

Crapemyrtle Aphid
Sarucallis kahawaluokalani
and the lacewing
Chrysoperla rufilabris

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Crapemyrtle Aphids

- Host specific
 - Feed within *Lagerstroemia*
- Damage
 - Black sooty mold *Capnodium* sp.
 - No apparent long term fitness cost to plant?



Natural Enemies



- Insect Generalist Predators
- Aphid Predators
 - Coccinellidae
 - *Harmonia axyridis*
 - Chrysopidae
 - *Chrysoperla rufilabris*
 - Syrphidae
- No Parasitoids?

Lagerstroemia spp.

- *L. indica*

- Susceptible to powdery mildew

- *L. fauriei*

- Resistant to powdery mildew

- *L. indica* x *L. fauriei*

- Resistant to powdery mildew
- Retains the horticultural qualities of *L. indica*



Previous Research

■ Mizell and Knox 1993

- Aphid susceptibility
 - *L. indica* x *L. fauriei* hybrids susceptible
 - Pure *L. indica* resistant

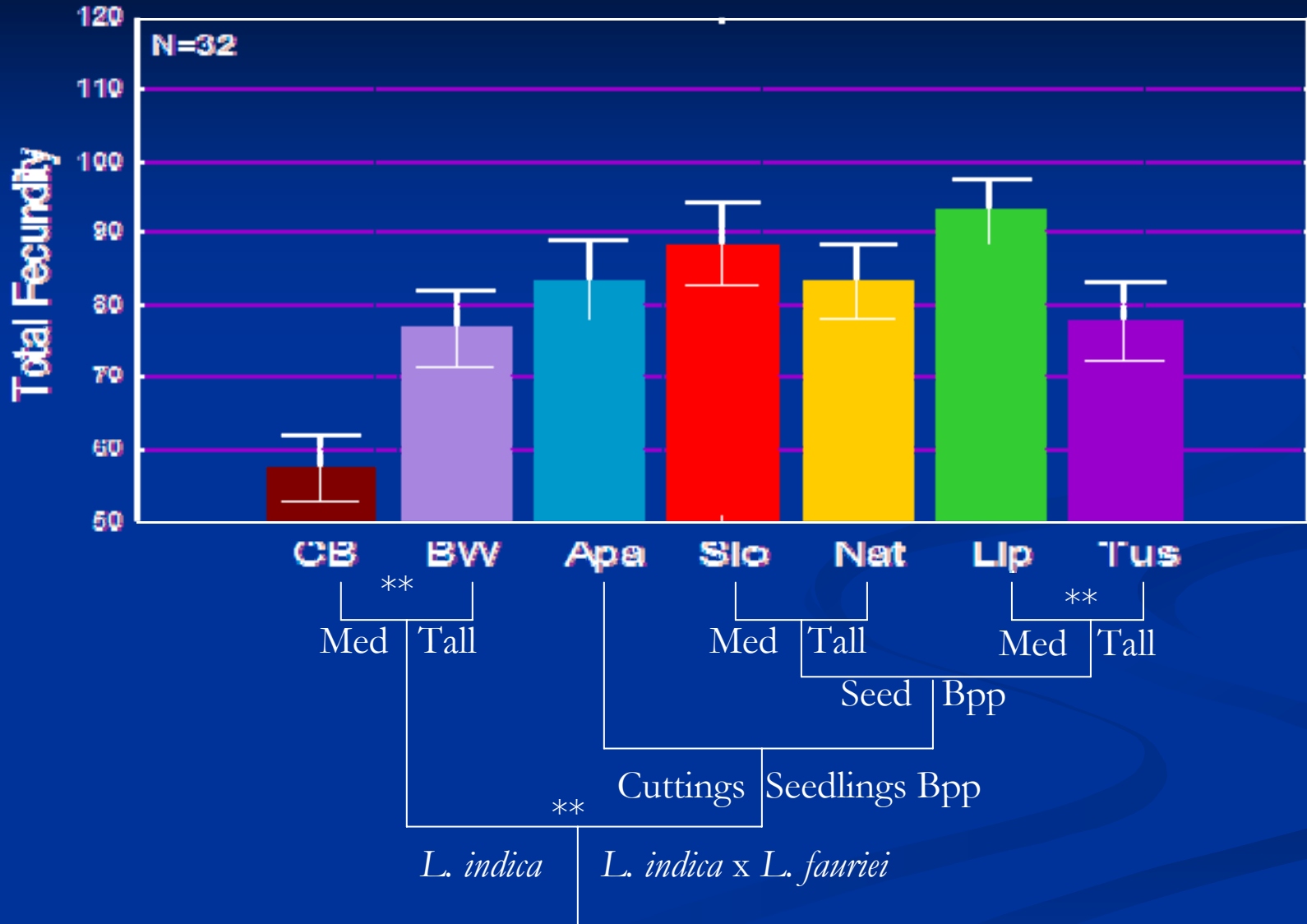
■ Pettis et al. 2004

- Susceptibility to Coleoptera (Japanese beetle and *Altica* sp.)
 - *L. indica* x *L. fauriei* more resistant
 - Pure *L. indica* susceptible

■ Leaf disk experiments

- Aphid suitability (no choice tests)
 - Parentage, and mature plant height

Total Fecundity *Sarucalls kahawaluokalani* 2005 and 2006



Hypothesis

