

Melittobia Biology on *Megachile rotundata*

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Background on *Megachile rotundata*

- *Megachile rotundata* (ALCB) are used in alfalfa pollination
- Populations are supplemented with Canadian bees
- Focused on learning about *Melittobia* and other parasitoids
- Identify changes in agricultural practice to manage *Melittobia* populations



2017/2018 Overwintering

- *Melittobia* were exposed to ALCB cells in glass vials stored at:
 - 86°F in an incubator
 - Ambient temperature sheltered work area
- The wasps were moved into a 39°F cooler for overwintering after:
 - 3 Days
 - 6 Days
 - 9 Days
- Cells were incubated the following season and contents of all cells were recorded

Figure 1a: 3 Day Exposure

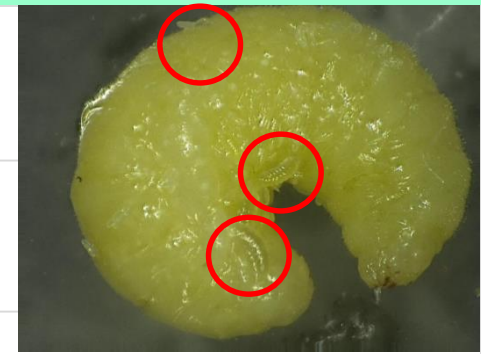


Figure 1b: 6 Day Exposure

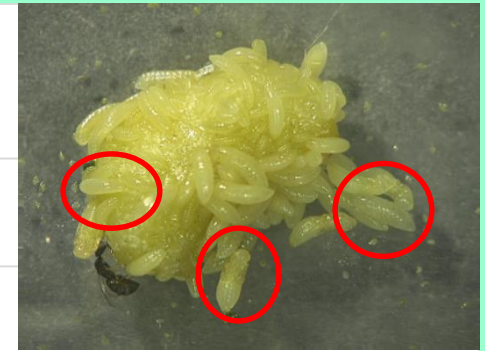
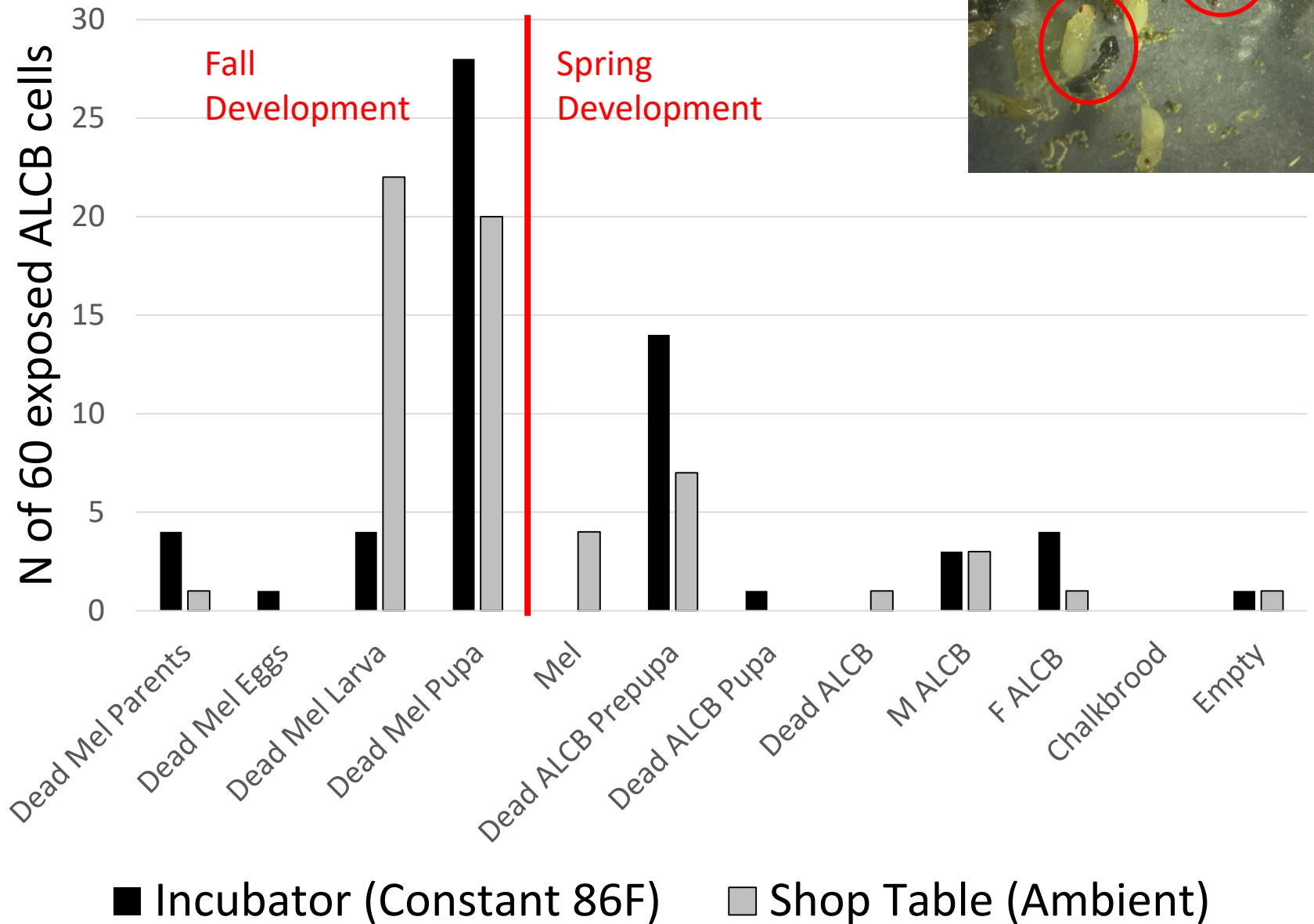


