

Trapping Queen Swarms Upon Landing to Overcome Bottlenecks in Royal Jelly and Queen Production Programs

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ABSTRACT

Context

In-vitro production techniques for queen bees and royal jelly are, as it is well known, based on the ethology of the honeybee. However, there still are some challenges. This document presents the simultaneous research conducted at our station to try to alleviate the main difficulties while still maintaining their effectiveness.

Keywords: Trapping Queen Swarms, Royal Jelly, Queen Production

Problem Statement

The common method for obtaining larvae of the indicated age in these technologies, which consists of inserting an old comb between two brood frames, suffers from various problems, including technical issues (such as access to the insertion area), accidents (the risk of crushing the queen during the operation), biological problems of the colony , and even meteorological problems. As far as the transfert of these larvae is concerned, the operator's eye safe and dexterity are recurrent.

Hypothesis

The basis of this experiment is that any queen in a honey flow swarm seeking a home is generally one in the egg-laying phase. Successfully providing it with the appropriate conditions will be enough to obtain larvae as early as the fifth day.

Materials and Methods



Figure 1: A complete trap with the arrangement of its two sides: the regular beehive, here in cardboard, sits atop the single-frame beehive

Figure 2: Old worker bee comb

Figure 3: Egg-laying matrix

The equipment consists of a regular hive body used as a swarm trap, a special single-frame hive equipped for collecting the queen; a piece of old brown comb with worker cells mounted on a frame; an articulated magnifying glass with a light; and a queen cell tray with ungrafted egg cups.

During the honey flow, the two previous enclosures are placed adjacently so that access to the regular hive body is contingent upon passing through the single-frame hive. The adjacent entrances of these two traps are separated by a queen excluder. Thus, when a swarm decides to adopt the hive, the worker bees enter while the queen remains in the single-frame hive. A few moments later, it will be completely caged there. Regarding the first concern, the comb is introduced into the single-frame hive after lightly coating with honey.

In the case of the second concern, the swarm is transferred to another hive after introducing the queen-rearing matrix, which has been previously prepared for operation with the queen inside

Results



Figure 4: The larvae, forty-eight hours old at the bottom of cells in the egg-laying matrix (left); the larva in cup-without-grafting (right)

Hundred and twenty hours later, under magnification, both combs show tiny larvae at the bottom of their cells.

Analysis

The results justified the protocol and confirmed the hypothesis. Indeed, the larvae in the comb can be grafted, while those in the queen cups can simply be entrusted to the rearing colony, thus solving both the problem of easily obtaining larvae and that related to grafting.

Conclusion

The dependence of the subsequent stages of this process on Langstroth hives compels us to wait for the emergence of suitable conditions in these hives to fully use these valuable advancements.