South Tipperary Beekeepers' Association

Fact Sheet no. 16

Acarine

Acarine is associated with the tracheal mite acarapis woodie Rennie. It enters the young bees through the spiracle into the trachea and starts to lay eggs. Both the larvae and adult pierce the trachea wall and feed on the haemolymph. Death of the colony associated with mites usually occurs in late winter early spring especially when the infection within the colony is >30%.

The entire life cycle of the mite is spent within the respiratory system from the time it is transfers from one bee to the next. The female mite lays 5-7 eggs which hatch after 3-4 days and develop into larvae feeding on its host, then molt. Males mature in 11-12 days, females take 14-15 days. In order to re-infect the females emerge from the trachea and attach themselves to the tip of the bees hair which allows easy transfer from one bee to the next.

Positive identification can be determined by removing the head and collar, exposing the trachea. The time of death can be critical especially in very hot weather as the bee may be badly decomposed and identification not possible. The trachea of a healthy bee is white, possibly fleshy, clear in colour where as the trachea that is infected looks, black, or dirty in colour. A low level infection may go undetected for many years, however as the infection reaches a critical level the colony succumbs. Mite infection shortens the life of the bee and its ability to thermo regulate. When a colony is near death large numbers of bees can be seen crawling out of the hive to the vegetation in front of the hive. Inside the hive the colony looks dysfunctional with several pockets of bees throughout the hive, all looking cold, shivering, shiny and greasy (wet) look. Similar symptoms are displayed by bees suffering from chronic bee paralysis virus (CBPV). The bee's wings look disjointed and take the form of a K shape.

Bees less than 5 days old are susceptible. Close contact between bees aids transfer such as winter clustering. Winter bees have a longer life therefore several generations of mites can develop in each bee; compared to summer bees where only one cycle is possible. Also foraging bees can lose the mite in the field lessening the chances of re-infecting others. Varroa infested colonies are more likely to be infected than non-infested colonies.

The presence of varroa lessens foraging and therefore increases close contact between bees in the hive. Infection in the thorax decreases flight muscle activity inhibiting heat generation. This in turn reduces brood rearing and the replacement of the winter bee with young bees is much reduced. This prevents the colony from developing and eventually it will drop below the critical number necessary for survival.

Certain bees do demonstrate grooming habits whereby they remove the mites. There is no approved propriety product required for the control of Acarine in Ireland. Apiguard used for varroa control is effective against trachea mites. Yearly monitoring will identify those bees that are susceptible and those that are demonstrating resistance. Breeding queens from the resistant colonies and replacing those that are not would reduce the overall infection within the apiary.