Figure 1c: 9 Day Exposure



Incubation

- Cells were x-rayed
 - Parasitized cells were separated into glass vials
 - Cells were incubated at 86°F
 - The number of days until the first emergent was recorded
 - The number of days of emergence was recorded

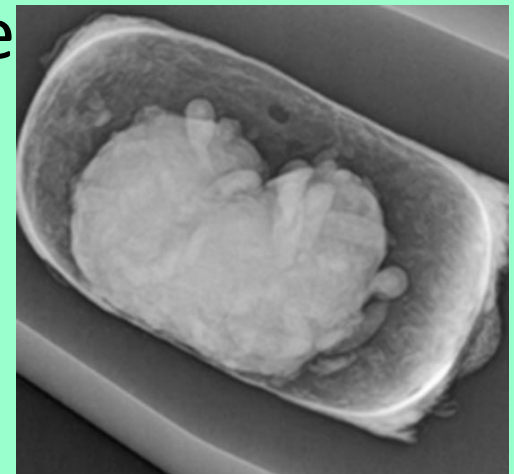
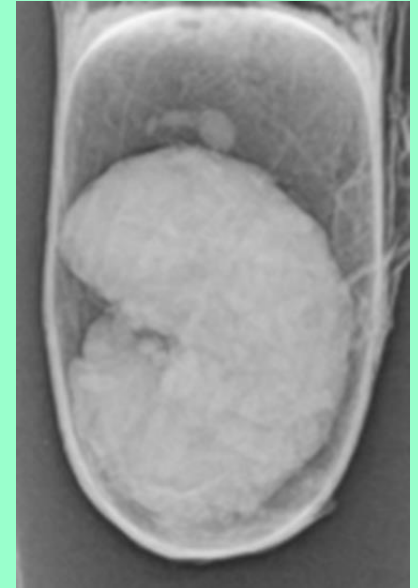


