

National Best Management Practice for Beekeeping in the Australian Environment



The Australian Honey Bee Industry Council

www.honeybee.org.au

Industry Partnerships Program – Action Partnership Grants
Part of the Australian Government's Agriculture – Advancing Australia Package



Australian Government
Department of Agriculture,
Fisheries and Forestry



**NSW DEPARTMENT OF
PRIMARY INDUSTRIES**



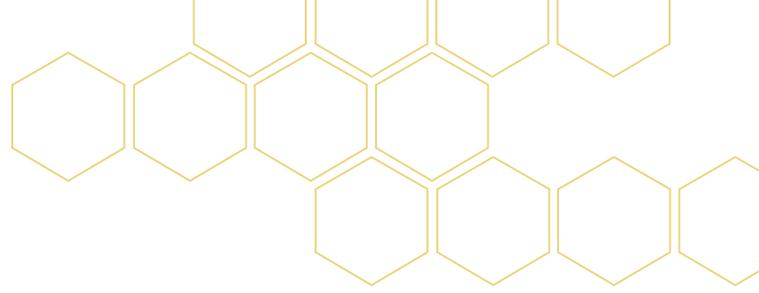
Project conducted on behalf of AHBIC

Principle investigator

Dr Doug Somerville

Technical Specialist Honey Bees
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“Bees play a vital role in maintaining the production and growth of the range native and non-native plants found across Australia today.”



Foreword

In times of drought, uncertain climate forecasts and tough markets, farmers are relying heavily on quality pollination services to increase their productivity.

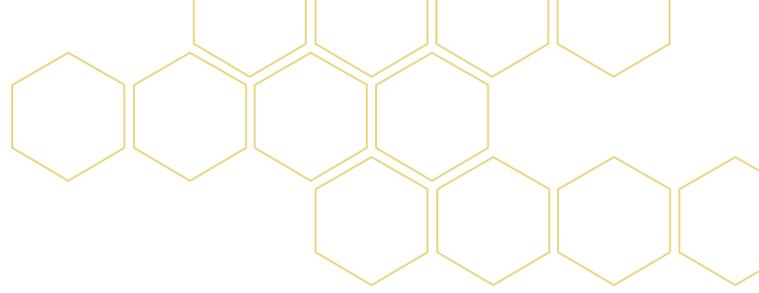
To provide those services, the bee industry needs to safeguard its access to public native forests. The Australian Honey Bee Industry Council has been working closely with bee keepers and with managers of native floral resources on this very important issue.

The bee industry contributes around \$60 million a year to the Australian economy through honey and related products. But in addition, the contribution of pollination services to agriculture is estimated to be worth billions of dollars annually.

To allow us to continue to support farmers across the nation, we hope that a unified voice and a clear explanation of the minimal environmental footprint of bee keepers will maintain our industry's access to floral reserves.

These Best Management Practice guidelines show that we have set very high standards for ourselves. We expect bee keepers to meet these standards and to maintain strong commitment to environmentally sustainable practices.





Under the Federal Government's Advancing Agricultural Industries Programme, stakeholders from across the country joined forces to identify and resolve the most important aspects of native floral reserve access.

Significant consultation and spirited discussion have produced a practical and relevant Best Management Practice guidelines. Environmentally responsible bee keeping practices will help our industry to face up to the uncertainties of the future and continue to provide the efficient pollination services that sustain Australian agriculture.

I am confident that the implementation of these Best Management Practice guidelines will secure a sweet future for our honeybee industry.

STEPHEN FEWSTER
Chairman, Australian Honey Bee Industry Council



“This little animal is a valuable asset to Australia’s agricultural future and long-term prosperity”

Background

The necessity for a National Best Management Practice set of guidelines for Australian beekeepers was initially tabled at a two day workshop held in Canberra in September 2005. Funds were successfully obtained from the Federal Government, and the project was completed by Dr Doug Somerville, Technical Specialist (Honey Bees), NSW Department of Primary Industries.

A committee was formed by the Australian Honey Bee Industry Council (AHBIC) of 20 persons to assist in providing feedback and direction to the process. They were Lindsay Bourke, Rex Carruthers, Paula Dewar, Leigh Duffield, Stephen Fewster, Ken Gell, Don Keith, Darryl Lawrence, Trevor Monson, Trevor Morgan, Ben Oldroyd, Elwyn Papworth, David Paton, Ed Planken, Greg Roberts, Doug Somerville (chair), Ian Stephens, Bill Weiss, Julian Wolfhagen and Ian Zadow.

