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Mite Pests & Effects of Pesticides on Predators

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Lewis Spider Mite

Lewis spider mite (*Eotetranychus lewisi)*

- Pest on strawberry & raspberry
- Found on poinsettias, lemon, peach, & castor bean
- Present in fall & summer strawberries

Lewis spider mite

Identification

- Adults & immatures
  - Oval, yellow-green
  - Multiple spots, mainly on sides
  - Slightly smaller than TSSM
- Light/medium webbing
- Eggs are clear & spherical

Willamette mite egg (F. Zalom)

Development

- Temperature & photoperiod dependent
  - Occurs when temp. is >53.1°F or <104°F
- A single female can start a colony

This is why monitoring is SO important

Damage

- Leaf stippling
- Browning of leaves
- Leaf drop / defoliation
- Stunting
- Webbing attracts dust & can change transpiration

Management

- Timing & type of sprays will depend on infestation level & amount of beneficials
- Spray only when necessary, monitor after to catch outbreaks
- Rotate MOA's to slow development of resistance

Always consult the current label for use recommendations

Broad Mite

Broad Mite (*Polyphagotarsonemus latus*)

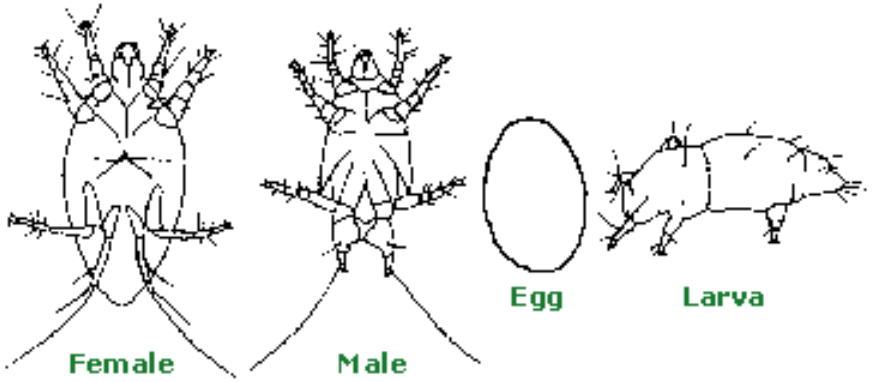
Identification

- 0.1-0.2mm length
- Translucent yellowish to greenish
  - ♀'s have a stripe down their back
- ♂'s carry ♀'s
- Eggs are flat-oval with dots

Dennis Haines

Development

- Like warm & humid conditions
- 5 – 21 days to go from egg ⇨ adult
  - Temperature & relative humidity dependent
- 4 life stages: Egg ⇨ larva ⇨ larva ⇨ adult



Feeding

- Found on numerous crops including caneberries
- Found & feed in buds, internodes, depressions on fruit
- Inject toxins into plant cells while feeding

Damage

- Leaf distortion, curling, bronzing
- Terminal dieback
- Reduced terminal leaf growth
- Initial symptoms may mimic spray burn


Donn Johnson, Univ. of Arkansas

Management

- Chemical
  - Coverage is key, but may be difficult
- Biological control
  - *N. californicus,* N. fallacis, *A. andersoni, Stethorus*
- Pruning may help decrease future populations, but needs to be studied

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Basics on Predatory Mites

TSSM	TSSM, Lewis, Broad	TSSM, Lewis, Broad
P. persimilis 	*N. californicus* *N. fallacis*  *Galendromus occidentalis* 	*A. andersoni* *A. swirskii*  *N. cucumeris*

Releasing methods

ALWAYS Check activity of mites before releasing

You should see active mites congregating near the ventilated area (top/bottom of the bottle)

Releasing methods

Some leaves may need a squirt of water to keep the carrier/mites from falling onto the ground

Sachets for slower mite releases can also be used

How do miticides affect predatory mites?

Incorporation requires knowledge & understanding of interactions with crop management practices

- Environment can affect control efficacy
  - Temperature, humidity, prey & other food sources, crop type, pesticides