Figure 2: First Day of Wasp Emergence

◆ First Mel ■ First Ptero ▲ First Tet

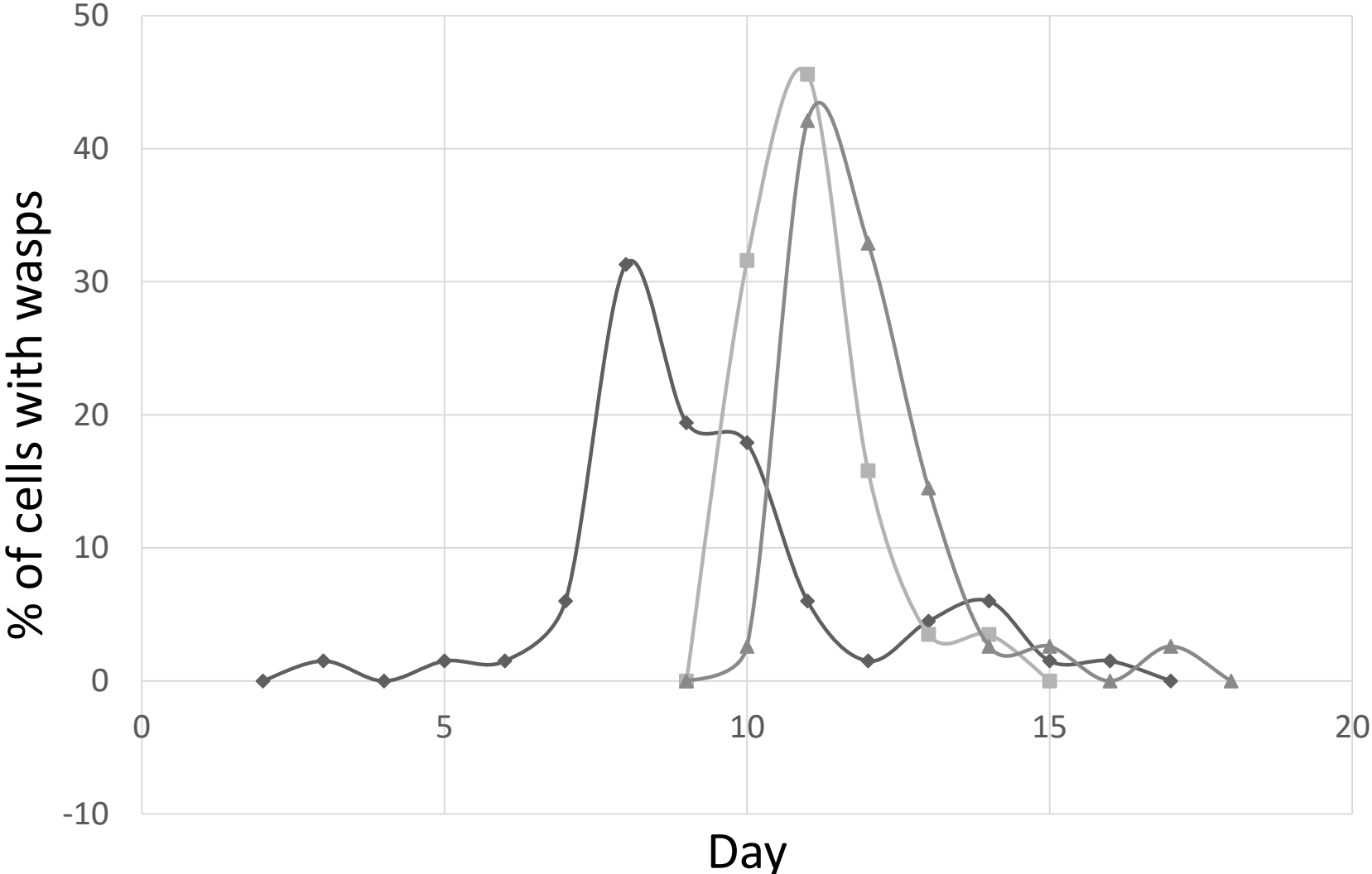
