

# Honey Bees & Pollination



**Tasmanian Crop Pollination Association Inc.**

**Code of Practice**

# *Tasmanian Crop Pollination Association Incorporated*

## **Code of Practice**

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### INTRODUCTION

Honeybees are the most effective and efficient pollinators of agricultural and horticultural crops.

Pollination means the transfer of pollen from the male part of the flower, the anthers, to the receptive female part, the stigma. Fertilisation occurs when the pollen grains on the stigma germinate and grow down the stem of the stigma (the style). The sperms of the pollen unite with the ovules in the ovary of the flower and subsequently produce seed. Pollination is a pre requisite to the fertilisation of ovules within flowers that leads to the growth of seeds and fruit. The higher the level of effective pollination the greater the size/yield of the crop.

The *most efficient* carrier of pollen from the anther to the stigma is the honeybee.

#### **1. Application and purpose of the code.**

1.1 This voluntary code of practice provides advice about the delivery of effective and quality honeybee crop pollination services. The following notes are designed for use by:

- apiarist who provide, or are planning to provide, honeybee crop pollination services
- growers of fruit, vegetable and seed crops which benefit from honeybee pollination
- advisers and consultants whose clients are growers and/or apiarists.

## 2. Service to grower clients

- 2.1 Be prepared to provide your grower(s) with accurate and up-to-date information and advice on honeybees and pollination including the following subjects:
- pollination requirements of specific crops
  - activities of honeybees
  - placement of hives for optimum pollination
  - standards for pollination colonies
  - safe working procedures around hives
  - colony stocking rates per hectare
  - effect of bee stings and their treatment
  - effect of pesticides on bees
- 2.2 Advise your grower(s) of your address, phone, (including mobile), paging service and fax numbers so they are able to contact you when the need arises.
- 2.3 Obtain your grower's address, phone, (including mobile), paging service and fax numbers so that you are able to contact them quickly when the need arises.
- 2.4 Ensure growers can be directed to alternative sources of information in an emergency when you are away and not contactable. Growers may need to discuss a number of issues relating to:
- the need to apply agricultural chemicals
  - obtaining additional colonies
  - problems with hives and their well being
  - early removal of hives

It would be useful to have your partner obtain knowledge of basic pollination, particularly information about agricultural chemicals. If this is not possible, provide partners with names of contacts to which the grower may be referred (eg chemical companies).

### **3. Preparation of honeybee colonies**

- 3.1 Begin preparation of colonies well in advance of the period of pollination so that agreed and acceptable standards for colony vitality and numbers of adult bees can be met.
- 3.2 Start management procedures in autumn for colonies required during early spring flowering crops. For other crops, commence preparation 6-10 weeks prior to flowering of the crop.
- 3.3 Supply only healthy colonies for pollination. Keep a lookout for bee diseases and if found, apply the appropriate management steps or treatment approved in your State.
- 3.4 Never supply colonies that are infected with the notifiable honeybee brood disease American Foulbrood (*Paenibacillus larvae*). It is a legal requirement that outbreaks of this disease are reported to an apiary inspector.

### **4. Inability to supply pollination services**

- 4.1 If you are unable to supply colonies that conform to standards in 5.2 below, fulfil your part of the contract by arranging for another apiarist to supply suitable colonies.
- 4.2 Advise your grower(s) immediately if you are unable to fulfil the points in 4.1 above. Early advice may enable the grower to arrange bees from another apiarist prior to flowering. If short notice is given, your grower will probably not be able to obtain pollination services in time and their business will be seriously affected.

### **5. Colony standards**

- 5.1 Always supply hives that conform to acceptable standards. It is difficult to provide a precise definition of a pollinating colony that will be suitable for all crops. Colonies managed for late winter and/or early spring pollination (eg almonds and early plums) generally have less bees and brood (and therefore, less foragers) than do colonies managed for later crops (apples, cherries, brassicas and many broadacre crops).

