

New high-value honey nectar and pollen sources: clover

Researchers from the CRC for Honey Bee Products are exploring whether the clovers could substitute native flora shortages at the critical time of colony build-up after the winter.

Bushfires and land-use change are causing a decline in productive areas of native flora for the Australian beekeeping industry. Decreases in winter rainfall across many parts of southern and eastern Australia will add to pressures on traditional honey production. Particularly concerning are the loss of eucalypt forests and high pollen-producing native bush species.

The CRC for Honey Bee Products is investigating the viability of offsetting some of this loss of natural production by expanding areas of bee-loving agriculture species.

Clovers (*Trifolium spp.*) are forage legumes widely grown for their high protein content and contributions to soil fertility via nitrogen- and carbon-fixing. These legume species serve as animal forage in many Australian soils and rainfall regions. The plants represent a nectar and pollen source for the honey bee industry.

However, few clover species have been assessed for honey or nectar production. Also unclear is the potential for any clover nectar bioactivity to be transferred to honey.



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bee health



food resources



biodiversity



A portable bee hive trailer on a Western Australia farm



Clover may provide a flora resource for honey bees at a critical stage in their development after winter and preparing for pollination services.

A contribution by clover to producing high-value bioactive honey would significantly benefit the honey bee product industry.

Honey can contain over 200 phytochemicals, with its composition strongly dependent on the floral species the bees visit. Non-volatile compounds that include sugars and phenolic compounds contribute to the taste, colour, physical properties and overall quality of honey.

CRC researchers postulated that red clover could be a novel and valuable source of phytoestrogens, which have the potential to be used as an effective and alternative form of hormone replacement therapy. Phytoestrogens are plant compounds similar to the mammalian sex hormone oestrogen.

Researchers undertook trials in five small shade houses containing two legume species. Additionally, there was a large shade house that contained two legume species and an annual and a perennial clover.

There were also hives placed near balansa and Persian clover at a farm near Capel, 200 kilometres south of Perth.

Extensive analysis of honey obtained from the trials is determining the extent to which clover can contribute to the production of high-value honey products, and at the same time, fill a necessary forage gap to sustain honey bee health.



Crimson clover flowering in a University of Western Australia shade house, with a beehive in the background