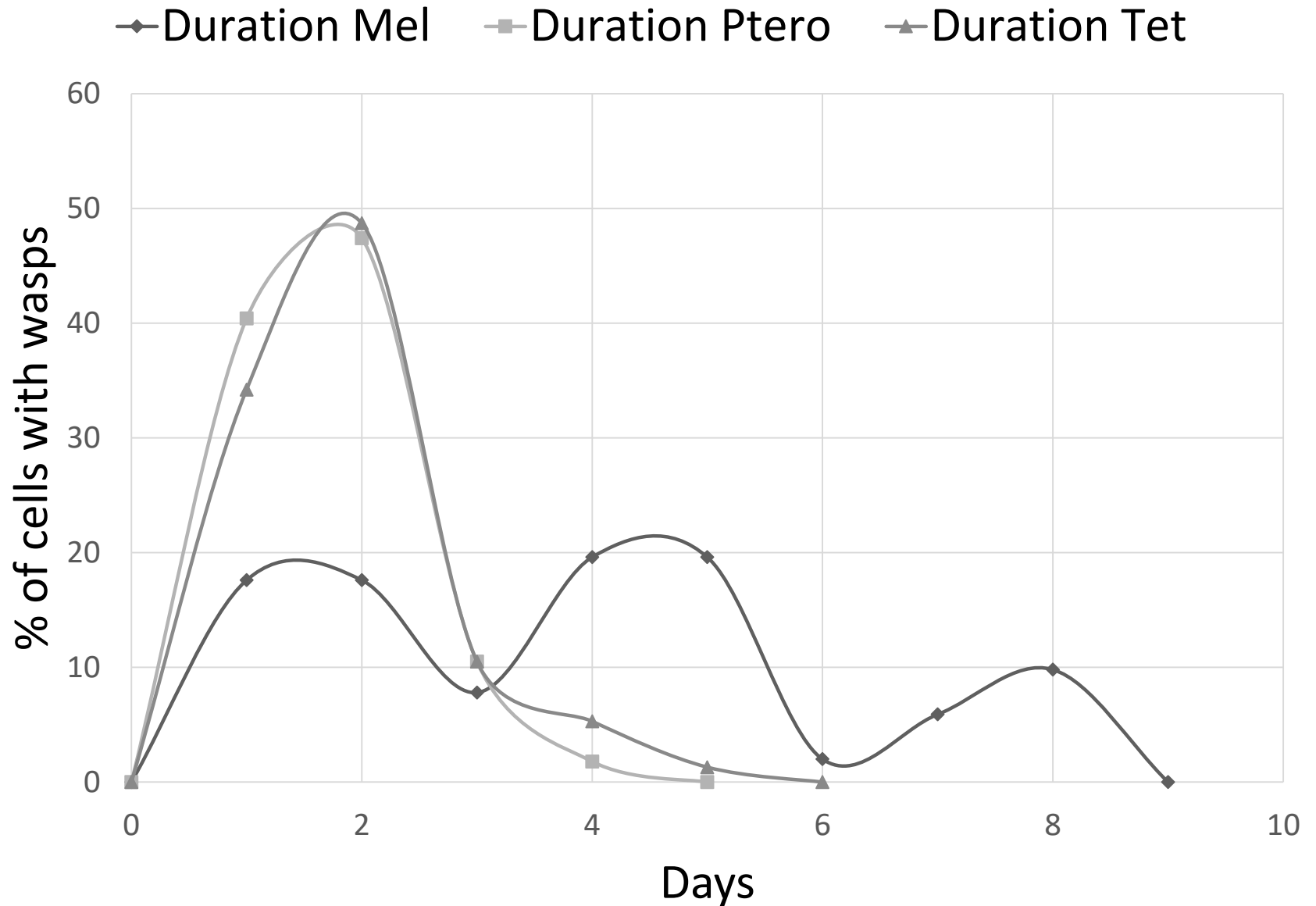
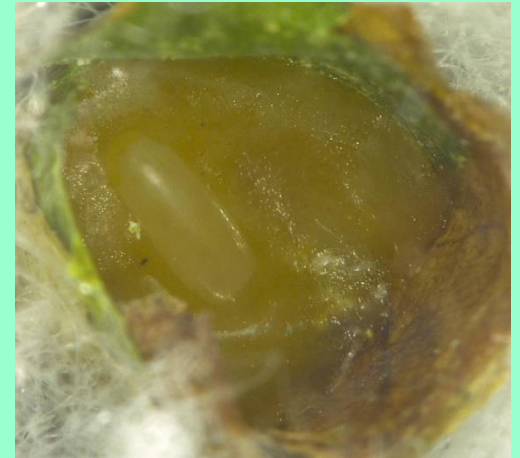