- *Chrysoperla rufilabris*
 - Mizell (unpublished data)
 - *C. rufilabris* larvae – differential survivorship
- Hypothesis
 - Survivorship determined by:
 - Parentage?
 - Plant height?
 - Cultivar?



Materials and methods

- *S. kahawaluokalani*
 - Reared in sleeve cages
- *Chrysoperla rufilabris*
 - Eggs held in well plates
 - 1st instar larvae grouped by 10
 - Larvae reared in small cups
 - Fed aphids via leaf infested leaf material



Chrysoperla rufilabris Experiment

■ Measurements

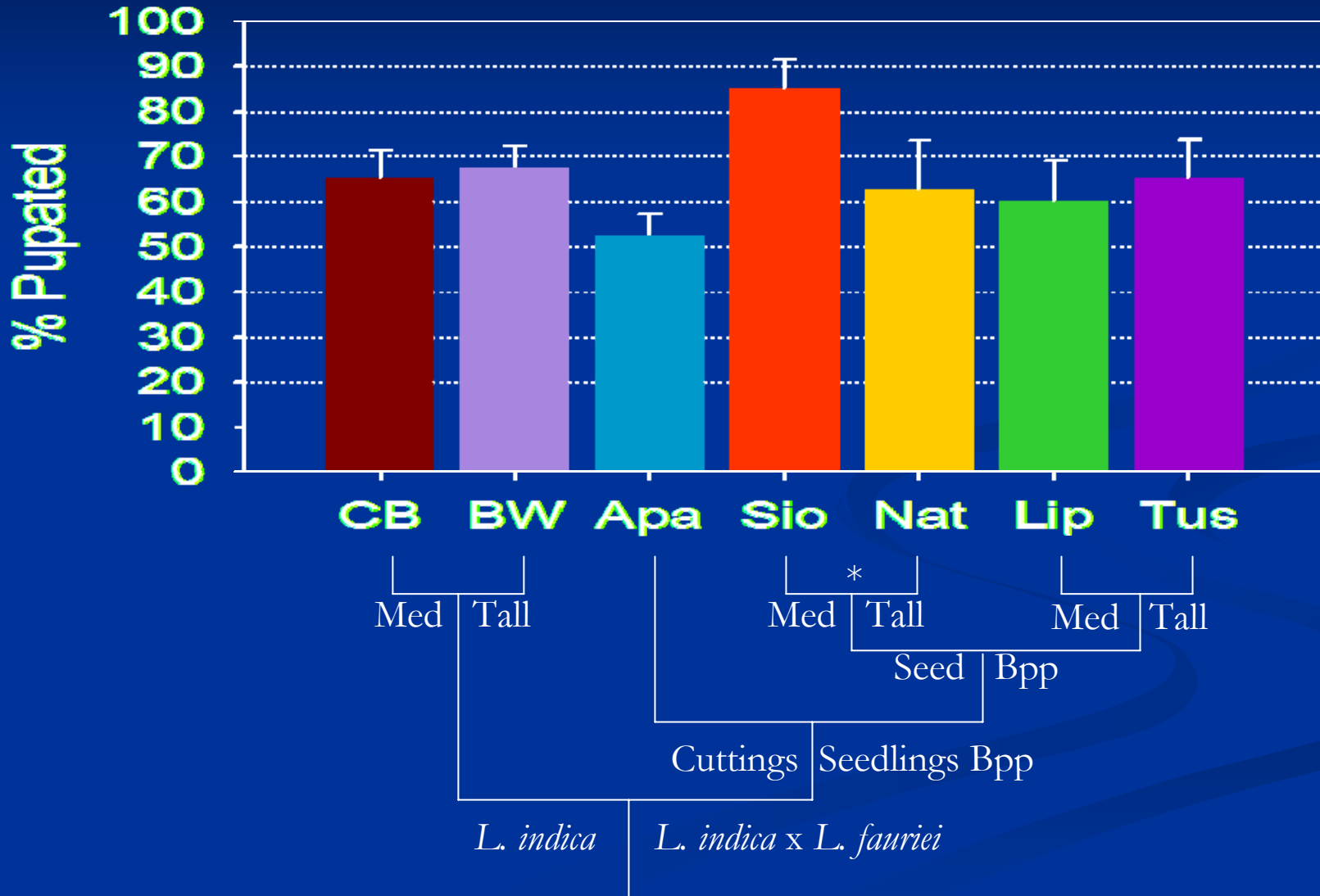
- % pupated
- % emerged (from pupae)
- % total survivorship (adult)
- Dry weight