Bioassays

Temp: 80 °F ± 1 °F

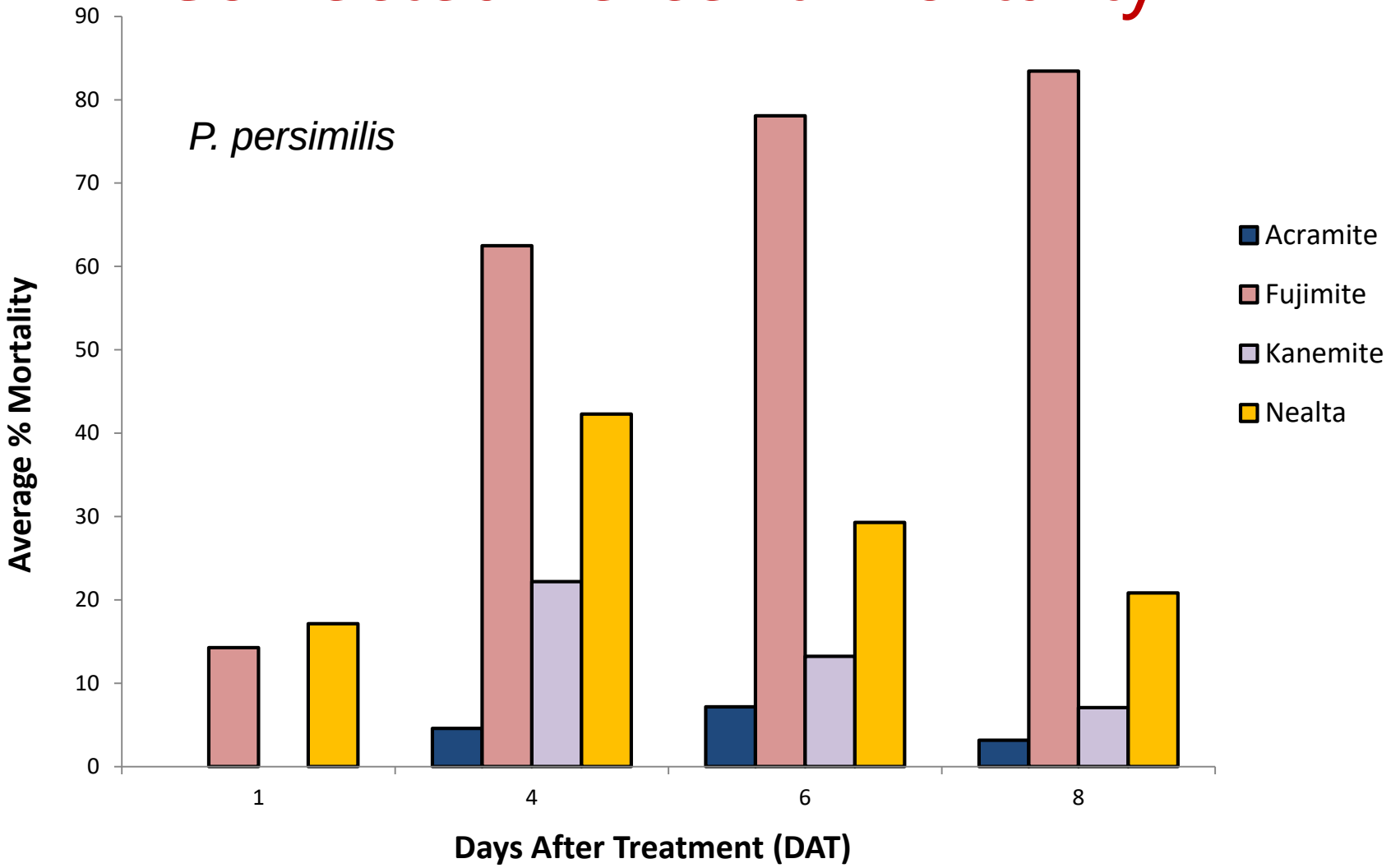
% RH : 60-65%

16:8 hr (L:D)

