must be investigated immediately by the *Veterinary Authority*. Outbreaks must be reported to the OIE. If necessary, the disease free zone is separated from the rest of the country and from infected neighbouring countries by a surveillance zone. Importation of livestock from other parts of the country or from countries where the disease still exists into the disease free zone must take place under strict controls established by the *Veterinary Administration*.

The disease free zone should not be dependent on the importation of *animals* or *animal products* from infected zones or countries, which could introduce the disease.

- b) *A surveillance zone* must have certain minimum dimensions, depending on the geographical and climatic conditions and the nature of the disease. Vaccination is not permitted. Animal movements must be controlled. The surveillance zone must have an advanced degree of disease control and surveillance.

Suspected outbreaks of the disease must be investigated immediately and, if confirmed, eliminated. Accordingly, it may be necessary to modify the boundaries of the zone.

Importation of susceptible livestock into the zone from other parts of the country or from other countries where the disease exists can only take place under suitable controls established by the Veterinary Administration. The animals must be unvaccinated. Freedom from infection should be confirmed by appropriate tests.

- c) *A disease free zone with vaccination* is not applicable for bee diseases.

## **2.2) Revision Proposal**

### **OIE International Animal Health Code Chapters – Diseases of the Honey Bee**

Western Australia meets the criteria for a Free Zone as described in the Revision Proposal, OIE International Animal Health Code Chapters, Diseases of the Honey Bee, January 1999, Chapter 3.8.3, Article 3.8.3.1.

The exception is that the inspection for European Foulbrood disease is not conducted on each hive at least annually, as required in point three under ‘Country or zone with a statutory control program for the disease’ as specified in the Article.

Western Australia submits that the inspection of all hives for European Foulbrood disease in the zone (State) is not a practical or a cost-effective means of surveillance to provide assurance that the disease is not present. The State submits that the surveillance measures and confidence levels outlined in this report are adequate to provide at least an equivalent level of assurance (that the disease is not present in the zone) to that provided by surveillance measures in NZ. The early detection and notification of the disease will ensure any risk to its trading partners through the export of honey is adequately minimised in accordance with standard international practice for trade in agricultural commodities.

## **PART 3 - SUPPORTING EVIDENCE**

### **(1) Introduction**

European Foulbrood disease is a serious disease of honey bees. It occurs in all continents including the eastern states of Australia. Some regions or countries within infected continents appear to have remained free of the disease (eg Venezuela, Zaire, Egypt and Pakistan).

European Foulbrood disease is caused by the bacterium *Melissococcus pluton*, which invades the mid-gut of four-to-five-day-old larvae. It multiplies rapidly in the mid-gut, causing death. Unlike American Foulbrood disease, which forms resistant spores, the bacterium *Melissococcus pluton* remains in a vegetative form. Thus antibiotics may be effectively used to control the disease.

Infected larvae move about inside the cell instead of staying in the normal curled position, they lose their pearly white sheen, turning creamy white through to yellowish brown and drying to appear like loose brown scales. Initial infections in Australia were observed to cause substantial death of larvae with corresponding loss of bees and honey production.

An important feature and control measure used in the eastern states of Australia is the use of the antibiotic oxytetracycline to prevent the disease causing a loss of honey production.

Should the disease occur in Western Australia it is expected that the disease, in the absence of antibiotic use, would cause a substantial loss of bees and a significant loss of honey production in infected apiaries and therefore it would be detected quickly.

### **(2) Justification of Zone Separation**

The characteristics that make Western Australia a definable zone include natural and artificial/legal boundaries. Details are described for each of these boundaries, including the controls that are in place.

#### **(2.1) Boundaries: Definition and Description**

##### *(2.1.1) Natural*

Western Australia is bounded by ocean to the north, west and south, thereby preventing natural movement of bees to the State from outside Australia. The eastern border of the State runs from coast to coast in a north-south line. The border runs through semi-arid tropical woodland in the extreme north and then through desert to the south coast. Most of the border is bounded by harsh uninhabited desert that extends for hundreds of kilometres to the east and west. The inhospitable environment on each side of the border is an effective natural barrier to both managed and feral bees.

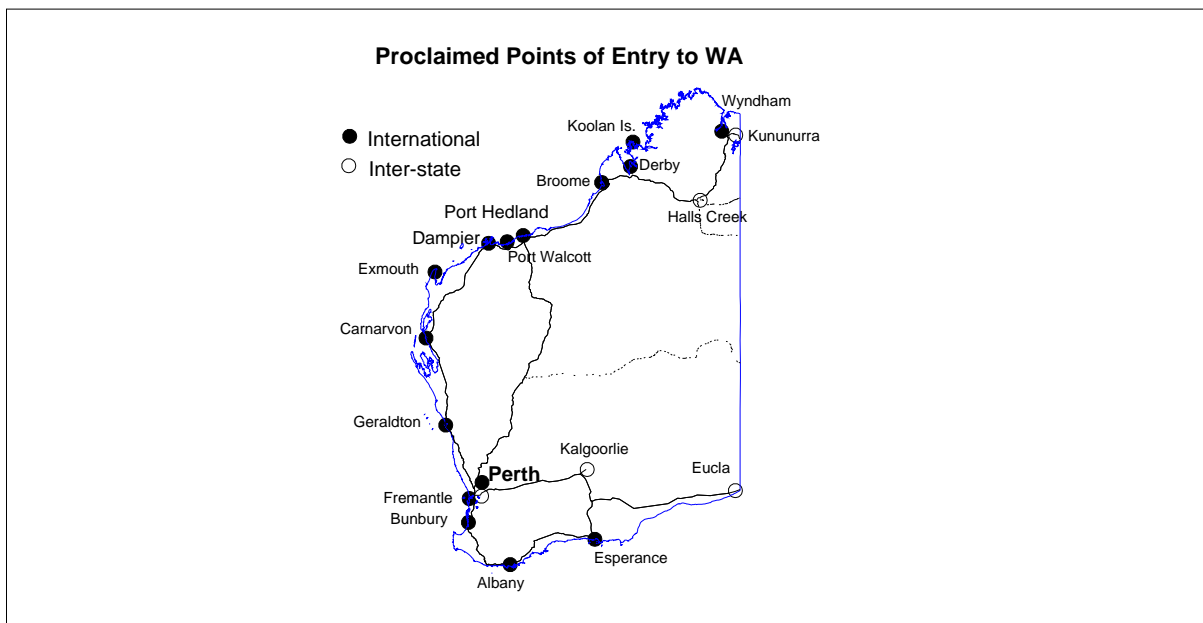
The vast majority of land along the interstate border is unsuitable for beekeeping of any kind (refer Figure 1). In the extreme north, there is a small number of beekeepers at Kununurra that use bees for pollination on the Ord River Irrigation Area. In the extreme south, the most eastern area used for beekeeping is Kalgoorlie and Esperance where mostly hobbyist hives are kept. Almost all of these hives depend on managed artificial watering points for their survival. The hot and harsh environment together with the lack of water and food, prevent the migration of feral bees.

The harsh conditions extend east of the Western Australian border into the Northern Territory and South Australia, which further enhances the State's quarantine barriers, as these areas are also unsuitable for beekeeping. For example, the nearest commercial beekeeping in the Northern Territory is at Katherine, some 450 km east of the border.

Road access to the State is by five roads (Figure 1). There is one sealed bitumen road in the north and one in the south, two dirt roads in the north, and one dirt road in the centre. The two northernmost roads (one bitumen and one dirt) are in sparsely stocked pastoral areas. The other three roads cross hundreds of kilometres of harsh uninhabited desert on each side of the border, making the transport of hives almost impossible.