## 5.2 Ensure each hive has:

- Emerging brood:** Newly emerging bees replace older adults that die through natural causes. The colony population is maintained, or expands, thereby ensuring adequate numbers of foragers.
- Unsealed brood:** Young honeybee larvae create a demand for pollen. This in turn causes more foragers to collect pollen. Pollen foragers are generally more efficient pollinators than nectar gatherers.
- Empty combs:** To provide for:
- brood rearing to maintain adequate numbers of foragers and to create a demand for pollen;
  - honey storage to prevent clogging of the brood nest and to minimise swarming.
- Queen:** A healthy, vigorous laying queen is necessary to ensure optimum egg laying, presence of young larvae and an adequate number of foragers.
- Worker bees:** The time of the year that the colonies are required will largely determine their size. The minimum strength of a colony suitable for pollination at the end of winter / early spring is one that has brood on both sides of six ideal frames, with 50% open brood in all stages of development, (four frames Full Depth) with bees covering at least ten frames.
- Honey:** Adequate honey stores prevent starvation when nectar is scarce and/or weather conditions are unfavourable for foraging.
- Pollen:** Stores of pollen will help to encourage brood rearing.

- 5.3 All colonies should be disease free.
- 5.4 Ensure colonies are of a quiet docile strain, Italian, Caucasian and their crosses. Feral hives and swarms are considered too small in their brood nests and are far too aggressive. This is particularly important where:
- Farm workers need to work near hives or where bee flight paths are established;
  - Bees are required for pollination of crops in urban zones or other built up areas.

## **6. Delivery of bees to grower**

- 6.1 Deliver hives on the date agreed by you and the grower. Notify the grower immediately if an emergency arises and you cannot deliver the bees on the day agreed by you and the grower.
- 6.2 Notify the grower immediately if an emergency arises and you cannot deliver the hives at the nominated time on the agreed date.
- 6.3 Ensure all hives are made up of sound material if moving hives ‘closed entrance’. Bees leaking from unsound material can be a nuisance; they may also pose a threat to people who may be allergic to bee stings.
- 6.4 Ensure the grower and other farm staff wear protective clothing (gloves, veil, etc.) if they are to help you unload and distribute hives in the crop.
- 6.5 Place the hives in the crop on the locations previously agreed by you and the grower, as close as possible to an open sunny and well drained area on the southern side of the crop, facing north or north-east and sheltered from the prevailing wind.
- 6.6 Make sure the hives are well secured to the vehicle when you distribute them throughout the crop. Hives that fall from the vehicle and break open may result in danger to the grower and other people.
- 6.7 Advise the grower to avoid working near the hives for a day after the bees have been introduced.

- 6.8 Avoid placing hives near public roads and dwellings.
- 6.9 Arrange for a supply of water for the bees (when necessary) away from dwellings.
- 6.10 Don't introduce hives which do not have bees, or which are diseased.
- 6.11 All hives must be accessible by medium rigid truck, under all weather conditions, so regular maintenance can be carried out.
- 6.12 If the target crop is to be aerial irrigated, ideally hives should not be placed within the radius of the irrigators spray. Irrigation in the evening and overnight is desirable because if carried out during the day bees will be less efficient in the wet conditions.

## **7. Disputes about hive standards**

- 7.1 Be willing and available to open hives and demonstrate the suitability of colonies for pollination if requested by the grower. Provide protective clothing to the grower.
- 7.2 Engage the services of an impartial consultant to report on the suitability of colonies for pollination if a dispute arises and is unable to be settled by you and the grower. Agreement for payment of fees charged by the consultant will need to be reached by you and the grower.
- 7.3 Remove and replace colonies that do not meet agreed standards with ones that do. The simple waving of a fee for below standard colonies is unacceptable as it fails to address the potential loss of pollination that in turn could cost the grower many thousands of dollars in lost production.

## **8. Management of bees during the period of pollination**

- 8.1 Maintain colonies in a healthy and prosperous condition. Colonies may need supplementary feeding with sugar syrup to encourage pollen collection.
- 8.2 Ensure sufficient room for egg-laying and honey storage. If necessary, remove surplus honey.

