The New Zealand Institute for Plant & Food Research Limited

# Avocado – Fruit set

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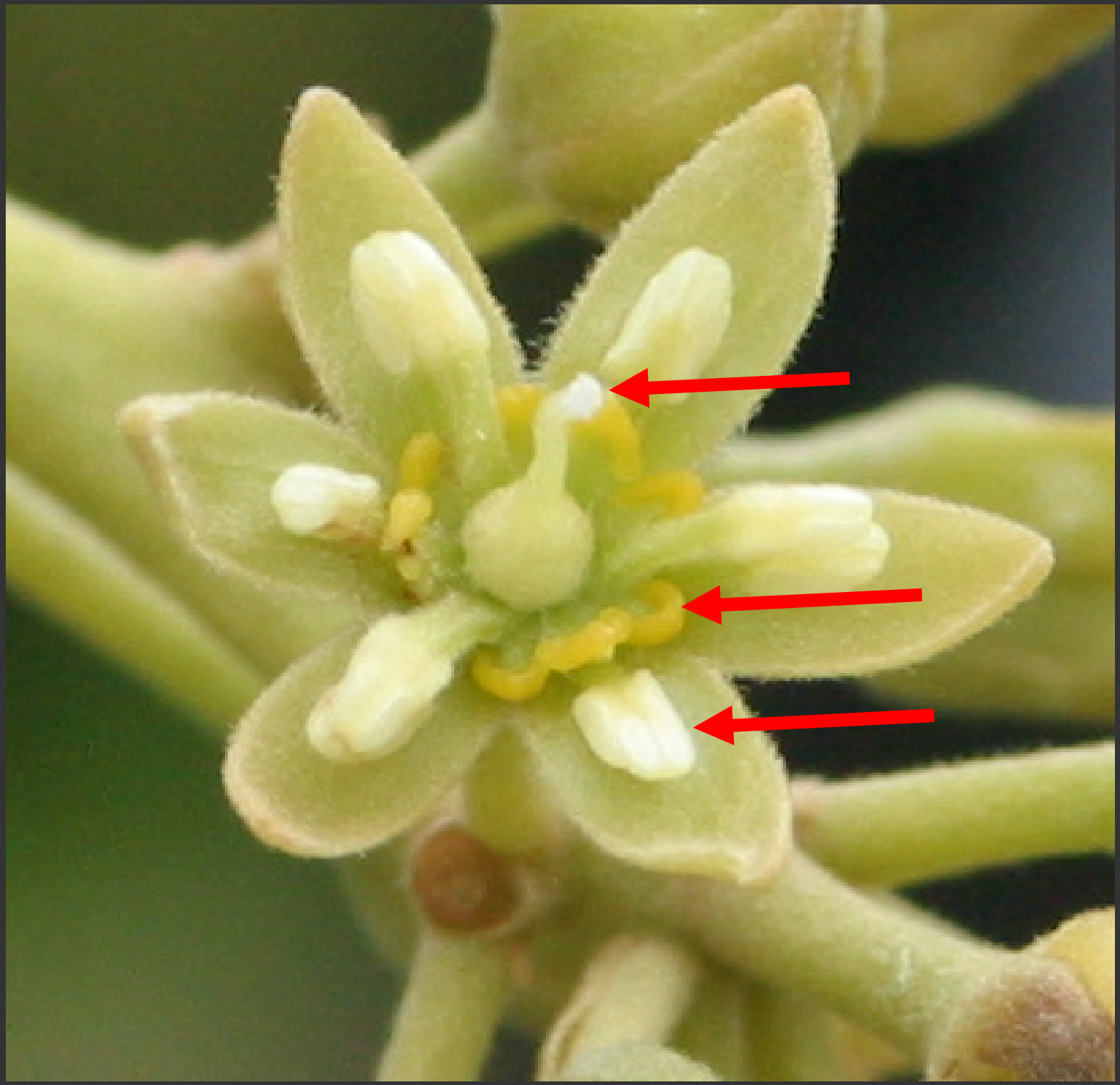
# Aim:

**To see if we can determine which flowers will set fruit.**

# Introduction:

- Morphology
- Pollinators
- Fruit set
- Summary



## Female phase

## Male phase

Day 1

Morning - Female

Day 1

Morning - Female

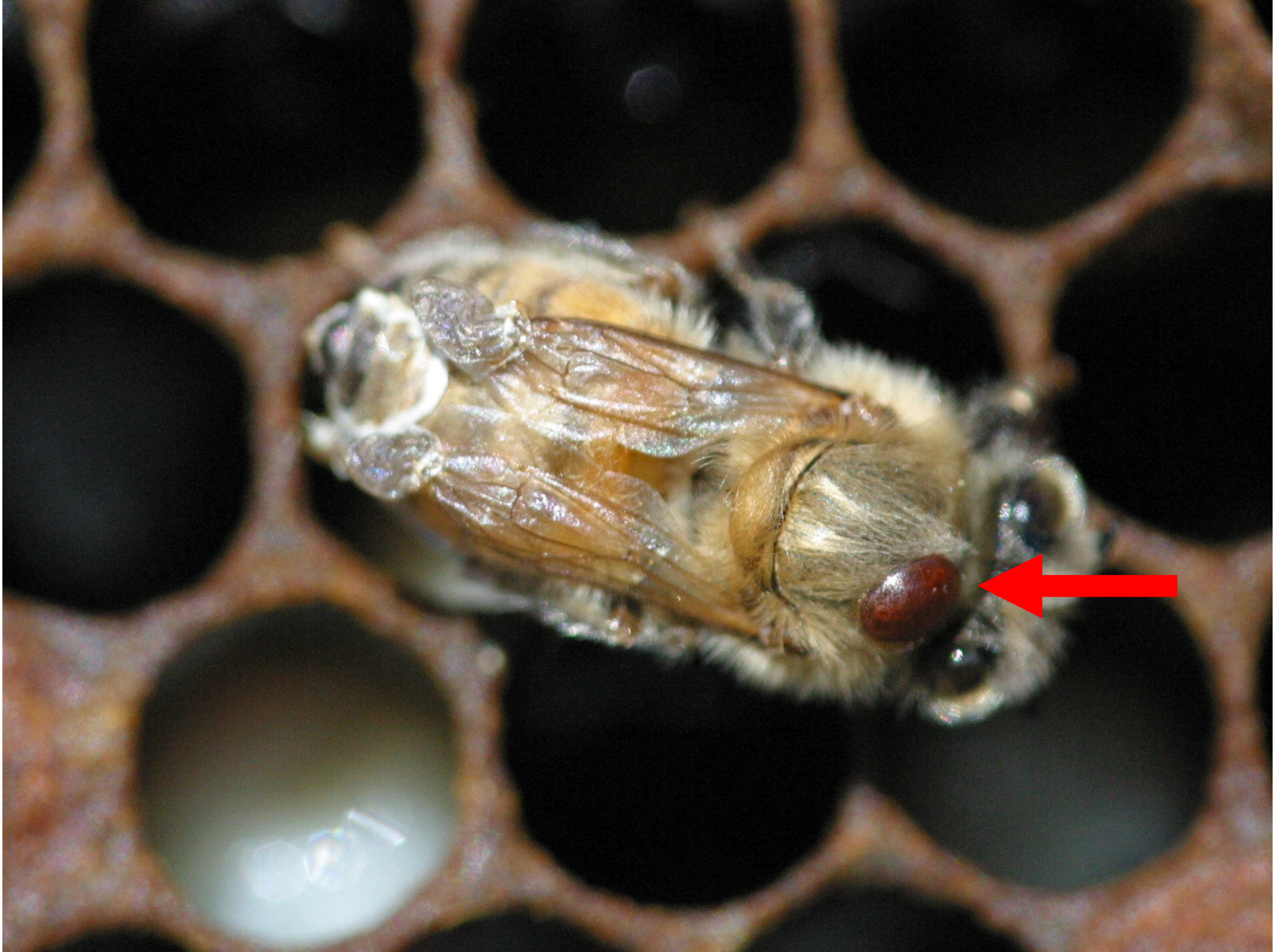
Closed

Day 2

Afternoon - Male

Morning –
Female

Afternoon –
Male



# Determinate vs. indeterminate

| Treatment | No. of trees | No. of flowers | No. of fruit (19/02/09) | Average % fruit set |
|---|---|---|---|---|
| Determinate | | | | |
| Indeterminate | | | | |

# Determinate vs. indeterminate

| Treatment | No. of trees | No. of flowers | No. of fruit (19/02/09) | Average % fruit set |
|---|---|---|---|---|
| Determinate | 20 | | | |
| Indeterminate | 20 | | | |