There is only one railway line into Western Australia. This crosses hundreds of kilometres of harsh uninhabited desert on each side of the border.

Aircraft from overseas and interstate that have the potential to carry honey and queen bees land at Perth, Kununurra, Broome, Port Hedland and Kalgoorlie. Quarantine inspection is in place at each of these air terminals.



**Figure 1.** Designated international and interstate entry points to Western Australia. The entry points include sea, road and railway entry options. The checkpoints at Eucla and Kununurra are shown for the only bitumen sealed roads that cross the State border. Checkpoints for railway entry are at Kalgoorlie and Perth. The climate along the interstate border is generally extremely arid and unsuitable for bee survival. Perth airport is the only airport at which air-freight carriers land.

The Great Sandy Desert that extends from the coast between Port Hedland and Broome east to the Northern Territory border is free of bees and the harsh conditions prevent the natural migration of feral bees. This isolates the northern beekeeping area from the main beekeeping area in the south. The desert could be used as a quarantine barrier in the event that European Foulbrood disease occurred in the north of the State.

#### (2.1.2) *Legal*

The Commonwealth of Australia is comprised of six States and two Commonwealth Territories. Australia has 3 tiers of Government, (i) Commonwealth or Federal Government (ii) State and Territory Governments and (iii) local Shire and City Councils. The responsibilities of the Commonwealth, State and Territory Governments in relation to animal disease matters are separate and complementary as defined in relevant Commonwealth and State/Territory legislation.

The Australian Quarantine and Inspection Service (AQIS) is the Commonwealth Government agency responsible for the development and implementation of quarantine policies in Australia. The Quarantine Act, 1908, provides the legislative basis under which AQIS administers quarantine. The Commonwealth legislation prescribes the exclusion of bees, hive materials and hive products from Australia or the conditions under which specific bees, hive materials and hive products may be brought into Australia.

Bee disease control and eradication within each State/Territory of Australia lies within the jurisdiction of the individual State/Territory Government.

Within Western Australia, bee disease control is administered by the State under the Beekeepers Act (and subordinate Regulations) and the Exotic Diseases of Animals Act.

Regulations under the Beekeepers Act prescribe the conditions in relation to the importation of bees, used hive equipment and hive products into Western Australia from other parts of the Commonwealth of Australia.

The Conservation and Land Management - Forest Management Regulations require beekeepers to be registered under the Beekeepers Act and to have a permit to use an apiary site on crown land. The Department of Conservation and Land Management's Code of Conduct for beekeepers using Crown Land specify requirements for beekeepers to identify their hives with a registered hive identification mark (hive brand), and notify the period of occupancy that hives are located on sites within the State.

The competence and qualifications of persons carrying out acts of veterinary science are specified in the Veterinary Surgeons' Act. The Veterinary Surgeons' Board oversees the maintenance of appropriate professional standards reflecting community standards and expectations. State apiary inspectors are gazetted under the Beekeepers Act. Inspectors are qualified and receive specific training on bee diseases and disease control. They have the duty to know the law under which they operate and ensure that the legislation is administered as intended.

At the national level, bee disease control matters are coordinated through established national consultative committees. These include Veterinary Committee, the Standing Committee on Agriculture and Resource Management (SCARM), the Agriculture the Resource Management

Council of Australia and New Zealand (ARMCANZ) and Animal Health Australia. The Office of the Commonwealth Chief Veterinary Officer maintains liaison with the Chief Veterinary Officers in each State/Territory in relation to animal health matters of national and international importance.

Regionalisation of WA's bee health status using the interstate border as a zone boundary, is logical given that the State Government manages animal and bee health issues within its boundaries.

## **(2.2) Effectiveness of Boundary Controls**

As noted above (refer 2.1.2), legislative control over the movement of live bees, beekeeping equipment and apiary produce into WA is effected under both Commonwealth and State legislation.

Officers gazetted under the Quarantine Act control the movement of all bees, used beekeeping equipment and hive products into Australia. Quarantine Officers have the duty to know the law under which they operate and ensure that the legislation is administered as intended.

National quarantine requirements apply to the entry of used hive equipment to ensure equipment has been disinfected and is free of parasites. In addition to Commonwealth quarantine requirements, the relevant State legislation prevents the entry of live bees, apiary products and used hive equipment into Western Australia from the eastern States and overseas.

Western Australia Quarantine and Inspection Service staff and Apiary Inspectors employed by the Government of Western Australia are gazetted under State Acts and Regulations to control the movement of bees, hive products and used beekeeping equipment into Western Australia from other parts of Australia. Interstate health certification is required to prevent or control the movement of these products into the State from other parts of Australia. Products that are ineligible to enter the State from the eastern states and overseas are held in quarantine and/or destroyed under relevant State or Commonwealth legislation.

Regulations under the Beekeepers Act require that the owner of any bees, used beekeeping equipment and hive products intended for movement to Western Australia make a declaration in relation to the health status of the state/country of origin of the bees or products as may be necessary. The legislation also specifies tests and inspections that are required before departure. It also requires that an official in the State of origin attest to the owner's declaration that the required tests and treatments have been performed (refer Appendix B).

State legislation requires that all imported hive products being moved to Western Australia be presented at the border inspection post nearest the point of entry into the State. It also requires that transporters provide a manifest of goods/products at the border inspection post to enable screening for products that may be controlled or prohibited entry.

Certified hive products being moved into the State are inspected and released where they comply with certification requirements or are confiscated and destroyed at the border inspection post. They are not permitted to leave the inspection post unless the inspector is satisfied that they meet all the conditions of entry into the State.

The Perth Mail Exchange uses detection X-ray technology to screen all incoming mail from the eastern states and overseas for bees and hive products; a Quarantine Officer is present to quarantine

or release goods detected. Other mail centres use ‘sniffer’ dogs to check interstate and overseas mail.

There are 14 sea-ports identified as designated border inspection posts (refer Figure 1).

Each of the three northern roads and the one southern road into the State have designated border inspection posts and mobile patrols. Managed bees could not be transported along the dirt roads, which cross hundreds of kilometres of harsh corrugated road through uninhabited desert.

The one interstate railway line passes through the designated border inspection post of Kalgoorlie and ends in Perth.

Perth airport, where all passenger and freight-carrying aircraft land, is a designated border inspection post.

### *(2.2.1) Prevention of prohibited imports*

Legislation under the Quarantine Act requires all bees and used beekeeping equipment being moved to Australia to be accompanied by the relevant sanitary and phytosanitary certificates. The legislation also requires them to be presented for inspection on arrival.

Quarantine Officers are present at all ports of entry into Western Australia and will impound/confiscate all bees, used beekeeping equipment and hive products that are subject to quarantine requirements and are not accompanied by appropriate documentation.

Queen bees may not be imported into Western Australia (from overseas/interstate) but may be imported into Australia under import permit arrangements. Queen bees and escorts are consigned to a quarantine insectary at Eastern Creek (approx. 50 km south of the Sydney CBD) where post-arrival quarantine is conducted. Prospective importers are required to apply to the Australian Quarantine and Inspection Service for an import permit before importing the queen bees. The import permit specifies appropriate pre-export treatments and post-arrival quarantine procedures.

