IPM-CPR: Integrating BMSB Management into Tree Fruit IPM

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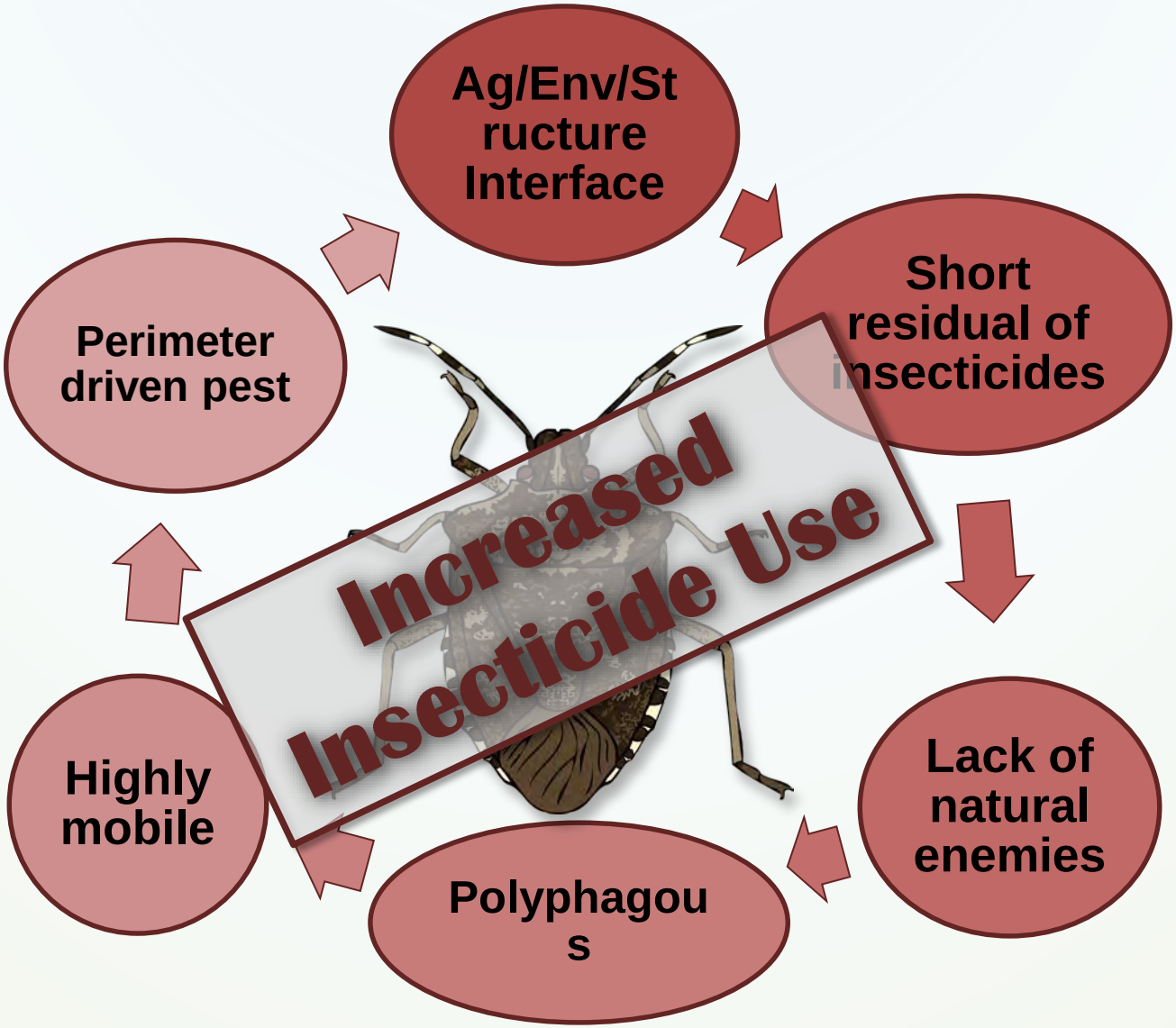
Why is BMSB such a severe pest?