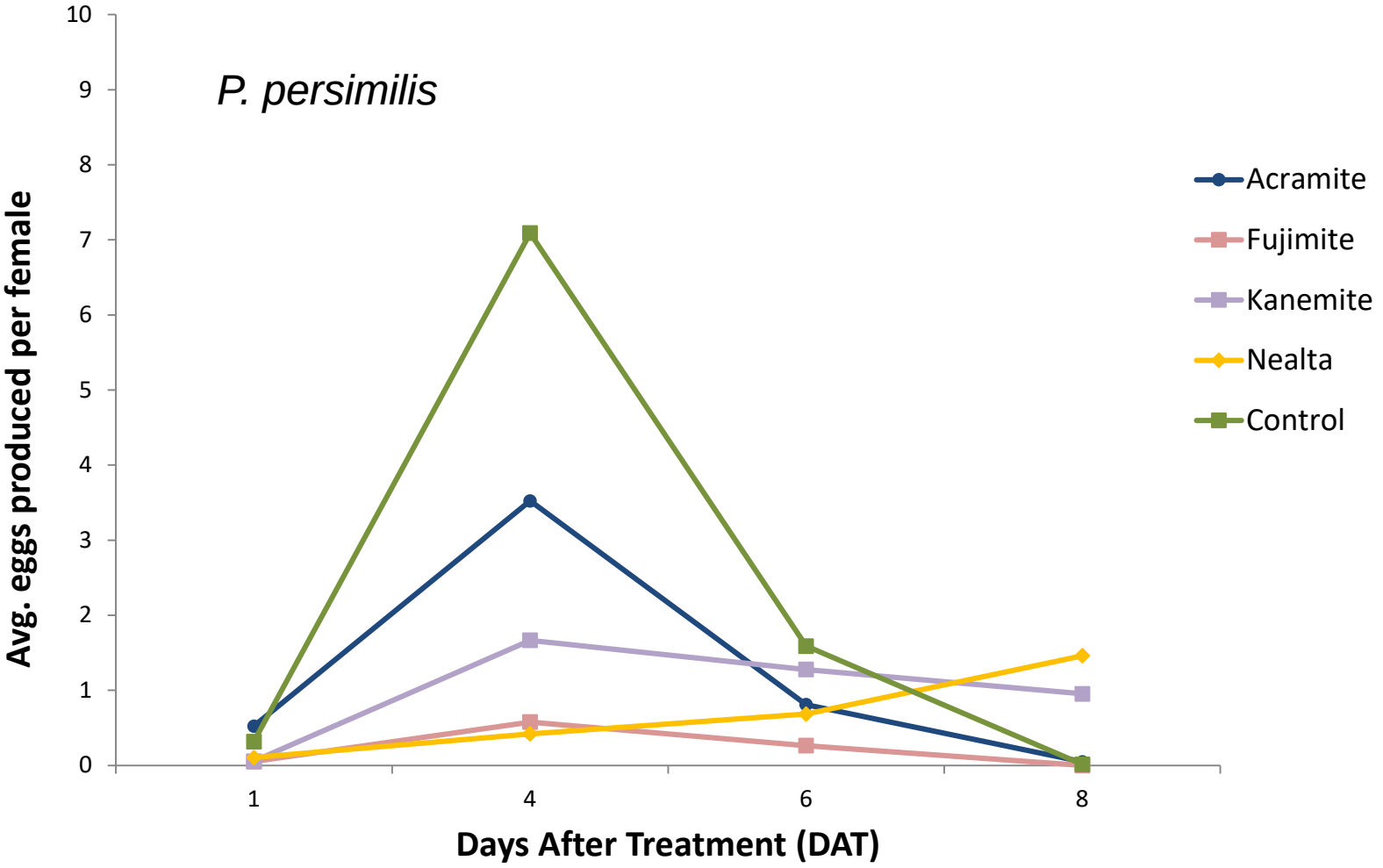
RCBD in envir. chamber

4-5 Reps

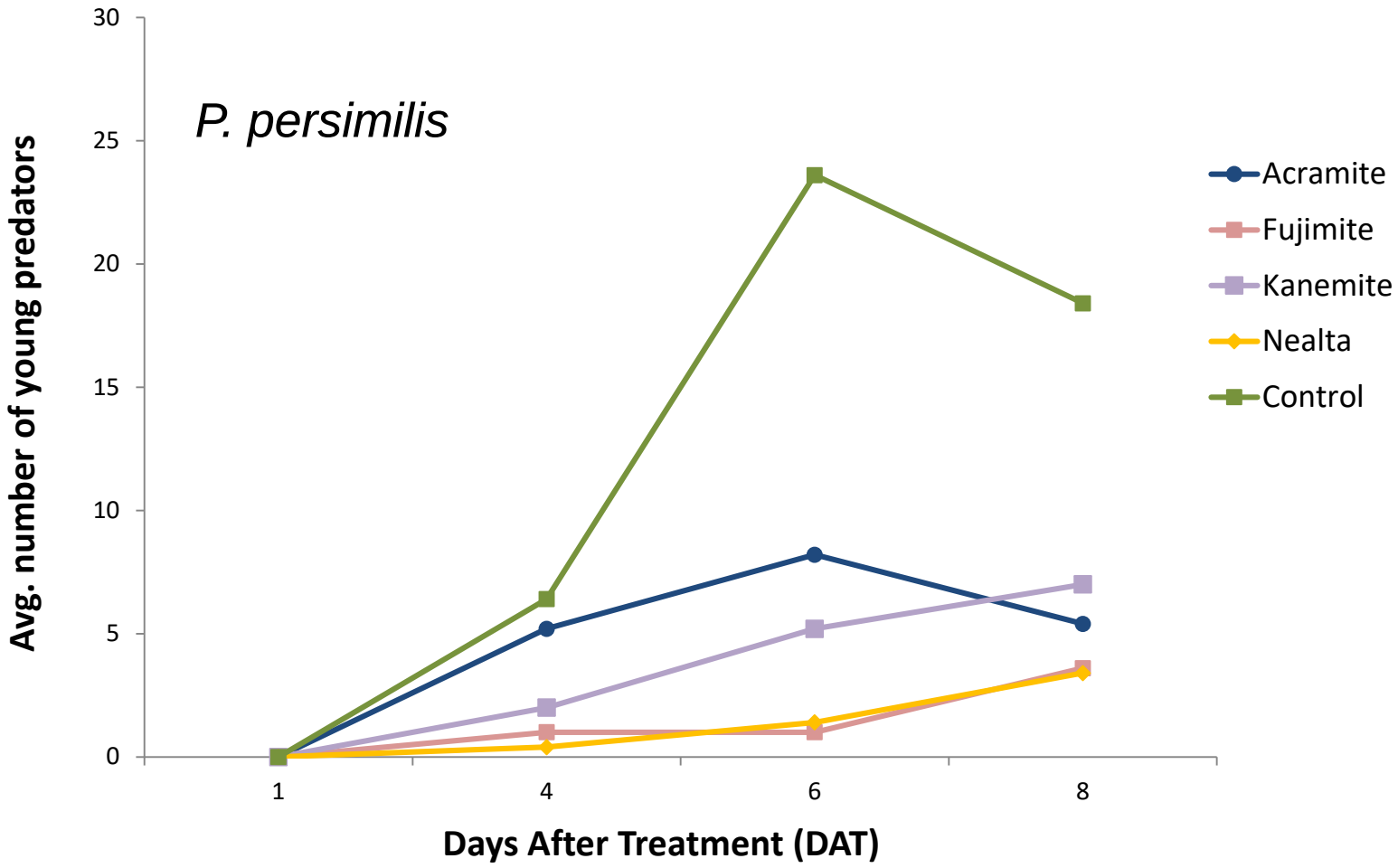
Corrected Percent Mortality



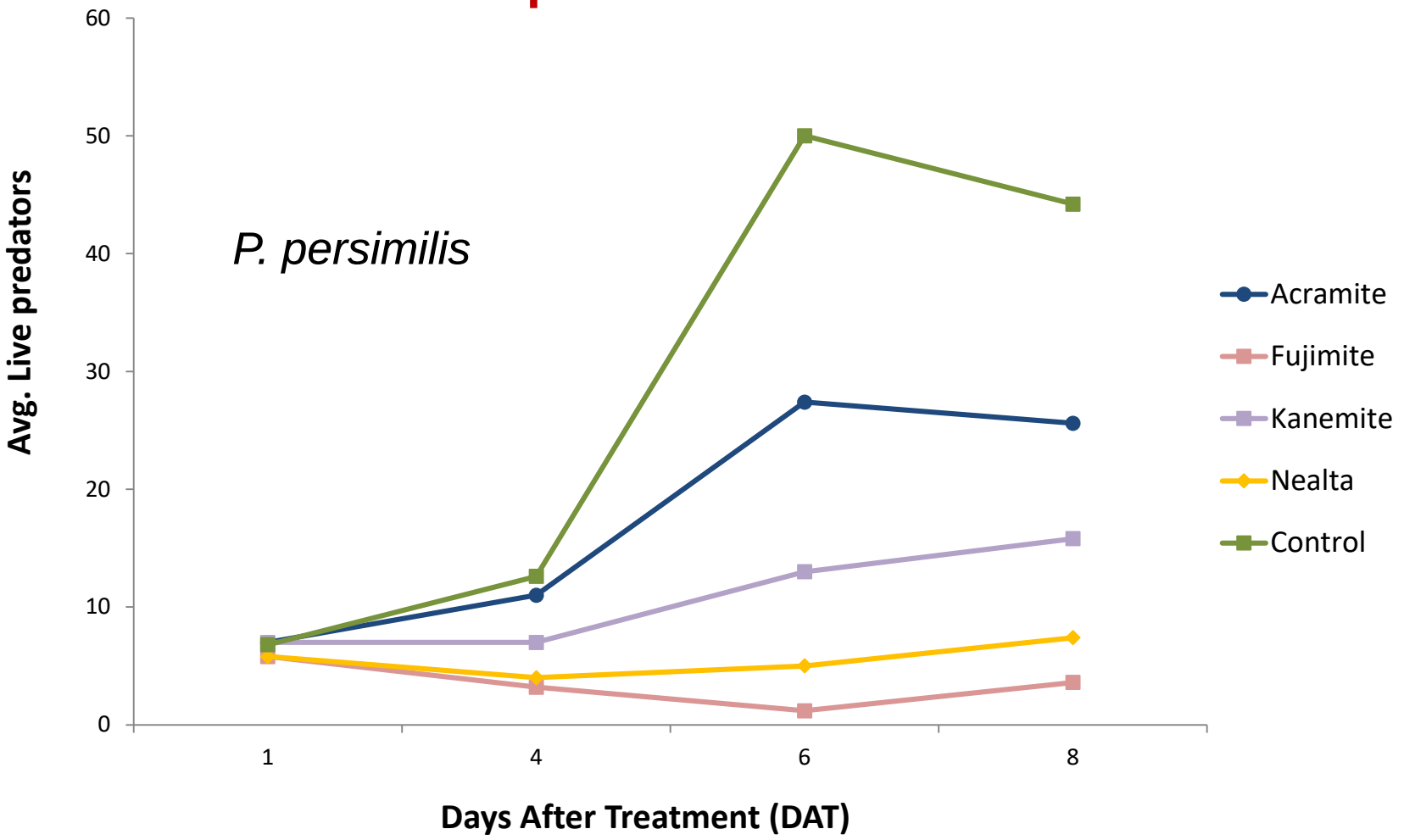
Fecundity (# eggs produced)