Agriculture Western Australia has developed an internet interception web-site to advise persons interstate and overseas about WA state quarantine requirements for apiary products and used beekeeping equipment. This web page may be found at “[www.agric.wa.gov.au/agthreats](http://www.agric.wa.gov.au/agthreats)” and has key words embedded in the document which result in this site appearing with a high priority in suitably targeted web searches. Websearchers can also find relevant information under the home page of Agriculture Western Australia by entering Agriculture Protection Programs and clicking on the WA Quarantine and Inspection Service (WAQIS). Site visitors are informed that honey and other apiary products are not generally permitted entry into WA unless subjected to appropriate treatment.

Western Australia prohibited the importation of live bees into the State in 1977 when European Foulbrood was detected in the eastern states. As a consequence, the Department of Agriculture implemented a Bee Breeding Program from 1980 to 1990 to maintain and improve the productivity of the State’s apiary industry since beekeepers could no longer import breeding stock to improve honey production. This program was sold to commercial beekeepers in 1991 who now maintain the program with assistance provided by Agriculture Western Australia. The program ensures that there

is sufficient highly productive breeding-stock in the State and discourages the need for beekeepers to import queen bees illegally (refer Appendix C).

In the event that imported bees are introduced and detected at entry points, they must be destroyed or re-exported.

Although there are strict protocols in place to control movements of hive products into Western Australia, an efficient importation process ensures that commercial food companies can effectively conduct business across state and national borders. The inherent advantage is that the urge to arrange illegal imports, which could be of greater risk to the State, is greatly reduced. Imported foods containing honey and other hive products are subject to risk assessment (refer Appendix D).

#### *(2.2.2) Provision of constant supervision of boundaries*

A comprehensive system of monitoring ensures that avenues of access to Western Australia are supervised.

Air and sea ports, roads, railway and postal services are constantly monitored by Government employed staff who also use trained 'sniffer' dogs and/or detection devices.

The Commonwealth Government 'Coastwatch' program conducts aerial inspections of the northern coastline including the northern coast of Western Australia. This program is specifically designed to detect movements of sea-going craft. In conjunction with the Australian Customs Service and the Royal Australian Navy, suspect or illegal craft are intercepted.

Ships and aircraft are inspected on arrival at all designated ports (Figure 1). Trains are checked at either Kalgoorlie or Kewdale in Perth. International postal items are screened at the International Mail Exchange in Perth.

For interstate movements, permanent checkpoints are located on the Western Australian border crossings at Kununurra and Eucla. These checkpoints are on the only sealed roads crossing the State border. In most instances, honey and hive products being moved interstate are transported on the sealed roads. An inspector is located at Halls Creek where the other two northern roads pass into Western Australia (Figure 1). In addition, mobile checkpoints operate at the border of the unsealed road crossings.

Inspection staff are trained to identify potential risks and modify their searching strategy as appropriate. Supervision of boundaries is aided by the provision of information to travellers intending to enter Western Australia. Tourists are advised by travel agents and tourism organisations of the quarantine requirements before leaving their home State or country.

#### *(2.2.3) Surveillance at high-risk ports*

Because of the threat of entry of exotic/feral bees via containerised freight and sea-going vessels, Agriculture Western Australia developed a port surveillance system to monitor sentinel hives at five high-risk ports in 1997. This program was expanded in late 1998 to nine ports. The Australian Quarantine and Inspection Service provided additional funding to train Agriculture Western Australia staff and co-operating beekeepers at the ports and enable increased laboratory testing (refer Appendix E). This program is now being implemented nationally. Trained beekeepers are

regularly checking these hives for exotic bee diseases and mites, including European Foulbrood disease. They are also required to report any brood abnormalities or disease immediately to the local responsible Officer and to submit brood samples for diagnosis in co-operation with Agency staff. Acaricides and bottom boards are used on a quarterly basis to obtain samples suitable for the laboratory detection of mites except. The exception is Fremantle where samples are submitted for laboratory examination every 6 weeks due to the high volume of containerised cargo and vessels entering the port. An outline of the port surveillance program including a summary of results for 1999 is included in Appendix E.

### **(3) Veterinary and Apiculture Capability in Western Australia**

#### **(3.1) State Veterinary and Apiculture Authority and Administration**

##### *(3.1.1) Effectiveness of the organisation and infrastructure*

Bee health issues in agriculture are the responsibility of the Senior Apiculturist, veterinarians and stock inspectors employed by the State. The employing organisation is Agriculture Western Australia (formerly Department of Agriculture).

The detection and successful eradication of a colony of *Apis dorsata* in the early 1970's and colonies of *Apis scutellata* in 1994 and 1997 present on ships and cargo arriving at Fremantle, the reduced incidence of American Foulbrood and the early detection and initial containment of chalkbrood disease is evidence of the effectiveness of the organisation and its infrastructure.

AGWEST works closely with industry organisations in relation to disease control matters and has established the Consultative Committee for the Protection of the Bee Industry for this purpose. Industry provides a significant amount of funding for control programs, which is an integral part of State policy development.

The Agriculture Protection Board and the Dairy and Apiculture Industry Partnership group closely involve industry in bee health and protection programs.

The organisation maintains skills and personnel who are able to mount an emergency response in relation to bee diseases or other threats to bees, production and trade (refer sections 3.3 and 8). Agriculture Western Australia has also trained inspectors, veterinarians, support staff and commercial beekeepers in bee-lining techniques and exotic bee and disease recognition, eradication and control strategies.

The effectiveness of the organisation is complemented by the ability of beekeepers to recognize diseases and apply good management practices to minimise the risk of disease transmission via beekeeping equipment and hives. A voluntary bee disease awareness training program is conducted about 6 times each year to assist beekeepers recognize and report endemic and exotic bee disease threats and how to manage endemic disease in their hives. In excess of 350 beekeepers have attended. Details on which the training is based are provided (refer Appendix F)

Current surveillance activities in Western Australia include an awareness among beekeepers to report unusual clinical signs in their apiaries. A network of apiary inspectors located in key beekeeping areas of the State is capable of initiating an appropriate investigation of any suspicious clinical signs of disease (refer section 3.4.).

### *(3.1.2) The legal and financial resources relative to the need*

The Acts and Regulations that provide legal control of hive movements into and within Western Australia are described in section 2.2 above. The legal powers provided in the Acts are extensive. They were designed to maximise the effectiveness of staff involved in the control or eradication of pests and diseases while ensuring appropriate consideration of any members of the public whom may be affected. The full extent of the powers available is seldom required.

The legislation in Western Australia has been sufficient to support a number of disease eradication and control programs. Legislation is reviewed on an on-going basis to ensure that it remains sufficient and relevant to changing needs and circumstances.

Agricultural production in Western Australia is worth \$4.5 billion annually. Protection of the agricultural industries is provided through the 'Agriculture Protection Program' (APP) with an annual budget in 1998/9 of \$42 million. A portion of these funds is allocated to the sub-programs of 'Barrier Quarantine and Export Standards', 'Surveillance and Emergency Response' and 'Bee Disease Control'. These sub-programs are the vehicles for preventing unwanted pests and diseases from entering the State, for detecting any incursions and for carrying out specific disease eradication and control programs within the State. The Bee Disease Control Project was allocated \$123,000 in 1999-2000 for surveillance and bee disease control. The industry also provided funding of \$25,000, and this is expected to increase to \$48,000 in the year 2000-2001 to fund measures to protect the industry. Budget flexibility is a key feature of the APP that enables an appropriate response to the discovery of new pests and diseases.

In addition to the budget allocations, which are the direct contribution from the State, beekeepers provide valuable support for bee surveillance activities. This support is actively fostered to ensure regular professional contact between apiary inspectors, beekeepers and Government veterinarians. The financial value of this support is intangible.

