Avocado Flowering

Why so complicated ?

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The evolutionary biological strategy of *Persea americana* is to completely eliminate **self pollination** and absolutely minimise **near pollination** and heavily favour **cross pollination**

Flowering and Pollination

- Terminology
- Flowering biology
- Pollinizers and pollinators

Terminology

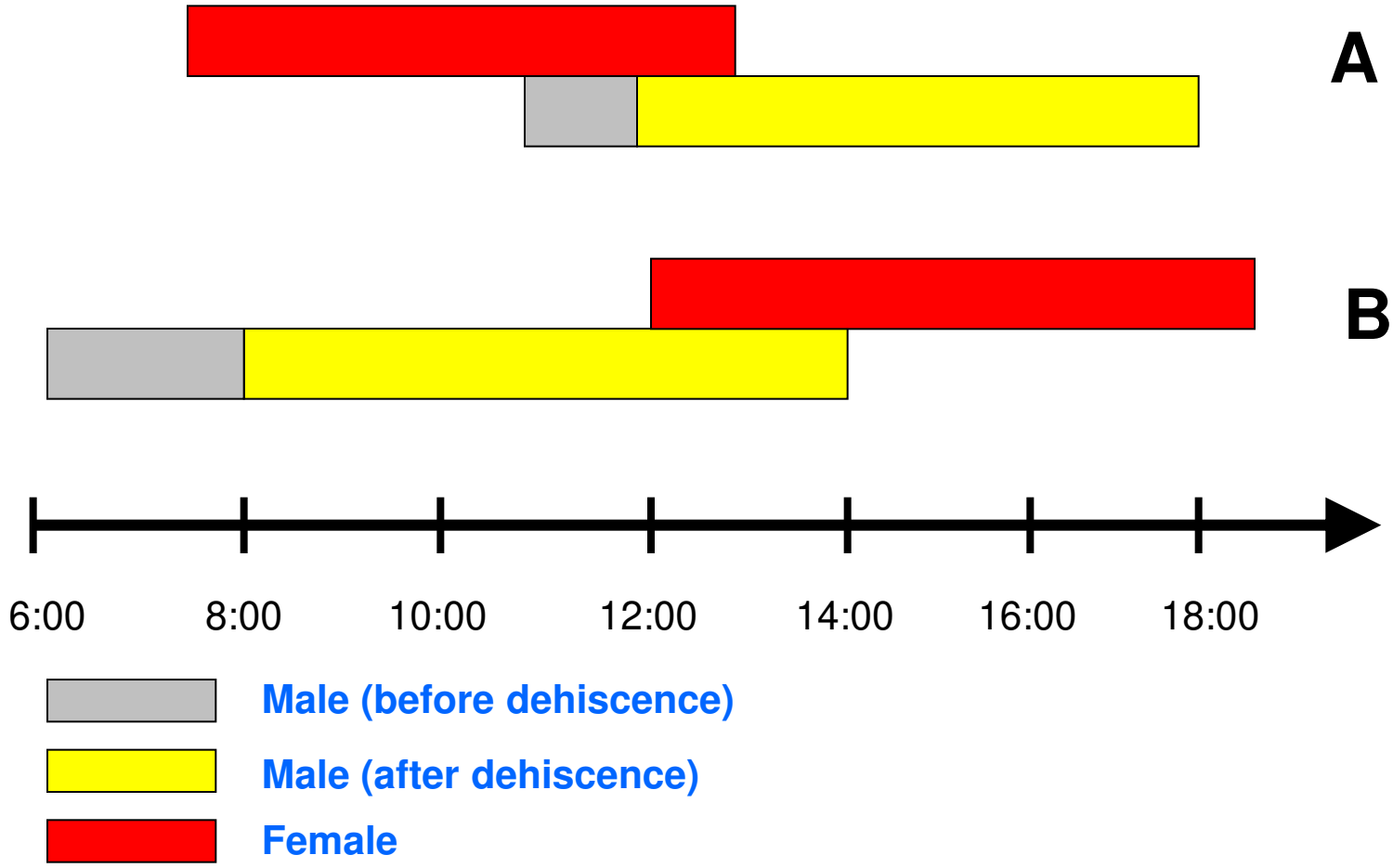
Pollination – the transfer of pollen from the anther to the stigma

