NSW Agriculture

agnote
ISSN 1034-6848

Bee swarms and their control

Agnote DAI/125
Revised August 1999

Doug Somerville
District Livestock Officer (Apiculture)
Goulburn

INTRODUCTION

Swarming is a natural phenomenon that occurs each year on a seasonal basis. Swarming is a bee colony's method of reproducing itself — as distinct from reproduction of individuals within the colony. By swarming, honey bees ensure the survival of their species.

Swarming usually occurs in spring or early summer which enables the new colony to grow large enough to store sufficient honey over summer and autumn to support the colony through winter.

Swarming is mostly a feature of colonies which have large numbers of worker bees and an active laying queen. Colonies that are weak due to disease, poor queen fertility or starvation are not likely to swarm until they recover and build up in population.

TYPES OF SWARMS

The first swarm to leave a hive in spring is termed the prime swarm. Often this is the only swarm a colony may produce in the season. Typically this prime swarm is the size of a football or bigger and is usually half the original colony. The hive may also produce extra swarms, termed secondary swarms or after-swarms. These swarms are often a fraction of the size of a prime swarm.

The prime swarm is headed by the original queen in the hive. The queen ceases laying eggs and her abdomen reduces allowing her to fly. Secondary swarms are headed by virgins and follow a few days after the prime swarm has left the hive.

'Absconding swarm' is a term given to a swarm of bees which completely vacates its hive. Absconding swarms may occur for a number of reasons, for example starvation, disease, or insects (ants) attacking the hive; but they are very rare. A colony will, more often than not, die out before vacating the hive.

CATCHING SWARMS

Catching swarms used to be the main way for beekeepers to increase the number of hives in their apiary. With modern beekeeping practices, swarming has become counter-productive and a general public nuisance. Where swarms occur in towns or public areas every effort should be made to collect and remove them. The general public does not have the same appreciation of honey bees as do beekeepers!

To collect a swarm, place one or two drawn combs in a box with the remainder being frames of foundation. Shake or place the swarm into the prepared box. You must leave the box on location until evening to hive the entire swarm before removing it.

When swarming, bees are gorged full of honey, so no combs with honey are required. Swarms are often used to repair damaged combs and draw foundation. Beeswax production is at a peak and the gaps in the damaged comb will be repaired, mainly with worker cells.

There is no point in immediately re-queening a swarm that you have just caught. If you wish to replace the queen, wait until the swarm has settled down and the queen is actively laying eggs (approximately three weeks). It is highly unlikely that a caught swarm will swarm again the same season.

Swarms can be infected with brood diseases. To play it safe, keep swarms separate for the remainder of the season and keep an eye on the brood nest for signs and symptoms of brood disease.

Bait hives are sometimes used to catch swarms in the beekeeper's absence. An empty box containing a number of frames of foundation and a few drawn combs are placed in a sunny protected position off the ground.

The top of a flat roof, for instance, is an ideal location for a swarm to settle in. Keep an eye on the combs — they may become infested with wax moth.

WHY BEES SWARM

Many things cause a colony to swarm.

- **Seasonal changes**. Rising average temperatures and generally warmer weather after the winter period will stimulate a colony to swarm in spring.
- **Congestion.** Congestion is said to reduce the amount of queen pheromone available to an individual worker bee, thus giving it the stimulus to begin constructing queen cells. Congestion occurs due to the prevailing breeding situation and the restricted space provided for the colony. Managed bee hives often are restricted artificially to a single brood box — this is said to lead to a higher incidence of swarming.
- **Old queens**. Although not the only cause of swarming, old queens are more likely to swarm.
- **Light honey flow and heavy pollen supply**. In early spring these conditions often encourage considerable expansion of the brood nest. If these conditions persist the colony grows in strength at a fairly rapid rate, frequently leading to idle worker bees in the hive and over-congestion of the brood nest.
- **Genetics.** Although not an environmental stimulus, the genetic variation between strains and races of honey bees is significant. Some colonies under identical conditions will be more inclined to swarm than others.

METHODS OF CONTROL

By controlling or reducing swarming, we are working against the honey bees' natural instincts. The following procedures can reduce swarming.

- Young queens swarm less readily than older queens. But, given the correct stimuli, young queens also swarm. The genetic variation between queens is probably more significant. If a colony swarms it is important to re-queen this hive with a young queen bred from a strain of bee less inclined to swarm.
- Rapid build-up conditions may lead to swarming. The more worker bees in the colony, the more field bees that will be available for collecting nectar. If rapid build-up is not followed by an abundant supply of nectar in the field, this will leave a lot of idle bees in the hive. This problem can be overcome by moving the colony to a honey flow.
- To achieve a greater population expansion and to relieve congestion in the brood box, a useful practice is to manipulate the brood box. Lift two or three brood combs above the queen excluder and place empty combs into the brood nest. This will allow the queen more laying room.
- One of the most effective methods of reducing swarming is to artificially swarm the colony yourself. Remove part of the colony to make a nucleus. When the swarming period is over this nucleus can be joined back to the original colony or treated as a separate entity. You may wish to place a queen or queen cell in the nucleus colony, depending upon your requirements.
- Another method of swarm control within an apiary is to remove capped brood and bees from the brood nest and introduce these frames to weaker hives in the apiary. At all times when manipulating brood combs, be vigilant for brood diseases.
- Tearing down swarm queen cells is of little value. Often this is too late to effectively stop swarms from leaving the hive. Also, clipping the queen's wings is of no value for eventually a virgin will emerge and leave with the prime swarm. When bees get into a 'swarm fever' they become difficult to control and the measures previously discussed need to be followed.
- Providing beeswax foundation for the bees to build worker comb can be a valuable aid in reducing swarming.

Edited by Robert West
Produced by Information Delivery Program, Orange
Approval No. PLO(IL)/20
Agdex 481/10
This Agnote was previously published as Reg 4/50