# Determinate vs. indeterminate

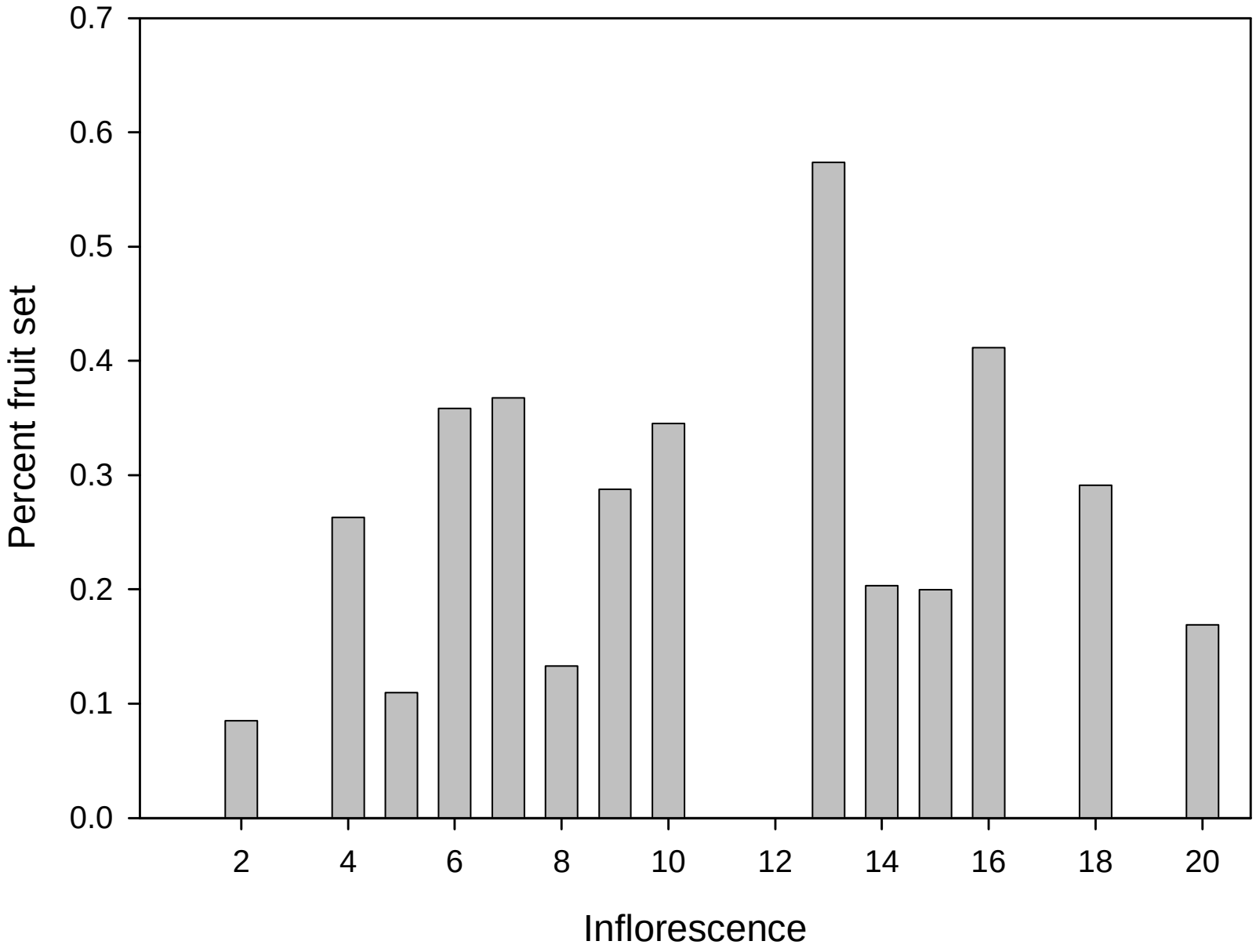
| Treatment | No. of trees | No. of flowers | No. of fruit (19/02/09) | Average % fruit set |
|---|---|---|---|---|
| Determinate | 20 | 29865 | | |
| Indeterminate | 20 | 23793 | | |

# Determinate vs. indeterminate

| Treatment | No. of trees | No. of flowers | No. of fruit (19/02/09) | Average % fruit set |
|---|---|---|---|---|
| Determinate | 20 | 29865 | 56 | |
| Indeterminate | 20 | 23793 | 40 | |

# Determinate vs. indeterminate

| Treatment | No. of trees | No. of flowers | No. of fruit (19/02/09) | Average % fruit set |
|---|---|---|---|---|
| Determinate | 20 | 29865 | 56 | 0.18 |
| Indeterminate | 20 | 23793 | 40 | 0.24 |


Percent fruit set
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
2
4
6
8
10
12
14
16
18
20
Inflorescence

# Inflorescence removal

| Treatment | No. of trees | No. of fruit (19/02/09) | Average % set |
|---|---|---|---|
| Tip | 20 | | |
| Base | 20 | | |
| Control | 20 | | |

# Inflorescence removal

| Treatment | No. of trees | No. of fruit (19/02/09) | Average % set |
|---|---|---|---|
| Tip | 20 | | |
| Base | 20 | | |
| Control | 20 | | |

