

Monitoring and Early Detection of Asian Longhorned Beetles, *Anoplophora glabripennis*

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Asian Longhorned Beetle Lifecycle



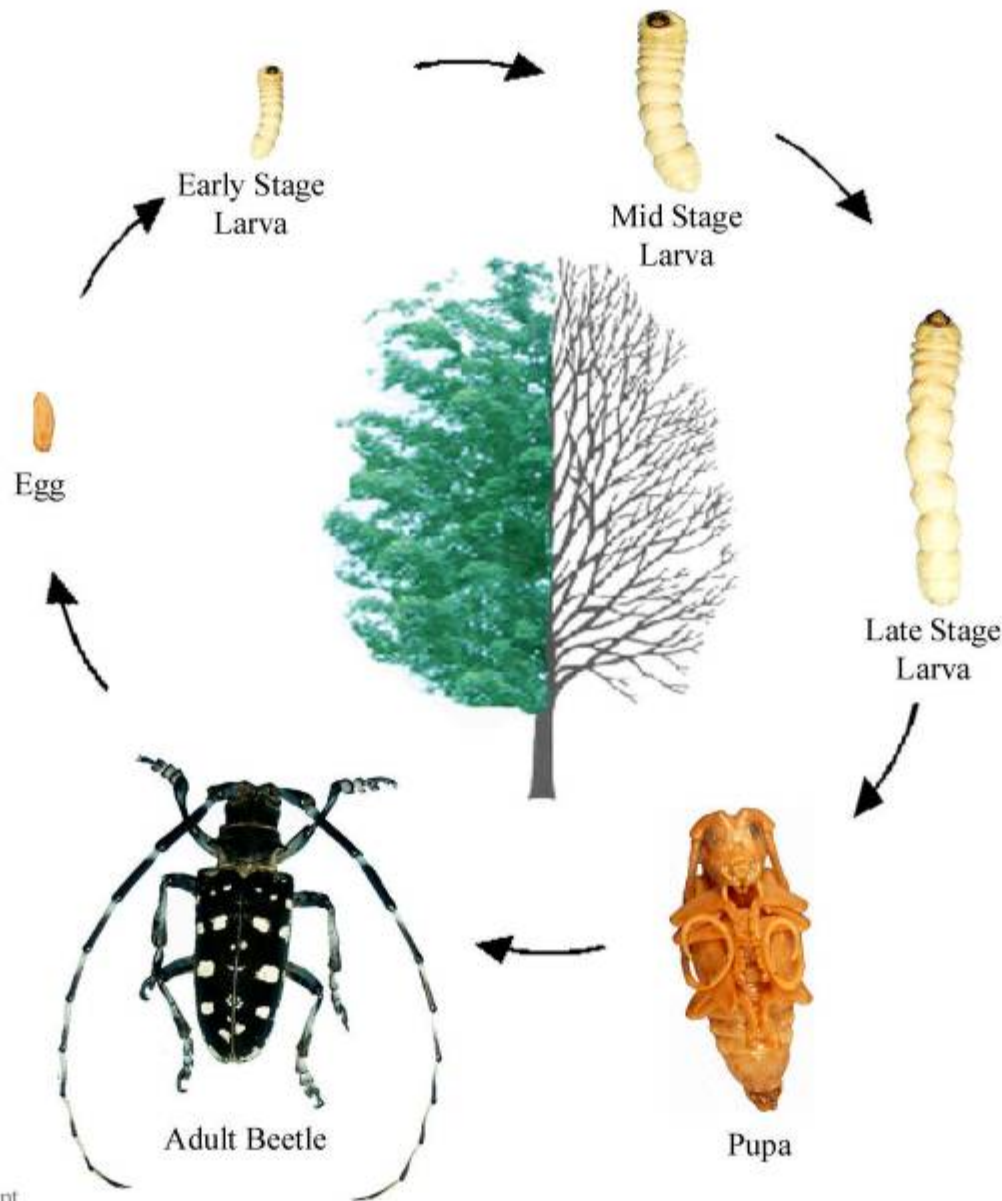
Adults and oviposition scars



Emergence holes



