

SENSORY AND CONSUMER EVALUATION OF KIWIFRUIT (*Actinidia deliciosa* 'Hayward') PRODUCED UNDER DIFFERENT POLLINATION TECHNIQUES

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Introduction

In *Actinidia deliciosa* 'Hayward', the final size of the fruit is closely related to the number of seeds per fruit, which depends on the number of ovules in flowers and the number of pollen grains that reach the stigmatic surface.

The application of hand or mechanical pollination techniques in kiwifruit orchards to improve fruit yield will be economically viable only if they improve or do not result in differences in kiwifruit quality and its acceptance by consumers.

Methods

Fruit production, sensory evaluation (12 trained tasters) and consumer acceptance and preference of kiwifruit (100 consumers) were estimated for 'Hayward' fruits produced under the following pollination treatments:

- Control.
- Application of dry pollen.
- One application of liquid pollen when 90% flowers were open.
- Two applications of liquid pollen when 60% and 90% flowers were open, respectively.

Fruits from each treatment were evaluated by quantitative descriptive analysis (QDA) with trained panellists and by an acceptance test with consumers.

Data of fruit yield and from QDA were subjected to a one-way ANOVA. Friedman's non-parametric analysis was applied for consumer acceptance and a Chi-square test for consumer preference.



Application of dry pollen.



Application of liquid pollen.



Flowers pollinated with liquid pollen labelled with a dye.

RESULTS

The statistical analysis of panellist results showed that kiwifruits from the different pollination treatments presented the same organoleptic characteristics.

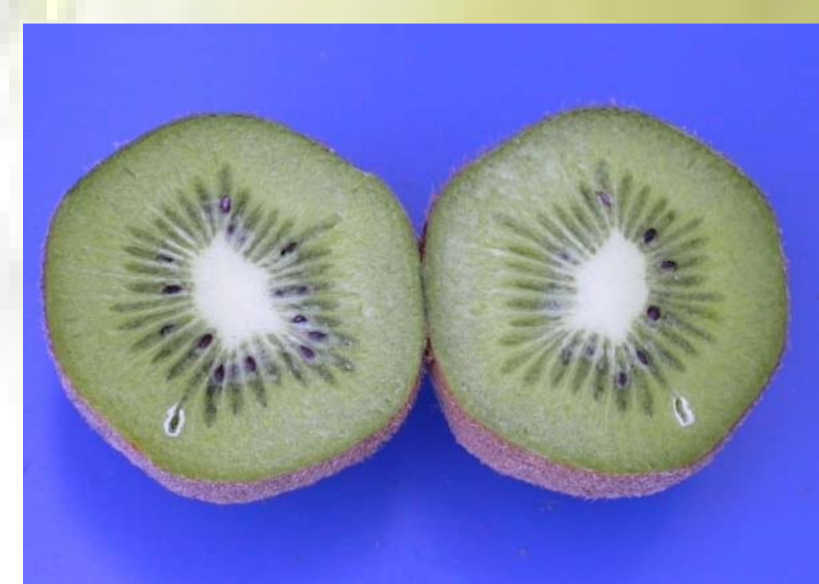
Analysis of Variance (ANOVA) for Sensory Categories

| Descriptor | P value |
|--------------------------|---------|
| External odour intensity | 0.892 |
| Firmness | 0.490 |
| Hairiness | 0.606 |
| Internal odour intensity | 0.047 |
| Flesh colour | 0.794 |
| Flavour intensity | 0.536 |
| Sweetness | 0.905 |
| Tartness | 0.646 |
| Juiciness | 0.904 |
| Consistency | 0.836 |
| Fibrosity | 0.488 |
| Astringency | 0.591 |

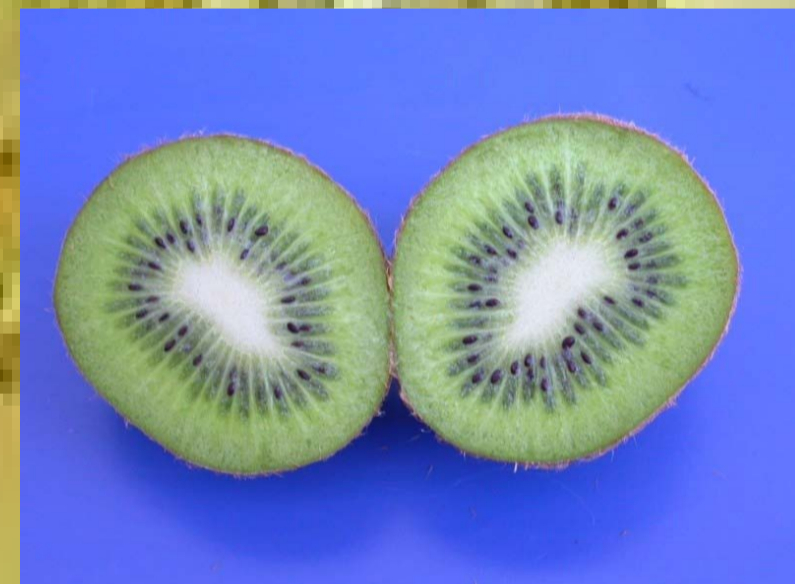
Therefore, the application of pollination techniques had no effects on the organoleptic characteristics of fruits with respect to the control ($P > 0.05$).

