



Eva Crane Trust

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## Beekeeping round the World

### Bees in drought

In the late summer of 1976 parts of north-western Europe suffered a long dry spell such as had not occurred within the past 250 years—some authorities said 500 years. The drought included a period of exceptionally high temperatures, and also of warm easterly winds. It lasted from late June until August, and followed a twelve-month period with less than half the usual rainfall. The areas most severely affected were in southern England, northern France, Belgium, Luxemburg and the Netherlands; areas somewhat less affected were in the German Federal Republic, northern Italy, Ireland, Scandinavia, and other parts of France and Britain. Readers of *Bee World* were asked for their experiences (1976, page 167), and reports from some regions are summarized below.

On the whole, peripheral parts of the drought area did rather well for honey, in what was an extra summery summer. Central areas, where the drought was severe enough to damage vegetation, are still counting the cost in 1977—although there has been an outstanding spring flowering on those trees and shrubs that thrive in the hot dry conditions in 1976.

Honey yields were outstanding in most of France, except for the heather region in the south-west, and in the south-west part of Brittany. Here, and in a few other areas (shown on a map in *Revue Française d'Apiculture*, 1976, page 347), the honey crop failed completely, and the colonies were in very poor shape for winter.

In Belgium, L. Buys at Stabroek (just north of Antwerp) found that white sweet cover flowered on sandy soils, but gave no nectar, and in late summer *Erica* and *Calluna* did not flower. On clay, sea aster gave a little honey, and lucerne much. Colonel S. J. Mottart at Awas (west of Liège) had no significant rain between 15 May and the end of September, and for three months temperatures rose above 30 °C, on many days 38 °C. The spring honey yield was normal, and the summer yield 23.5 kg (three times normal), mostly from honeydew: "the leaves of many trees and hedges were sparkling with honeydew, and under some trees the grass and soil were sticky with it". The colonies did not appear to suffer from the abnormal heat.

In the Netherlands nectar secretion started early, then ceased in July, but the average honey yield was good, especially in the north-west, with a surplus everywhere. Rape yielded well in early summer, and in September-October the rains initiated fresh flowering in many species, with a plentiful pollen supply.

One benefit of the drought to beekeepers in some parts of the Netherlands was that white clover, which in any case yields better in dry hot weather, did not have the usual competition from grass in the dried-up pastures. On the other hand M. E. David reports from Devonshire in England (without rain from April to the end of August) that "no clover flowers secreted nectar, though we are surrounded by clover". In Devonshire, blackberry provided surplus honey which was superb, but the flow ended abruptly on 23 June. Substantial feeding for winter was necessary.

In Denmark the rape flow, during and after May, was good. But as in many areas the heather did not yield honey. Eigil Holm reports that there were large flowers, but these did not open sufficiently for the bees to reach inside, and the base of the

corolla did not swell. In Sweden the total honey harvest was about the same as the average for the past three years. Arne Kjulsten tells us that forested areas had an extremely good yield, augmented by honeydew honey from both conifers and deciduous trees. As in France, this has led to poor colony wintering where honeydew honey was left for the winter stores; this honey contains too high a content of substances bees cannot utilize, and unless they fly out they do not excrete it. Throughout the German Federal Republic the honey harvest was very good, and in some parts it was a record.

Many reports were received in July, when the limes were in flower, of masses of poisoned bees lying beneath the trees; this is discussed further on page 129.

By and large, the heather and some other late honey crops failed in the drought areas, but honeydew yielded extra well. Trouble was stored up for winter in various ways in various regions: crystallized rape honey; honeydew as the only honey available for winter stores; and lack of normal late-summer nectar and pollen flows. There was one other, more unusual hazard, described below.

In southern parts of England, 1976 will be remembered not only as the drought year, but as the year the elms died†. Conditions were even more favourable than in 1975 for the spread of the beetles that carry the Dutch elm disease fungus. West Cambridgeshire in England had many elms, and bees collected a sweet black sticky substance left on the trees after attacks by the beetles. By February 1977 half the colonies in some apiaries had died, apparently because of their consumption of it during the winter. Cecil Tonsley noted similar damage to bees in Oxfordshire, Huntingdonshire and Warwickshire. In Kenilworth Mr. Alsop reported that all his 16 colonies were dead or beyond recovery on this account by the end of April: "All colonies had adequate other stores, but this substance had trapped the bees on the middle comb (some were even stuck to the combs), even though a good supply of other food was available on either side." One beekeeper harvested 500 kg of this 'honey'.

It is hardly worth making an extensive study to find ways of compensating for a drought that is to be expected only four times in a thousand years. In Israel, where drought conditions are a more usual hazard of beekeeping, a study\* was made in two extra-dry years, when the rainfall was only about half the normal of 700 mm or so. As in north-west Europe, most of the effect of drought on honey yield was via nectar secretion. For instance, only  $\frac{1}{2}$  or  $\frac{1}{3}$  as much citrus honey was produced during the spring in dry years as in rainy years; in the greater heat of summer, nectar secretion of other vegetation was so scanty that no honey was obtained from it.

In the drought under discussion, scarcity was of nectar (and therefore of surplus honey) rather than pollen. But in some parts of the world drought leads to pollen scarcity, and feeding colonies with pollen substitute can then be beneficial.

There is at present great interest in finding new plants that will yield surplus honey (and pollen) in areas that are characteristically and normally dry, and information and suggestions on this subject would be welcomed.

EVA CRANE

†Mortality to date is estimated at 9 million out of 23 million trees.

\*Y. Lensky; Y. Golan (1966). *Ser. hierosolymitana* 18: 27-42.