Adult emerging from tree



Larva in tree



Pupal chamber in tree

Survey & Detection





Male ALB Pheromone

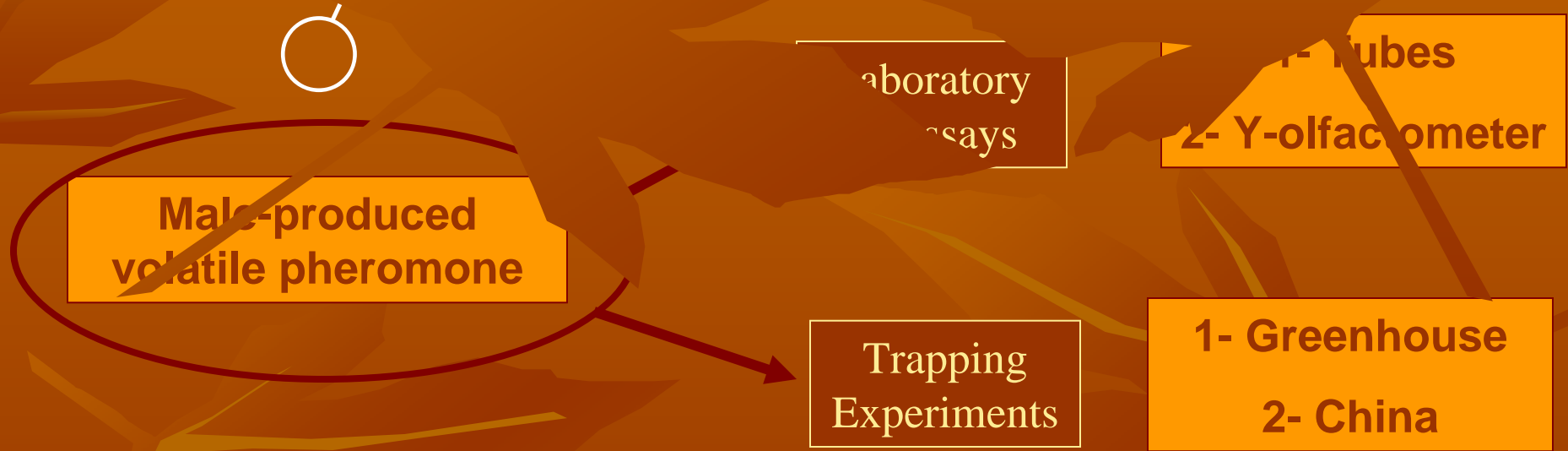
Male pheromone is a 1:1 (v/v) blend of
dialkylbenzylacetate

4-(*n*-heptyloxy)benzylacetate (alcohol)

4-(*n*-heptyloxy)butylacetate (alcohol)



