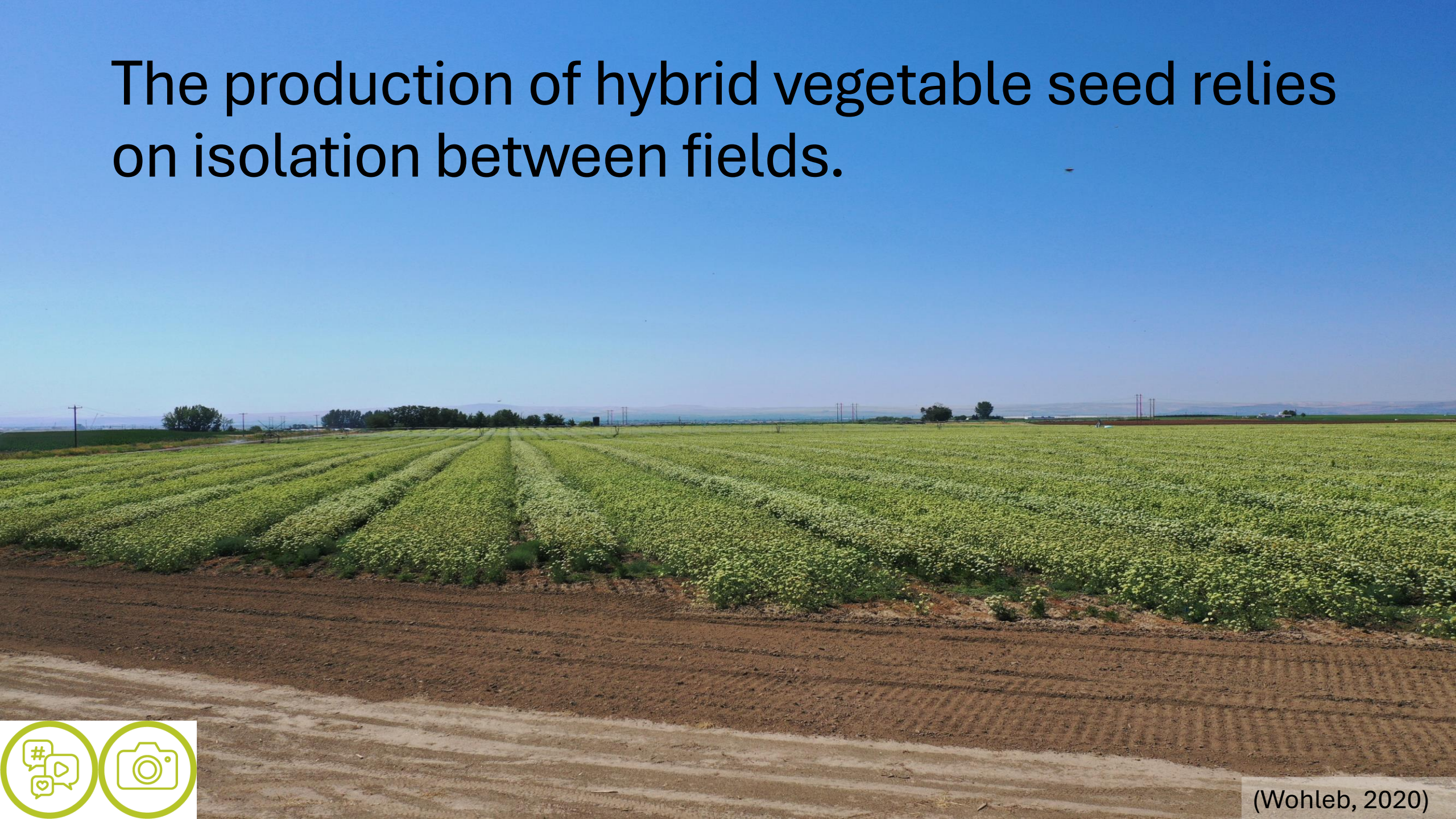
The impact of supplemental feeding on honey bee foraging habits in carrot seed.

