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Almond pollination and the use of hive-entrance pollen transfer devices

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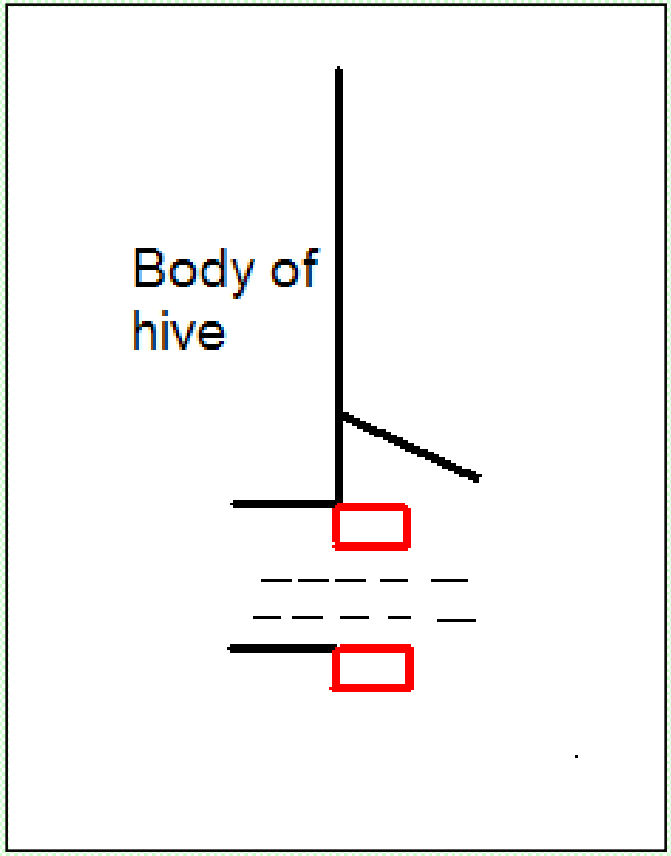
What are the ‘hive-entrance pollen transfer devices’

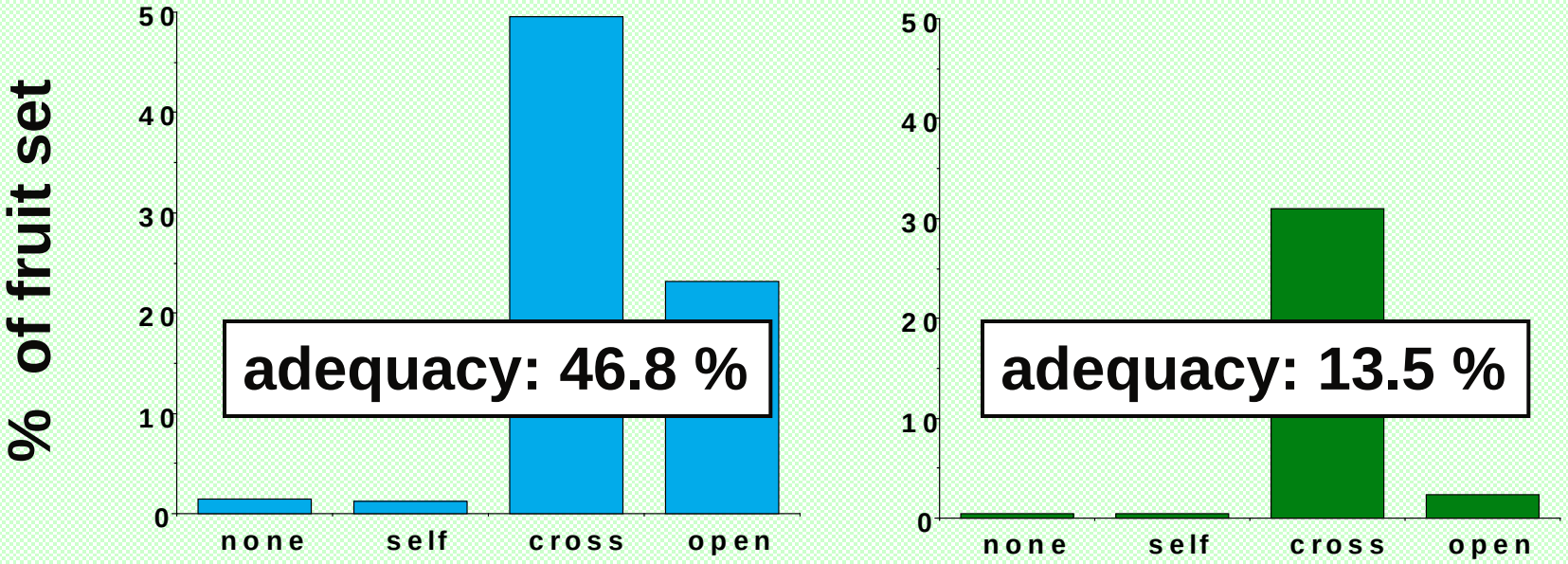
- They are devices fitted at the hive entrance in order to increase the ‘foreign pollen’ on honey bee foragers and subsequently to improve the cross pollination potential of these foragers