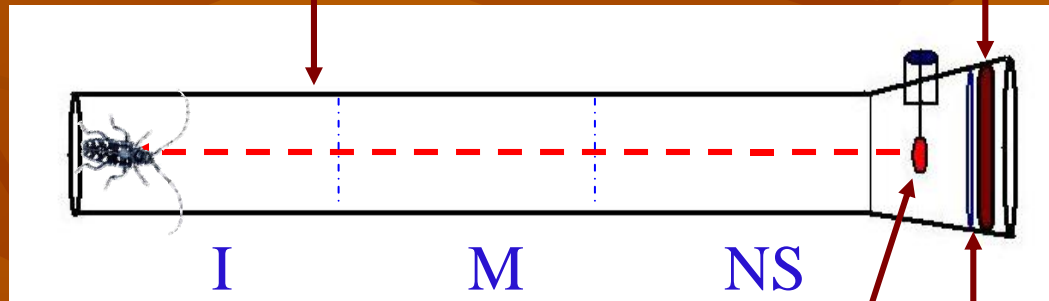
3rd Phomone



Laboratory bioassays

150 x 10 cm
glass tube

12 V Fan



Cotton
wick

Fine screen



Laboratory Results

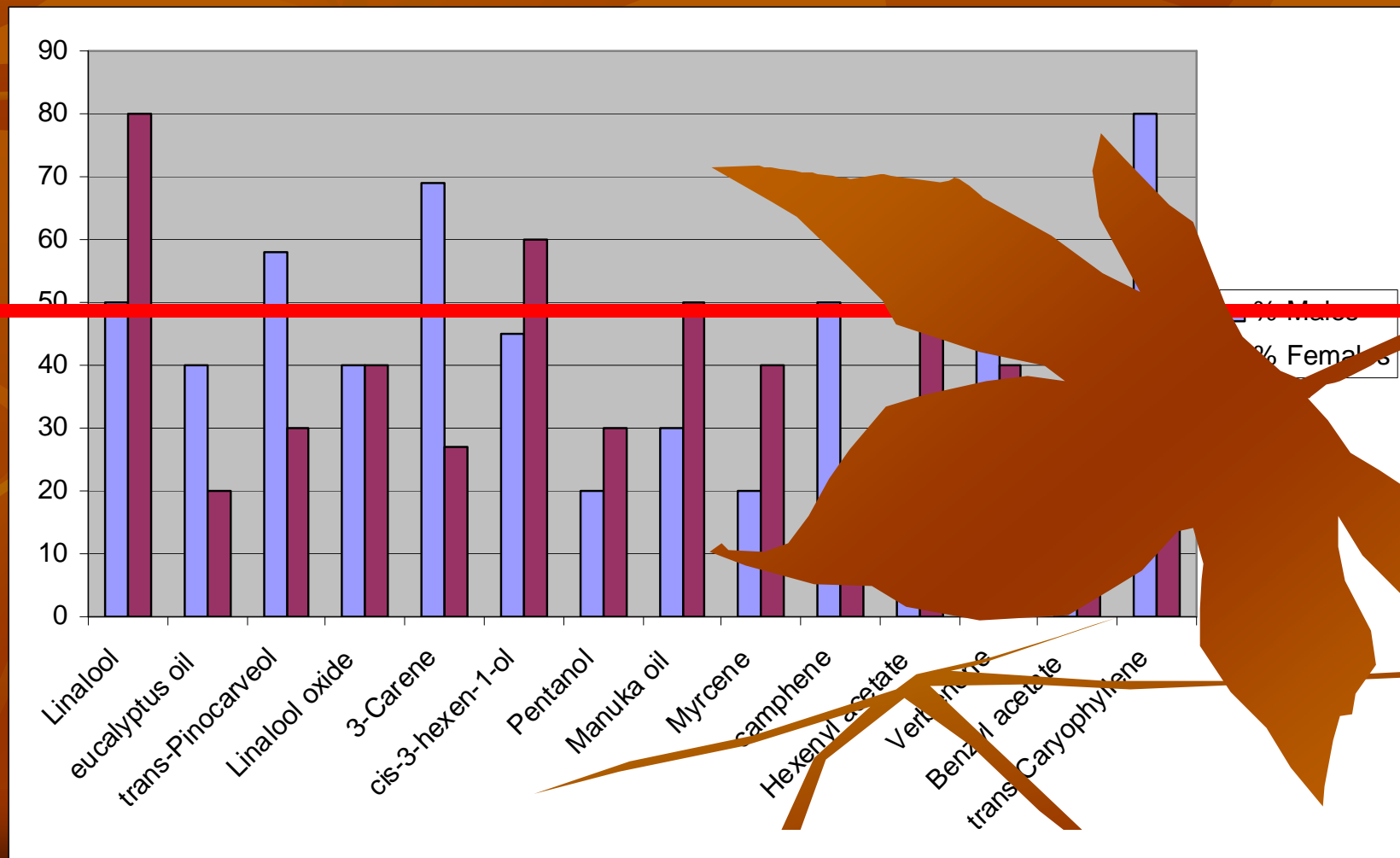
Activity	Virgin	Mated
Males	A	C
Females	B	D

