A unit for trapping clean pollen

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A unit for trapping clean pollen

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Pollen, the fine particles formed in plant life and carrying the male germ cell responsible for fruit fertilisation and plant embryo formation, has been the subject of continual study over many years.

The beekeeper has a natural interest in pollen for he has long recognised its necessity as a brood food component to honey. Basically, the bees depend upon honey as the carbohydrate nutritional requirement and pollen as the protein requirement.

Original attempts to trap pollen loads from the honeybees were made with the object of feeding back pollen to colonies in times of short supply or over periods of pollen dearth. The availability of trapped pollen loads has permitted wider research into plant identification and nectar forage sources.

Improved pollen harvesting

With improved trapping methods, harvesting of pollen has developed to the extent that beekeepers can now produce a surplus to their needs.

A honeybee colony contained in a hive fitted with a modified (vertical punched plate type) trapping unit in December, 1974, returned a pollen harvest in excess of 80 g per day. The hive was sited in the metropolitan area under conditions of trickle flow, pollen and nectar.

Under summer heat conditions at a time of normal pollen dearth trapped pollen at the metropolitan site averaged a little more than 20 g per day.

Flowering of the marri, Eucalyptus calophylla, in late February/March provided a good source for honeybee pollen foragers and colonies in country areas gave a harvest in excess of 400 g per day.

In a time of world shortage of protein food substances it is not surprising that attention is being directed to pollen.

Pollen trap body and components. The basic unit replaces the bottom board of the hive

Pollen nutritive value

Pollen grains have a wide range of chemical composition. Analysis indicates that the protein content may vary from 10 to 35 per cent with pollen variety. Pollen also contains sugars, vitamins, minerals, amino acids and other growth substances.

It is suggested that pollen has a high nutritive value which compares favourably with many foodstuffs. Perhaps further nutritional investigations will provide an insight into pollen's unknown qualities. The way is open for pollen to become available in greater quantities than ever before.

Colony management

Trapping, storage, collection and treatment of pollen involves considerable work and this should be kept well in mind when considering market values. Selection of colonies and careful manipulation is an important activity. Apart from ensuring that pollen collecting colonies are headed by young queens, care must be taken to ensure that the welfare of the colonies is being maintained.

Colonies in good strength can be worked for both honey and pollen, although the same care must be taken as for harvesting honey. Sufficient stores must be left to maintain healthy brood activity.

In times of excessive pollen flows a pollen trap can be an advantage by partially restricting pollen intake, which appears to prolong the build-up of the swarming instinct. One foresees the possibility of manipulating traps to build up the desired foraging bee strength for anticipated good honey flows.

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**Modifications**

After lengthy experimentation with various types of pollen traps, the author came to the conclusion that some modification of standard or accepted trapping procedures was necessary. The major factors in order of importance are given below.

Although the exercise was carried out with the use of eight and 10-frame standard Langstroth hive body traps there appears to be no reason why a beekeeper should not construct the units to any size that suits his purpose.

**Removal of dirt and hive wastes.**

It is a relatively easy matter to trap pollen in the early spring but as the season advances, colony development provides for an increase in drone population and in their anxiety to make flight their frustration at the trapping plate causes an accumulation of drones within that area. Dead drones may be removed in part, taken through the mesh and dropped into the pollen collection area. The provision of “drone escapes” (a quarter inch drilled hole each side of the free flight level) permits movement of drones to the field. This is not the complete answer because bees will still tend to remove wastes through the pollen trap entrance. This problem has almost been eliminated by providing a second collection tray insert that fits in the top rear part of the normal pollen collection box. With the dividing screen extended over the full box body length and the punched metal trapping plate fixed in the vertical position, provision is made for the wastes to be collected separately from the pollen storage. The pollen collection box is made bottomless and plastic eight mesh material fixed over its full length at the same angle as the fixed bearer; accumulated pollen will gradually work its way to the rear and beneath the dirt tray.

**Effective and immediate movement of collection box when withdrawn from the rear of the trap body.**

The collection box slides on one central bearer and is built with sloping sides to permit positive action when withdrawing the box. The dirt tray insert can be lifted from the top of the collection box, cleaned and replaced during normal pollen collection activity. The design of the sliding collection box is such that moist air conditions do not cause sticking as may happen with the standard draw type.

**Effective trapping screen.**

A 5 mm (3/16 in) punched metal plate fixed vertically permits pollen loads to fall direct to the screen and through to the collection box. A metal punched plate (four holes deep) appears to provide sufficient access way for the bees to work efficiently. The single punched plate appears to be as effective as the double plate system used in the horizontal trapping method. The horizontally placed plate defeats the rubbish trapping arrangement.

**Provision of quick change pollen trap entrance to free flight.**

The metal slide closure used at the entrance provides for quick change over to free flight as and when required. Reversing the closure brings the plate opening in line with free flight. To close the hive for transport a full plate cover may be used to close off both entrances. This is a useful feature for manipulation of colonies under varying conditions.

The pollen trap unit described should be a most effective system. Cost of construction may be a limiting factor but to be able to produce good clean pollen deserves consideration.