## **(3.2) Structure for Taking Control of Disease Outbreaks**

### *(3.2.1) Within the State Veterinary Authority*

The Chief Veterinary Officer (CVO) oversees the State's response to emergency disease outbreaks. For significant exotic animal and bee diseases, the Australian Veterinary Emergency Plan (Ausvetplan) is used. For diseases of State interest only, Agriculture Western Australia has a separate Emergency Response Plan (refer Appendix G). This Management Plan is a modification of Ausvetplan. The response involves veterinarians, apiary inspectors and non-veterinary staff of Agriculture Western Australia. Disease outbreaks are managed under State disease control legislation.

For foreign diseases or diseases of national significance, the State works in consultation with other States/Territories and the Commonwealth under the auspices of the national Consultative Committee on Exotic Animal Diseases (CCEAD). Agriculture Western Australia maintains close liaison with apiary industry representatives to enable rapid industry cooperation in the event of a disease emergency.

Within Western Australia, preparedness for emergency responses to exotic disease is promoted by the “Animal Health Surveillance” activity. Animal health surveillance is funded entirely by the State and has an annual budget of about \$871,505 (1999/2000).

The objectives of Animal Health Surveillance include the review of existing operational plans for dealing with incursions of exotic diseases and pests and the training of staff and regional task-forces to deal with emergencies at the local level. Agriculture Western Australia leads and co-ordinates agricultural emergencies in consultation with the relevant industry.

### *(3.2.2) Cooperation with police, industry and other organisations*

The State Exotic Animal Disease Emergency Management Plan (SEADEMP), which includes bees, and the State Resources Support Plan provide for cooperation, in the event of an animal disease emergency. The plans provide for cooperation with, and resources from:

- Western Australian State Emergency Service
- Western Australian Police Force
- Health Department of Western Australia
- Telstra Corporation (for telecommunications)
- Department of Conservation and Land Management
- Bureau of Meteorology
- Main Roads Department
- Airservices Australia
- Department of Conservation and Land Management (CALM)
- Fire and Rescue Service
- Bush Fires Board of Western Australia
- Western Australian Farmers Federation, Beekeepers Section
- Western Australian Beekeepers Association
- Pollination Association of Western Australia
- Honey processors:-Wescobee, Swan Settlers and Tulip Honey Company.

In the event of an animal disease emergency, Agriculture Western Australia will be the State ‘Lead Combat Authority’. It is the responsibility of Agriculture Western Australia to advise other agencies of the need for their assistance.

The director of the Emergency Management Unit of the Police Department will, where necessary, ensure cooperation of those agencies that have agreed to participate in SEADEMP. The Exotic Diseases of Animals Act provides the legislative basis for Agriculture Western Australia to seek assistance from individuals and agencies in order to eradicate exotic animal diseases, including bees.

A list of other organisations and industry bodies that may be required to assist with, or should be notified of, a disease outbreak is provided in the SEADEMP manual (December 1996, Agriculture Western Australia). The Chief Veterinary Officer would determine the need for notification of, and the level of cooperation required from, other organisations and industry groups.

Diseases that would initiate action described in the above plans are those that are exotic to Australia and any other disease that the State Minister for Primary Industry declares. Suspicion of an

outbreak is sufficient to initiate action. It is unlikely that an incursion of European Foulbrood disease would necessitate such action and from previous experience in this State, it would most likely be handled entirely within the resources of Agriculture Western Australia with assistance from trained beekeepers. However, the planning and management framework has been established should it be required.

For endemic diseases, the CVO maintains liaison with other Government departments and non-Government organisations as appropriate to the specific disease being managed.

### *(3.2.3) Reporting framework and Export Controls*

The Minister for Primary Industry and other State Chief Veterinary Officers are advised immediately there is suspicion of an exotic disease in Western Australia. Following such notification the Minister may need to approve certain legislative procedures. In the event of an emergency disease occurrence in bees, the Chief Veterinary Officer (State) is empowered to impose restrictions on the movement and sale of bees, used beekeeping equipment and apiary produce within Western Australia.

Under the Australian Veterinary Emergency Plan (Ausvetplan; refer section 3.3), the Chief Veterinary Officer (State) would report the presence of an exotic or unusual disease to the national committee for animal disease emergencies. This requirement would also apply where zone freedom for a specified disease was established.

The Chief Veterinary Officer of Australia (Commonwealth) has the responsibility of informing the Office Internationale des Epizooties (OIE) should there be any suspicion or confirmation of a disease exotic to Australia.

The status of diseases which are reportable under national or international agreements, is reported to the National Animal Health Information System (NAHIS) and/or the OIE on a regular basis.

The export of goods not meeting the quarantine requirements of an importing country is prohibited under Commonwealth legislation (the Export Control Act, 1982) administered by the Australian Quarantine and Inspection Service. Should European Foulbrood be detected in Western Australia, AQIS could no longer provide export health certification with respect to zone freedom from European Foulbrood and accordingly the export of affected apiary produce to New Zealand would effectively be prohibited until alternative arrangements acceptable to NZ authorities were negotiated.

### **(3.3) Training for Emergency Disease Situations**

Ausvetplan is a coordinated national plan for dealing with a possible incursion of selected diseases that are exotic to Australia, including exotic pests and diseases of bees.

It is recognised that dealing with an exotic disease outbreak is a complex procedure requiring a rapid response from many sections of the community. Ausvetplan provides the framework for dealing with such emergencies. It consists of a series of documents that include technical material (Geering et al 1995) and guidance on the implementation and coordination of an exotic disease emergency. The Regional Taskforce for Emergency Management Plans also provides a framework

for dealing with State emergencies, as the occurrence of chalkbrood disease in WA in 1998 clearly demonstrated.

The responsibility for the control of endemic and exotic diseases in Australia rests with the State and Territory Governments. Hence, training of staff for such emergencies is conducted at the State and Territory level. Training is not limited to Government animal health staff but includes beekeepers, police, communications personnel, emergency services staff and other community groups. The main emphasis is on dealing with a disease that is exotic to Australia or the State. However, the same principles apply when dealing with a disease that is exotic to Western Australia.

### **(3.4) Ratio of apiary inspectors to apiarists**

Two apiary inspectors are located in Perth, the center of amateur and commercial beekeeping. Five part-time regional apiary inspectors are located in the south west of the State to service the beekeeping industry. Four Stock Inspectors that are experienced in exotic bee diseases and surveillance are stationed at northern ports.

There are 1,100 registered beekeepers in the state owning 50,000 hives. Most are amateur beekeepers (76%), each owning less than 100 hives. One hundred commercial beekeepers (24%) own 80% of the hives and practice migratory beekeeping in the south west of the State.

#### *(3.4.1) Government veterinarians*

As at December 1999, there were 36 veterinarians employed by Agriculture Western Australia. Twenty-one veterinarians are based in rural centres with the remaining 15 veterinary officers located in Perth. Collectively, services are provided to all parts of the State by Government veterinarians.

