Beetle Threatens Hives

The small hive beetle poses a major threat to both Australian honey production and the fertilisation of crops and native flora, according to University of Queensland entomologist Dr Bronwen Cribb. However, the danger is being overshadowed by menaces of colony collapse disorder and the varroa mite (AS, Jan/Feb 2009, p.9).

"It's not just our honey industry that's at stake," Dr Cribb says. "Without bees, biodiversity in our flora and the pollination of our fruit and vegetables are at risk. This includes crops such as pumpkins, kiwi fruit, apples, cherries, plums, apricots, peaches, pears, strawberries and, to some extent, nectarines."

Cribb says that the beetle lays eggs inside a hive, and "when the grubs hatch out of the eggs they dig through and eat the pollen and the baby bees". The beetle also carries a yeast that can ferment the hive into a slimy mess. Cribb has a student studying whether the beetle and yeast are symbiotic.

The beetle originates in Africa, where bees have resistance strategies. "We've domesticated bees so long we have bred out lots of traits like aggression, and honey bees are now very dependent on us," Cribb says.

In North America the beetle has been controlled with spraying, but Cribb says this approach is problematic and he instead advocates integrated pest management. "If the organisations that can come up with solutions leave this issue untended we could see hive-keepers taking things into their own hands in ways that are not desirable."

In-hive traps are the one defence currently used in Australia. While many innovative ideas have been developed to separate the beetles from the bees, Cribb says they are far from fully effective.

Cribb notes there is evidence that diatomaceous earth, a mineral made from fossilised sea creatures, is poisonous to the beetle. She hopes to add this to in-hive traps while also finding some distracting scent that will lure beetles to out-of-hive traps.

Grubs turn into adult beetles in the soil before invading other hives, so Cribb's colleagues are exploring a microorganism that kills the beetles during this stage. She notes that commercial hives have been less affected than the hives of backyard enthusiasts as frequent movement denies beetles the opportunity to build up their numbers in nearby soil.

The beetle prefers warm winters but has been detected even in Victoria.