Hatjina, F (1998)

Shortfall in natural pollination services in Almonds

R. Paxton & F. Hatjina (2005)



Adequacy of pollination service

$$\frac{\text{open}}{\text{cross}} \times \frac{100}{1}$$

Use of entrance pollen transfer devices (2006)

Aim:

To determine:

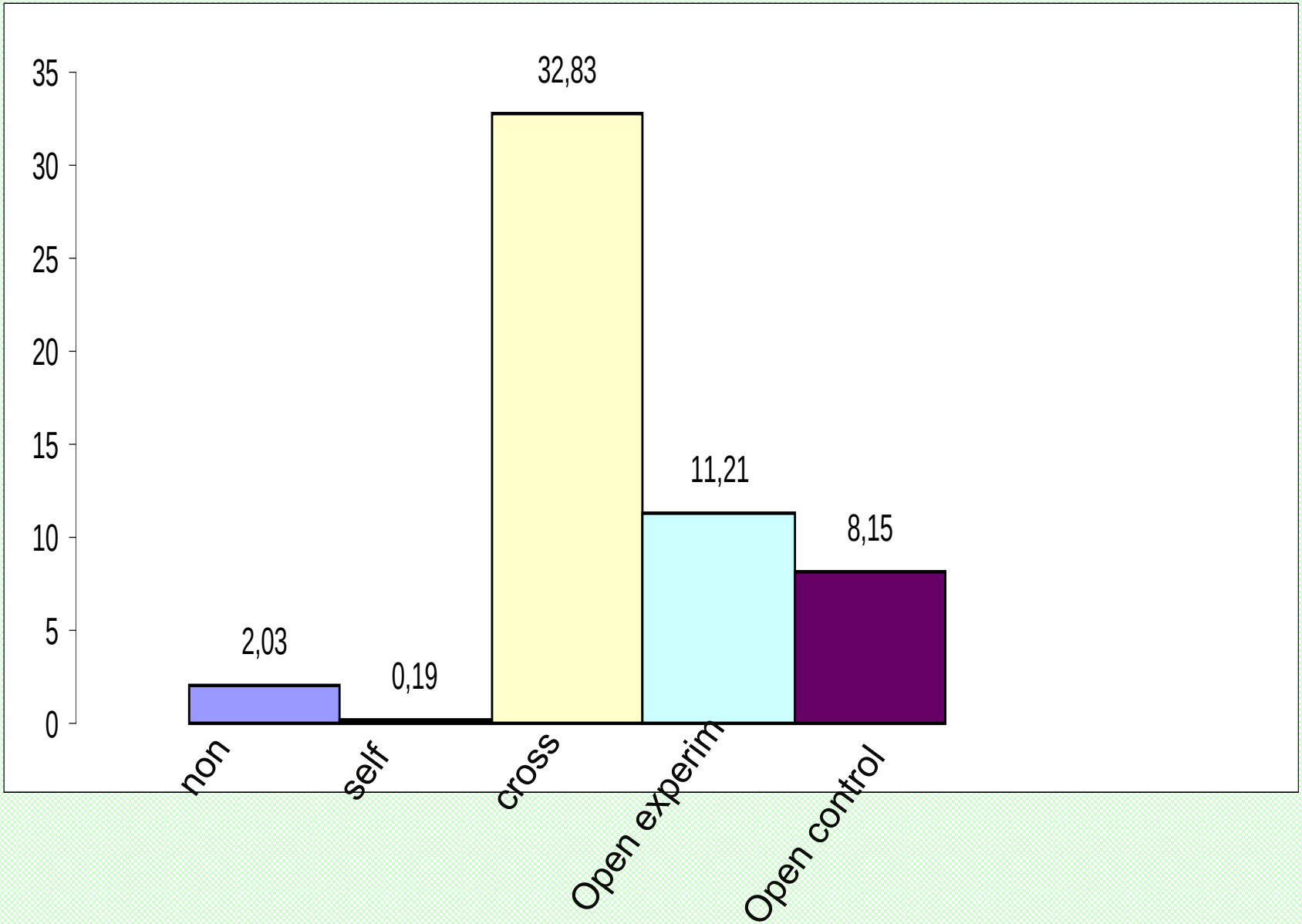
- if the hive-entrance pollen transfer devices efficiently improve cross-pollination by honey bees on almonds

- Which is the practicality of their use in a field setting?