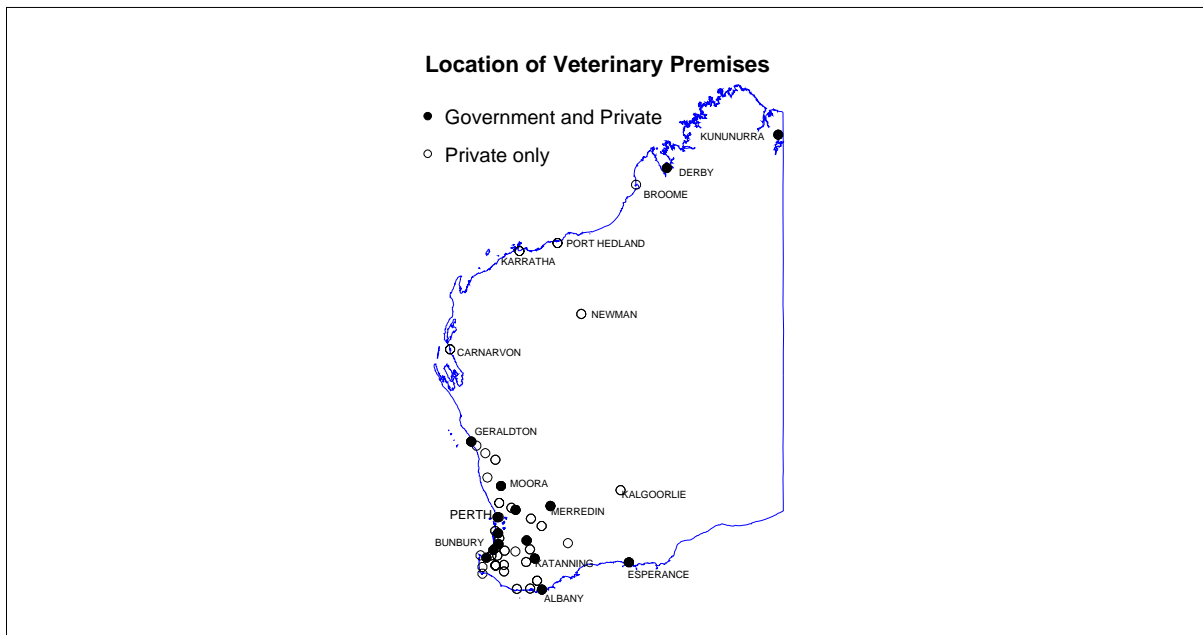
Specialist Government veterinarians in the country include a pathologist at Albany and epidemiologists at Moora, Northam, Narrogin, Katanning and Albany. Other country-based veterinarians are experienced field officers, many of whom have more than a decade of service in the farming districts of the State.

Perth based veterinary staff are largely involved in disease control management and/or Animal Health Laboratory duties (including bees). They include the Chief Veterinary Officer (CVO) and his Deputy-Chief Veterinary Officer, four pathologists, one virologist; one toxicologist, two epidemiologists and five senior veterinarians involved in managing animal health projects such as 'Exotic Diseases and Other Emergencies'.

Control of American Foulbrood disease is administered by the Senior Apiculturist under the Beekeepers Act and in liaison with the beekeeping industry. Five regional apiary inspectors are based within the main beekeeping areas of the southwest of the State at Geraldton, Bunbury, Albany, Esperance and Narrogin. One apiary inspector is based at Midland within the metropolitan area of Perth and the Senior Apiculturist is based in Perth with responsibilities for coordination of State beekeeping management and disease control. Stock Inspectors and other Agency staff trained in bee disease surveillance and control are also located at northern ports, including Kununurra, Broome, Port Hedland and Karratha, where they carry out port surveillance for exotic bees and diseases in cooperation with local beekeepers. A number of additional Stock Inspectors based in the

South West of the State have received specific training in bee diseases and emergency response and they can also be called upon in an emergency.

In the event of an animal or bee disease emergency, private and Commonwealth veterinarians would be called upon to assist if required. However, it is most unlikely that this would be necessary for an incursion of European Foulbrood disease.



**Figure 2.** Location of all registered veterinary premises in Western Australia. In most instances, several veterinarians are based at each location.

### (3.5) Diagnostic Capability

The Animal Health Laboratories, which are located in Perth and Albany, provide an extensive range of tests in all disciplines of veterinary diagnosis including bees. Specialist professionals interpret the results of all diagnostic tests ensuring the highest quality service. Agriculture Western Australia is the main client of the Animal Health Laboratories requiring diagnostic services for monitoring the health status of all livestock and bees in Western Australia under the Animal Industry Protection subprogram.

The Animal Health Laboratories are the recognised laboratories in the State for diseases of livestock (including bees) and enjoy a national and international reputation for professionalism, objectivity and scientific excellence. In 1999, the Animal Health Laboratory obtained accreditation with the National Association of Testing Authorities Australia (NATA). Contained within the Animal Health Laboratories is the 'Australian Reference Laboratory for Bovine Tuberculosis' which is also an international (OIE) reference laboratory and the National Reference Laboratory for ovine footrot (Albany).

The Animal Health Laboratories also maintain a network of contacts with other laboratories in Western Australia, Australia and overseas. Such contacts are important to enable the rapid and accurate diagnosis of difficult cases and new diseases. The resources of the Australian Animal Health Laboratories at Geelong are generally used when dealing with suspect exotic disease

incursions in Australia. For diseases of honeybees, specialist quarantine (AQIS) approved laboratory facilities are also present at the CSIRO laboratories in the Australian Capital Territories and the Elizabeth Macarthur Institute in Camden, NSW.

Bacteriological methods for the isolation and identification of *Melissococcus pluton* are carried out according to procedures specified in Australian Standard Diagnostic Techniques (1993) (refer Appendix J). Both smear and culture examination are routinely carried out for diagnosis of European Foulbrood disease. Samples tested are smears of suspect larvae.

### **(3.6) Epidemiological Support**

The State Veterinary Authority places special importance on epidemiological and risk assessment skills amongst its veterinary staff. Staff in these positions must have demonstrated expertise and qualifications in the discipline of epidemiology; five specialists are located at country centres (refer section 3.4.1) and two are at head office in Perth. In addition, a number of other veterinary staff have post-graduate qualifications in epidemiology. Eleven of the State's veterinarians are members, by examination, of the Epidemiology Chapter of the Australian College of Veterinary Scientists (ACVSc).

The specific objectives of training for membership of the Epidemiology Chapter are essential skills for veterinarians involved in the management of animal health issues in the livestock industries. To pass the examinations, candidates must demonstrate a thorough knowledge of the concepts and principles of epidemiology and be able to apply these to practical situations. In addition, each candidate must demonstrate a thorough knowledge of an area of specific interest in epidemiology. Members of the ACVSc are well positioned to provide quality epidemiological support to the animal industries.

### **(3.7) Lay Inspectorate**

There are 30 Stock Inspectors employed by Agriculture Western Australia. Collectively, they have the day to day responsibility of ensuring compliance with the Acts described in section 2.2 above. Of particular importance are movement controls, correct stock identification, sale-yard inspections and prosecution of those breaching the law. Staff responsibilities include local district extension to improve awareness amongst producers of their obligations as livestock owners. Three hundred and ninety (390) Agricultural Protection Officers are located throughout the State and are authorised under State legislation. These Officers are available for use in a disease emergency.

Thirty beekeeper volunteers have been specifically trained to recognise exotic bees and diseases and to detect and locate incursions of exotic bees. They have also been trained in emergency response procedures and work under direct supervision of experienced stock and apiary inspectors, who have been specifically trained for emergency response and surveillance activities. The established network of volunteer beekeepers proved an invaluable resource when chalkbrood was detected in WA, due to their experience with bees and their local knowledge in the Restricted Area and the area designated for surveillance.

Police Officers are also inspectors under the Stock (Identification and Movement) Act. They assist where required in maintaining order in cases of enforcement of stock and bee diseases control legislation.