Fertility (# young produced)



Live predators



Harsh on *P. persimilis*:

Fujimite

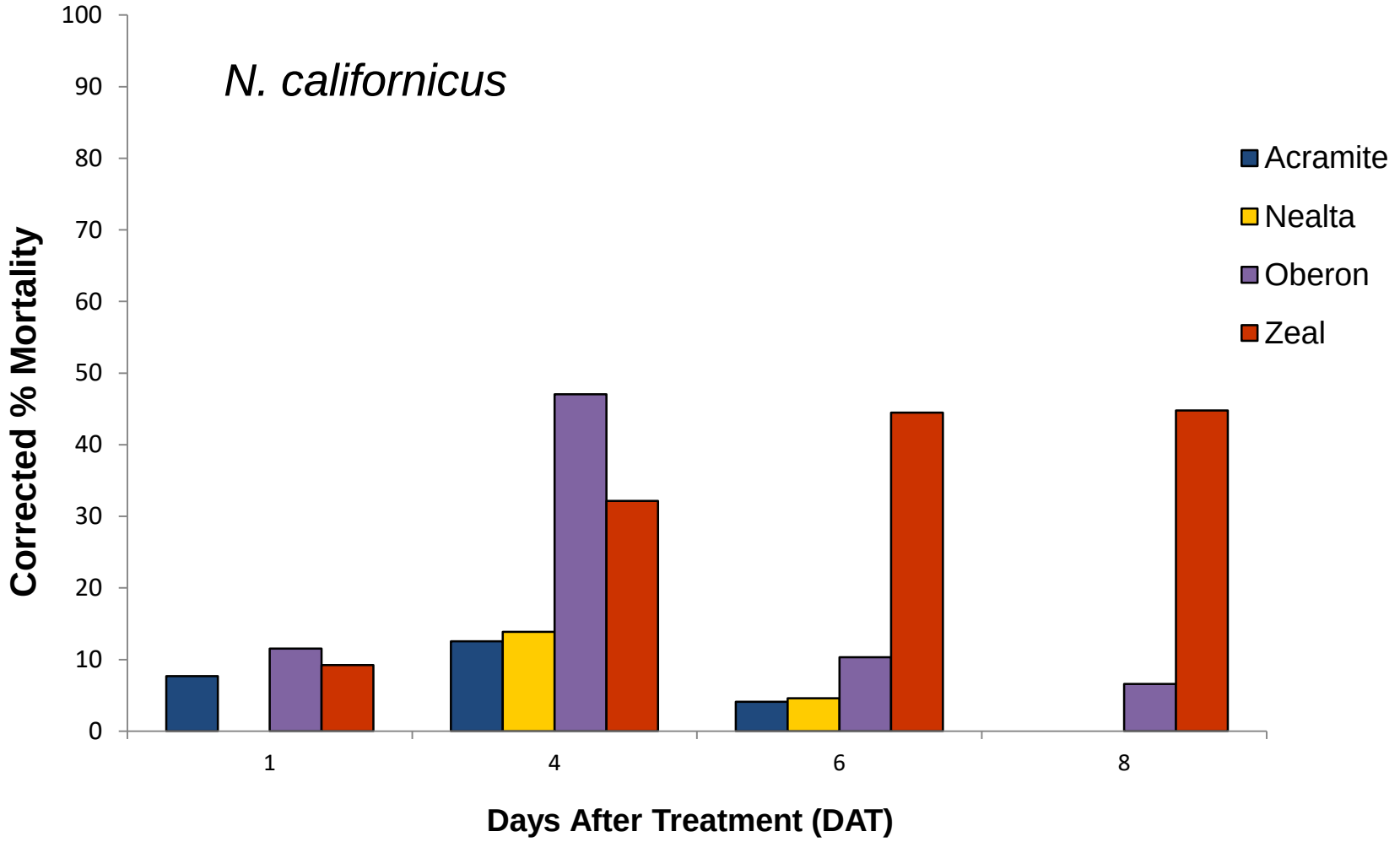
"So-so" on *P. persimilis*:

Nealta

"Softer" on *P. persimilis*:

Acramite & Kanemite

Corrected Percent Mortality



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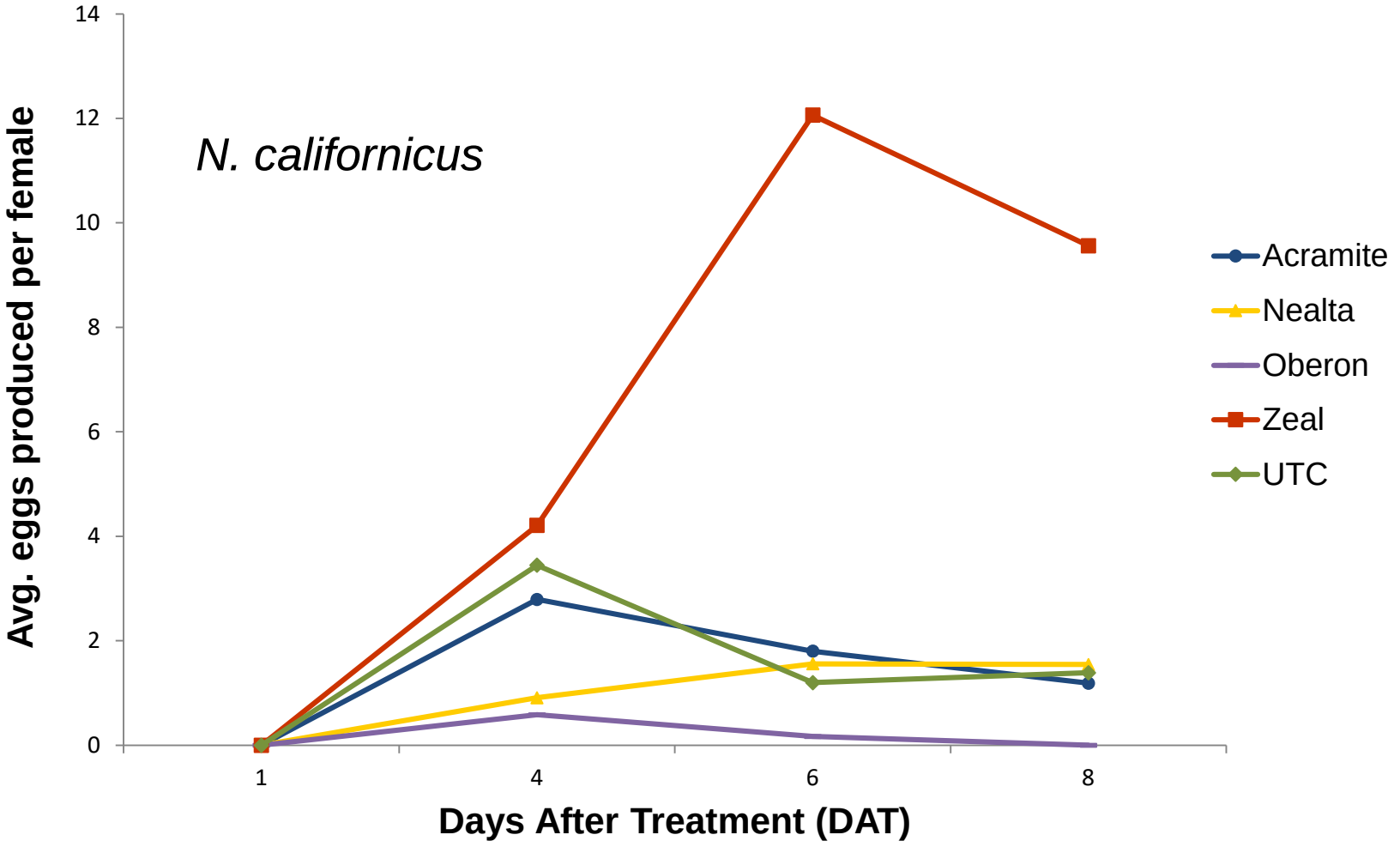

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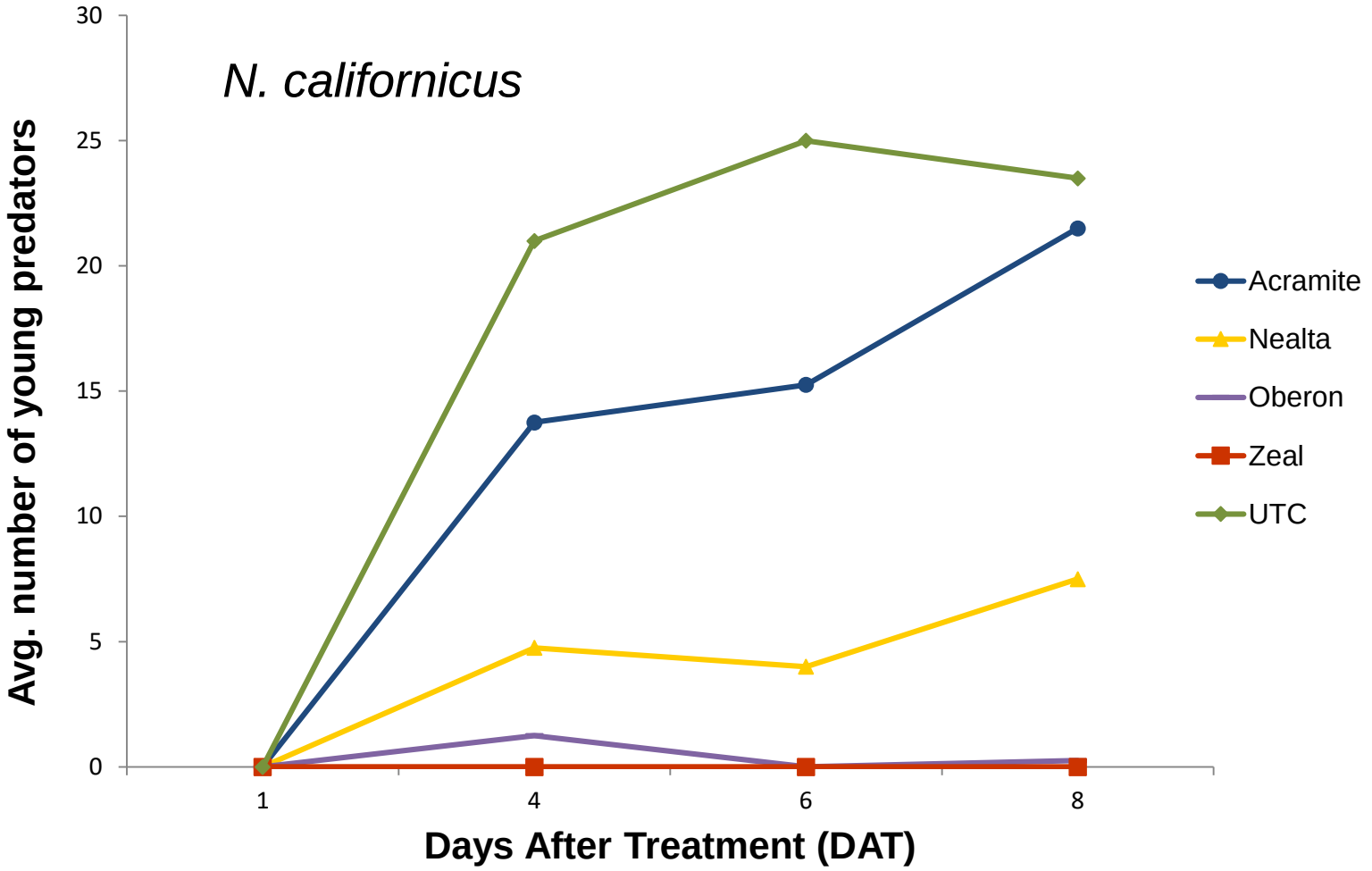
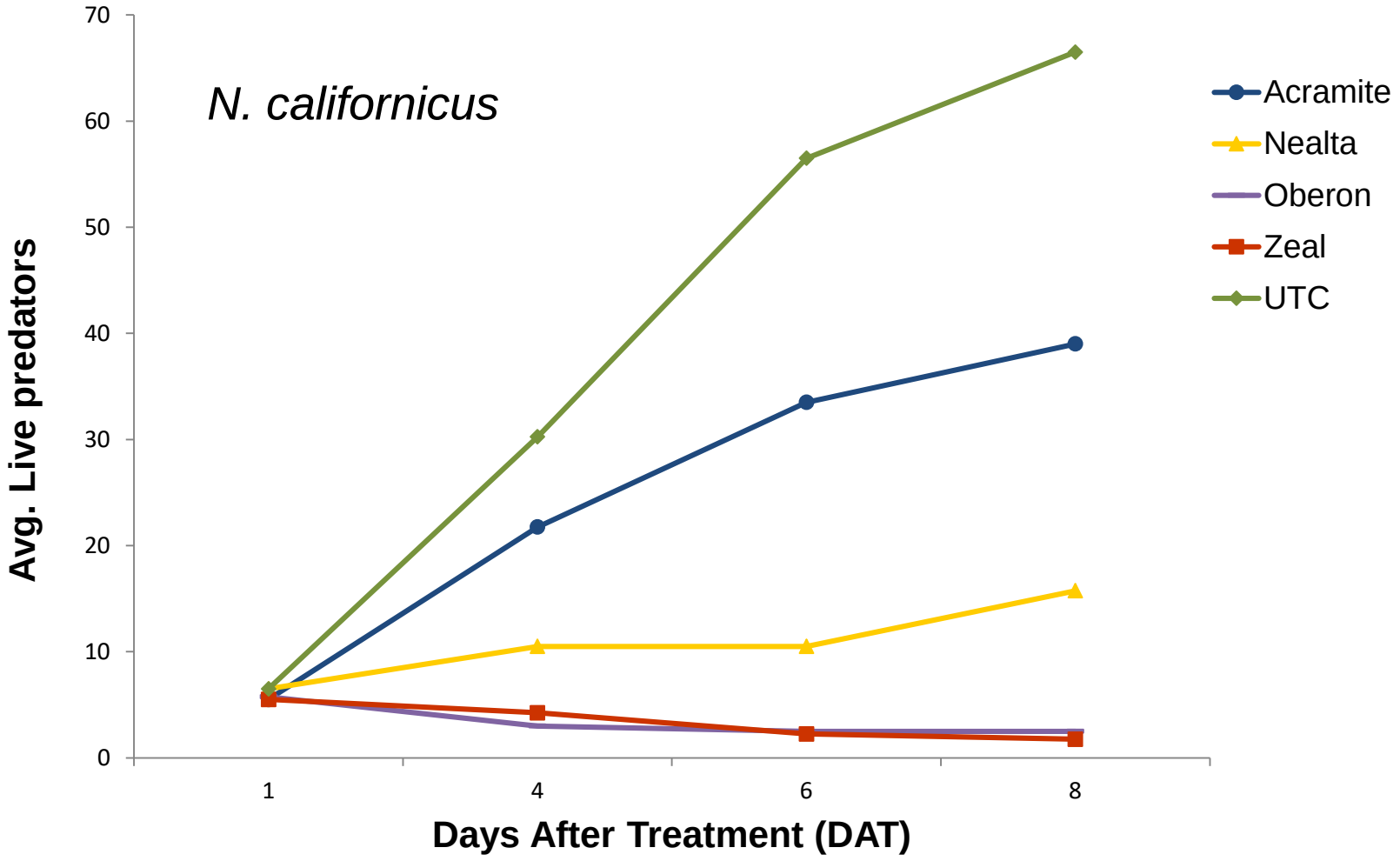