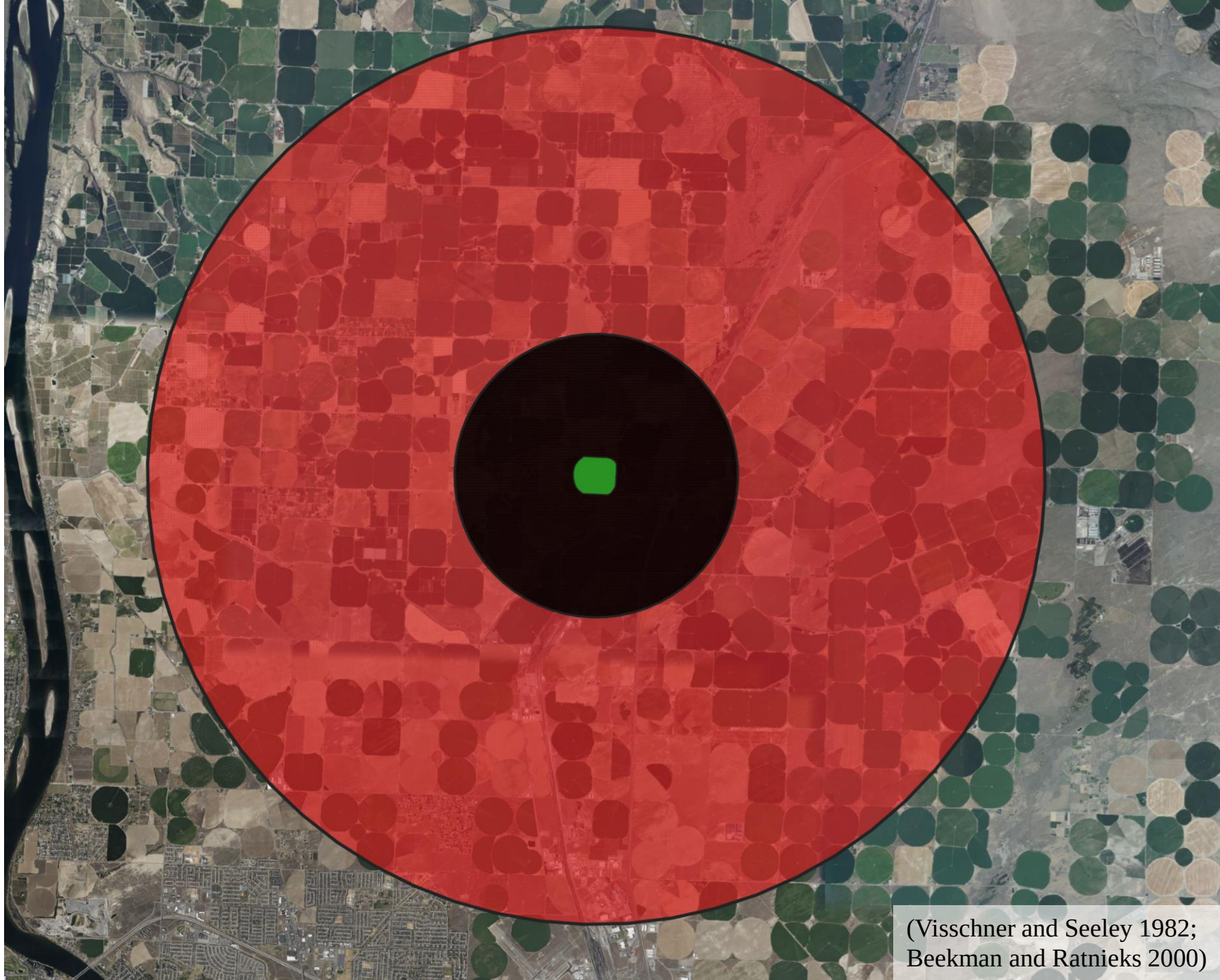
Riley Reed & Brandon Hopkins

The production of hybrid vegetable seed relies on isolation between fields.



(Wohleb, 2020)

The foraging distance of honey bees depends on forage availability and quality.



(Visschner and Seeley 1982; Beekman and Ratnieks 2000)

The poor conditions of a hybrid seed field forces bees to search for alternative forage.

Gaffney et al. 2011; Hendriksma and Shafir 2016; Zarchin et al. 2017

Kiwi growers in New Zealand also struggled to keeps bees on their crop.