■ Analysis

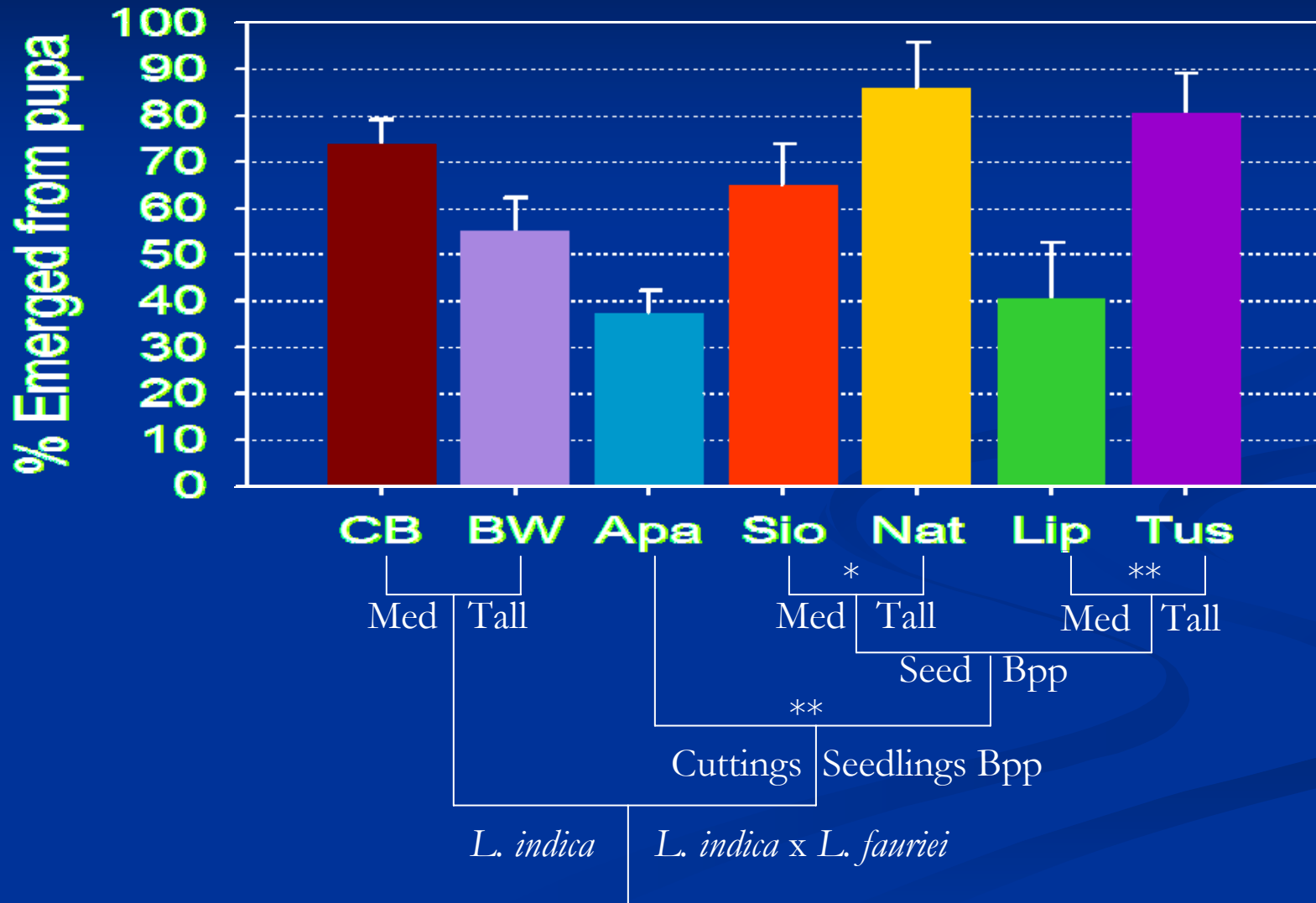
- Data transformations
 - % data (arcsin)
 - Dry weight data (log)
- One way ANOVA
 - Proc glm(SAS institute)
- Contrasts as in leaf disk experiment