Live predators



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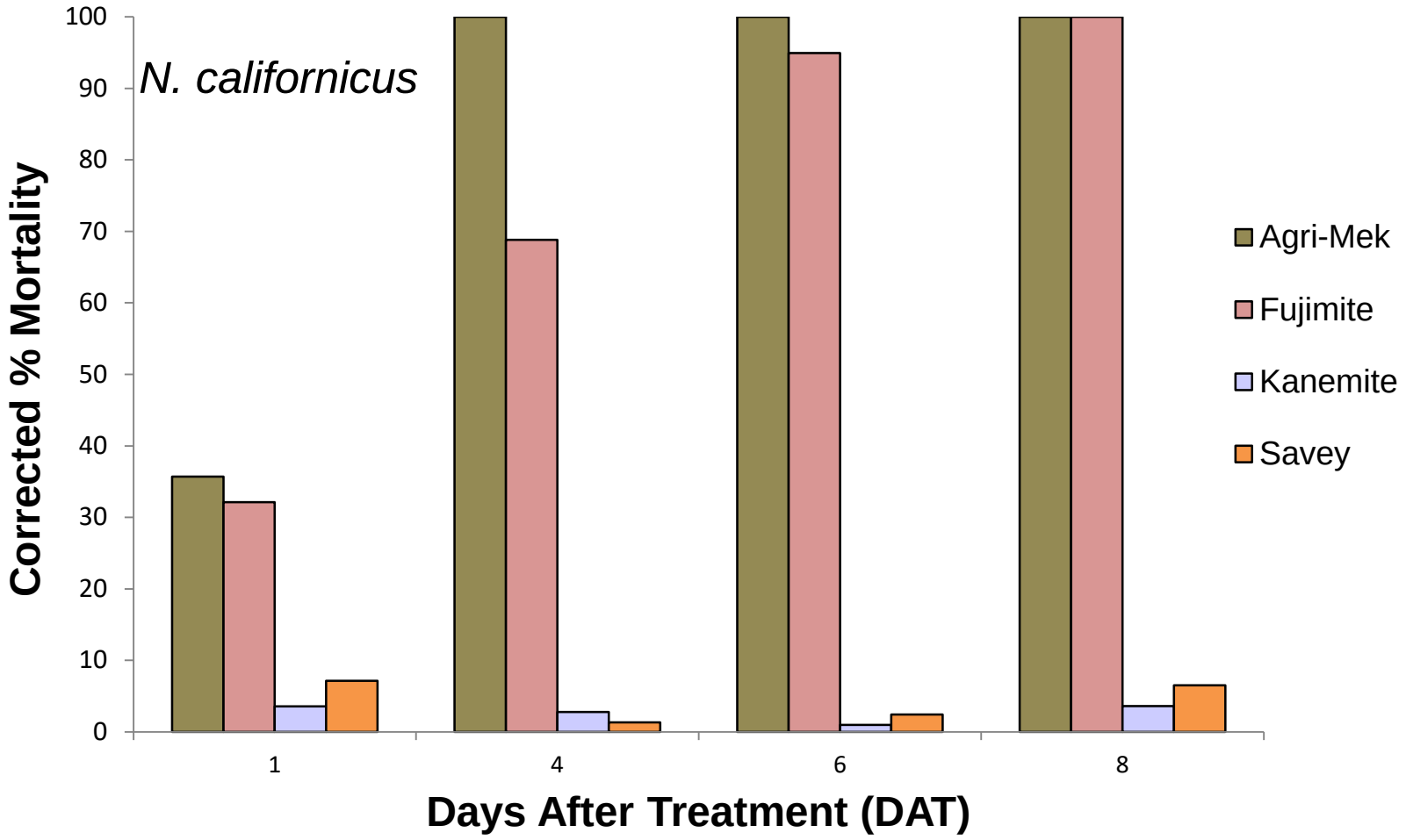