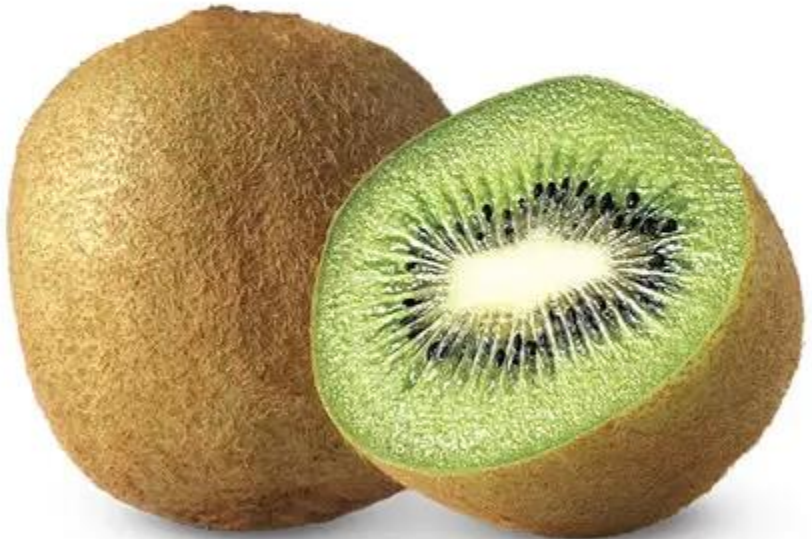


Photo courtesy of
Aldi

Feeding sugar syrup increase the collection of kiwi pollen.

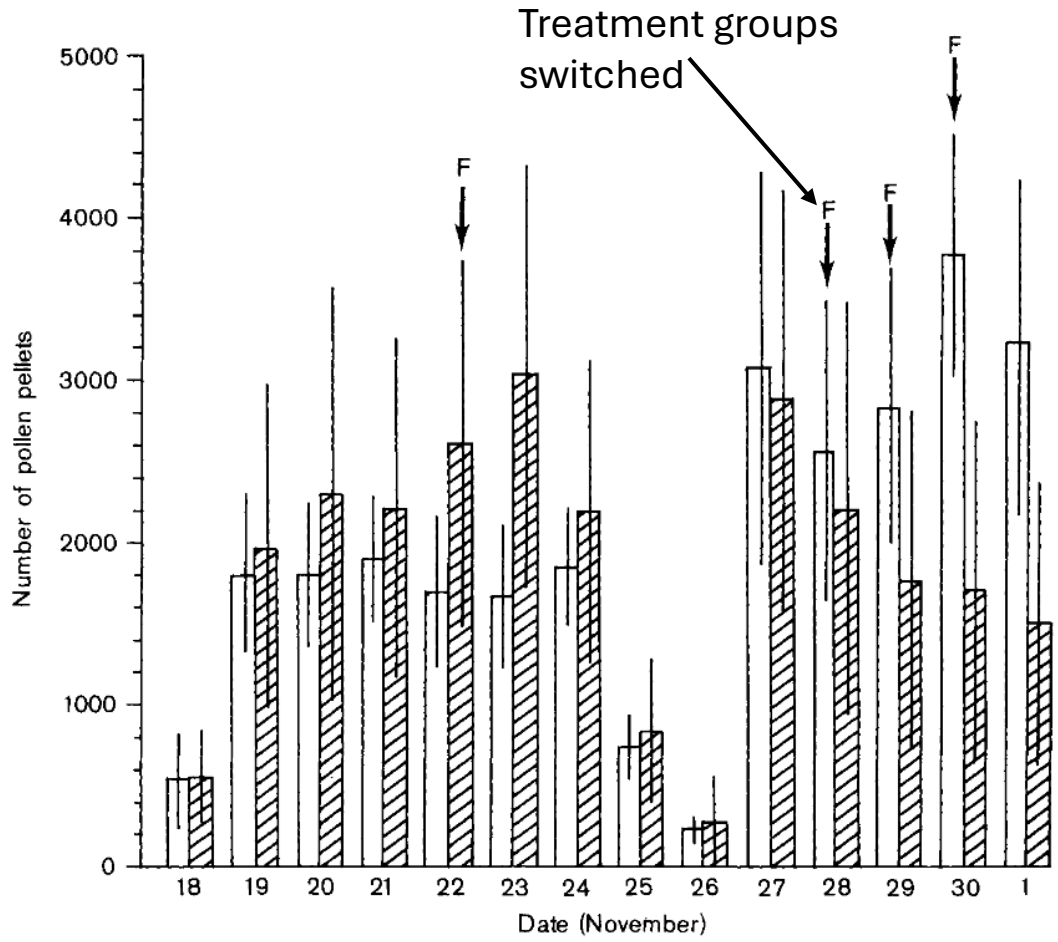


Fig. 1 Histogram of the average number of kiwifruit pollen pellets collected each day (clear bars = group A: hatched bars = group B; vertical lines = 95% confidence intervals; F = days when the group indicated was fed).

