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BEE-TECH GROUP

AGRICULTURAL DEVELOPMENT

July 2025 Newsletter

Pollination Power Play: Boosting Bee Activity in Avocado Orchards

Enhancing Bee Activity to Improve Avocado Pollination

In the 2024 season, Bee Tech Group conducted two trials in netted avocado orchards to explore practical strategies for increasing honeybee activity and supporting effective pollination. Avocados are known for producing low-quality nectar, making them less attractive to bees—and limiting pollination. These trials aimed to address that challenge using two different interventions: **pollen removal from hives** and **application of the Apis Bloom pheromone attractant**.

Trial 1: Pollen Removal to Stimulate Foraging

Research from a 1997 study in Greece showed that removing stored pollen from hives significantly increased bees' motivation to collect pollen. Inspired by these findings, we applied the same principle in avocado orchards.



- **Trial Design:**

- **Treatment block (2.8 ha)** with 40 hives that had all pollen frames removed.
- **Control block (2.85 ha)** with hives containing an average of two pollen frames.

- Pollen traps installed to quantify daily pollen collection.

- **Results:**

- **38% increase in bee activity** in the treatment block.
 - **33% more pollen collected** than in control hives.
 - This response is likely driven by the hive's increased internal demand for protein, which stimulates foraging behavior.
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🌸 Trial 2: Apis Bloom Pheromone to Improve Flower Attractiveness

To address the poor nectar quality of avocado flowers, we tested the use of **Apis Bloom**—a synthetic pheromone designed to mimic floral rewards and attract bees.

- **Trial Design:**

- **5 ha treatment block** treated with Apis Bloom.
- **5 ha control block**, separated by a buffer zone.
- Bee activity monitored across six 1 m² flower zones over three days, at two daily time points.

- **Results:**

- **30% increase in bee activity** in the Apis Bloom-treated area.
 - Interestingly, **less pollen was collected** compared to the control—likely due to bees prioritising nectar.
 - However, bee activity remained high, indicating active pollination was still taking place through incidental contact with flowers.
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📊 Overall Observations

- Both pollen removal and Apis Bloom treatments **significantly increased bee visitation** in the orchard.
 - Bee activity was consistently **higher in the afternoon**, regardless of treatment.
 - Even when bees focused on nectar rather than pollen, **pollination was still effectively supported** through natural flower-to-flower movement.
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Yield Assessment: On Hold, But Still a Priority

Although we had planned to assess final fruit yield to quantify the full impact of increased bee activity, **soil-related issues on the farm compromised yield data**. As a result, yield comparisons were not feasible in this trial. However, linking bee activity directly to improvements in fruit set and size remains a core objective for future work.

Key Takeaways

- **Pollen removal** motivates bees to collect more pollen, driving stronger foraging behavior.
- **Apis Bloom pheromone** enhances flower attractiveness, increasing bee visitation even in low-nectar crops like avocado.
- Both strategies are effective tools for **boosting pollination activity**, particularly under netting.
- Future trials will aim to quantify the **impact on yield**, helping growers make informed decisions about pollination enhancement.
- An upcoming trial will combine pollen removal and bee attractant to evaluate potential synergistic effects on pollination and yield.



 **Interested in implementing bee-optimisation strategies in your orchard?**

We're expanding our field trials and welcome collaborative partners.

Get in touch with us for the full write up or for more information.

Send us an email at info@bee-techgroup.com or give us a call on 071 404 0101.