Part of the process in developing a national set of guidelines for beekeeping in the Australian environment was the facilitation of a workshop in each state. Each state member beekeeping organisation within AHBIC was asked to identify and invite persons to participate in the development of a national set of guidelines.

Each workshop was provided with presentations on the formulation of industry codes and environmental management systems. The participants were then divided into small groups and given the tasks of discussing what it is that they want from the workshop, how detailed the guidelines should be and what should be the key elements. Discussions within the smaller groups and feedback within the larger group occupied the lion's share of each workshop. Individually, each participant was also asked to complete a workshop feedback and evaluation form. The combination of responses from the workshop process and the feedback/evaluation forms was the basis of the National Best Management Practice for Beekeeping in the Australian Environment.

The facilitators at each workshop were Dr Doug Somerville, Technical Specialist (Honey Bees), and Nick Annand, Apiary Officer, both NSW Department of Primary Industries staff, belonging to the Honey Bee Industry Group.





The workshop participants for each state were:

QLD (13/2/07) – Peter Barnes, Neville Bradford, Carmel Burnham, Rex Carruthers, Paula Dewar, Bill Gordon, Bob Johnson, Don Keith, Tony Knight, Dave Learoyd, Rodney Ruge, Patricia Swift, Trevor Weatherhead.

NSW (23/2/07) – Neil Bingley, Warwick Bratley, Todd Duffy, Ray Hull, Bryn Jones, Craig Klingner, Mick Ryan, Bill Weiss, Eric J Whitby, David Mumford.

VIC (27/2/07) – Linton Briggs, Robert Buntine, Mick Camilleri, Graham Connel, Ken Gell, Rod Gell, David Major, Bob McDonald, Robert McDonald, Trevor Monson, Marie Murley, Terry O’Kane, Bill Shay, Alan Smith, Eric Smith, John Ward.

TAS (8/3/07) – Lindsay Bourke, Rod Bourke, Yeonsoon Bourke, Reg Down, Hazel Hoskinson, Hedley Hoskinson, Norman Hoyle, Ian Marmion, Greg Rainbird, Graeme Raphael, Ian Stephens, Robin Thomson, Des Willmott, Julian Wolffhagen.

SA (27/3/07) – Leigh Duffield, Darrell Lawrence, Nadia McLaren, Jude Nettleingham, Barry Pobke, Michael Stedman, Michael Stone, Ian Zadow.

WA (20/4/07) – Malcolm Briggs, John Davies, Stephen Davies, Harry East, Brendon Fewster, Colin Fleay, Jacqui Hay, Ron Hollett, Alan Kessell, David Leyland, Rod Pavy, Wayne Ridley, Tracy Shea, Bill Trend, Cheryl Wong, Wally Zajac.





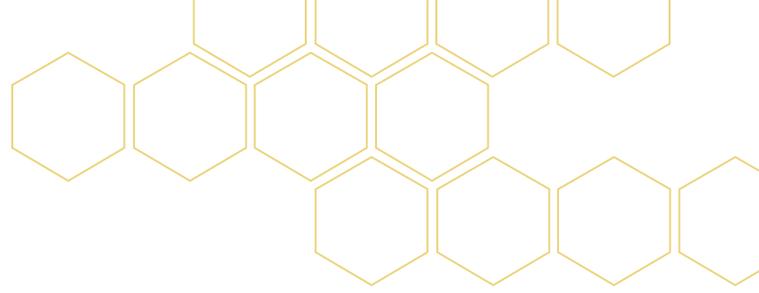
Introduction

The Australian beekeeping industry is faced with mounting issues in a range of fields, the economic viability of commercial beekeeping is being continually squeezed and the threat of exotic pests and diseases is of major concern. The one over-riding factor with a greater capacity to affect the medium to long-term viability of the Australian beekeeping industry is the availability of suitable floral resources that will consistently produce pollen and nectar vital for the survival and productivity of a honey bee colony. Quite an extensive number of threats, past and present, have been listed by the beekeeping industry. They are:

- land clearing for agriculture;
- forestry activities that remove flowering trees;
- replacement of felled trees with pine and low pollen and nectar yielding eucalypt plantations
- fires, including back burning and natural bushfires;
- reduction in vehicle access to quality apiary sites;
- salinity affecting the health of the available flora;
- droughts, which reduce flowering and interrupt growth cycles;
- control of weed species that provide pollen and nectar for honey bees;
- urban sprawl, which reduces mature vegetation and limits the size of apiary sites due to safety concerns;
- loss of access to native forests because of transfer from State Forests to National Parks; and
- reduced access to native flora on private lands because of a perception by some landholders that honey bees are harmful to the ecosystem and a threat to personal safety.