# Inflorescence removal

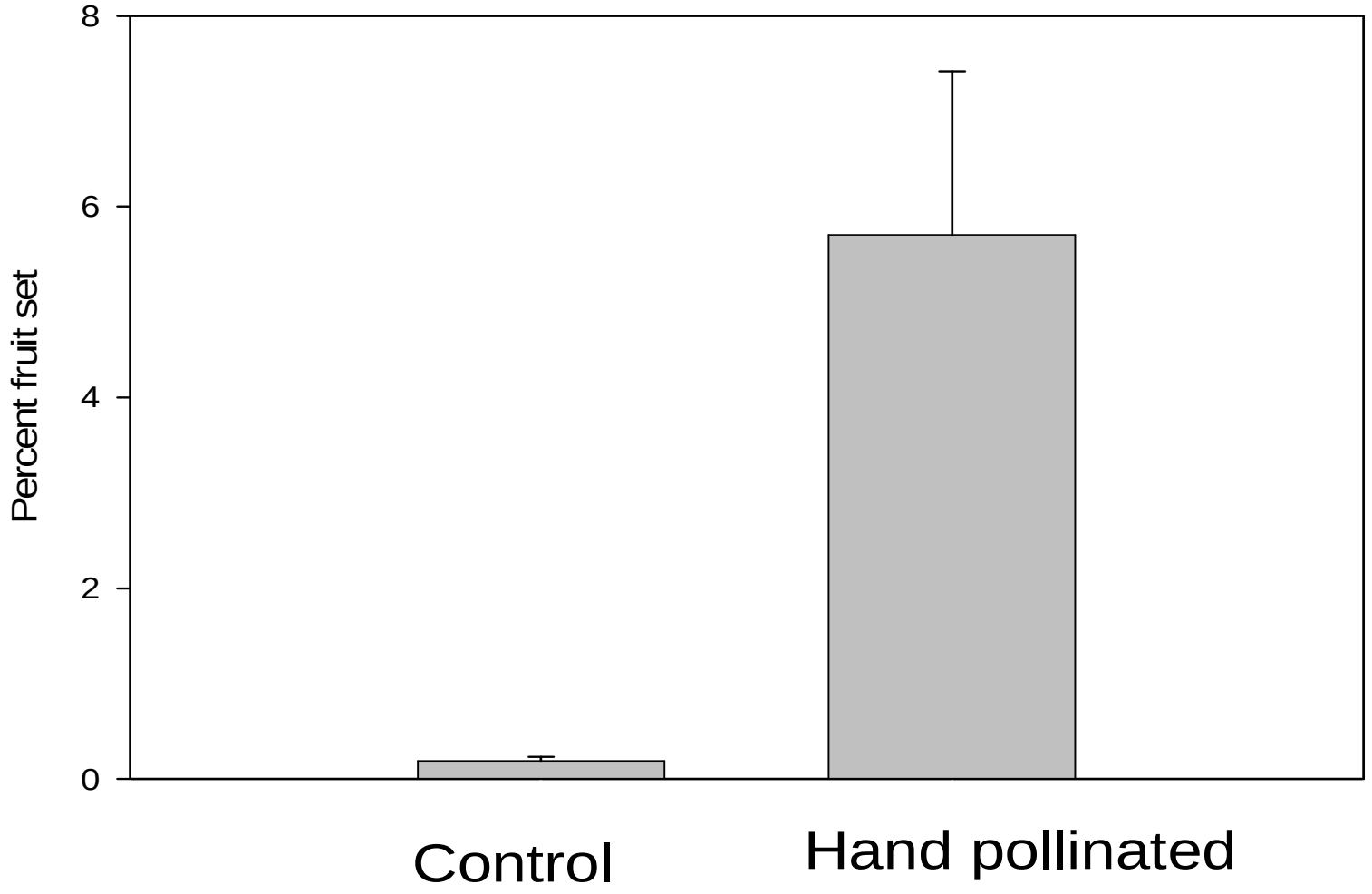
| Treatment | No. of trees | No. of fruit (19/02/09) | Average % set |
|---|---|---|---|
| Tip | 20 | 32 | 0.398 |
| Base | 20 | 7 | 0.087 |
| Control | 20 | 35 | 0.225 |

# Hand pollination

| Treatment | No. of trees | No. of replicates | No. of flowers | No. of fruit (19/02/09) | Average % fruit set |
|---|---|---|---|---|---|
| Determinate | 11 | 14 | 277 | | |
| Indeterminate | 11 | 14 | 287 | | |

# Hand pollination

| Treatment | No. of trees | No. of replicates | No. of flowers | No. of fruit (19/02/09) | Average % fruit set |
|---|---|---|---|---|---|
| Determinate | 11 | 14 | 277 | 16 | 5.7 |
| Indeterminate | 11 | 14 | 287 | 13 | 4.6 |


Percent fruit set
8
6
4
2
0
Control
Hand pollinated

# Summary

- No determinate/indeterminate effect
- Base tip effect 5X
- Pollen added effect 30x
- Suggests pollination limiting

# Conclusion

We can increase fruit set by adding pollen

# Next season

Repeat last season

Distribution of fruit on trees relative to pollinizers

Repeat pollinations - 5 Flowers per inflorescence

Check hand pollinations

Possibly look at bee movements

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