Larval Survivorship *Chrysoperla rufilabris*

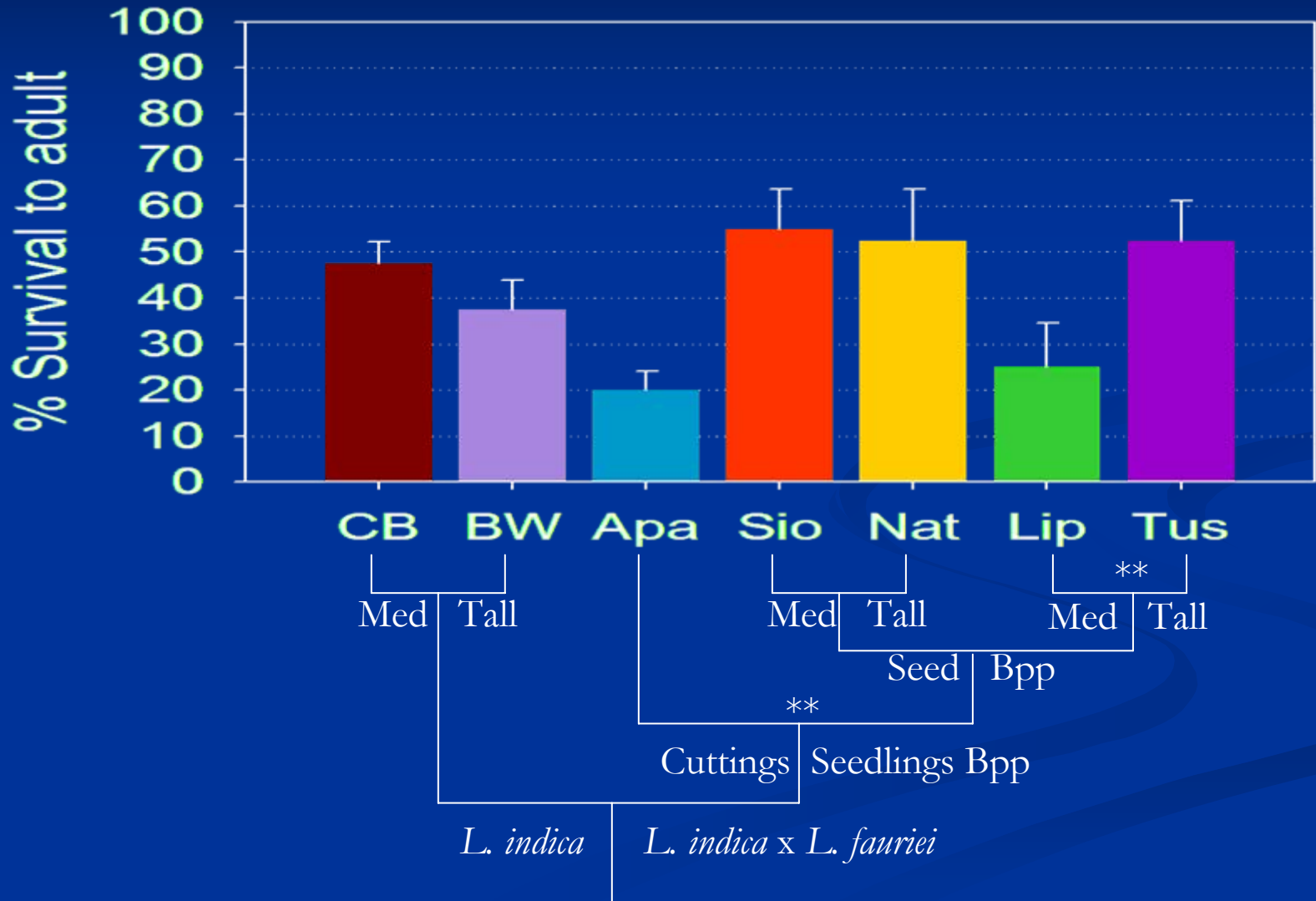


Pupal Survivorship *Chrysoperla rufilabris*