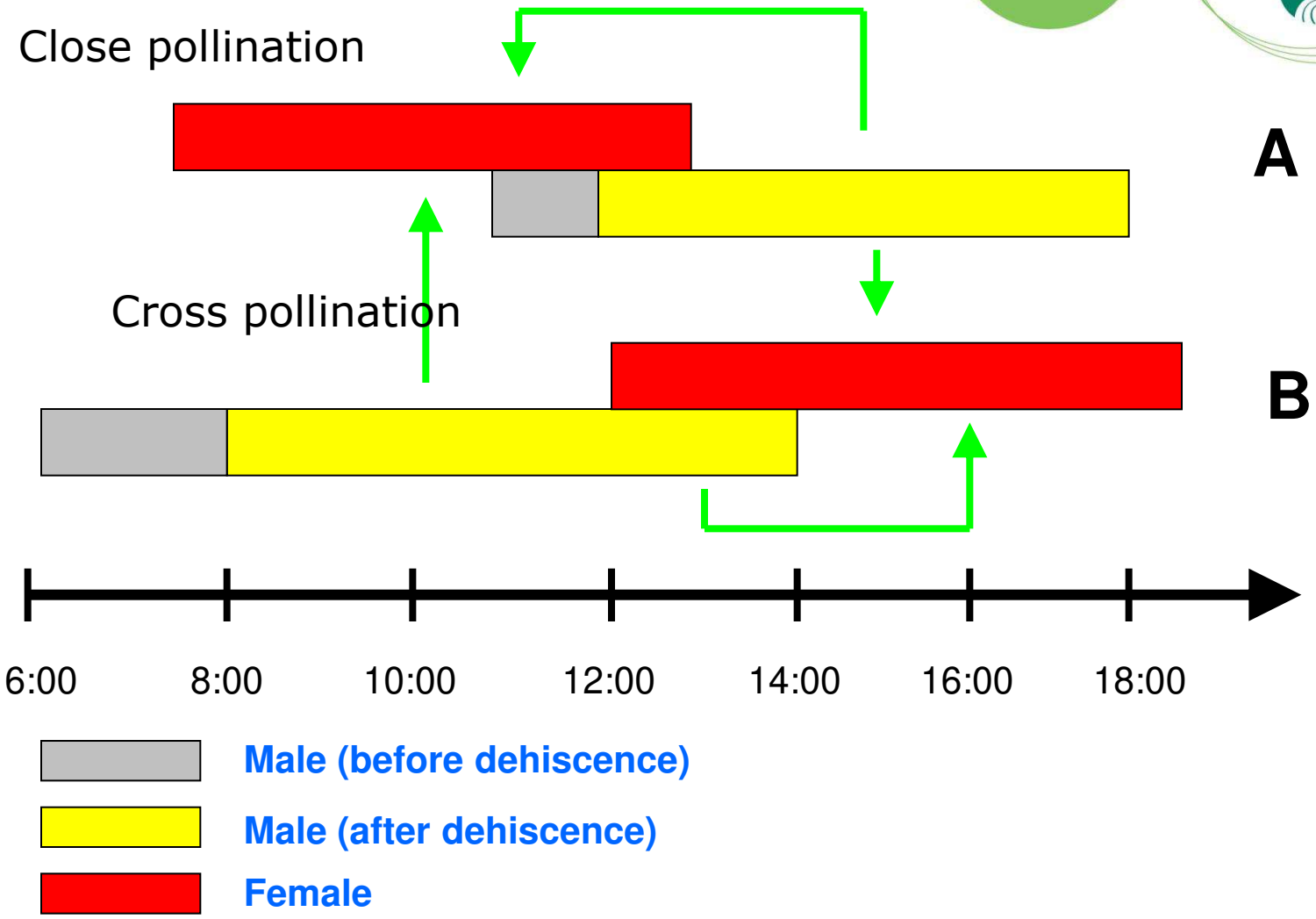
- ***Cross pollination*** – the pollen deposited on the stigma is from a different variety
- ***Close pollination*** – the pollen deposited on the stigma is from a different flower of the same variety
- ***Self pollination*** – the pollen deposited on the stigma is from the same flower