The results of Friedman's non-parametric analysis indicated that the application of pollination techniques had no effects on consumer acceptance (P value 0.140).

The Chi-square test for preference also indicated that application of pollination techniques had no effects on consumer preference (P value 0.079).

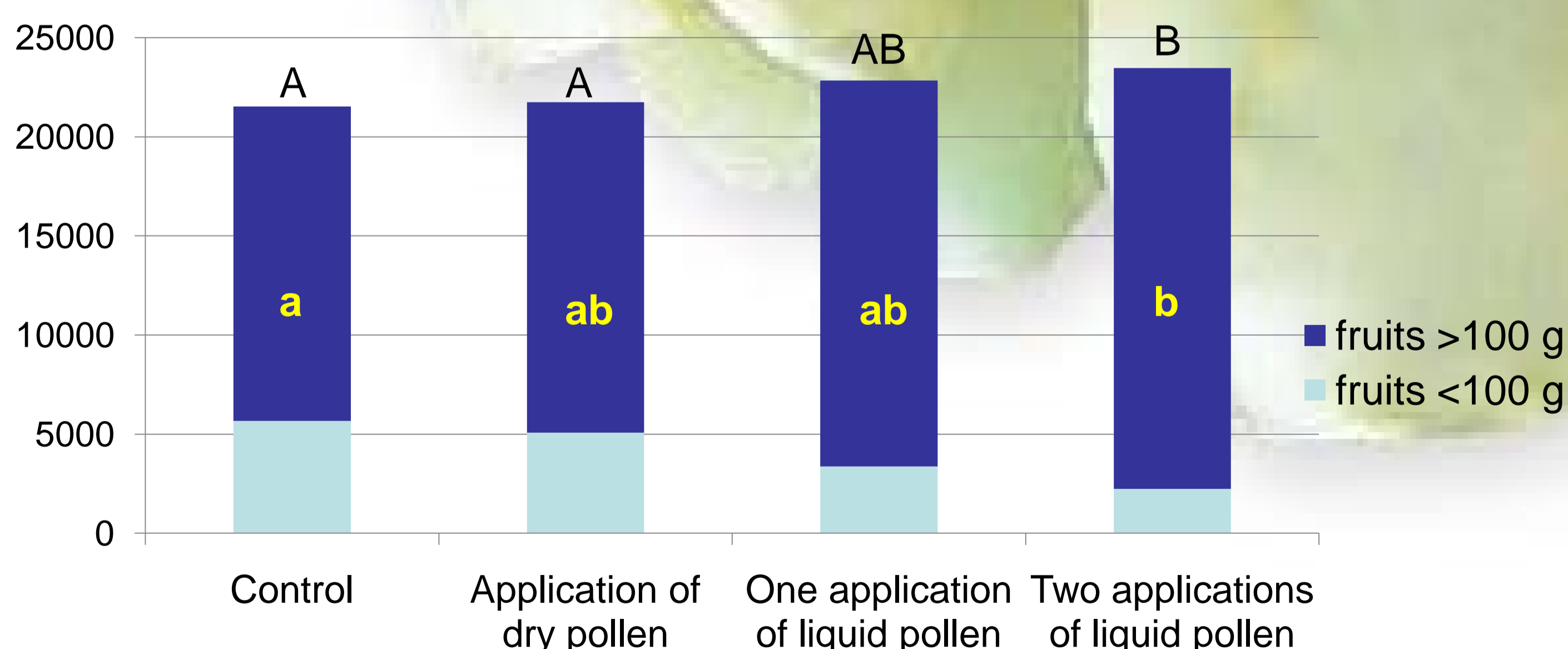


Fruit with few seeds from control plots, indicating bad flower pollination.



Fruit with numerous seeds from a liquid pollen-receiving plot indicating good flower pollination.

Fruit yield (kg/ha)



Application of liquid pollen, particularly when doing twice, resulted in larger fruit production and higher number of fruits weighing more than 100 g/unit respect to the control and the application of dry pollen. Statistical differences in fruit yield are shown by capital letters, and in fruits >100g in lowercase letters ($P > 0.05$).

Conclusions

The lack of differences, respect to the control, in the sensory quality of kiwifruit produced under the application of liquid pollen advises the introduction of this pollination technique in kiwifruit orchards to achieve larger economic benefits.