Some persons in the community have taken the position that, as managed honey bees are exotic insects, they have no place in any conservation reserve.





This view is of increasing concern to the Australian beekeeping industry due to the ever-increasing area of land being gazetted under a conservation memorandum. The debate on the impact of honey bees on the Australian environment will not be resolved by any single event.

Even though the beekeeping industry has a clear objective of preserving native flora, the industry's position on access to government lands in particular is tenuous and will need a strong proactive stance to counter extreme views. By adopting a 'National Best Management Practice for Beekeeping in the Australian Environment', the beekeeping industry is in a more favourable position to demonstrate that it has a thorough understanding of its environmental impacts, and can adequately manage these impacts.

The honey bee industry stands for and depends on the preservation of native flora and hence has much in common with those in the community whose values support nature conservation and the establishment of conservation reserves. The National Best Management Practice for Beekeeping in the Australian Environment has been provided by the beekeeping industry to complement the conservation principles it has historically held. The future of the beekeeping industry is at risk while the health of the landscape is in decline. Beekeepers have acknowledged their concerns regarding the loss of floral resources for decades in their journals and in the political arena. During the development of the national guidelines existing regulations and conditions of use were reviewed. The guidelines developed in this document have gathered all of the key points from these various documents as they relate to the environment and incorporated them into the key elements.



Summary

The Australian beekeeping industries have long recognised the ideal of minimising any impact of their activities on the greater environment.

The formalising of a set of national best practice guidelines for beekeeping in the Australian environment demonstrates to the whole community the commitment that the Australian beekeeping industries has to ensure that it is doing everything in its power to eliminate and minimise its potential impact on the whole Australian environment.

The guidelines are provided for beekeepers to clearly understand their role to the greater community and also to provide to the public an outline of what all beekeepers should be adopting in their keeping and management of honey bees. The guidelines are not specific to any single beekeeping group and all elements may not be applicable to each individual manager of bee hives. For further information and detail on the elements, refer to the full set of guidelines.

The elements, in no particular order, are:

- 1) Respect for heritage and areas of interest to indigenous Australians.
- 2) Display warning signs in appropriate places to announce proximity of apiary to the public.
- 3) Maintain stocking rates to the floral conditions prevailing. Ensure colonies have adequate stored honey.
- 4) Ensure that the appropriate authorities have been notified of the arrival and departure of apiaries and they have the beekeeper's address and contact details.
- 5) Keep the area of the apiary clean and tidy.
- 6) Ensure appropriate availability of water when required.
- 7) Incorporate best management practice to reduce the incidence of swarming.
- 8) Maintain swarm traps in and around apiaries, particularly during the spring period.





- 9) Prevent the spread of soil pathogens such as phytophthora and weed seeds by vehicle movements. Clean footwear/shoes and vehicle after inspecting potential sites in high risk areas.
- 10) Regularly maintain and service vehicles according to manufacturer's recommendations.
- 11) No travelling on access tracks when there is a high likelihood of damaging the track.
- 12) Only the immediate area of the apiary is to be cleaned of combustible vegetation.
- 13) Only camp on site with the approval of the property owner or manager. All presence of the camp site to be removed once the camp is finished with.
- 14) All fire warnings and restrictions are to be strictly adhered to and local fire codes should be taken into consideration whenever working bee hives.
- 15) Whenever the opportunity arises, provide information on the value of nectar and pollen producing flora to highlight the value of specific floral species.
- 16) Locate apiaries with consideration of the general public and livestock movements. Stocking rates in urban areas should be appropriate to the circumstances.
- 17) Keep records of flowering events.
- 18) Consider the most energy efficient manner in which the beekeeping operation is conducted.
- 19) Store, use and dispose of chemicals in the most appropriate manner, according to state, MSDS and label requirements. Keep chemical use to a minimum.



ELEMENT 1:

Respect for heritage and areas of interest to indigenous Australians

Historic sites, old buildings, relics, and materials of obvious heritage significance should be left alone and not interfered with. Areas important to indigenous Australians should also be respected, and beekeepers are encouraged to honour the spirit of Native Title claims.