### **(3.8) Knowledge of the location of all beekeeping establishments and apiaries**

All persons keeping bees are required to register their hives with Agriculture Western Australia under the Beekeepers Act. Registered beekeepers are issued with a hive brand that must be branded on each hive they own. The Beekeepers Register contains the name and address of each registered beekeeper, their hive brand, apiary identification number for each apiary they own and the number of hives owned. Beekeepers are required to notify the Registrar of any alterations, change of address or sale of hives or ownership to the Registrar in writing.

The majority of beekeepers live within 100 km of Perth with commercial beekeepers migrating their hives within the southwest portion of the State (refer Figs. 3a, 3b & 3c). The remaining beekeepers live and operate in towns in the north of the State where pollination is required for horticulture.





In addition the Beekeepers Register, Agriculture Western Australia maintains a central computerised apiary identification and disease record database for all commercial apiaries. This database contains details of any disease history of notifiable diseases found in each apiary. This information is constantly updated as laboratory and field reports become available and provides a comprehensive disease history of each apiary and enables endemic bee diseases to be controlled. The database, a statutory declaration by the beekeeper and information from the exporter are used to provide export certification that the honey has been produced from apiaries free of American Foulbrood disease, when required.

In the event of a disease outbreak, AGWEST's database together with information on apiary site location and occupancy provided by the Department of Land Management can alert neighbouring apiarists to a disease outbreak. Computer generated maps, showing all apiary sites on Crown Land throughout the State, are also available for disease control activities at short notice. Information provided by commercial beekeepers is used to provide the locations of commercial apiaries on private property.

The management of animal and bee disease programs is enhanced by the use of computer databases. These include the System for Laboratory Information Management (SLIM) and the Western Australian Livestock Disease Information System (WALDIS), a computer program that provides current information for the bee disease project and exotic bee disease surveillance at high-risk ports. WALDIS is available on the Agriculture Western Australia computer network that extends to all major offices of the agency.

#### **(4) Current European Foulbrood Disease Control Measures**

##### **(4.1) State Veterinary Authority Policy on European Foulbrood Disease**

###### *(4.1.1) Compulsory notification*

Under the Beekeepers Act 1963, Section 13:- Every beekeeper on learning of the occurrence of, or suspecting the existence of, any disease in his apiary, is required to report that occurrence in writing, to the Senior Apiculturist or to an inspector, and shall take immediate prescribed steps for the eradication of, and for the prevention of the spread of the disease.

A penalty of \$2,000.00 applies for failure to notify under this section.

Section 18 of the Regulations requires that; - Every beekeeper in whose apiary any disease of the brood is present, or suspected to be present shall send to the Senior Apiculturist or nearest inspector-

- a specimen of infected comb not less than 75 mm square and securely packed;
- 4 smears taken from the infected brood; and
- a written statement concerning the occurrence, giving the location of the apiary.

###### *(4.1.2) Policy for European Foulbrood Disease*

All brood diseases of bees, including European Foulbrood disease that are found or are suspected are notifiable under the Beekeepers Act 1963. Beekeepers are required to notify the Senior

Apiculturist and submit a sample of diseased brood comb and four larval smears of suspect disease larvae to the Animal Health Laboratories for diagnosis.

The Senior Apiculturist is required to inspect all suspect brood comb submitted by beekeepers or apiary inspectors to the Animal Health Laboratory. He/she is required to submit larval smears for laboratory diagnosis where a brood disease is suspected. Larval smears submitted by beekeepers on sterile microscope slides are also submitted for laboratory testing.

Where the Senior Apiculturist has any suspicion that European Foulbrood disease may be present in an apiary, an inspector is notified of the suspected case and directed to inspect the apiary and to collect additional samples for further laboratory confirmation.

In the event that a positive case of European Foulbrood disease is diagnosed or is suspected, the manager of the Animal Health Laboratory is required to notify the Chief Veterinary Officer.

In Western Australia, it is illegal to administer antibiotics to hives for the control of brood diseases because its use can 'mask' the clinical manifestation of American and European Foulbrood diseases and cause antibiotic residues in honey. The use of antibiotics can inadvertently lead to the spread of American Foulbrood disease, which is a notifiable disease. Agriculture Western Australia randomly monitors apiaries twice yearly to verify that antibiotics are not being used. Approximately 100 honey samples are collected at random from beekeeper's drums at honey processors; no antibiotic residues have been detected in the past 10 years.

The public release of any new agricultural and veterinary chemicals is undertaken after consultation with the State veterinary authorities. According to current policy, Agriculture Western Australia would not prescribe the use of the antibiotic oxytetracycline for the control of European Foulbrood disease in the State while the disease is not present in the State.

#### *(4.1.3) Importation restrictions*

Under the Beekeepers Act, the movement of bees, used beekeeping equipment and hive products are prohibited; these State restrictions are in addition to Commonwealth import requirements. Pasteurised honey (heated to 60 degrees Celsius for 8 hours) from the eastern states may enter subject to health certification (refer Appendix B). Food products that contain honey or other hive products are subject to risk assessment and import authority approval (refer Appendix D).

Details of all honey consignments entering the State are documented and held on file. This provides trace-back information to assist the investigation of any outbreak of disease.

#### *(4.1.4) Honey Quality Assurance Program*

Agriculture Western Australia has developed the SQF 2000 Quality Code that includes HACCP, for the agricultural food industries. The Quality Code has now been accepted internationally with accredited suppliers being subject to periodic audit by independent auditors. The Quality Code ensures that food of high quality, free of contaminants and disease is produced to enhance market access to local and overseas markets. In consultation with all sections of the Western Australia bee industry, AGWEST established a SQF 2000 Quality Assurance Code for honey in 1998. The Honey Quality Code includes management and disease control strategies and reporting to ensure that

customers only receive honey that meets specific market requirements and includes honey that has been produced from apiaries that are certified free of American Foulbrood disease.

One major honey packer achieved accreditation status under the SQF 2000 Quality Code in March 1998. The Code, which is currently being adopted and implemented by beekeepers, specifically requires beekeepers to report brood diseases of bees to the Senior Apiculturist. Failure to do so could result in the beekeeper losing his accreditation status.

#### **(4.2) Major Threats to European Foulbrood Disease Freedom**

For European Foulbrood disease, bees imported from an infected source are considered to pose the greatest threat of disease entry. Since 1977, when European Foulbrood disease was first diagnosed in South Australia, the importation of bees from interstate was prohibited and quarantine barriers were strengthened to protect the Western Australian bee industry. Honey and used hive equipment were also prohibited and the State has remained free of the disease.

As part of the strategy to prevent bee disease incursions, Agriculture Western Australia has recently introduced the BeeGuard program, which has assessed the most likely entry routes for disease introduction and potential weaknesses have subsequently been strengthened. Biosecurity of the WA apiary industry is under ongoing review by the Senior Apiculturist. The reason for adopting this strategy is that the benefit from the time and money invested in protecting the State is maximised by pursuing factors that present the most significant risk of disease introduction.

#### **BeeGuard**

The 'BeeGuard' program involves all stakeholders in the bee industry, government departments and the horticultural and plant industries that rely on bees for pollination and is aimed at protecting the bee industry from exotic bee diseases by conducting strategic analysis to ensure that the industry has the optimum protection coverage. 'HortGuard' and 'GrainGuard' will include protection of the bee industry in their programs shortly.

It is widely recognised that effective industry protection can best be achieved by close integration of all elements of protection. The BeeGuard umbrella of protection addresses the threats to productivity, sustainability and marketing through risk assessment; barrier, surveillance, emergency response, containment, management, research and development and communication to ensure that the right balance is achieved for optimal protection for each threat within the constraints of available resources (refer Appendix I).