Alcohol	Virgin	Mated
Males	B	C
Females	A	D

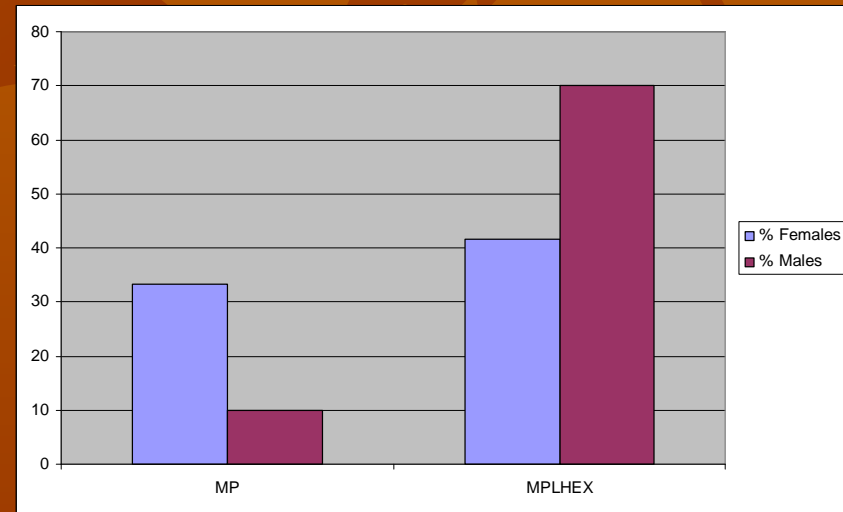
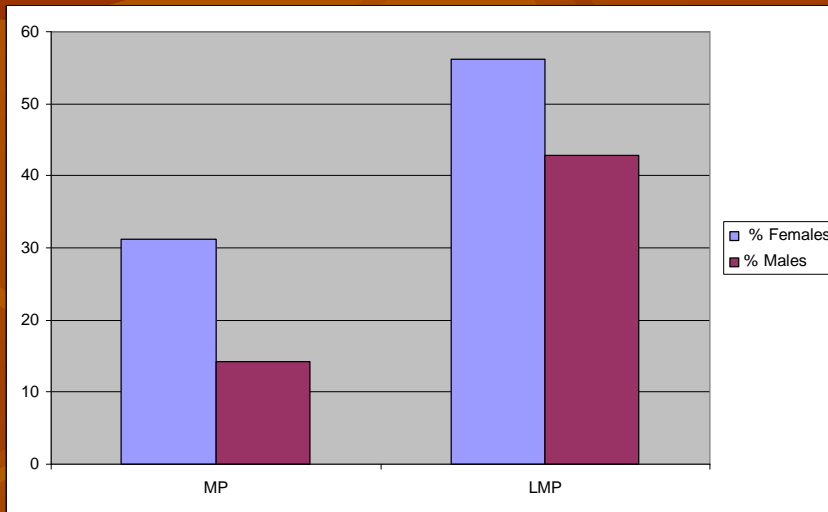
Virgin females significantly attracted to 1 μg alcohol

Y-olfactometer bioassays for plant volatiles

- 14 plant volatiles tested



Combining plant volatiles to ALB male-produced pheromone



Greenhouse Trapping

- 1- Test attraction to field-produced pheromone
- 2- Test attractiveness of lures
- 3- Determine the most efficient trap design



