



THE UNIVERSITY OF ADELAIDE AUSTRALIA

### *Xylocopa* and *Amegilla* as pollinators of greenhouse tomato



Katja Hogendoorn

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### Which bees?



- Suitable for the crop
- Easy to breed & transport
- Locally common
- Wide distribution

### *Xylocopa*

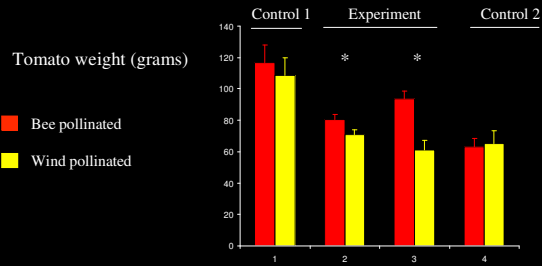
- Worldwide distribution
- Over 300 species
- Nest in wood
- Buzz pollinators



### *Xylocopa (Lestis) aeratus*



## *X. aeratus* pollinate tomatoes!



## *Xylocopa*: Long life – Low productivity

Adults overwinter

Inactive due to:

- Temperature
- Lack of food
- Waiting
- Competition



## Parasites (and fungi)

Mites

Parasitic wasps

Beetles

⇒ Hygiene!

⇒ Enclosed breeding



## Mating in captivity

Resource defense

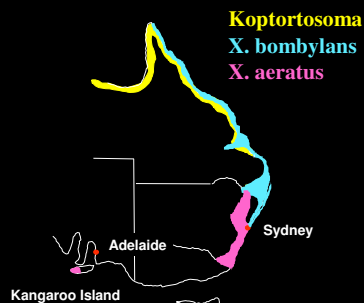
- nests
- flower clumps

Dispersed lek

- trees
- hill top



## Problem with *Xylocopa* in Australia



## Amegilla: a better option for Australia?

- Wide distribution
- Over 250 species
- Buzz pollinate



## Breeding programme

### Biology

- Reproductive behaviour
- Breaking the diapause
- Diseases

### Greenhouse conditions

- Nesting material
- Positioning
- Spraying



## Natural nests



## Advantages of Amegilla



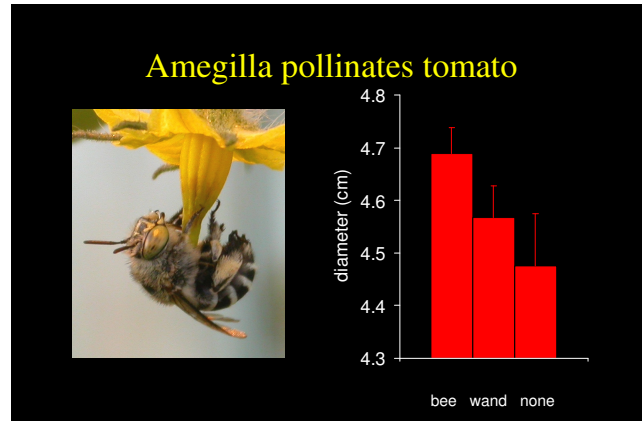
- Common in Australia
- Life span: 6 weeks
- Multiple generations
- No mites!

## Useful as pollinators?

First truss  
Matched triplets

- Bee pollinated  
  Single buzz
- Wand pollinated
- Not pollinated





### In conclusion

Both groups promising

Usefulness depends on abundance

Most breeding problems can be solved

### Try local bees first!