Figure 3: Duration of Emergence



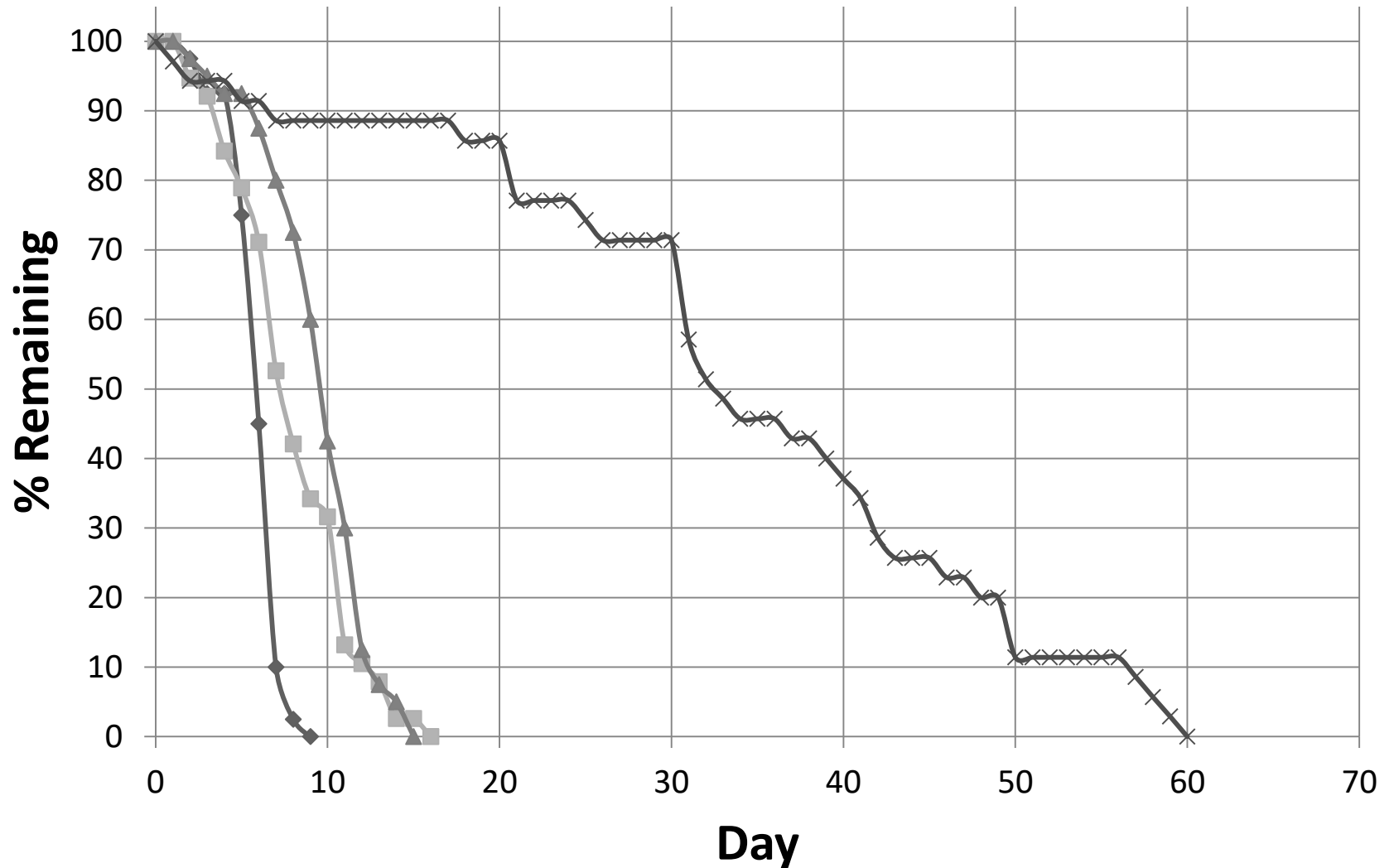
Longevity

- Wasp were individually transferred to glass vials as sclerotized pupa and randomly assigned to
 - Emerged empty cocoon
 - Egg removed Pollen Provision
 - Egg on Provision
 - Exposed ALCB Pre pupa
- Start date, when wasp emerged as an adult and date of death were recorded
- Repeated with *Pteromalus venustus*



