Research Update: Best Practice Pollinator Management for the Rubus Industry (RB23002)

Julian Brown, Nicole Rafferty, and Margaret Mayfield, the University of Melbourne

- Based on our findings to date, the NSW-QLD Rubus growing regions would be least impacted by reduced or more costly honeybee pollination services because stingless bees and potentially hoverflies can be managed there.
- The VIC, TAS, and WA growing regions may be more heavily impacted due to the relatively higher dependence on honeybees and the absence of managed Rubus pollinators.
- All Rubus pollinator groups, managed or otherwise, could benefit from the enhancement of on-farm floral resources to promote colony health, which is the next stage of our research.

Raspberry and blackberry growers have invested their research and development levy through Hort Innovation into the '*Best Practice Pollinator Management for the Rubus Industry* (RB23002)' project being delivered by the University of Melbourne. The main aim of this project is to provide Rubus growers around the country with information about which insects, other than honeybees, are likely pollinating Rubus and what can be done to support different insect pollinators on-farm. We are two years into the project, so it is time for another update.

We have recorded flower-visiting insects on 13 Rubus farms covering the major Rubus growing regions of Australia: Tasmania (TAS), central Victoria (VIC), northeast New South Wales-southeast Queensland (NSW-QLD), and Western Australia (WA) (Figure 1, WA not shown). These surveys were conducted at different times of year to match peak Rubus flowering in each region, which was primarily Spring-Summer except for in southeast QLD where Rubus flowered in winter.

The composition of Rubus-visiting insects varied substantially between regions. European honeybees (*Apis mellifera*) were the dominant flower visitors across all sites, and were the only bee species recorded visiting Rubus at the two sites in WA and one site in VIC. Native sweat bees (*Lasioglossum* species) were recorded visiting Rubus at 70% of farms, from northeast NSW, through VIC and into TAS. They typically occurred in low numbers relative to honeybees, though at one site they comprised around one-third of all visits to Rubus flowers.

There was a clear north-south divide in the presence of native stingless bees (*Tetragonula carbonaria*), confined to northeast NSW-southeast QLD, and native reed bees (*Exoneura* species) which were confined to VIC and TAS. Stingless bees were present at all NSW-QLD farms and visited Rubus flowers in numbers comparable to honeybees, while reed bees were present on only three of eight farms in VIC and TAS where they comprised around 20% of visits to Rubus flowers on average.

Exotic bumblebees (*Bombus terrestris*) were present on only two farms, both in TAS, visiting Rubus flowers in relatively small numbers (< 5%), and there was one farm in TAS where native cellophane bees (*Leioproctus* species) comprised around 1% of visits to Rubus flowers.

Spatial patterns in the composition of Rubus-visiting bees can be explained by the natural distributions of native bees and the management of native and non-native bees. The dominance of honeybees across sites can be explained by the fact that they are managed crop pollinators in all growing regions. Native stingless bees are also managed crop pollinators, though they are primarily tropical and sub-tropical species restricted to warmer climates.

Bumblebees can be managed, though not at any of the sites we surveyed, so the relatively low number of visits were from feral colonies currently confined to TAS. Native sweat bees and reed bees are not currently managed, and had naturally colonised the farms where they were recorded visiting Rubus flowers, with sweat bees observed nesting in the exposed soil at the base of Rubus canes and reed bees nesting within Rubus cane stubs protruding from the soil. While sweat bees are widely distributed across Australia, reed bees are relatively confined to the wetter and cooler southern coastal areas.

In addition to bees, hoverflies (*Eristalis*, *Melangyna*, and *Simosyrphus* species) were found visiting Rubus flowers in small numbers (< 5% of visits) across all sites (data not shown). Hoverflies were not managed at the sites we surveyed, but recent research in NSW and TAS indicates that they could be managed as effective Rubus pollinators in cold and warm areas (Davis et al., 2026).