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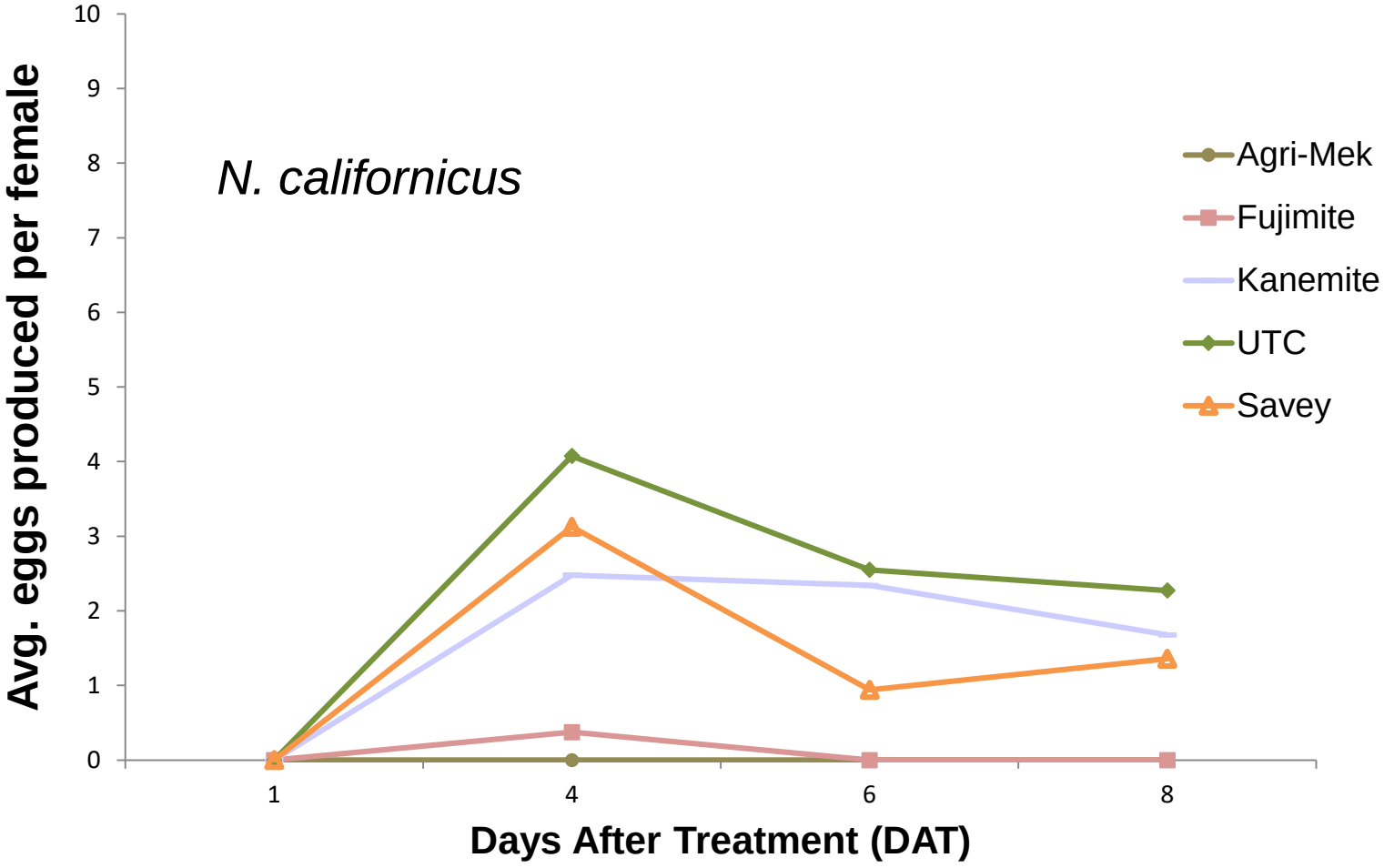