- 8.3 Adopt swarm prevention measures. If any colonies swarm, collect and hive the swarms as soon as possible.
- 8.4 Monitor hives for honey supplies and if necessary supply supplementary feeding of sugar to prevent decline of colony vitality and/or starvation.

#### 8.5 SPRAYS & PESTICIDES

One of the biggest draw backs from placing bees near any orchard or agricultural crop is the possibility of colonies or flight bees being sprayed by or coming into contact with insecticides, herbicides and pesticides.

The beekeeper, grower, seed contractor and aerial spraying contractor involved **MUST** be aware of the damage that the indiscriminate or misuse of **sprays and wetting agents** can do to bees. Special thought should be given as to when and how, sprays are to be used. Essential spraying needs to be done under conditions that minimise any spray drift into hive entrances.

Just as the farmer may loose his crop by not spraying at the correct time, so may the beekeeper loose his stock (bees) by their incorrect use. It is also advisable for growers who are using pollination services to be aware of any spray programs of his neighbours that may have an adverse effect on the pollinating bees.

### 9. Removal of hives

- 9.1 Remove hives on the agreed date, or when requested to do so by the grower. Some growers may want to apply pesticides towards the end of the pollination period.
- 9.2 Ensure hive site(s) are left free of your equipment and rubbish after removing hives.

### 10. Liaison with growers

- 10.1 Check the crop for bee foraging and pollination efficiency by identifying areas where:
- bees are not foraging
  - fruit set is poor
  - examples of misshapen fruit are present.
- 10.2 Discuss any actual or perceived pollination problems with the grower.

## 11. Price/Costs

The price per hive that a beekeeper will charge for a pollination service will vary depending on the time of year and depending on the length of time that they are required for. Hives required in early spring will need extra work to build up their strength (bee numbers) to an acceptable level. In summer, if a beekeeper has to forgo part of a major honey flow eg. Leatherwood, the higher price would be applicable.

When hives are used for pollination they usually do not gather surplus nectar, which means they will require feeding to maintain the necessary volume of bees.

The following factors must be considered when setting a fee per hive for pollination services:

### 11.1 Cost of Building a Pollination Unit

- Lead Time
- Labour input (management/manipulation)
- Feeding requirements
- Medication
- Transport costs
- Stock cost (new young queens best)

### 11.2 Costs involved in Conduct of Contract

- Feeding (2kg sugar per week per hive)
- Medication
- Labour input (5 hives per hour)
- Transport
- Equipment maintenance/replacement
- Loss of hive strength
- Shorter productive life span of queen
- Risk of damage/loss from agricultural chemicals

Professionally managed pollination services may cost more, but the user can only expect to get the level of competence and effectiveness that is paid for. If hives are cheap, they are likely to be weak and not efficient pollinators.

## 12. Accounts

Accounts for pollination services are best handed to the grower or forwarded promptly by mail on completion of the pollination agreement in line with current commercial practices.

If you are serious about getting the best hives for your pollination job, contact a member of the Tasmanian Crop Pollination Association Inc. ( TCPA Inc. ) as soon as possible. Remember **YOU** get what you pay for – **WE** guarantee it.

***This Code of Practice offers you peace of mind.***

John Siermickis,  
President,  
Tasmanian Crop Pollination Association Inc.

## **Appendix 1.**

TASMANIAN CROP POLLINATION ASSOCIATION INC members recommended rates by crop as at June 2013 (listed rate may vary)