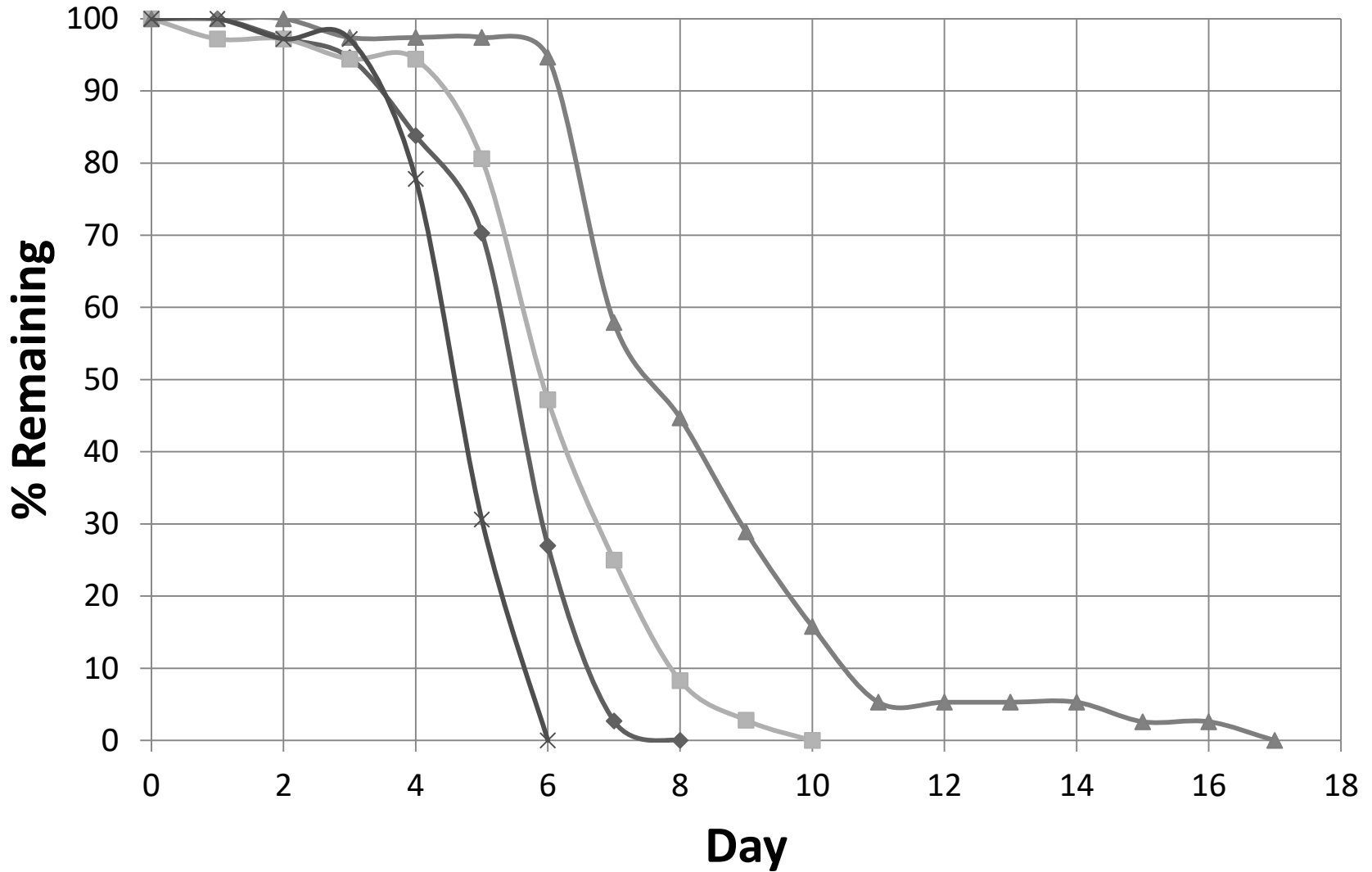
Melitobia Population Decay

◆ 1.M.Em. ■ 2.M.Po. ▲ 3.M.Eg. × 4.M.Pre.



Pteromalidae Population Decay

◆ 1.Pt.Em. ■ 2.Pt.Po. ▲ 3.Pt.Eg. ✕ 4.Pt.Pre.



Summary

- Moving ALCB to cold storage sooner may reduce parasitism events and parasite survival
- Placing light traps and dichlorvos pest strips earlier may help in incubation



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