Goodwin, 1986

Feeding pollen substitute decreased the collection of other pollen other plants.

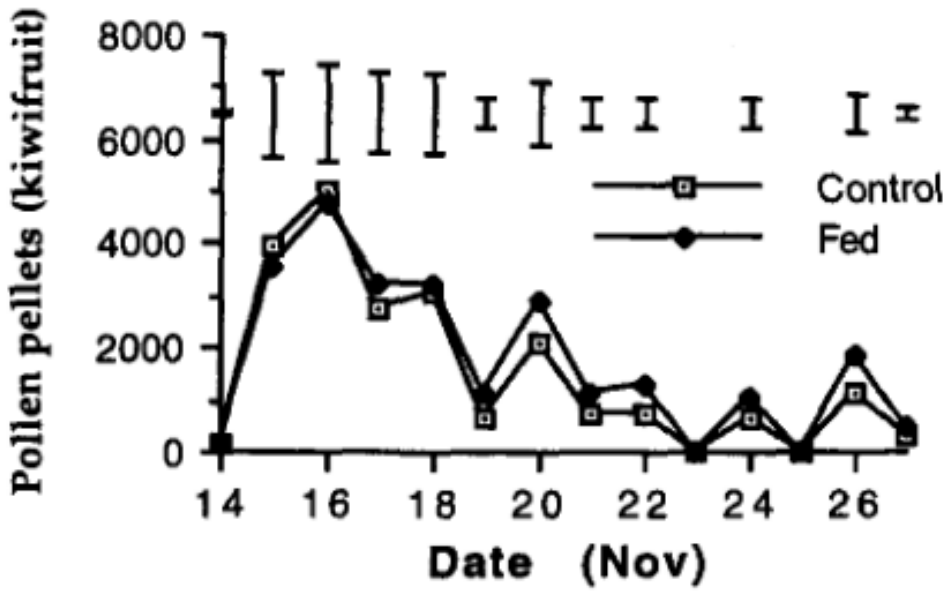


Fig. 1 Average number of kiwifruit pollen pellets trapped per day from control colonies and colonies fed pollen substitutes. The colonies were fed from 14 until 27 November. The vertical lines represent SED values.