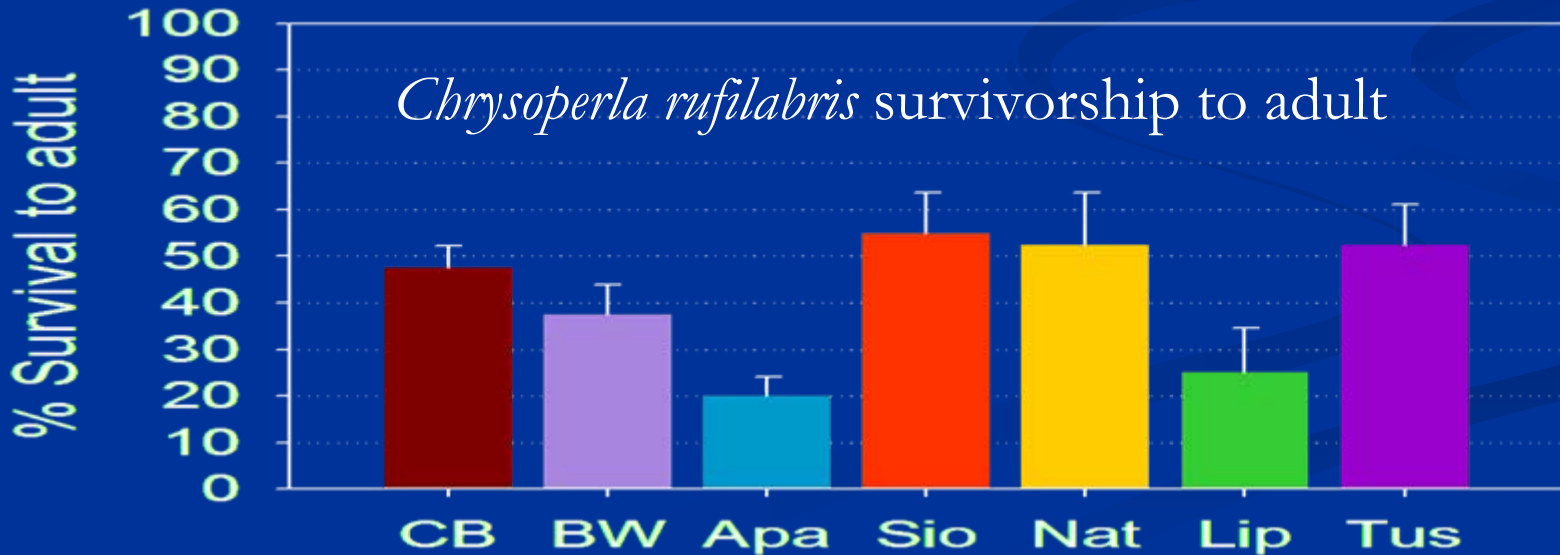
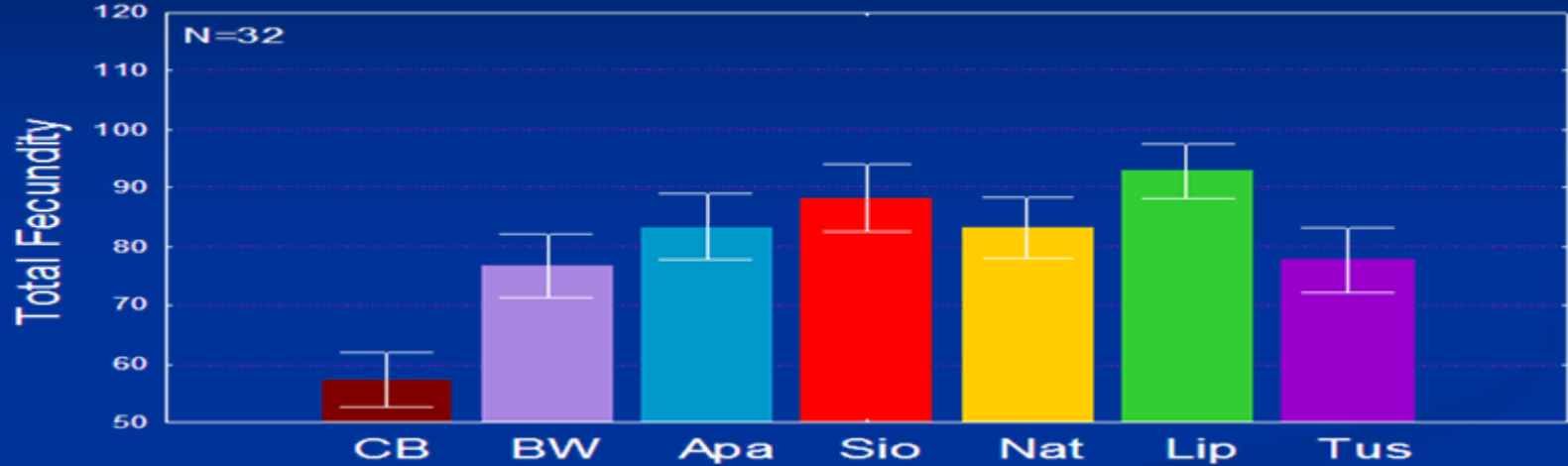
Total Survivorship