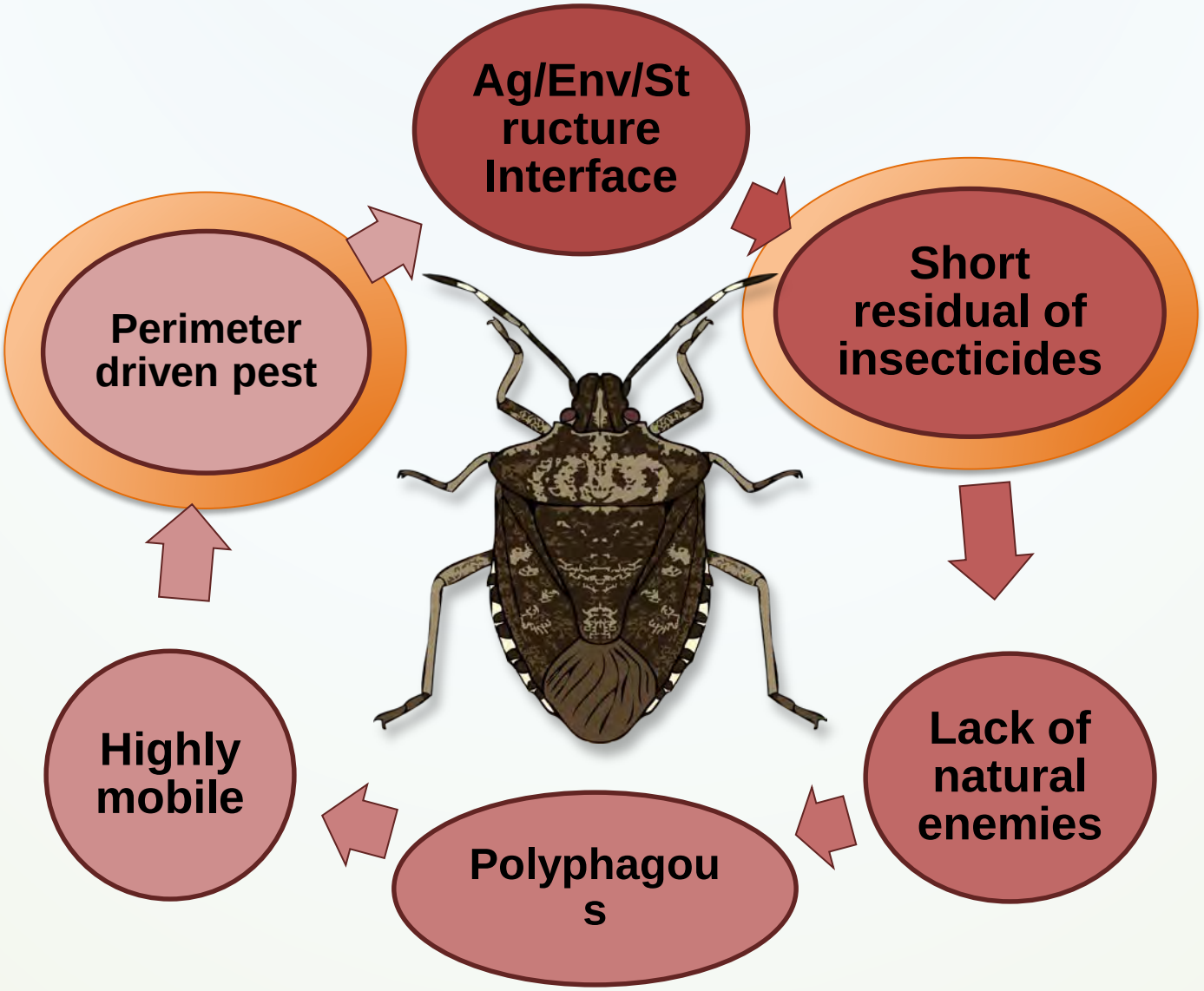


BMSB Management in Peach

- Since 2010 growers have relied on season-long weekly insecticide applications
- Beginning in 2012 we recommended not starting management until ~ 266 DD
- Chemical control relies primarily on pyrethroids and neonicotinoids
  - Secondary pest outbreaks
- Disruption of IPM programs