All prices are per hive and GST exclusive

<b>CROP FOR POLLINATION</b>	<b>PRICE PER HIVE</b>
<b>Apricots</b>	\$120
<b>Apples &amp; Pears</b>	\$70 \$60
<b>Brassica</b>	\$100 (for first 6 weeks then \$6 per hive per day)
<b>Black currents</b>	\$80
<b>Blueberries</b>	\$110 \$140 (under nets)
<b>Canola</b>	\$90 \$130 (until 18 <sup>th</sup> January then \$6 per hive per day)
<b>Carrots</b>	\$140 (until 18 <sup>th</sup> January then \$6 per hive per day)
<b>Cherries</b>	\$110 \$140 (under nets)
<b>Chicory</b>	\$140 (until 18 <sup>th</sup> January then \$6 per hive per day)
<b>Clover</b>	\$100 (until 5 <sup>th</sup> January then \$6 per hive per day)
<b>Red Clover (late)</b>	\$130 (until 18 <sup>th</sup> January then \$6 per hive per day)
<b>Fennel</b>	\$130
<b>Lucerne</b>	\$100
<b>Onions</b>	\$150
<b><i>All other crops by negotiation</i></b>	

**POLLINATION AGREEMENT**

THIS AGREEMENT is made this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_,

Between \_\_\_\_\_ of \_\_\_\_\_ ,  
(Pollination Provider)

and \_\_\_\_\_ of \_\_\_\_\_ ,  
(Grower).

TERMS OF AGREEMENT. The Pollination Provider agrees to supply to the Grower \_\_\_\_\_hives at the cost of \$ \_\_\_\_\_ (**plus GST**) per hive, for\_\_\_\_days/weeks, under the following conditions:

Pollination Provider shall:

- (a) Supply hive/hives containing a minimum of \_\_\_\_ (as per code of practice).
- (b) Supply hive/hives free of disease.
- (c) Place hives in position decided in previous consultation with the Grower.
- (d) Leave all gates as they are found.
- (e) To deliver hives within \_\_\_\_\_hours of confirmation.
- (f) To facilitate a hive inspection within 48 hours of request by the Grower.
- (g) To supply within 24 hours additional hive/hives to compensate for any hives found to be below minimum standard at no extra cost to the Grower.
- (h) To carry public liability insurance.

The Grower shall:

- (a) To liaise with the Pollination Provider well in advance of delivery of hives and allow the Pollination Provider prior inspection of orchard in daylight.

- (b) To provide suitable place to locate the hives as previously agreed with the Pollination Provider.
- (c) To allow the Pollination Provider entry onto the property whenever necessary to service the bees.
- (d) To give the Pollination Provider at least \_\_\_\_\_ hours notice that bees are required to be placed in orchard.
- (e) Not to shift or examine hive/hives without the Pollination Provider's approval.
- (f) To give the Pollination Provider at least \_\_\_\_\_ hours notice to remove hive/hives from orchard.
- (g) To advise the Pollination Provider of any spray program and be prepared to give hours notice of the intent to spray.
- (h) To accept liability for damage to hive/hives from livestock, vandalism and/or spray damage.
- (i) To pay the agreed hive services rental within the time specified on the invoice/account. Interest may be charged on overdue accounts.

Arbitration:

If the Grower is dissatisfied with the quality of hives supplied his first recourse shall be to the Pollination Provider. Such complaints shall be lodged as soon as possible and in no case after the hives are removed from the orchard.

In the event of any unsettled dispute between the Pollination Provider and the Grower, both parties agree to abide by any decision of an Arbitration Committee, composed of one Beekeeper appointed by the Tasmanian Crop Pollination Association, one Grower appointed by Fruit, Vegetable or Seed Growers and one other mutually agreed to by the Beekeeper and Grower representatives.

Signed: \_\_\_\_\_ Provider

Address: \_\_\_\_\_

Signed: \_\_\_\_\_ Grower

Address: \_\_\_\_\_

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Signed: \_\_\_\_\_ Provider

Address: \_\_\_\_\_

Signed: \_\_\_\_\_ Grower

Address: \_\_\_\_\_

TASMANIAN CROP POLLINATION ASSOCIATION  
Incorporated

***DISPUTE RESOLUTION AGREEMENT***

I ..... the undersigned agree to abide by the  
decision of the Dispute Committee.

..... (Signature)	..... (Witness - Signature)
..... (Name Printed)	..... (Witness - Name Printed)
..... (Date)	..... (Date)

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