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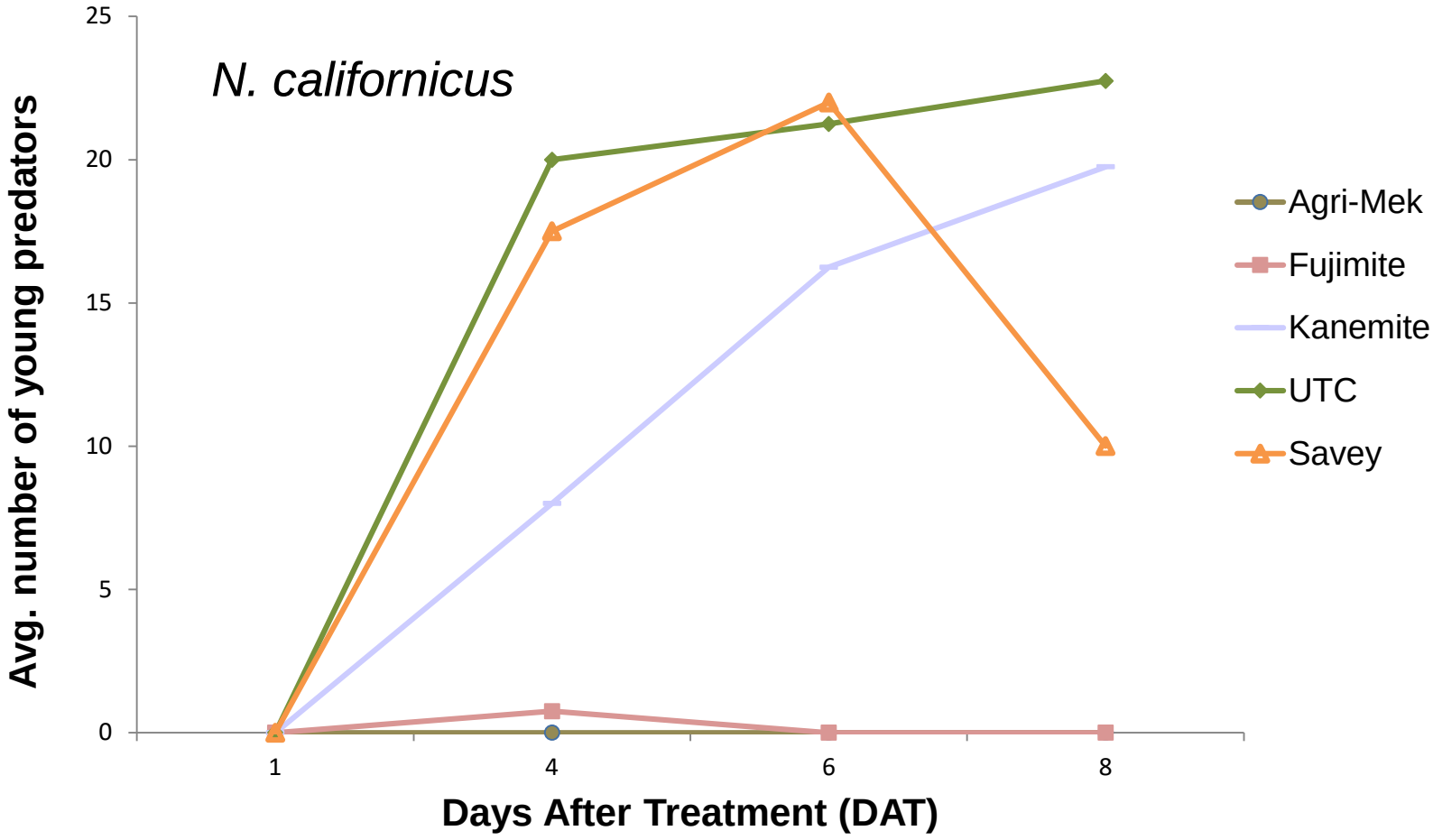

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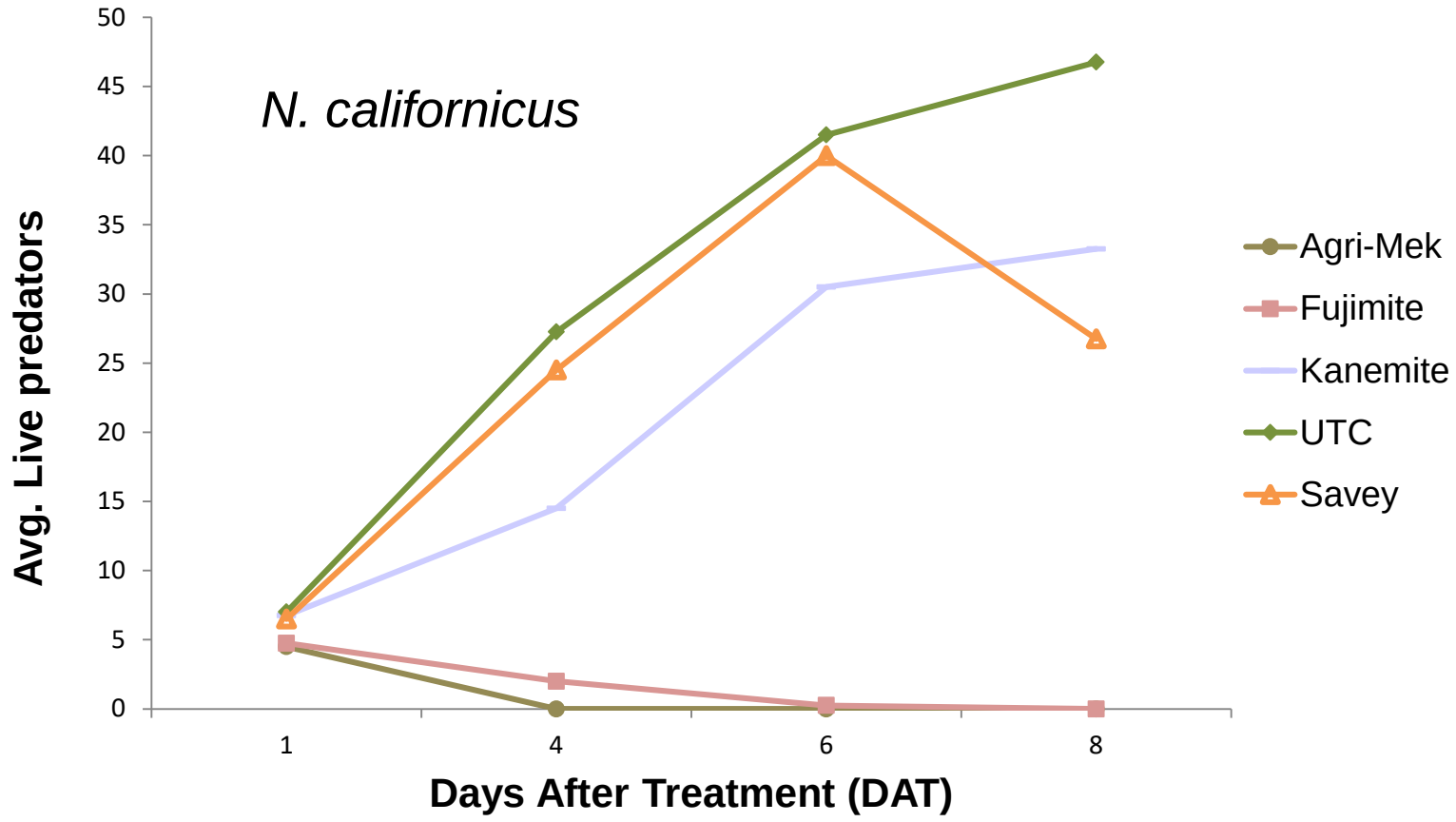

Harsh on *N. californicus*:

Zeal, Oberon, Fujimite, Agri-Mek

"So-So" on *N. californicus*:

Nealta

"Softer" on *N. californicus* :

Acramite, **Savey**, Kanemite

Summary

- Early monitoring to prevent outbreaks
- Know your mites!
  - Differences in treatment between mites both chemically and biological control
- Use softer chemistries to preserve beneficials

Acknowledgements

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Questions?

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