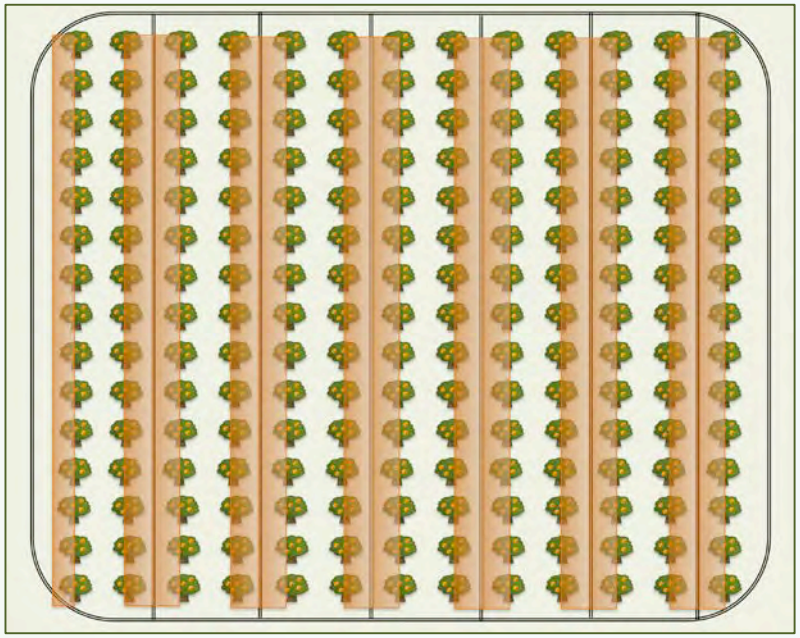
How can we bring IPM back to tree fruit management?

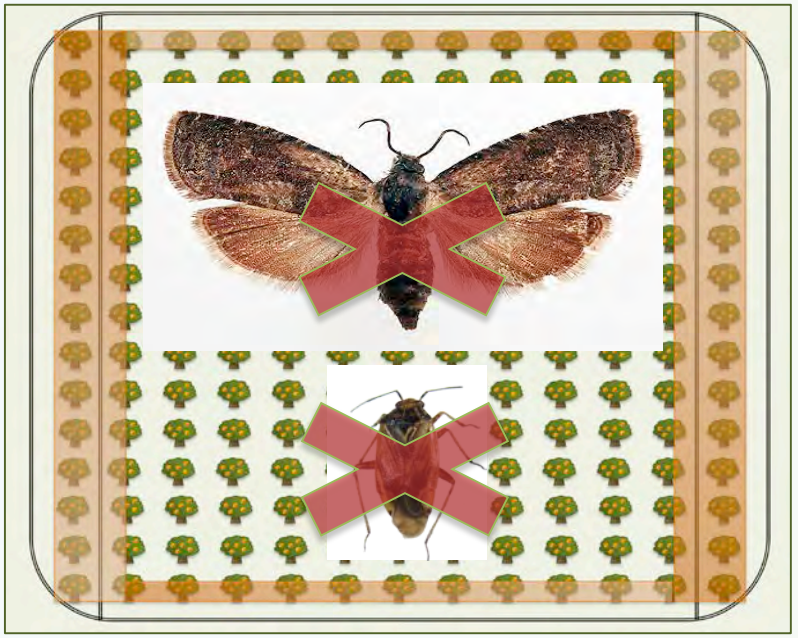
Why is BMSB such a severe pest?

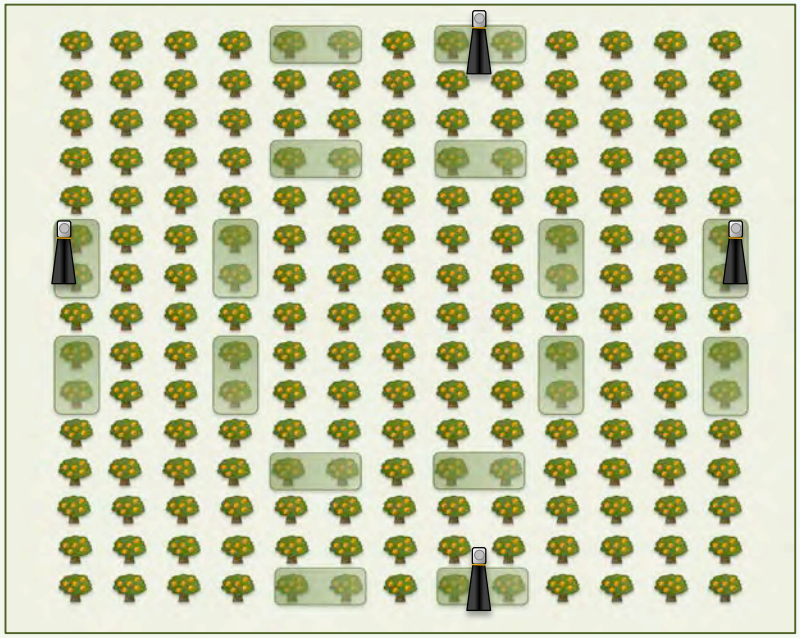


IPM-Crop Perimeter Restructuring

- BMSB is a perimeter driven pest
  - Border concentrated pesticide application has worked for other pests
  - Can we use traditional IPM tactics to help manage this pest?
- IPM-CPR vs. grower standard insecticide application for key pest management in peach orchards
  - Objectives:
    - Efficacy for peach management
    - Impact on natural enemies