Chrysoperla rufilabris



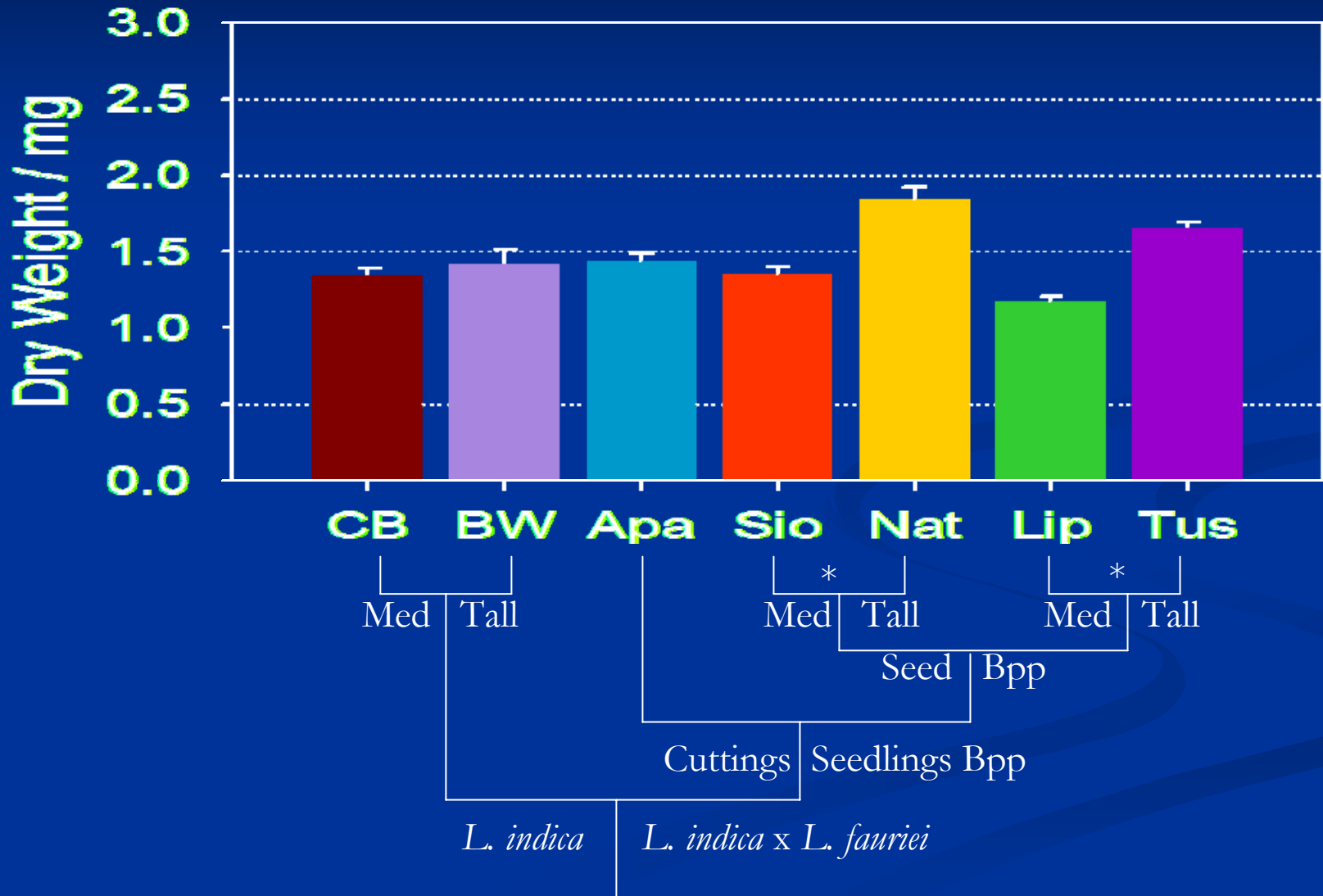
Tritrophic Interactions

Total Fecundity *Sarucallis kahawaluokalani*
2005 and 2006



Dry Weight

Chrysoperla rufilabris



Conclusions and Future Work

■ Conclusions

- Overall survivorship of *C. rufilabris* inversely related to aphid suitability in 4 of 7 cultivars tested
 - Not dependent on parentage
 - Pedigree and mature plant height

■ Future Experiments

- Field testing (sleeve cages)
- Suboptimal or mixed diets
 - Qualitative - Toxicity (alkaloids)
 - Quantitative - Nutritional differences

References Cited and Contributors

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Alverson, D. R. and R. K. Allen. 1992b. Suitability of 'Natchez' vs. 'Carolina Beauty' crapemyrtle cultivars as hosts for the crapemyrtle aphid. *Proceedings of the SNA research conference* 37:160-62.

Mizell R. F. and G.W. Knox. 1993. Susceptibility of crapemyrtle, *Lagerstroemia indica* L., to the crapemyrtle aphid (Homoptera: Aphididae) in North Florida. *Journal of Entomological Science* 28:1-7.

Pettis, G. V., Boyd D. W., Braman S. K., and C. Pounders. 2004. Potential resistance of crape myrtle cultivars to flea beetle (Coleoptera: Chrysomelidae) and Japanese Beetle (Coleoptera: Scarabaeidae) damage. *Journal of Economic Entomology* 97:981-92.

