

Bee Attractants and Pollination Performance in Kiwifruit

Professional summary of Jailyang et al. (2022), *Scientia Horticulturae* 295, 110869

KEY MESSAGE

Kiwifruit flowers provide negligible nectar and are comparatively unattractive to honey bees. In this study, bee-attractant treatments significantly increased bee activity and were associated with improvements in seed set, fruit size, weight and quality compared with the untreated control.

Why this study matters

Kiwifruit (*Actinidia deliciosa*) is dioecious: male and female flowers occur on separate plants, so effective cross-pollination is essential for commercial fruit production. The authors identify a practical limitation of bee-mediated pollination in kiwifruit: nectar availability in the flowers is negligible, reducing their attractiveness to honey bees. The study therefore evaluated whether attractants could increase bee visitation and improve pollination-related fruit outcomes.

Study design

Treatment approach	Purpose
Bee Scent (commercial bee attractant)	Increase honey-bee activity in kiwifruit flowers
Jaggery solution (10%)	Indigenous / conventional bee attractant
Sugar solution (10%)	Indigenous / conventional bee attractant
Honey solution (10%)	Indigenous / conventional bee attractant
Sugarcane juice (10%)	Indigenous / conventional bee attractant
Hand pollination	Pollination comparison treatment
Untreated control	Baseline comparison

Main findings

- **Bee activity:** attractant treatments significantly improved bee activity compared with the untreated control.
- **Pollination and seed set:** improved bee visitation was associated with higher seed setting, an important driver of kiwifruit development.
- **Fruit size and weight:** treated flowers produced improvements in fruit size and fruit weight relative to the control.
- **Fruit quality:** the study reports improvements in biochemical quality characteristics under bee-attractant treatments.
- **Bee Scent:** the commercial attractant was specifically evaluated alongside locally used attractants and hand pollination, providing direct evidence for the use of a commercial bee-attraction strategy in kiwifruit.

Biological interpretation

The study supports a straightforward mechanism: when a crop offers little nectar reward, increasing its attractiveness to foraging bees can increase floral visitation. Greater visitation can improve pollen transfer to female flowers; in kiwifruit, successful pollen transfer and seed formation are closely linked to fruit development and commercial quality. The authors also examined relationships between bee visits and fruit-quality characteristics, and between seed number and fruit size/quality.

Practical relevance

For commercial kiwifruit orchards, the paper provides peer-reviewed evidence that bee-attractant strategies can be used to strengthen bee-mediated pollination where natural flower attractiveness is limited. The results should be interpreted as evidence for **enhancing bee activity**, rather than as proof that attractants alone guarantee adequate pollination under every orchard condition. Pollen availability, male:female flower distribution, weather, competing bloom, hive strength and orchard structure can all affect final pollination performance.

COMMERCIAL TAKEAWAY

The paper provides a scientific basis for using a bee attractant as one component of an integrated kiwifruit pollination program, particularly because kiwifruit flowers themselves offer very little nectar reward.

Source

Jailiang, L.; Sharma, N. C.; Chandel, J. S.; Rana, V. S.; Rana, K.; Chauhan, P. (2022). *Influence of Bee Scent and other indigenous bee attractants on bee activity and fruiting behaviour of kiwifruit (Actinidia deliciosa A. Chev.)*. Scientia Horticulturae, 295, 110869. DOI: 10.1016/j.scienta.2021.110869.

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