ELEMENT 2:

Warning signs

All apiaries pose an OH&S risk to the public. To manage the risks to the public, suitable signage in an internationally recognised format should be placed in proximity of the apiary to warn any approaching persons of the presence of the apiary. These signs should include sufficient information so the owner can be contacted, if required.

ELEMENT 3:

Stocking rates

It is normal practice for commercial bee hives to be placed in areas where there is an abundance of nectar and/or pollen. The actual quantity of floral rewards on offer will vary from species to species and from site to site, thus stocking rates will vary. A generic number of hives for an apiary would not be appropriate in all circumstances. If bee hives are to be left for any time, when not on a nectar flow, suitable amounts of stored honey should be left on each hive. Where the flowering intensity of the local flora is not adequate for



the bees present, then consideration should be given to reducing the number of hives in an apiary to that of the carrying capacity of the pollen and nectar available or removing the apiary to a new site.

ELEMENT 4:

Communicate movement of apiaries

In most cases commercial beekeepers, and often amateur beekeepers, place their apiaries on lands not of their ownership. Some land agencies require, as a condition of use, that they are notified when a site is being used for bees. It is also a courtesy to inform all land managers of the imminent arrival of an apiary and the departure of the apiary. Land managers, if kept informed, can then consider the bees in their daily management schedules. This may include functions such as the use of chemical sprays, maintenance of tracks, hazard reduction burning, and the movement of livestock.

Ensure the land manager/owner has the apiarist's full contact details, including phone numbers, address and beekeeper registration number, so that contact can be made rapidly if required.

ELEMENT 5:

Remove rubbish

It is normal practice for an apiary to be moved onto a site when the floral prospects are attractive and there is a strong possibility of an ample surplus of nectar and/or pollen. Likewise, once a flowering event is coming to a finish, the apiary is normally shifted to another site with a suitable flowering event.

In the course of the management of the hives, hive materials that may be broken or damaged must be removed from the site. Scrapings and products from the hive must never be left on site.

Under no circumstances should household or industrial waste be left on site. If the beekeeper finds rubbish not belonging to them located on the apiary site, they should notify the relevant property manager and if possible make all efforts to properly dispose of the rubbish.



ELEMENT 6:

Provide water for bees

Ensure appropriate availability of water when required. In some states this activity is enshrined in legislation. Where water is close by, such as a creek, dam or river, water should not have to be supplied by the beekeeper. Honey bees, like all living creatures, require water to survive. In summer this requirement can equate to substantial amounts of water being collected by colonies and in extreme hot weather a colony will devote all of the available field bees to the collection of water.

The water consumption of a colony will vary according to the strength of the colony, the colony's location, and the ambient air temperature. Beekeepers should supply sufficient water for the apiary's needs if required to ensure that the colonies do not perish during hot weather, so that bees do not cause a nuisance around stock troughs and swimming pools.

An artificial water source should be placed within 200 metres of an apiary if a suitable, naturally occurring water source such as a dam, stream, or river is not within 500 metres. An artificial water source supplied by beekeepers must be suitably covered with mesh to prevent access by wildlife and their accidental drowning.

ELEMENT 7:

Swarm control

It is normally accepted good practice for a beekeeper to do all in their power to prevent a colony from swarming. Swarming is a natural phenomenon that ensures the survival of the species through a colony reproducing itself. Swarming normally occurs in spring, allowing the colony to establish itself over the following summer and autumn before winter brings a serious reduction in flowering species from which food can be obtained.

The selection criteria for commercial breeding stock does not tolerate any swarming behaviour. Feral bees, on the other hand, are much more likely to issue swarms than managed bees. Beekeepers should consider the following, particularly in the spring period.

- Re-queen on a regular basis – young queens have less inclination to swarm than old queens.
- Replace the queens in any colony that has swarmed, to reduce the possibility of future swarming.
- Relieve congestion in a hive in spring when colonies can expand in populations extremely rapidly.
- Continue to select strains of bees that demonstrate a low tendency to swarm.



ELEMENT 8:

Swarm capture

Invariably, some colonies within managed apiaries will swarm. Given the breeding of such stock, they possibly have a reduced chance of survival in the medium to long term compared to a swarm from a local feral colony. Managed bees are selected for rapid population gain so as to take advantage of major flowering events. A colony bred for commercial purposes and remaining on the one site is likely to experience significant shortages of food in the form of pollen and nectar, thus has a greater likelihood of starving. Even so, a beekeeper should make every endeavour to remove and collect swarms where clearly they have originated from the apiary under management.