Advisory committee

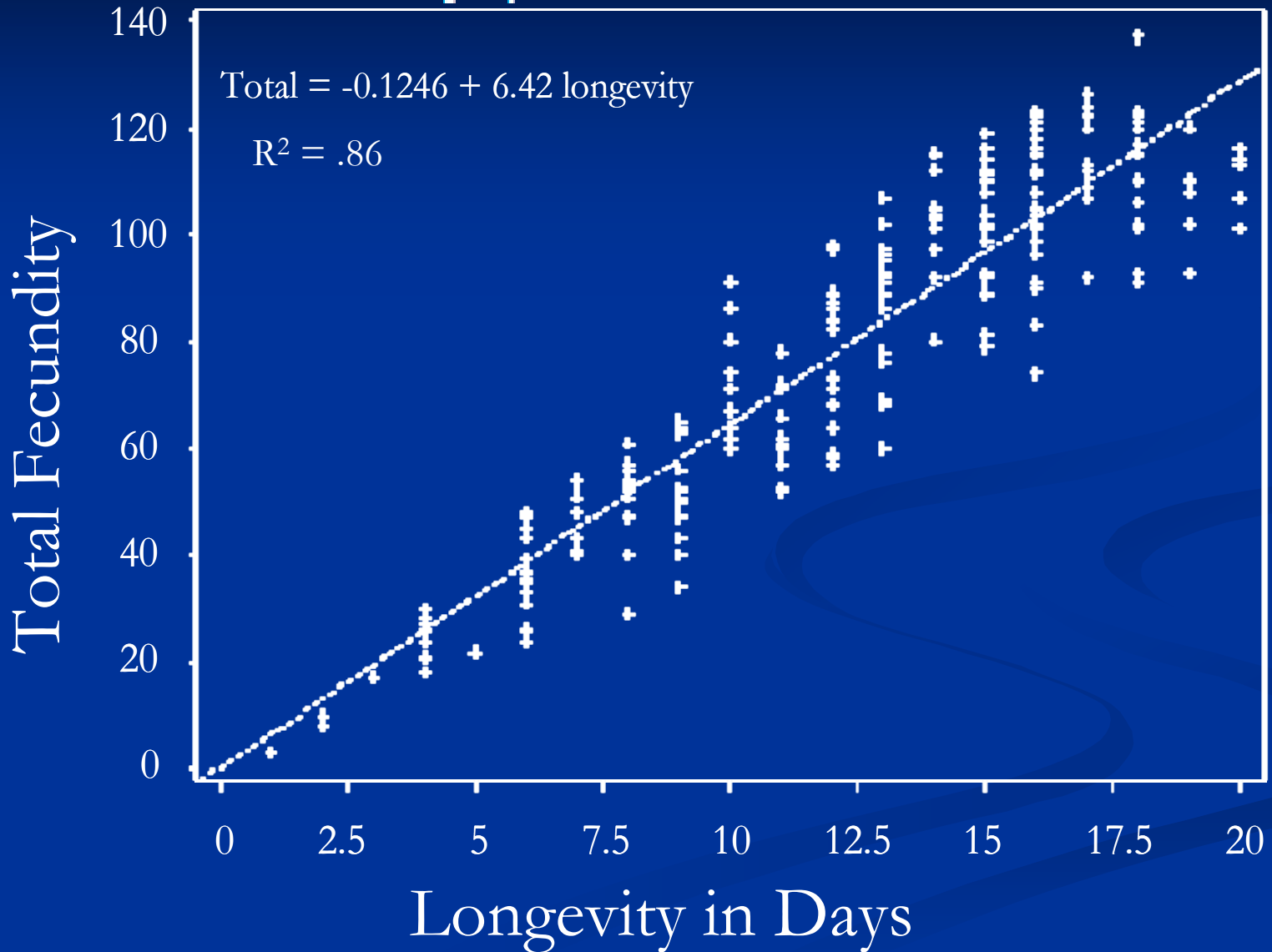
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Regression



Total Fecundity *Sarucalls kahawaluokalani* 2005 and 2006