Intercept PT



Screen sleeve

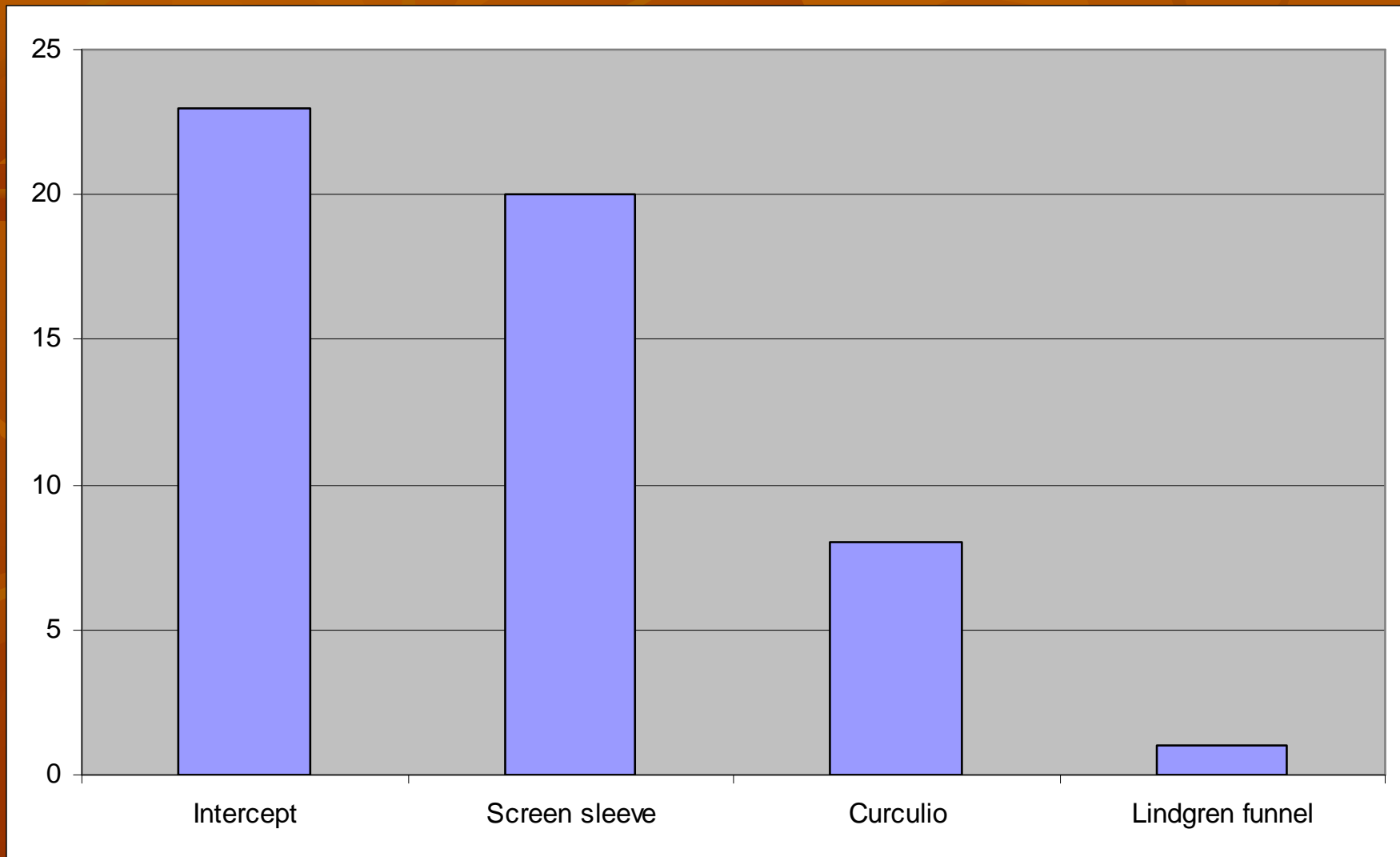


Curculio

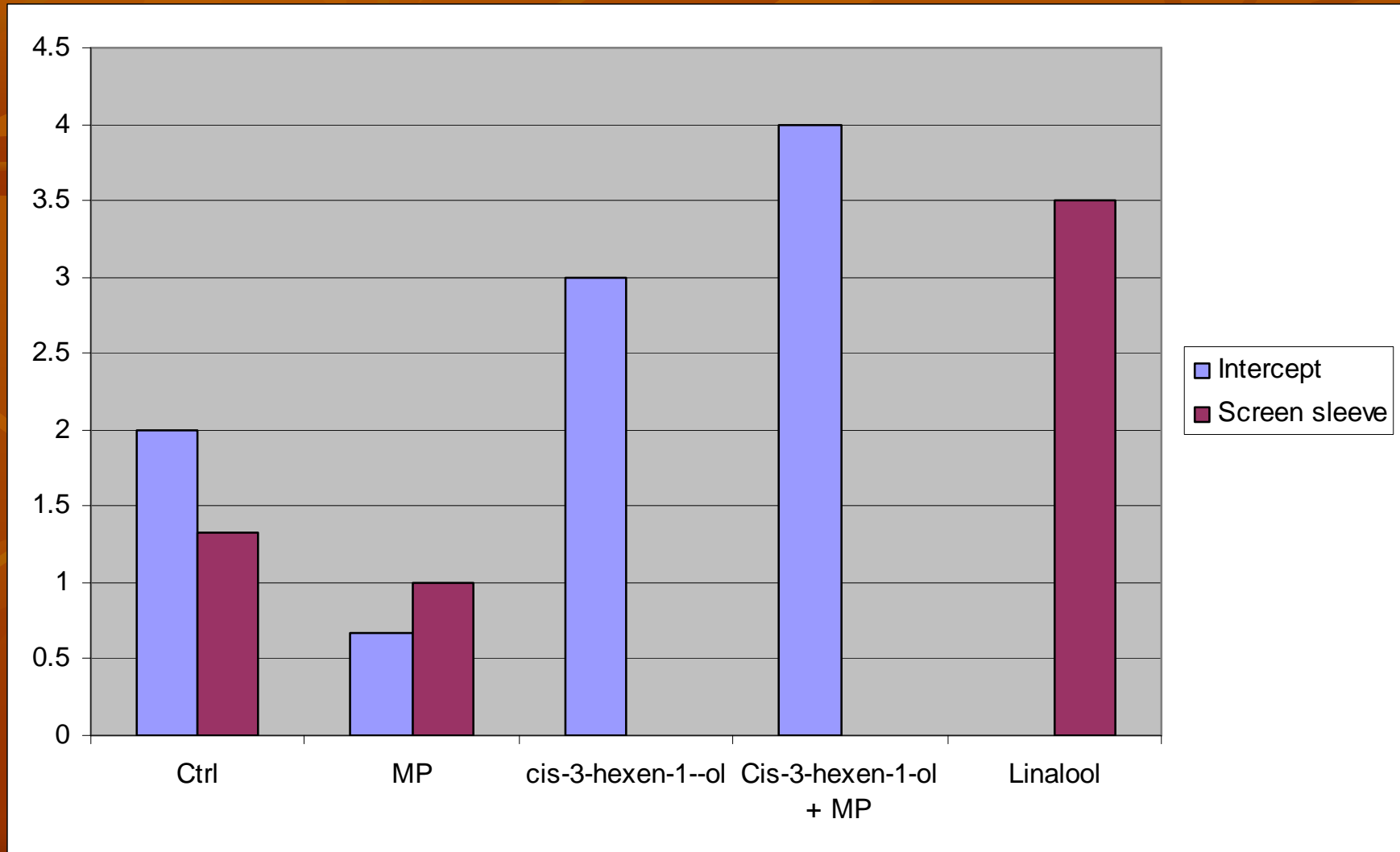