For some unexplained reason, it is not uncommon for swarms originating from feral hives to be attracted to a managed apiary. In this case it is imperative that the swarms be collected and removed.

ELEMENT 9:

Prevent the spread of soil pathogens and weed seeds

Soil borne fungi and weed seeds have been known to be spread from one location to another by vehicle movements. Fire fighting, logging and road working machinery have all been implicated in the spread of fungi and weed seeds. Even bushwalkers and bike riders can spread fungi and seeds by the transfer of mud on their boots and tyres.

The movement and servicing of apiaries may also provide the opportunity to spread soil pathogens and weed seeds. To help stop the spread of soil pathogens and weed seeds, beekeepers, where possible, should:

- avoid driving in areas when soils are wet and sticky;
- stay on designated roads and tracks;
- in high risk areas for soil pathogens and weed seeds brush soil off vehicles and footwear before and after each trip – this would be a site by site decision;



- obey road signs that alert the driver to a possible problem in the area, e.g., phytophthora;
- use wash down or hygiene stations when provided;
- report any unusual plant deaths to the local Department of Environment, National Parks and Wildlife, Heritage or Conservation office;
- remove weeds where feasible from the immediate area of the apiary.

ELEMENT 10:

Minimise truck and vehicle emissions

In the course of keeping bees, the owner requires the use of a truck. Some beekeeping operations have ownership or control over a number of vehicles. To ensure the least impact on the environment, the following should be considered.

- Perform regular service and maintenance of each vehicle according to the manufacturer's specifications.
- Maintain tyre pressures to the manufacturer's recommendations.
- When given a choice of vehicles, choose the most economical one for the task in hand.
- When buying a new or second hand vehicle, consider the fuel efficiency rating.
- Where possible, work flowering events which require the least amount of travel.
- Place apiaries in the same region to reduce the distances necessary to service each apiary.



ELEMENT 11:

Track use and maintenance

As beekeepers are required, in most cases, to site apiaries on lands not of their ownership, it is important that the use of tracks and access routes be respected. Most tracks used by beekeepers are multi-use and not solely created for the benefit of siting bee hives.

Beekeepers have a duty of care to not travel on tracks or roads where it is known that there will be a strong possibility of causing damage to the surface. The circumstances will vary according to the integrity of the track/road, the materials it is constructed from, and the prevailing weather conditions. Poorly formed tracks on heavy soil during wet weather are likely to sustain heavy damage as a result of truck usage. On the other hand, tracks composed of sandy soils will be easier to negotiate during wet weather.

When a bee site is being considered, wet weather access should be a significant factor. If an apiary is located in an area where the soil type does pose a problem during wet weather, beekeepers should first consider the potential damage to the tracks and environment and delay use, if possible, until conditions improve.

Before taking on the task of repairing tracks and particularly bringing in materials from elsewhere, the beekeeper should consult with the land manager or property owner to obtain permission. If bringing in materials from elsewhere it is imperative that the introduction of soil pathogens and weeds are considered. Refer to Element 9.

ELEMENT 12:

Clearing of apiary sites

Site clearing must be completed with care to cause the least amount of disturbance to the local environment, while providing an adequate site for the placement of an apiary. To achieve this:

- rake or clear all loose surface litter on site before the placement of the bee hives;
- no trees greater than 20 cm circumference are to be damaged or removed;
- care must be exercised not to damage or destroy protected flora or fauna.



ELEMENT 13:

Camping

Historically, camping with the apiary on site has been a common practice by beekeepers. Such activity (probably), in most circumstances, is no longer warranted. If camping is a desirable activity to enable the beekeeper to manage their bees, permission should be sought from the government land agency or private property owner. All evidence of the camping activity must be removed once the camp is finished with.

ELEMENT 14:

Fire management

The very nature of beekeeping means that bee hives are at risk of bushfire damage and that a beekeeper’s use of a smoker has the potential to cause a fire. Therefore, it is necessary for beekeepers to ensure that:

- the smoker used is in good repair;
- the lighting of a smoker is done on bare ground or on the back of a suitable vehicle;

- the smoker is kept full of fuel to avoid the spitting and escape of lit embers;
- the smoker is not placed on combustible material such as dry grass when in use;
- all fire bans are adhered to and respected;
- in the event of an emergency, e.g. to remove an apiary due to an imposing threat from bush fire, the local fire authorities should be notified first before attempting to do so;
- extreme care should be exercised when working hives with a smoker when the environment is dry and the conditions are windy;
- suitable fire fighting equipment is carried at all times and maintained in working order;
- a smoker is properly extinguished using water or placed in an airtight container when not in use.

