

Apiary management for winter/early spring pollination

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Introduction

Preparation of apiaries for paid pollination of crops which flower in late winter or early spring, such as almonds, blueberries, canola, stone fruits and pome fruits, requires specialised management practices. This Primefact describes practices to produce strong colonies suitable for pollination at a time of the year when bee colonies are often in a weakened condition.

Developing hive strength

The important factor for a pollination hive is colony strength. A strong colony has a high demand for pollen and provides up to four times the number of field bees in the crop compared with a weak colony. Allowing for the time of year the colonies are required, the minimum strength of a colony suitable for pollination at the end of winter or early spring is one with brood on both sides of four frames, but preferably on six frames, and bees covering a minimum of eight frames.

A planned management program is necessary where there is not a surplus number of hives to choose from to provide the required number of hives of the required strength. Four to six months prior to the date of placing the hives on the crop, the beekeeper and the crop grower will need to reach an agreement on the number of colonies required and their minimum strength. All colonies available for pollination need to be examined and a culling and equalising program carried out before colonies are selected and moved onto the crop.

Management begins the previous autumn

To prepare colonies for late winter/early spring pollination requires the management program to commence in the previous autumn.

Stores

One-half to one full box of honey should be left on each colony. If honey is not available then stores may need to be supplied as sugar or sugar syrup.

Colonies going into winter which do not have access to stored pollen or are not able to forage for pollen will need to be supplied with a protein supplement.

Disease

Autumn is an important time of year to manage hives for the prevention of spring outbreaks of Nosema disease, European foulbrood disease and chalkbrood disease.

In addition to standard autumn disease control management practices, apiaries can be sampled and laboratory examinations used to determine the status of Nosema disease and European foulbrood disease at a colony or apiary level.

Apiaries displaying identifiable levels of Nosema disease in autumn require extra management attention during winter to prevent a major disease problem in early spring. Placing hives in a warm sunny location during winter assists in reducing Nosema levels.

Colonies displaying identifiable levels of European foulbrood disease in autumn will require treatment with the antibiotic oxytetracycline hydrochloride (OTC) in autumn to prevent a major disease problem in spring. Alternatively, colonies displaying signs of European foulbrood disease should be removed from the group of colonies being prepared for pollination and treated by other management practices.

Supers

Remove excess supers in late autumn as bees should cover all the frames in the colony.



Queen bees

Pollination colonies benefit from having an established young queen heading the colony. Early autumn is a suitable time to re-queen colonies. A colony headed by a young queen coming into spring will have a larger brood area than a colony with an older queen under the same conditions and will have a higher proportion of field bees collecting pollen.

Dark-coloured combs

During late autumn, winter and early spring, queen bees often prefer dark-coloured combs over light combs for egg laying.

Dark combs may be collected and stored to ensure that sufficient numbers are available when required to stimulate early egg laying.

Six weeks before moving colonies onto the crop

Colonies require access to nectar and pollen or supplementary feeding six weeks before being placed on the crop to be pollinated to stimulate brood production.

It is generally accepted that a colony coming out of winter with a young queen and with suitable management is able to reach a population level suitable for pollination in about six weeks. This may be achieved by placing the colonies on a flow of early pollen and nectar such as capeweed, wild turnip, or heath.

If an early pollen and nectar flow is not available, it will be necessary to stimulate brood rearing by feeding sugar syrup and protein in the form of disease-free bee collected pollen (irradiated) or protein supplement.

When stimulating colonies to rear brood in late winter, care must be taken to avoid over-stimulation which can result in an increase in Nosema disease levels.

Recommended reading

This Primefact should be read in conjunction with the following Agnotes available from the NSW DPI intranet at:

<http://www.agric.nsw.gov.au/reader/honeybees>

- DAI-124 Nosema disease in bees
- DAI-114 European foulbrood and its control
- DAI-209 Samples for bee disease diagnosis
- DAI-178 Honey bee nutrition and supplementary feeding
- DAI-28 Best practice in a honey bee pollination service

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (August 2006). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

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