

The Commercial Value of Pollination

It has been calculated by two different bodies that the farm gate value of honeybee *Apis mellifera* pollination in the U. K. was £120 - £150,000,000. One estimate has been put at £200,000,000.00. Allied to that is the production of 6,000 tonnes of honey per annum by 275,000 colonies managed by 400 professional and 37,000 hobbyist beekeepers. These figures are currently under review. In 1989 it was calculated that the value of insect pollination in the EU was 5 billion ECUs, 4.2 billion being ascribed to honey bees. This high percentage probably reflects the level of management and availability of honeybee colonies for crop pollination. For example if you run an orchard and use pesticides and herbicides you kill off the natural pollinators and become reliant on importing managed bees during the blossom period. As honeybees tend not to work in low temperatures, if inclement weather occurs at this period then pollination can be poor.

But how important are other bees and pollinating insects to mankind? It is difficult to quantify but it is generally accepted that over a third of the food we eat depends on the unmanaged pollination services of insects.

There is no doubt that our knowledge of crop pollination is not as advanced as it could be and generally there can be ignorance. A fine example of this is that until the 1980's in U.S.A. honeybees were used for pollination services for alfalfa. It gave good honey crops, yet in 1867 it was known that honeybees were incapable of pollinating this crop. Today bees of the species *Megachilidae*, which can trip the pollination mechanism, are used. Honeybees are similarly poor pollinators of potatoes and tomatoes, which require what is known as 'buzz' pollination. The flowers have to be shaken which honeybees are unable to perform well whereas bumblebees, vibrating their flight muscles at about 400 Hz, are extremely efficient. In greenhouse tomato crops this work used to be carried out by human hand, but today the common buff tailed bumblebee *Bombus terrestris* does it. These are reared on a commercial basis and supplied as a nest box to suit growers' requirements. This business alone has a turn over in excess of £10,000,000.00 sterling. With the availability of these nest boxes research projects relating to bumblebees are becoming more common than with honeybees.

Honeybees are the sole pollinator of Almond crops, which illustrates a problem if you are reliant on one insect for pollination. In California honeybees are conveyed to the almond orchards to perform this task but because of honeybee losses caused by varroa *Varroa destructor*, Small Hive Beetle *Aethina tumida* and more recently Colony Collapse Disorder (CCD), which is not yet understood, honey bee have had to be imported from Australia to perform this task.

As our knowledge about crop pollination increases the true value of specific bee species may be realised

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