



Eva Crane Trust

ECTD_015

TITLE: Acarine Disease.

SOURCE: *Bee World* 34 (12): 246 – 247

DATE: 1953

and Sardinia ^{115/52}—that it has threatened to make beekeeping impossible. In parts of Switzerland ^{110/50} it is still the commonest disease; in Scotland ^{171/50, 87/53} about one colony in twenty is infected. In North America ^{7/50} and New Zealand ^{77/50, 58/52} the disease is not known, and the fact that in Europe severe outbreaks so often occur near the boundary with another country ^{131, 170/52} suggests that the restrictions on imports of bees are a very wise precaution. The presence of acarine mites in Argentina ^{76/52} has caused some concern among beekeepers on the American continent.

Clear instructions for microscopic diagnosis of the disease are available for English beekeepers ^{53/51}; a Swiss method ^{87/50} which does not need a microscope consists of pulling off the hind wing of a 'crawler'—if acarine disease is present the wing comes away readily, with part of the body wall attached.

The problem of treatment is complicated. Frow mixture†, which was so successful in the English epidemic after the first war ^{184/50}, and other chemical remedies ^{111/50}, have recently proved singularly ineffective in many countries, although commonly used ^{140, 160, 187/50, 19/51} and successful ^{21/53} in others, and much work has been done to develop more satisfactory control methods. In England the sulphur* treatment has been revived ^{88/50}, and in Austria Mito A₂ (98% methyl alcohol + 2% mustard oil) is recommended ^{140, 190/50}. The disturbance among the bees caused by introducing this vapour—or presumably others—can last for several days ^{140/51}.

In Czechoslovakia, treatment with hydrochloric acid ^{171, 173/52} or BEF ^{171, 173/52} has proved successful during the broodless period ^{19/53} (or BEF‡ can be used when there is brood); hydrochloric acid† tends to excite the bees. In Belgium, PK*‡ has been shown to kill all mites within three weeks and not to damage bees or brood ^{39/53}; it does however seem to stimulate the colonies rather much ^{40/53}.

All the above treatments are chemical ones, but in France good results have been reported with a yeast *Acaromyces* ^{171/51}—a suspension of it is sprayed on to the combs ^{20/53}. In Czechoslovakia and Germany a biological treatment ^{131/52}, based on the separation of sealed brood from the diseased bees, has been used successfully to clear badly infected areas. It involves much work in transporting bees and brood, and the whole operation takes about four months, but it does get rid of the mites completely.

Laboratory experiments in France ^{111/50} and Germany ^{170/51, 286/53} have shown how extraordinarily *resistant* the mites are—and how much more resistant than the bees they infest. For instance, within the bees' tracheae mites outlived bees over all ranges of temperature and humidity, and many of the treatments used had little effect on the mites at all, while the bees quickly succumbed. In England success has been claimed ^{36/53} in breeding bees resistant to acarine disease.

Unidentified mites have been reported recently in the air sacs of bumble bee queens and workers ^{48/50}; the possibility of honeybees becoming infected from bumble bees (or wasps or ants) has been discussed ^{17/53}, but finally rejected.

EVA CRANE

SCIENCE AND PRACTICE

Acarine disease

Important advances have been made since the war, both in the treatment of acarine disease and in the study of the life history and behaviour of the mite itself, which had never before been clearly understood. Careful German work ^{182, 283, 284, 287/53} has shown how the mites pierce the tracheal walls to obtain nourishment, and how they migrate from one bee to another. It has also been shown ^{284, 287/53} that it is the *intermittent* stream of air from the first thoracic spiracle which attracts them to it (in young and old bees alike), and the stiff barrier of hairs which prevents entry except in very young bees.

Within the last decade acarine disease has been so severe in some areas—such as south-west Germany ^{131/52}, Czechoslovakia ^{170, 171/52}

* Treatment by smoke blown into the hive

† Treatment by vapour of substance slowly evaporating within the hive

‡ Composition not available