A hypothetical model of the spread of EFB in Western Australia has been constructed and the implications of the model's output assessed using current surveillance frequencies. In the case of honey imports and bee incursions, the risks of introducing EFB were shown to be low. If EFB were already in WA but not detected, the prevalence would similarly be low given the current level of surveillance and industry awareness. In the light of experience in other Australian states, rapid spread would be expected. If EFB did enter WA, detection would be expected in the first two years after introduction, with a reasonable likelihood of detection within 12 months of disease introduction. These epidemiological assessments are consistent with the experiences of the past 19 years in regard to honey imports and the last 10 years of recorded bee incursions (refer Appendix A).

#### **(4.2.1) Honey**

Unpasteurised honey has been prohibited entry to the State since 1977, due to the outbreak of European Foulbrood disease in the eastern states and all untreated honey entering by road is confiscated at border controls. Protocols were developed to permit pasteurised honey (60 degrees Celsius for 8 hours) to enter, subject to health certification. The volume of pre-packed honey, imported under the protocol was relatively low but increased substantially in the early 1990's when Capilano marketed honey nationally. All honey imports are subject to inspection and monitoring of the pasteurisation process and health certification prior to export to ensure compliance with Western Australia's import requirements. The consignment is inspected and checked for compliance before being released. A record of all imports is held on file for interrogation in the event of an outbreak of disease. No bulk honey has been imported.

The quantity of honey imported for the years 1994-95 to 1998-99 is provided below:

| <b>Year</b>  | <b>Tonnes</b>  |
|--------------|----------------|
| 1994-95      | 74.175         |
| 1995-96      | 142.836        |
| 1995-97      | 154.406        |
| 1995-98      | 132.250        |
| 1995-99      | 131.868        |
| <b>Total</b> | <b>503.668</b> |

The State's continued freedom from European Foulbrood disease provides evidence that the protocols adopted by Agriculture Western Australia over the last 20 years have been effective in prevention of disease entry and establishment. Based on this experience, it can reasonably be deduced that pasteurised pre-packed honey for human consumption presents an extremely low risk of transmission of *M. pluton*.

Honey has not been directly imported into Western Australia from overseas countries.

#### **(4.2.2) Bees**

The import of bees and queen bees has been prohibited since 1977. The Bee Breeding Program, conducted by Agriculture Western Australia from 1980 to 1990, increased honey production by 6%, and is now maintained by a group of beekeepers, with technical advice provided by Agriculture Western Australia (refer Appendix C). Breeder queens sold from the program to local and eastern states beekeepers are highly regarded for their honey production and this has reduced the need for the illegal importation of suitable breeding stock. Local beekeepers in particular hold the program in high regard because queen bees from the program have been specifically bred for local conditions.

Natural barriers, distance, high freight costs and Western Australian border controls also discourage and prevent the movement of queen bees and bees into the State.

#### **(4.2.3) Used beekeeping equipment**

New manufactured beekeeping equipment is readily available both locally in Perth and from eastern state suppliers at competitive rates. The high cost of transporting used beekeeping equipment is generally an economic deterrent for its introduction. Occasionally, used metal honey extraction

equipment is introduced into the State and this is subject to cleaning, sterilisation and certification prior to shipment. It is also inspected and sterilised again on arrival, prior to release.

#### **(4.2.4) Food containing hive products**

The use of honey and other hive products as ingredients in packaged food has increased in recent years due to an increased public perception of potential health benefits associated with consumption of apiary products. Prior to 1977, these products had been permitted entry without health certification. However, due to the increased volume and therefore risk, these products are now subject to risk assessment to determine whether they may be imported into WA (refer section 6.1).

### **(5) Measures Applied to Prevent the Introduction of European Foulbrood Disease**

#### **(5.1) Importation of Bees and Queen bees**

An overview of movement restrictions and the legislation supporting those restrictions is presented in sections 2.2.1, 2.2.2 and 3.1.2.

#### **(5.2) Honey Imports**

An overview of movement restrictions and the legislation supporting those restrictions is presented in sections 2.2.1, 2.2.2 and 3.1.2.

#### **(5.3) Import of Used Beekeeping Equipment**

An overview of movement restrictions and the legislation supporting those restrictions is presented in sections 2.2.1, 2.2.2 and 3.1.2.

### **(6) Risk Analyses for Possible European Foulbrood Disease Incursions**

A full risk assessment is provided in Appendix A.

#### **(6.1) Pollen and pollen supplements**

Pollen supplements, those that contain honey and/or pollen, are permitted entry subject to meeting WA quarantine requirements. Honey and pollen may be imported and used for feeding bees provided product has been subject to gamma irradiation (15 kilograys) and is accompanied by relevant health certification.

### **(7) Disease Surveillance**

#### **(7.1) Targeted surveillance**

Surveillance for European Foulbrood disease in Western Australia includes random periodic inspections of apiaries, inspection and sampling of suspect cases, investigation of all brood disorders reported by beekeepers, surveillance and testing of sentinel hives at nine high risk ports for exotic bees and diseases. A brief description of each element is shown below.

| Surveillance for EFB and tests conducted           |     |                |                 |                      |           |
|--|-----|----------------|-----------------|----------------------|-----------|
| Year   | HCT | Brood cultures | Hives inspected | EFB tests from Ports | Total EFB |
| 91-96  | 85  | 254            | 1077            |                      | 1416      |
| 96-97  | 24  | 38             | 1450            | 9                    | 1521      |
| 97-98  | 52  | 35             | 2710            | 7                    | 2804      |
| 98-99  | 73  | 21             | 1821            | 28                   | 1943      |
| 99-00*   | 48  | 27             | 290             | 25                   | 390       |
|  |     |                |                 | <b>Total</b>         | 8074      |
| * To 30 Sept 1999: approx. no. of hive inspections |     |                |                 |                      |           |

### (7.2) Suspect cases

Where, on investigation, a suspicion of the presence of European Foulbrood disease exists in an apiary, a quarantine order will be served on the owner to prevent the movement of bees, apiary products and apiary equipment from the suspect apiary site.

Where, as a result of the examination of brood comb samples and larval smears, the Chief Veterinary Officer is satisfied that a strong suspicion of the presence of European Foulbrood disease exists, he will confirm the quarantine order placed on the suspect apiary. He will take steps to determine the extent of the spread of the disease and when this has been established, to eradicate and/or control the infection.

Where positive laboratory results confirm the disease, samples will be submitted to an approved reference laboratory for confirmation. On confirmation of the disease the State CVO will advise the Commonwealth Chief Veterinary Officer to ensure, among other things, compliance with national and international disease reporting obligations.

### (7.3) Passive and other surveillance

Laboratory confirmed diagnoses of animal diseases are provided primarily through the resources of the 'Laboratory Diagnosis' project. This project funds the operation of the Animal Health Laboratories at South Perth and Albany and has an annual budget of approximately \$1.8 million (1999/2000).