Treatment-resistant Varroa mites have recently been detected in QLD, NSW, SA and VIC, threatening the future security of Rubus pollination. Based on our findings to date, the NSW-QLD Rubus growing regions would be least impacted by reduced or more costly honeybee pollination services because stingless bees

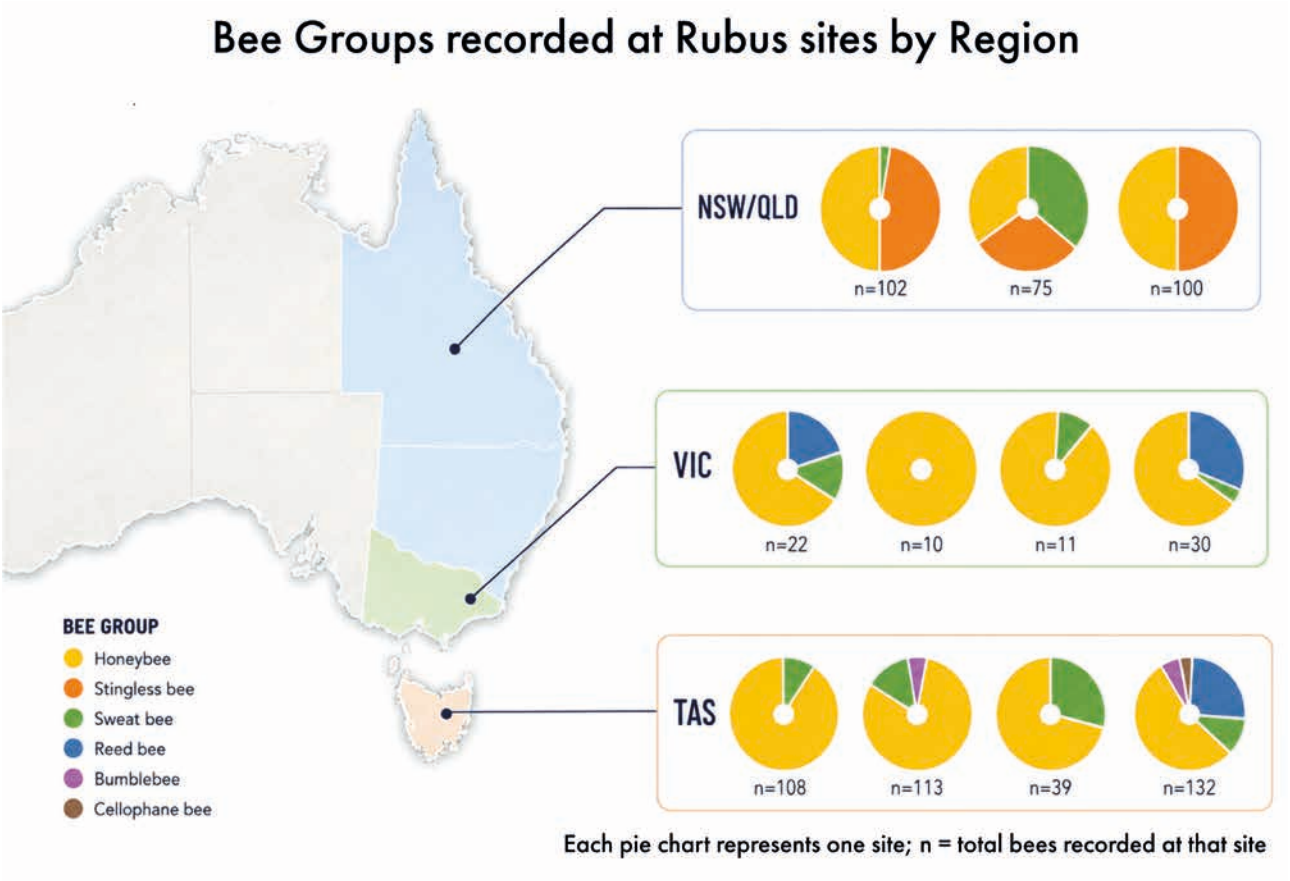

Figure 1. The proportion of visits to Rubus flowers by six different groups of bees across 11 Rubus farms in southeast Australia

and potentially hoverflies can be managed there. The VIC, TAS, and WA growing regions may be more heavily impacted due to the relatively higher dependence on honeybees and the absence of managed Rubus pollinators.

Recent advancements in managing hoverflies as Rubus pollinators in temperatures that are too low for stingless bees are encouraging. There is also the possibility of managing the native reed bees and sweat bees that already nest on some Rubus farms (Figure 2).

Reed bees can be housed in artificial nests (e.g. balsa wood) and transported to new locations where they visit nearby flowers (Wang and Brown, 2026). Sweat bees might be encouraged to nest in soil mounds created around farms where no crop protection treatment spraying occurs, though more research is required. All Rubus pollinator groups, managed or otherwise, could benefit from the enhancement of on-farm floral resources to promote colony health, which is the next stage of our research.