Procedure:

- 4 groups of colonies were transferred to the crop
- Every group had two colonies (experimental & control) and stayed for two days
- Every colony was active for one day only
- The bugged branches were open for the day of their respective colony to allow open pollination (n=15)
  - **Bagged branches - open pollination—experimental colony**
  - **Bagged branches -open pollination—control colony**
  - **Bagged branches – no pollination**
  - **Bagged branches - self pollination**
  - **Bagged branches - cross pollination**

Results1: % of fruit set

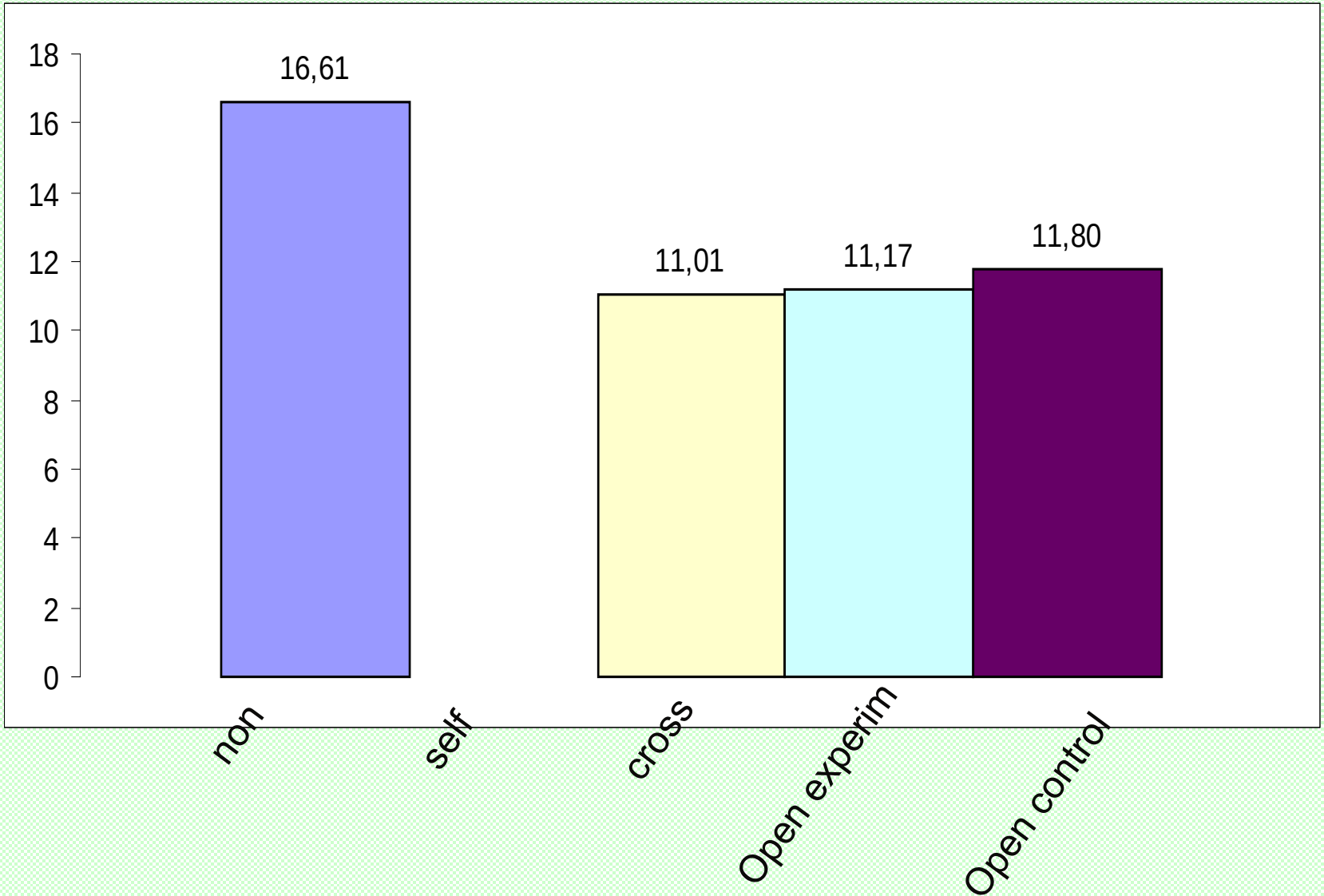


Limitations:

- Blooming lasted only for 7 days
- Bugging and unbagging the brances destroyed many flowers
- The bees did not tolerate the material of the device

Reduced tolerance

Results2: weight of fruit nuts (g)



A different design –well tolerated

A different design –well tolerated

Conclusions:

This design, under the limitations of the experiment, did not increase cross-pollination potential by honey bees on almonds

A tunnel like design has been proven to be well tolerated by honey bees , even for the duration of a week, but we do not know its efficiency yet