Computerised records of all cases that are submitted to the laboratories enable rapid access to information about particular diseases, syndromes or cases. A summary is provided in the following table of a search for all cases that had a clinical presentation that required European Foulbrood disease to be eliminated as a possible diagnosis or were part of surveillance activities.

| Summary of cases in which EFB disease was considered in laboratory differential diagnosis |      |      |      |      |      |      |      |      |      |       |
|---|------|------|------|------|------|------|------|------|------|-------|
| Sum of Number of tests  | Year |      |      |      |      |      |      |      |      |       |
| Sender  | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | Total |
| ALLAN   |      |      | 17   |      | 4    |      | 4    | 3    | 5    | 33    |
| BEARD   | 46   | 37   | 28   | 66   | 33   | 16   | 35   | 11   | 11   | 283   |
| BUTLER  |      |      |      |      |      |      |      | 2    |      | 2     |
| JOHNSTON  |      |      |      | 1    |      |      |      |      |      | 1     |
| MUIRSON   |      |      |      |      |      |      |      |      | 5    | 5     |
| OCCASIONAL SENDER/ OWNER  | 6    |      |      |      |      |      | 14   | 3    | 12   | 35    |
| Total   | 52   | 37   | 45   | 67   | 37   | 16   | 53   | 19   | 33   | 359   |

Additional evidence of WA's freedom from European Foulbrood comes from hive inspections conducted due to the outbreak of chalkbrood disease in 1998 as hives were also inspected for EFB.

It is recognised that the frequency of case submissions for laboratory diagnosis depends not only on a network of Government apiary inspectors but also from beekeepers that are required to regularly check their hives and report any brood disease or suspicion. There is an ongoing active program to enhance the awareness of the threats of exotic and endemic bee disease and 'BeeGuard' has been specifically designed to further address this issue. Threat identification and risk assessment, barrier quarantine, surveillance network, emergency response, communication, containment and eradication management and research and development have all been taken into account. The new industry newsletter 'Beeinformed' has been specifically designed to effectively communicate these and other relevant disease issues to all beekeepers in the State. In addition, Agriculture Western Australia provides regular updates and training for apiary inspectors and beekeepers through workshops conducted throughout the State. All new registered beekeepers are provided with an information package that informs them of their legal obligations to regularly inspect their hives and to report brood diseases to the Senior Apiculturist.

Exotic bee diseases are featured in extension activities as an important issue. Media releases, displays at major field days and shows and direct mail to beekeepers and industry groups were included in the awareness campaign. A Consultative Committee on the Protection of the Bee Industry was established in early 1999 and includes specialist AgWA personnel and all sections of the bee industry working together to address quarantine and disease issues. Recommendations from the Consultative Committee led to the formation of the 'BeeGuard' protection program and involves all industry stakeholders, including the GrainGuard and HortGuard programs protecting the Western Australian beekeeping industry. Members of the Consultative Committee provided information to their respective organisations as part of their responsibilities.

A major seminar on 'BeeGuard' was conducted in January 2000. Attendees included beekeepers, honey processors, apiary officers, horticulturists and plant industries, and veterinarians and Agency staff.

## **(8) Measures to be applied when European Foulbrood Disease is Suspected or Diagnosed**

All beekeepers have a legal obligation to notify Agriculture Western Australia should they suspect or diagnose European Foulbrood disease in their hives (refer section 4.1.1). All apiaries in which European Foulbrood disease is suspected or diagnosed must be placed in quarantine. Such action would initiate the 'Emergency Management Plan'. This plan provides the framework for the administration of animal disease and other emergencies in the agricultural sector of Western Australia. Refer to section 3.2 for the structure for taking control of disease outbreaks and Appendix G.

### **(8.1) Plans on Suspicion**

Laboratory confirmation of a possible diagnosis of European Foulbrood disease must be obtained. Testing would be conducted by the Animal Health Laboratories at South Perth and initially would include bacteriology and culture. All apiaries with positive diagnosis would be quarantined and samples forwarded to a reference laboratory for confirmation.

A diagnosis, based on bacteriology, can be reached within 9 days of the laboratory receiving the samples.

Executive staff of Agriculture Western Australia, the Minister and the CVO Australia would be advised. Preliminary epidemiological investigations (trace-back and trace-forward information) would commence.

## **(8.2) Plans on Confirmation**

An incident coordinator would be nominated and staff would be selected for the incident taskforce. This may take place in anticipation of a confirmed diagnosis. Key staff with immediate tasks would be briefed, probably by teleconference. A clear chain of command would be detailed and a single media spokesperson nominated.

Specially trained beekeeper volunteers would be contacted through an established network and requested to report for briefing for surveillance activities. An experienced Agriculture Western Australia staff member, that has received emergency response training, would supervise each surveillance team. This process would take about two weeks, given the experience of the recent chalkbrood outbreak.

All suspect and confirmed apiaries would be quarantined and on completion of the surveillance, and depending upon the number and location of the infected apiaries, industry would be consulted to determine whether an eradication or control policy should be adopted. If an eradication policy is agreed upon, and industry can demonstrate that funds to compensate affected beekeepers are available, the timing of the destruction of all infected apiaries would be considered on an individual basis. The objective would be to complete destruction of those apiaries that pose the greatest risk of spreading infection.

The mechanism by which compensation funds would be raised by the beekeeping industry has not yet been established.

## **PART 4 - THE CASE FOR FREEDOM**

There has been international acceptance of the concept of regionalisation of animal and bee disease status among member countries of the World Trade Organisation as outlined in the Sanitary and Phytosanitary Agreement (*SPS Agreement*).

Western Australia has a long history of dealing with animal and bee diseases at the State level, in part because of physical isolation, but also because of the separate responsibilities of State and Commonwealth agencies as dictated by relevant legislation.

As a consequence, Western Australia has developed and constantly enhanced the strategy to protect the State from unwanted animal and bee pests and diseases. Components to the strategy that are essential criteria for declaring Western Australia to be a European Foulbrood disease Free Zone are noted in Part 2 of this report.

Successive Western Australian governments have ensured the maintenance of the local beekeeping industry's favourable disease status. The State's involvement with the SQF 2000 Quality Assurance Program for honey will further enhance market access for Western Australian honey processors. With the increasing movement of people and produce across state and national borders, there is a strengthening need to further develop the protection strategy. Western Australia is committed to this process through the BeeGuard initiative.

The case for Zone freedom in relation to European Foulbrood disease for Western Australia is supported by:-

- Natural barriers to prevent feral honey bees introducing the disease.
- Established State Veterinary and Apiculture Authority that provides legal and financial resources relative to the need with reporting framework and ability to take control of disease.
- Specialist staff, trained inspectors and lay support are located in all beekeeping areas of the State.
- Effective restrictions, border controls and quality assurance programs are in place to prevent the entry of bees, used beekeeping equipment, honey and hive products.
- Surveillance strategies that provide an equivalent level of sanitary assurance to those practised in New Zealand to detect the presence of European Foulbrood disease, including surveillance at high-risk entry points.
- Training and compulsory reporting requirements are in place to ensure early detection of the disease.
- NATA accredited Animal Health Laboratory diagnostic laboratory.
- Established reporting protocols are in place to ensure that trading partners are not put at risk of an outbreak of European Foulbrood disease.

- Long history of freedom from European Foulbrood disease demonstrates that the risk of transmission and establishment of *Melissococcus pluton*, the causative organism of European Foulbrood disease, via pasteurised honey is extremely low.
- Analysis of surveillance results with **FreeCalc** (Cameron 1996) indicates that the prevalence of European Foulbrood disease would be below 0.02% given the level of hive inspection with a confidence of 99.9%.
- Risk assessment shows that the probability of detecting an outbreak of European Foulbrood disease, given its rapid spread in eastern states of Australia and using the current level of surveillance, indicates that the probability of detection in the first year would be very high.
- Measures outlined in this report demonstrate that the likelihood of trading partners importing infected honey and their local bees subsequently becoming infected with the disease is extremely low.

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