A POLLEN DISPENSER AND ITS OTHER USEFUL EMPLOYMENTS *)

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The "pollen dispenser" is a simple device fitted to the hive entrance and so constructed that outgoing foragers are forced to carry some of the pollen required for pollination the the flowers they visit. It can be used for pollination of plants with androsterile flowers, or when pollination is hampered, or when it becomes difficult, as in the following cases :

a) Only one variety exists and is self-unfruitful ;

b) Several varieties exist but are not interfertile ;

c) The pollinators are inadequate, either because of small number, or because of too long distance, or because they are not the required ones ;

d) When the concerned varieties do not flower simultaneously ;

e) When pollinating insects are scarce.

Many types of pollen dispenser have been studied, built and tried. Recent experiments have shown their utility such as those carried out by Burrel and King (2), Karmo and Vickery (12), Karmo (11), Townsend, Riddel and Smith (19), Lötter (13) Jaycox and Owen (8). They have obtained good results on fruit set and better uniformity and quality on apple and pear. Also Johansson (9) on almond's fruit set.

We have tested a pollen dispenser that can also have other applications. It may be used to stop the outgoing workers leaving the hive, and to keep the entrance free. It may have many practical applications and also be used for research and study. For instance, when we want to move the hive, we must prevent the workers from flying ; then the apparatus can be used at a precise hour, before evening, to allow all the workers to enter the hive in a short time without allowing them to go out. Vice versa, it can stop the entrance and let the exit free when, for many reasons, such as study, we want to keep workers temporarily out of the hive.

Moreover, with this device we can mark the worker individuals : either when they go out (4) or when they enter the hive, with one of the marking substances already tested, such as fluorescent powders. This type of marking may be used for studies on workers' flight behaviour and for studies of the movements, inside the hive, of the bees that have come back from flight (Smith and Townsend (17), Johansson (10), Free and Jay (3).

DESCRIPTION OF POLLEN DISPENSER

This device is built so as the entrance and exit are situated at different levels. Workers can go out from the upper level by lifting some small light metalic valves fixed on the upper side, the free part resting on a cavity in the from of a little canal where there is pollen of the variety that we need. Anthers can be used instead of pollen which let the pollen free little by little. Because workers at first flutter their wings, shaking pollen or anthers on the canal, it has proved useful to put a linen barrier on the front of this cavity. When outgoing workers raise these small valves, their abdomens cover with pollen, and they continue their flight to plants that are in blossom, where by contact with the stigma they put some pollen grain.

By using "pollen dispensers" we have obtained an increase of set fruits, size uniformity on Golden Delicious apple. In the flowering season of 1972, we recorded high number

*) Paper delivered at the Symposium held in Turin, 1972

of seeds in fruit trees at 25—35 m from the hive fitted with pollen dispenser. The count of seeds was made on 1600 fruits harvested at random, at different distances from the hive. The pollen dispenser was used for two days, 10 hours of flight each day, during flowering, and was provided with cultivar Stark Delicious anthers.

Given below are several articles dwelling on pollen dispersers.

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