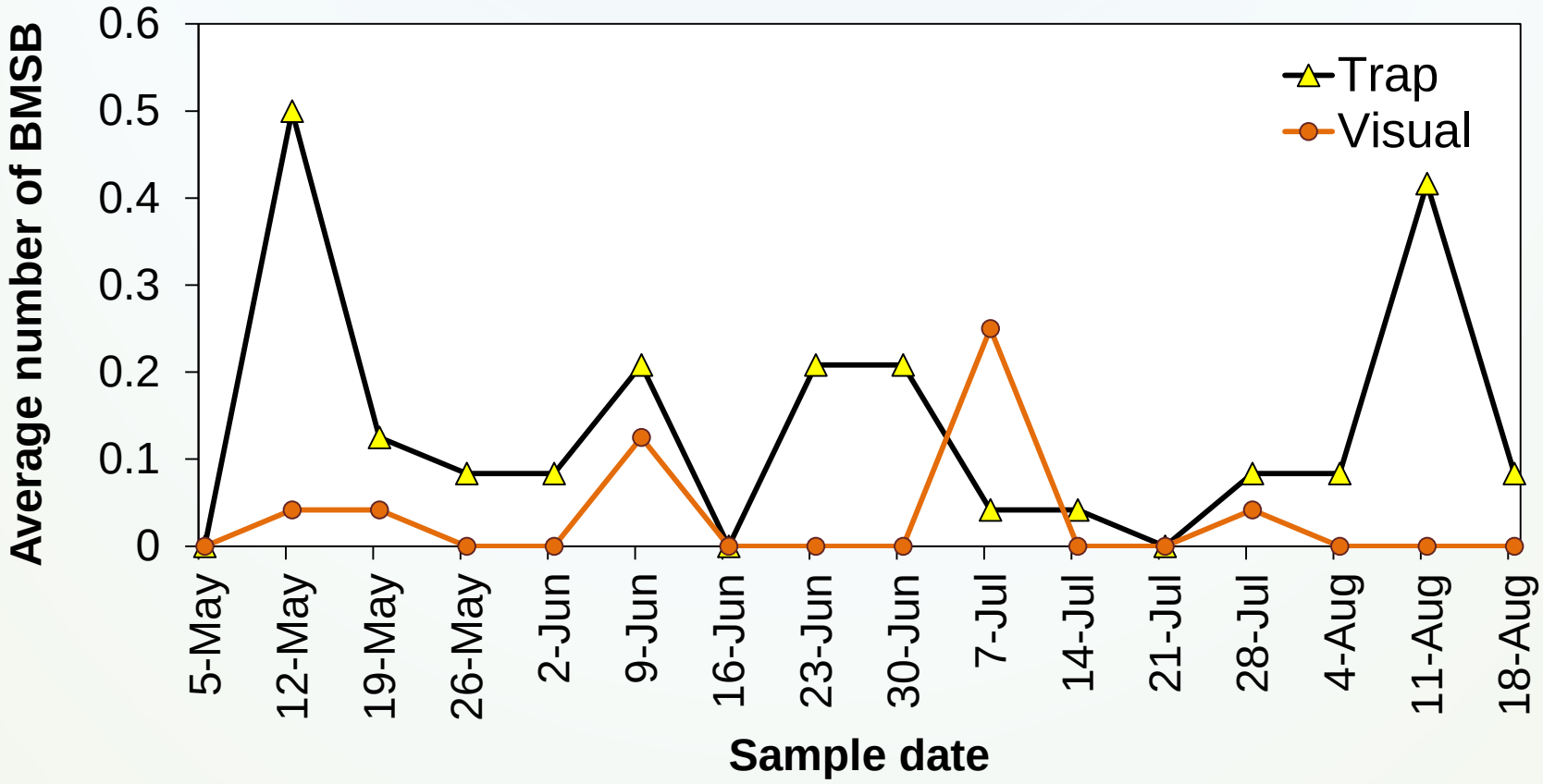
- Standard: whole block or ARM sprays
- IPM-CPR: perimeter + first full row
  - + *Ground cover management*
  - + *Mating disruption for OFM*
- Weekly insecticide applications beginning late-May (140-266 DD_{57})
- Visual and trap based monitoring
- Harvest sample for injury assessment