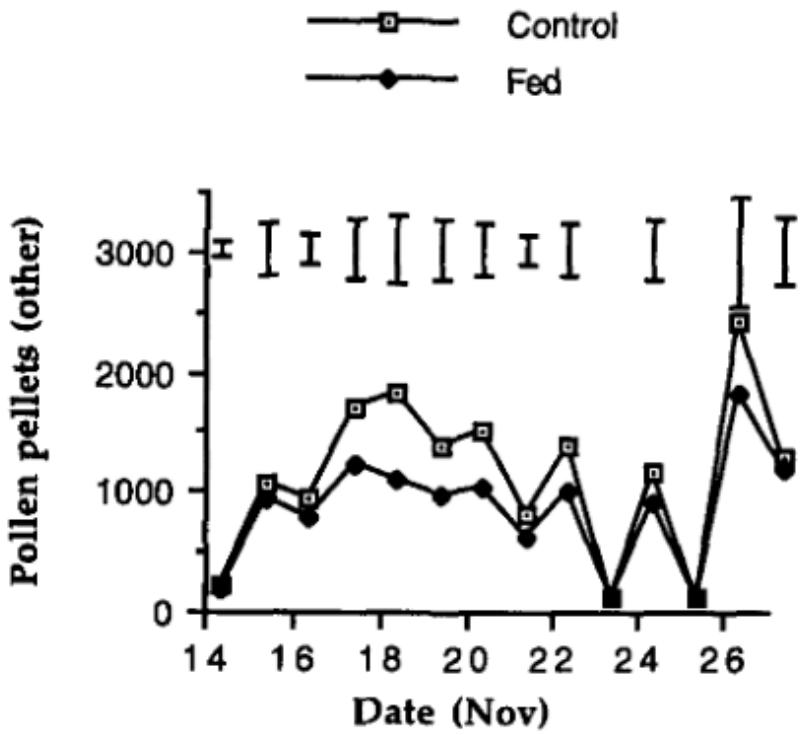


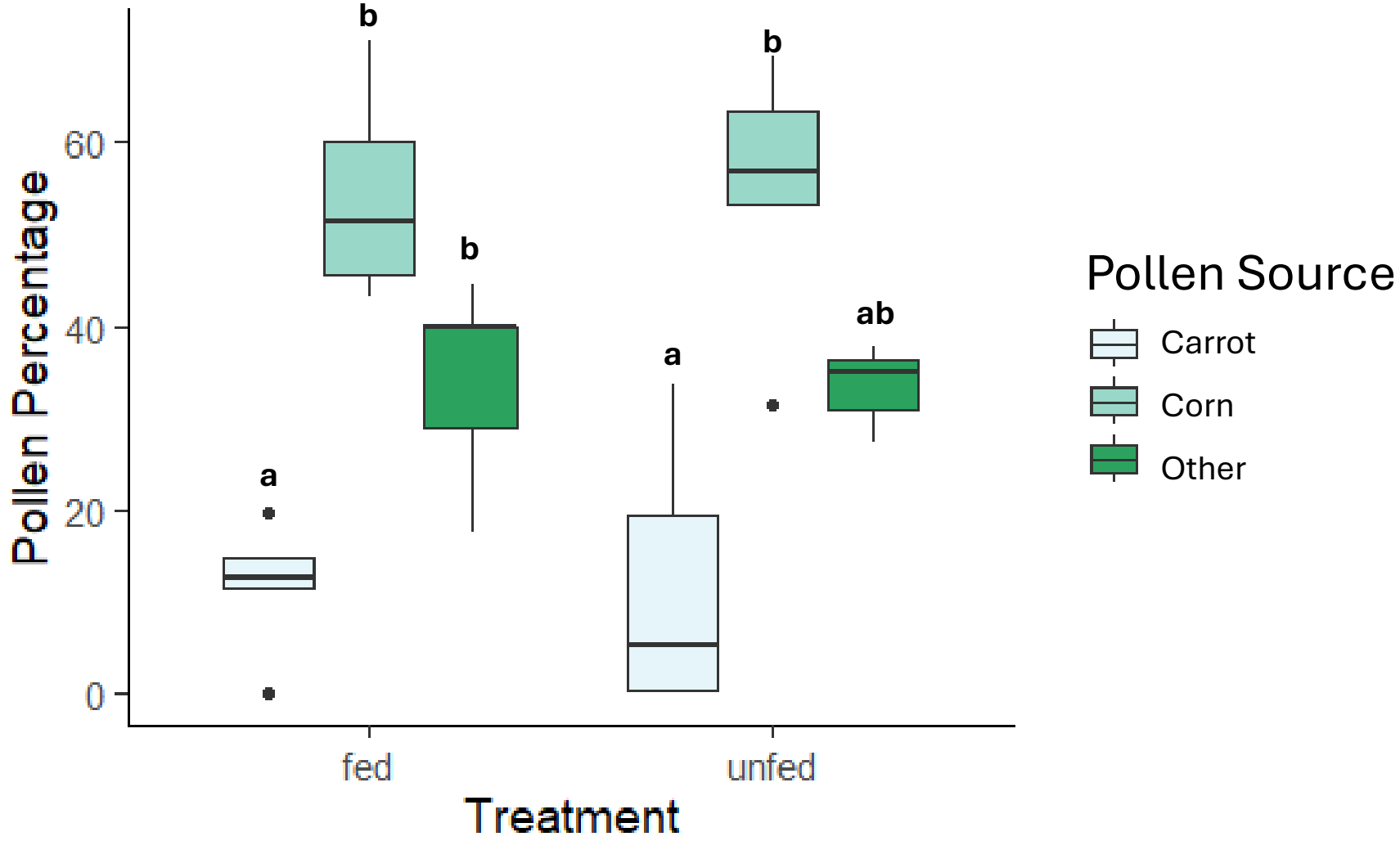
Fig. 2 Average number of pollen pellets other than kiwifruit trapped per day from control colonies and colonies fed pollen substitutes. The colonies were fed from the 14 until 27 November. The vertical lines represent SED values.

