

Bees support bountiful berry production

Plant Health Australia

MT21008 National Bee Pest Surveillance Program (NBPSP) is funded by Hort Innovation using research and development levies of 14 horticultural industries, with significant co-investment from states and territories and contributions from the Australian Honey Bee Industry Council, Grain Producers Australia and the Australian Government. The NBPSP is coordinated by Plant Health Australia and delivered by states and territories.

Healthy bees are a valuable contributor to big, bold, bountiful berry yields, supporting Australia's Rubus and strawberry industries with cross-pollination.

Raspberry, blackberry and hybrid brambles (including silvanberries, boysenberries, loganberries) are collectively referred to as Rubus or cane berries. Raspberry and blackberry cultivars range from completely self-fruitful (can produce fruit from their own pollen) to completely self-unfruitful (cannot produce fruit from their own pollen). Though 80% of strawberry fruit production is due to gravity and wind as the flowers are self-fertile, pollinating insects play an essential role in reducing deformities, and producing larger fruit size.

Pollination from honey bees, native bees and other pollinators can increase yield as well as fruit quality when present in a berry crop during flowering (MacInnis & Forrest, 2019, Keogh et al. 2010).

For raspberry and blackberry fruit size, shape and numbers are good measures of the degree of pollination. For strawberries the benefits of pollination can be seen in the fruit set and fruit size.

A study in Victoria found that loganberries roughly doubled in farm gate value with pollination of honey bees, compared to the non-honey-bee-pollinated fruits (Langridge & Goodman, 1985).

Healthy bees are key to healthy berries. Australia has one of the healthiest bee populations in the world, due to our geographic location, a world-class biosecurity system and programs such as the National Bee Pest Surveillance Program (NBPSP).

The NBPSP has been coordinated by Plant Health Australia (PHA) for the past 10 years however bee pest surveillance in Australia has been underway for over two decades with the first sentinel hive inspections occurring in the late 90s. The current version of the program has been running for the last 12 months. The NBPSP is funded by Hort Innovation through 14 pollinator-reliant industries, with co-investment from the Australian Honey Bee Industry Council (AHBIC), and Grain Producers Australia (GPA).

The NBPSP is an early warning system that uses a range of surveillance methods at seaports and airports throughout Australia, considered to be the most likely entry points for bee pests and pest bees. Surveillance at additional ports is provided through in-kind contributions by state and territory governments.

The detection of Varroa mite in June 2022 in NSW, shows the value and success of years of preparedness and surveillance activities in the NBPSP. This detection highlights years of dedicated work by jurisdictions and the ongoing investment by industries such as Rubus and strawberries in supporting early detection projects.



Mark Page NSW DPI Bee Biosecurity Officer Surveillance. Photo credit: NSW DPI

Various surveillance techniques such as sentinel (live) hives for pests and diseases, catchboxes to capture swarms, rainbow bee-eater pellet analysis, and aerial pheromone ballooning to pick up new species of bees, and sweeping flowering plants with nets to capture any foraging bees near ports.

Rubus and strawberry growers can be instrumental in reporting any unusual plant or bee pests and diseases themselves, through the Exotic Plant Pest Hotline (1800 084 881). Early reporting increases the chance of effective control and eradication.

Ensuring the longevity and continued success of the NBPSP is pivotal in safeguarding the honey bee industry and those industries that benefit from honey bee pollination. Securing ongoing support to the NBPSP will be a focus as the project continues towards conclusion in December 2024.

Bibliography

Langridge, D. F., & Goodman, R. D. (1985). Honeybee pollination of loganberries (*Rubus loganobaccus* L.H Bailey). *Australian Journal of Experimental Agriculture*, 224-226.

MacInnis, G., & Forrest, J. R. (2019). Pollination by wild bees yields larger strawberries than pollination by honey bees. *Journal of Applied Ecology*, 824-832.

Robert C Keogh, Robinson, A. P., & Mullins, I. J. (2010). *Rubus production in Australia Introduction*. Retrieved from AgriFutures: <https://agrifutures.com.au/wp-content/uploads/publications/10-137.pdf>



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