Pesticide application

Sampling sites

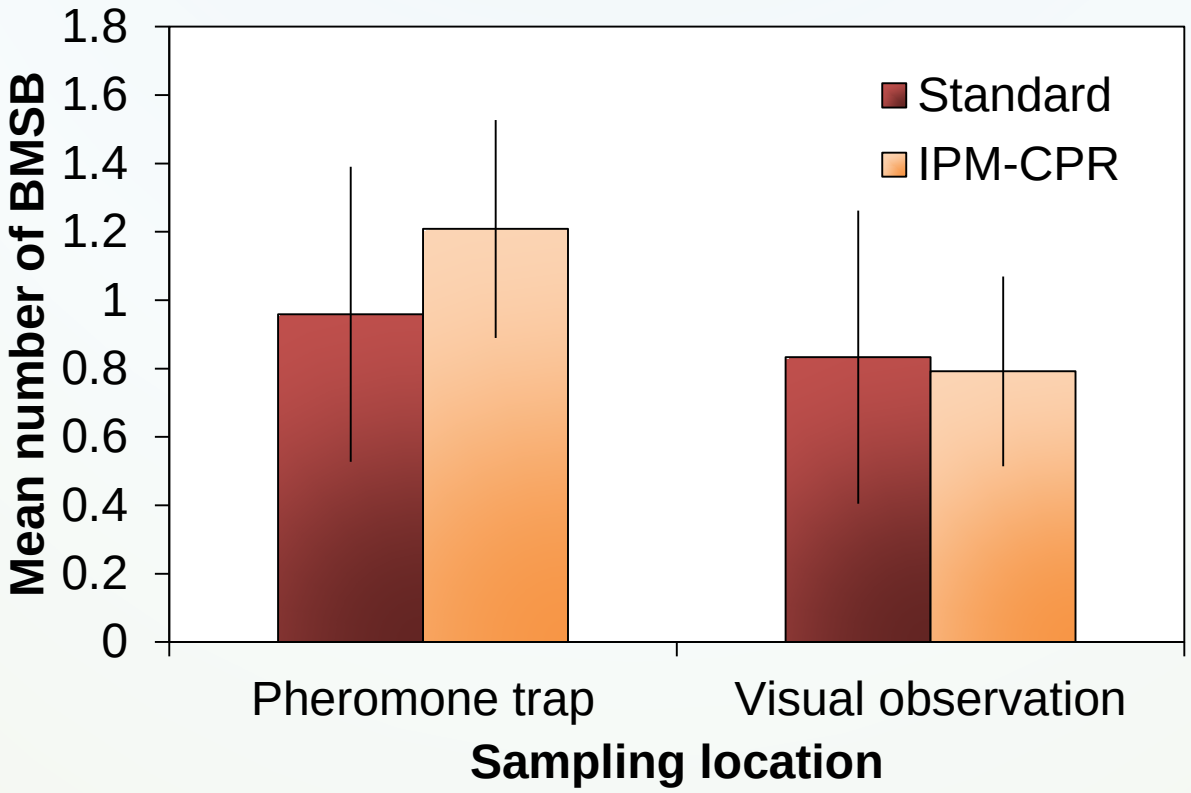
Pyramid monitoring trap

Pyramid traps may be more efficient