Goodwin et al., 1994

Hypothesis: Providing supplemental in-hive feeding will remove their need to forage at longer distances.

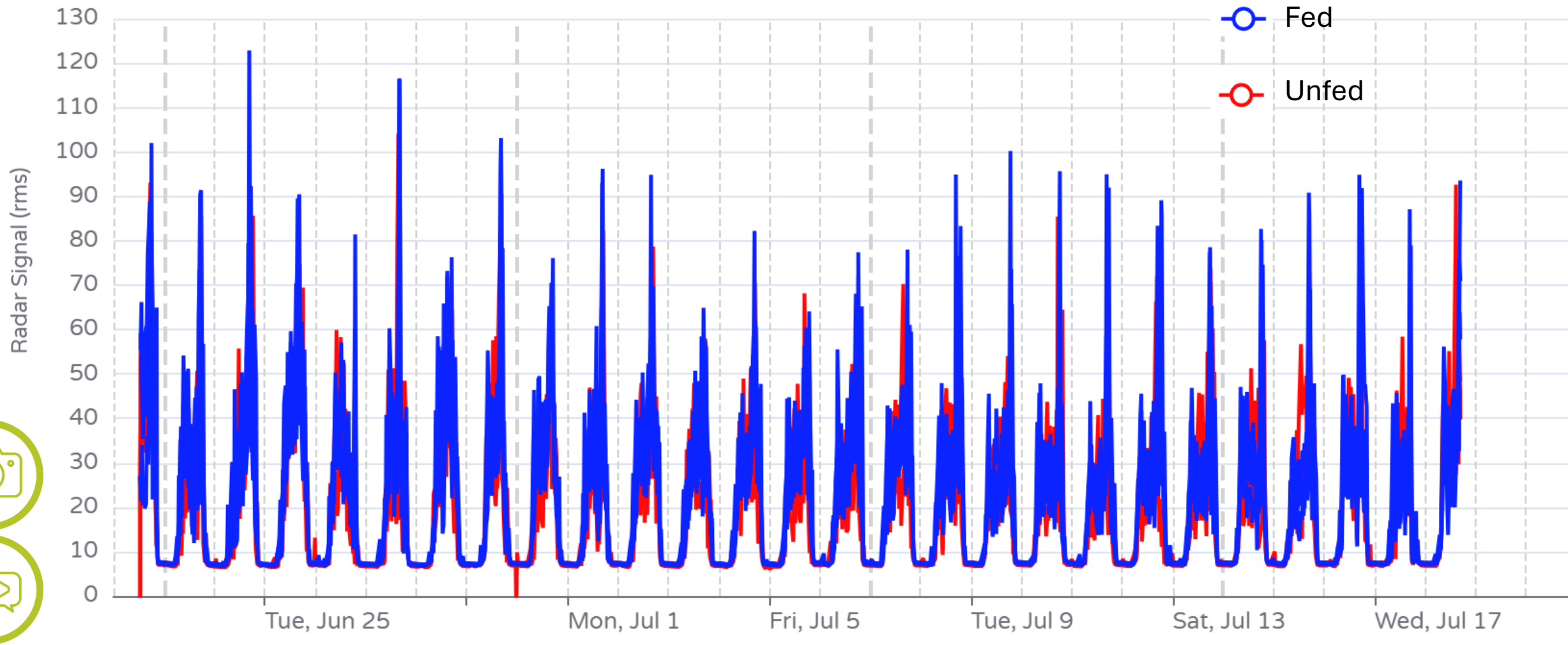
Colonies were fed sugar syrup and pollen substitute each week during carrot pollination.

Feeding during carrot pollination did not significantly impact pollen diversity.