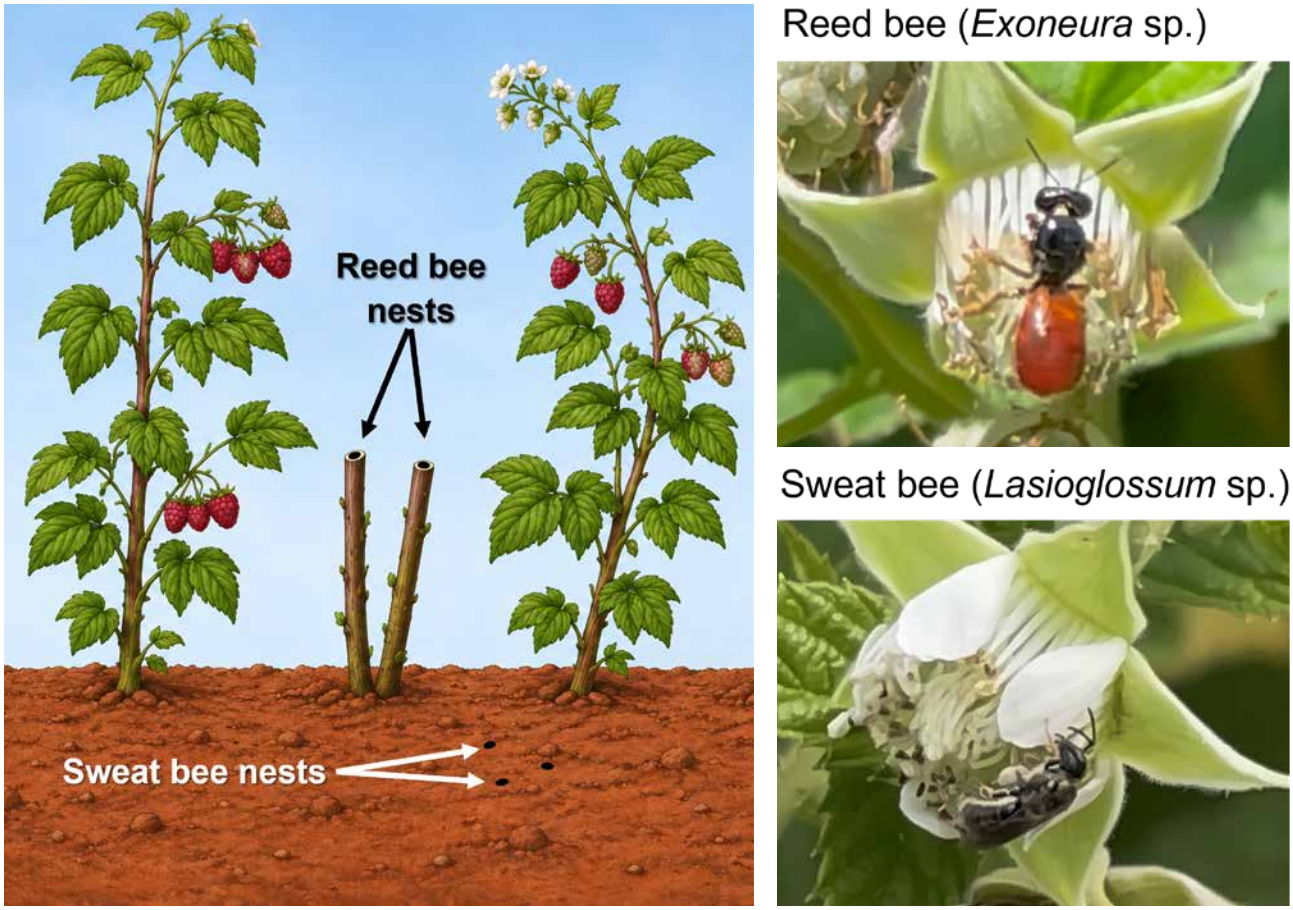

Figure 2. Nest locations of native bees that naturally colonise Rubus farms and pollinate Rubus flowers

Further reading

DAVIS, A. E., ROWBOTTOM, R., SCHMIDT, L. A., PRERADOVIC, J., SANTOS, K. C., DAWSON, B. M., MANRIQUE, M., WRIGHT, D., SHERMEISTER, B. & HOCKING, B. 2026. Managed fly pollinators ensure berry crop yields under variable weather conditions. Agriculture, Ecosystems & Environment, 400, 110254.

WANG, M. & BROWN, J. 2026. Establishment of a Native Cavity-Nesting Bee (Exoneura robusta) After Translocation Into an Urban Environment. Ecology and Evolution, 16, e73567.