monitoring tools than visual sampling



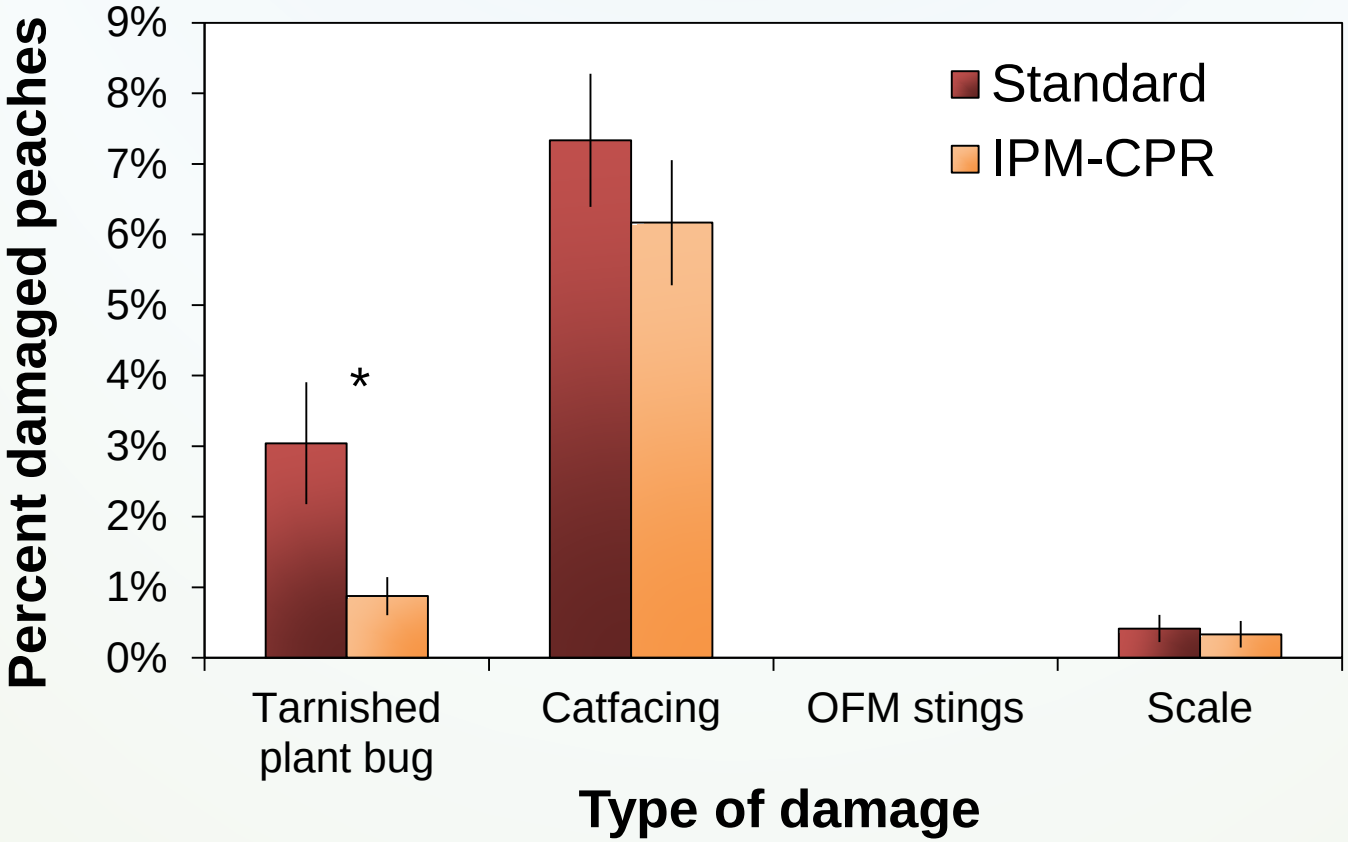
2014

Pyramid traps are not necessarily more effective in peaches