Terminology

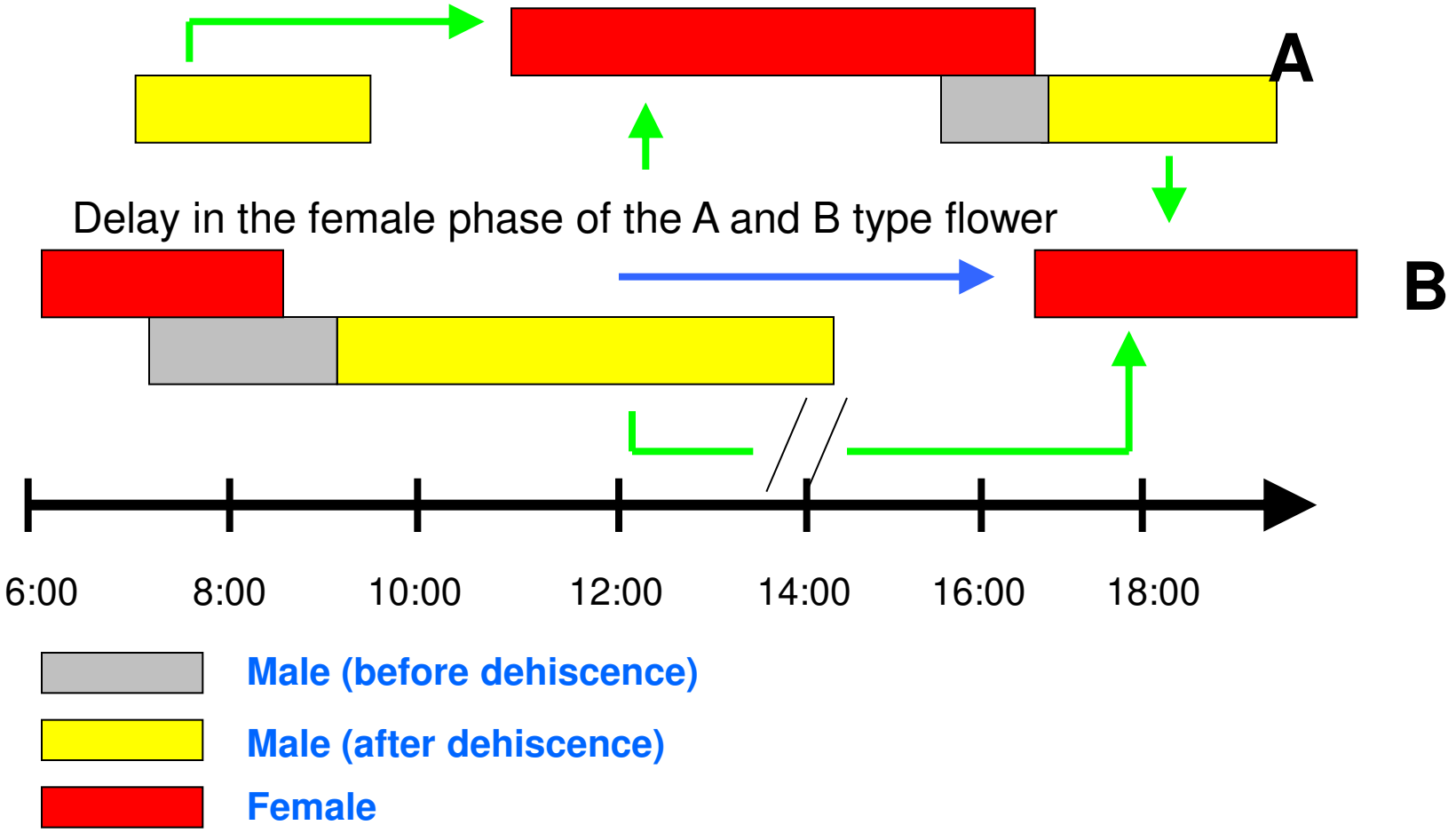
- ***Pollinator*** : the agent which transfers pollen from the male to the female floral organ (Bee)
- ***Pollinated tree***: A cultivar that receives the pollen (for example Hass)
- ***Pollinizer***: A cultivar that donates pollen to another cultivar (for example Zutano, Bacon, Ettinger and Edranol for Hass)