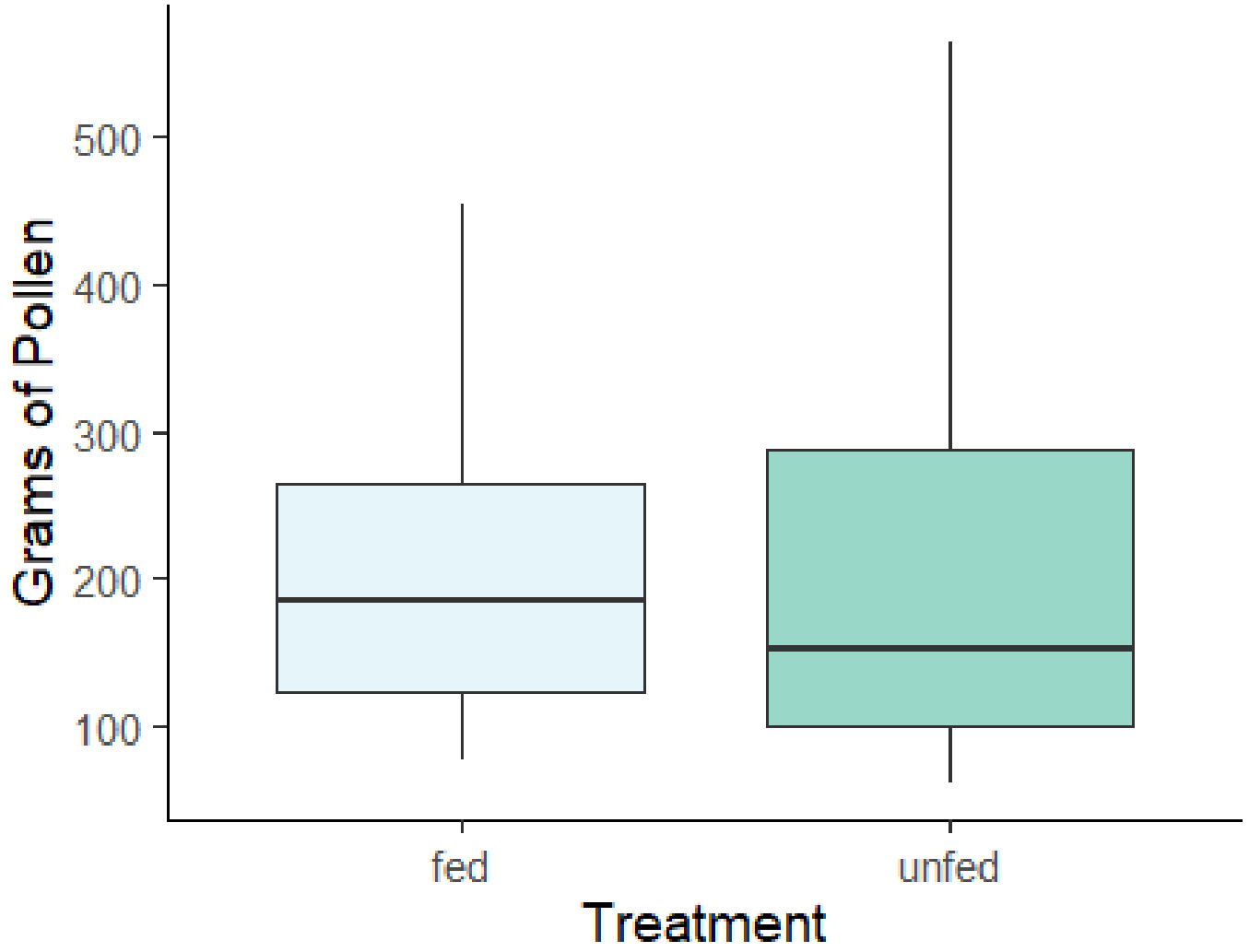
In 2024, feeding began during almond pollination.

Feeding had no significant impact on activity.