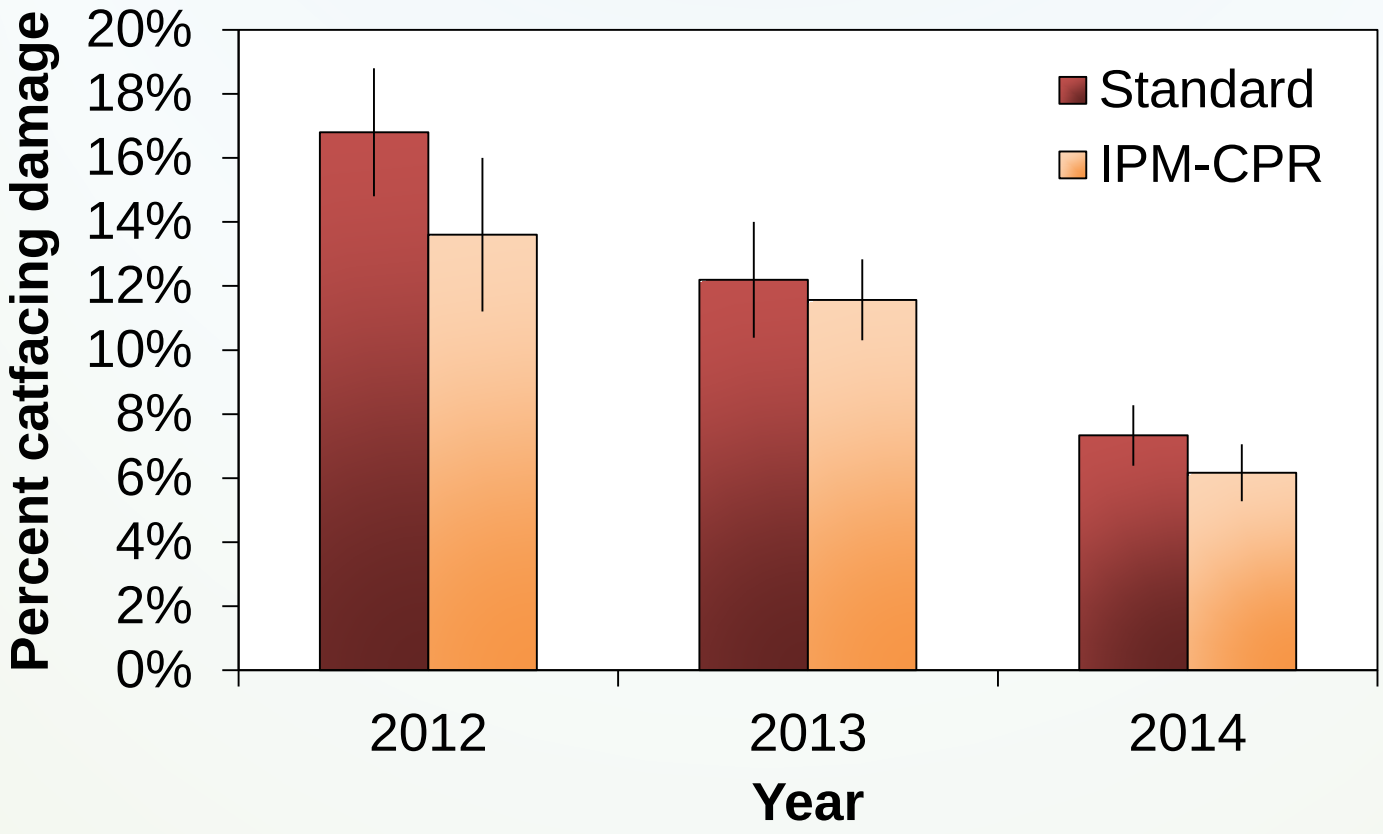


2014

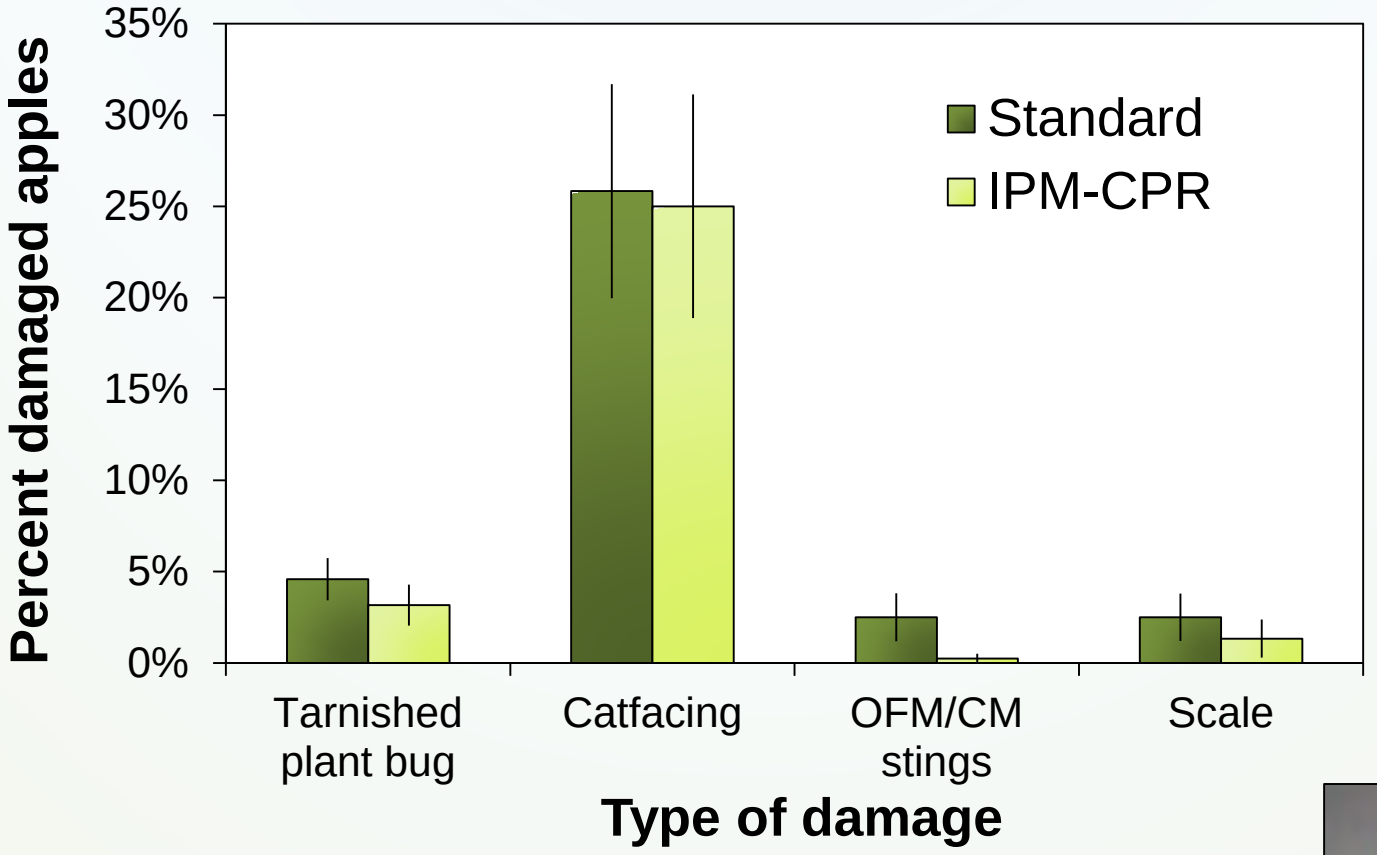
Generally more damage in standard blocks (2014)