Flowering overlap



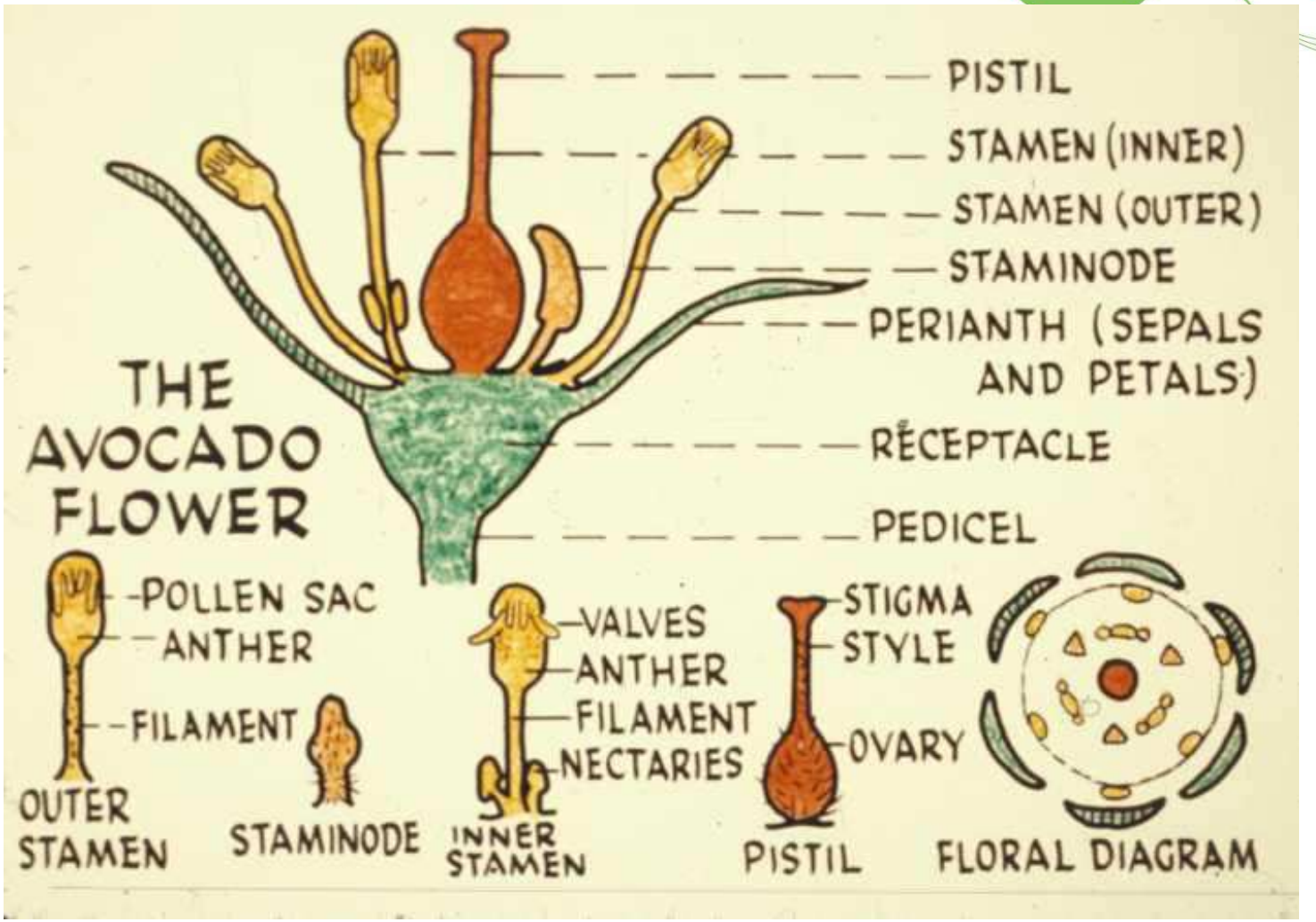

Close pollination
A
Cross pollination
B
6:00
8:00
10:00
12:00
14:00
16:00
18:00
Male (before dehiscence)
Male (after dehiscence)
Female

Flowering overlap on a cool day



Key outcomes for flowering

- In A and B -type flowers
  - Female phase is shifted later into afternoon
  - Female phase can persist for up to 12 hours
  - Male phase intensity is reduced
  - Male phase does not happen



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Climate – what are the risks

- At the bottom range of suitability! (MAT)
- Cool temperatures during flowering
- Wet conditions during flowering
- or both

Key production strategies used in similar Mediteranean climates

- Use pollinizers (B-type)
  - Chile – Edranol
  - California – Zutano, Fuerte and Bacon
  - Israel – Ettinger
  - New Zealand – Zutano
  - South Africa – Fuerte, Ryan and Edranol
- Use pollinators (bees)

The evolutionary biological strategy of *Persea americana* is to:

- completely eliminate **self pollination**
- and absolutely minimise **near pollination**
- and heavily favour **cross pollination**

So what does this all mean?

- Keep as many pollination routes open
- For Hass focus on cross-pollination using a B-type pollinizer (Zutano, Bacon, Edranol)
- Be aware of metaxenia?

A-Type pollinizers

- Hass
- Lamb Hass
- Reed
- Wurtz
- Pinkerton

B-Type Pollinizers

- Fuerte
- Bacon
- Zutano
- Llanos Hass
- Ettinger
- Edranol