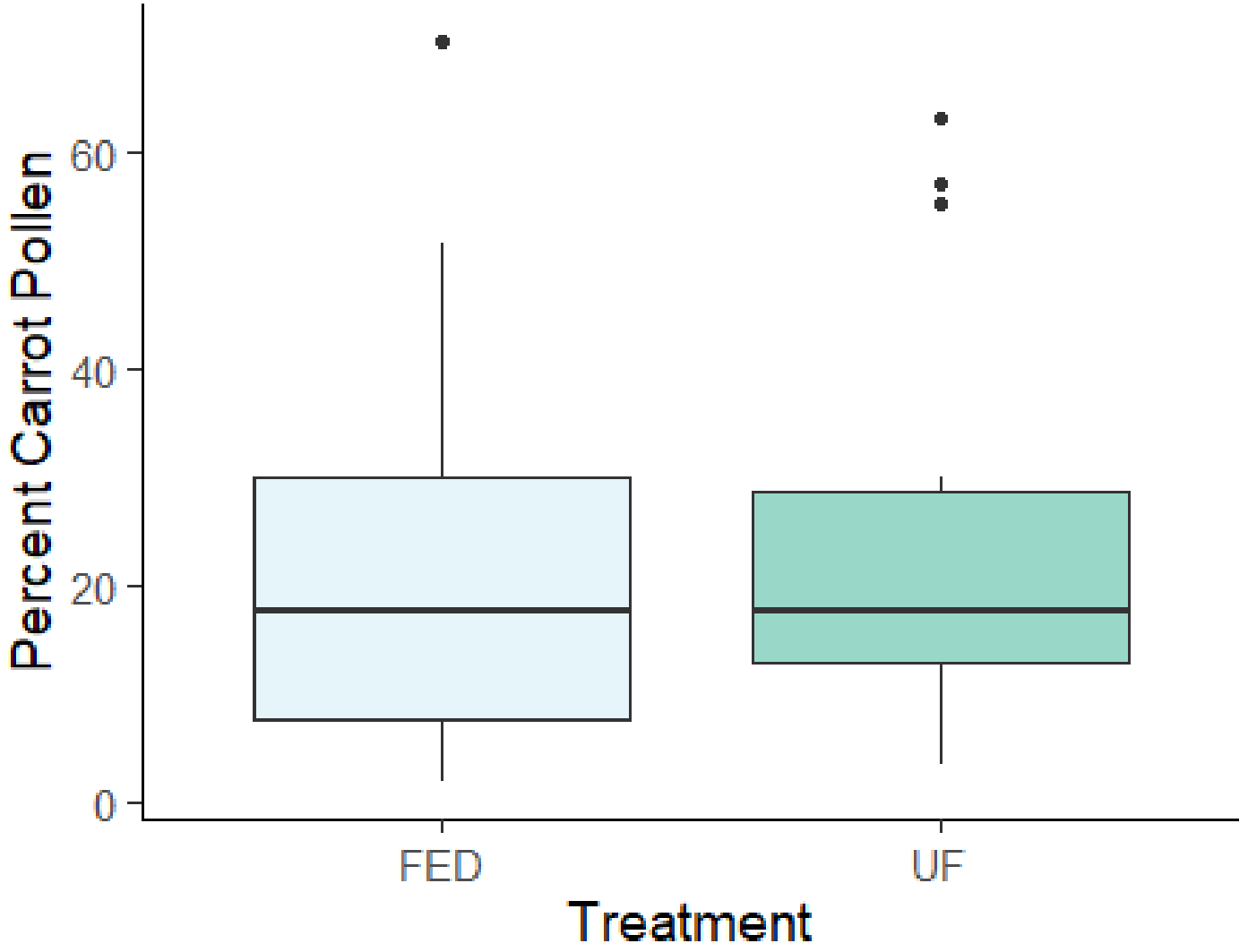


The design of our observation hives prevented us from recording waggle dances

Feeding had no significant effect on the amount of pollen collected by colonies.



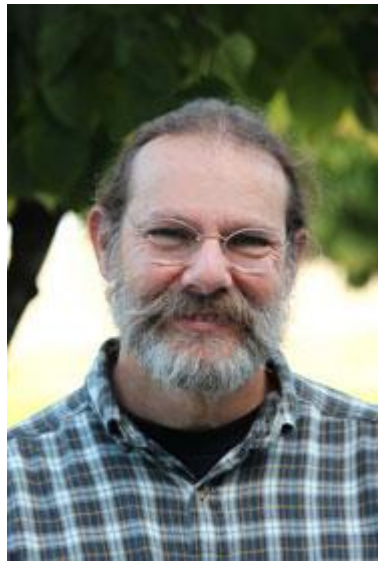
Feeding had no significant impact on the diversity of pollen collected by foragers.



In-hive feeding does not decrease foraging distance, but perhaps supplemental forage will.

Schulte et al, 2017; Zhang et al, 2023; Pereira et al., 2015

Thanks



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Questions?

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