Lindgren
funnel

Total trap catches/trap design



Mean trap catches/week/lure



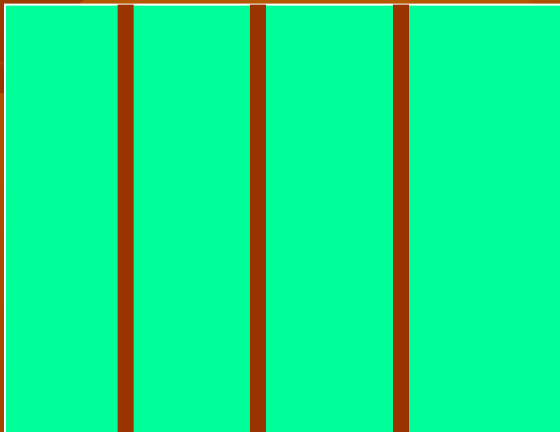
Trapping ALB in China



1

2

3

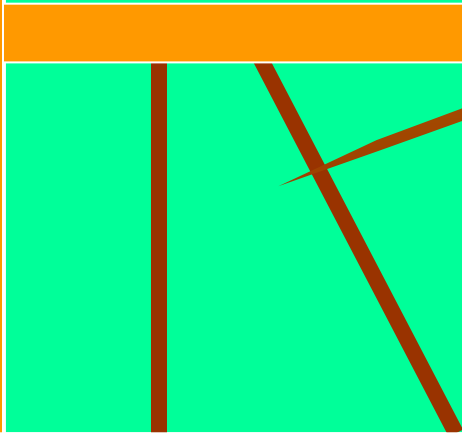
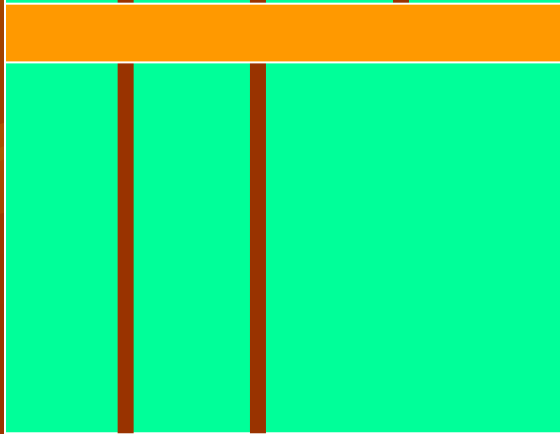