ELEMENT 15:

Proactive environmentalists

It is in beekeepers’ best interest for society to value and retain large areas of native flora. It is also in the industry’s long-term best interest





to see floral species replanted in degraded areas and other suitable sites that are reliable producers of nectar and pollen. Therefore, beekeepers should:

- actively pursue a tree planting program on their own properties, selecting suitable species for the long-term prospects of providing a resource for honey bees and other nectivores;
- associate or become involved in the local Landcare group, assisting in planting and revegetation projects; emphasis should be placed on encouraging known high value nectar and pollen plants;
- whenever the opportunity arises, address or pass on to interested parties information on the value of various floral species as a resource for nectar and pollen.

ELEMENT 16:

Apiary site position

Locating an apiary may cause problems for people and livestock. The following should be adhered to.

- Place large apiaries away from houses.
- Keep numbers of hives in urban areas to a minimum. Depending on the size of the block, the following is a suggested recommendation as sufficient permanent hives close to an urban interface:
 - small block – 2 hives
 - average block (up to 1000 m²) – 4 hives
 - roomy block (up to 2000 m²) – 8 hives.
- Place apiaries away from gates, stock yards and public traffic areas.
- Wherever possible, position out of sight of public thoroughfares.
- Apiary site positions are to be checked with and approved by the land manager/owner prior to hives being unloaded.

ELEMENT 17:

Keep floral records

Beekeepers, by the very nature of their chosen profession, have to develop a high awareness of the environment in which they work. Successful beekeeping requires the timely movement of



apiaries from the completion of one flowering event to the beginning of another flowering event. Most commercial beekeeping operations on mainland Australia can be best described as nomadic. The locations and flowering events to which apiaries are moved will vary significantly from year to year. In many cases, beekeepers probably hold the most detailed knowledge on the flowering patterns of specific flora in given regions. Therefore, beekeepers should record:

- the floral species on which the apiaries are placed;
- the duration of flowering, climatic influence on flowering, nectar and pollen yields and any other specific information on the floral species;
- any peculiarities in relation to dieback and significantly reduced yields;
- changes over time in various areas or to the health and production of the flora.

This information should be in a form to assist scientific endeavour to identify trends over time associated with flowering patterns and the general health of the vegetation. The information collected can also be used in Element 15 to assist in providing advice on the suitability of various floral species and their relative worth of a nectar or pollen producing plants.

Beekeepers have been responsible for passing on observations on the declining health of specific vegetation and the demise of floral communities, triggering major research endeavours. Any significant observations regarding the decline in the health of the vegetation within the areas which beekeepers frequent should be passed on to the relevant authorities. Communication with such parties should be recorded for future reference.



ELEMENT 18:

Energy saving

Beekeeping in the Australian context is mainly focused on the production of honey. Honey combs are required to be extracted in a purpose built factory on a regular basis. Energy savings are possible during the extraction and storage of combs. Beekeepers should consider:

- turning off appliances when not in use;
- turning off cool rooms and hot rooms when not in use; use of cool rooms to prevent damage to stored combs from wax moth and small hive beetle may not be necessary during the winter period;
- where possible, full honey combs should be stored to allow a sufficient number of honey boxes to be accumulated for each extraction to cut down the number of times an extracting plant is required to be cleaned.

ELEMENT 19:

Responsible use of chemicals

The use of chemicals in the beekeeping industry is minimal compared to most primary industries. Even so, beekeepers have a responsibility to:

- consult land owners/managers before applying pesticides (herbicides);
- obtain the necessary qualifications to use chemicals in an agricultural business;
- follow the directions on the label;
- only use a product for the purpose it is permitted/registered;
- discard used containers and residues in an approved manner;
- retain and refer to the material safety data sheets for each substance being used;
- store chemicals in a safe and secure location;
- observe the withholding periods printed on the chemical label;
- notify any purchaser of honey of the use of any chemicals associated with obtaining the honey crop;
- keep up to date on the correct use of chemicals.