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Quang Xia

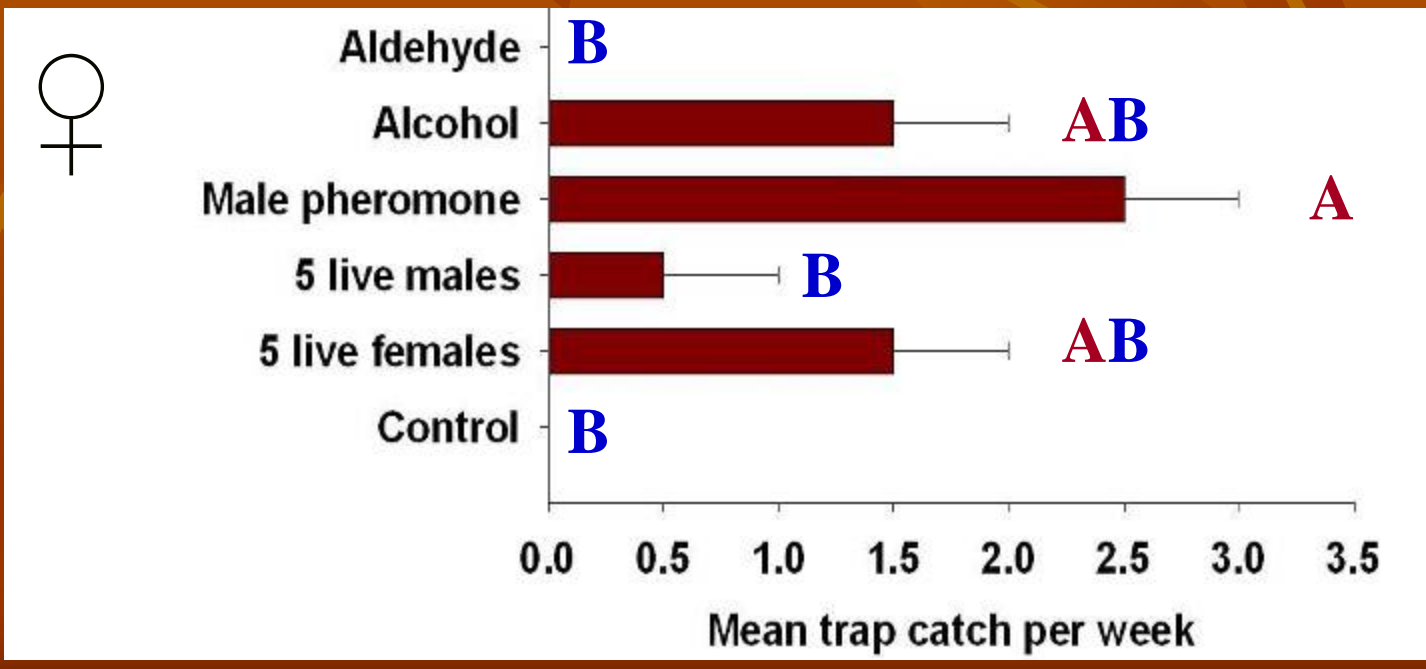
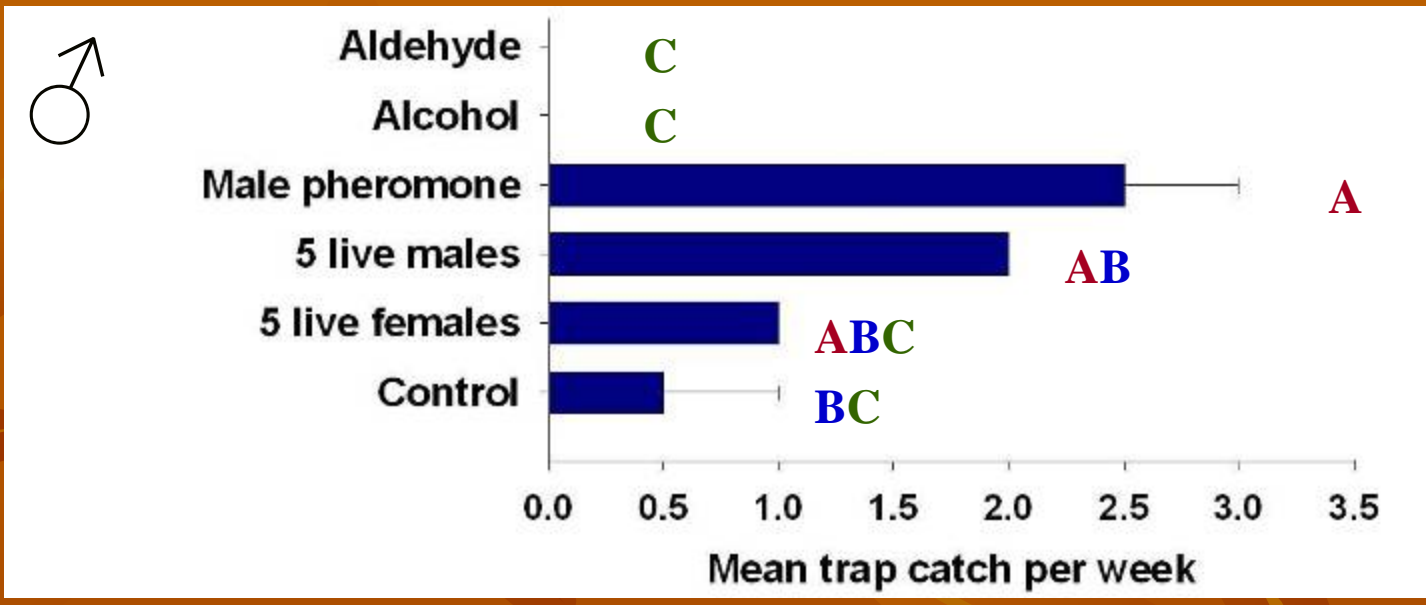
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China

Traps





Summary

- The alcohol is the major attractant in ALB male-produced pheromone for females
- Adding the alcohol to the alcohol enhances males' attraction
- Adding plant volatiles to MP increases attractiveness
- Screen sleeve traps and funnel traps are the best trap designs to be used.
- MP can be used for monitoring ALB in the field

Thank you!!!

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