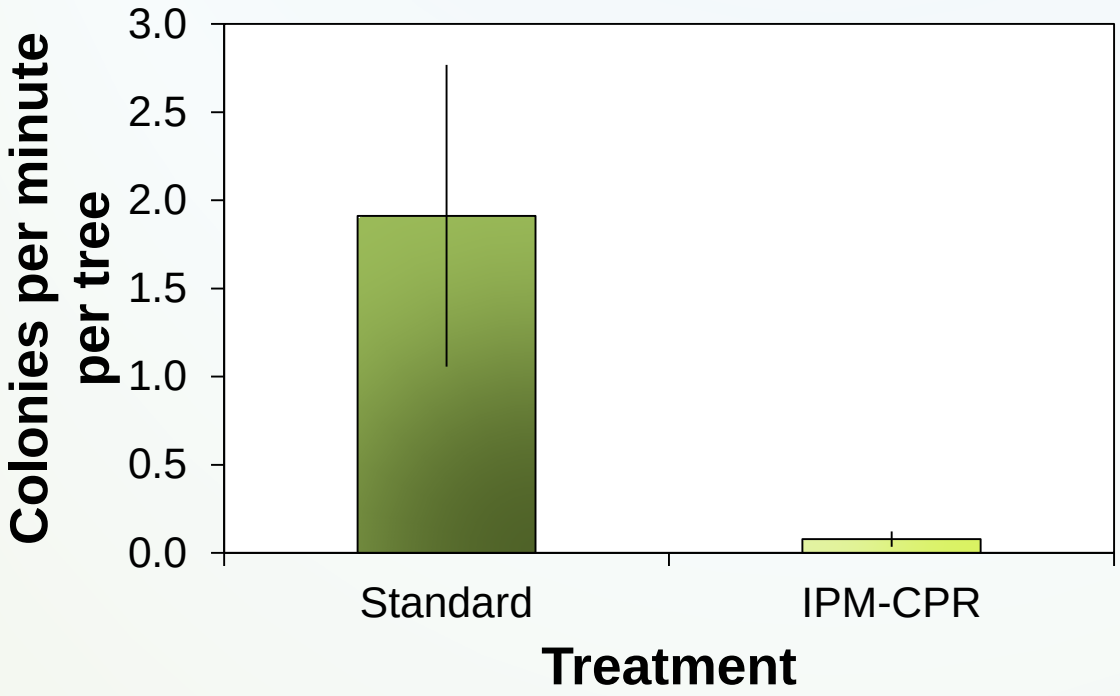
Similar trend during 3 years of testing



Looks promising in apples (2014)

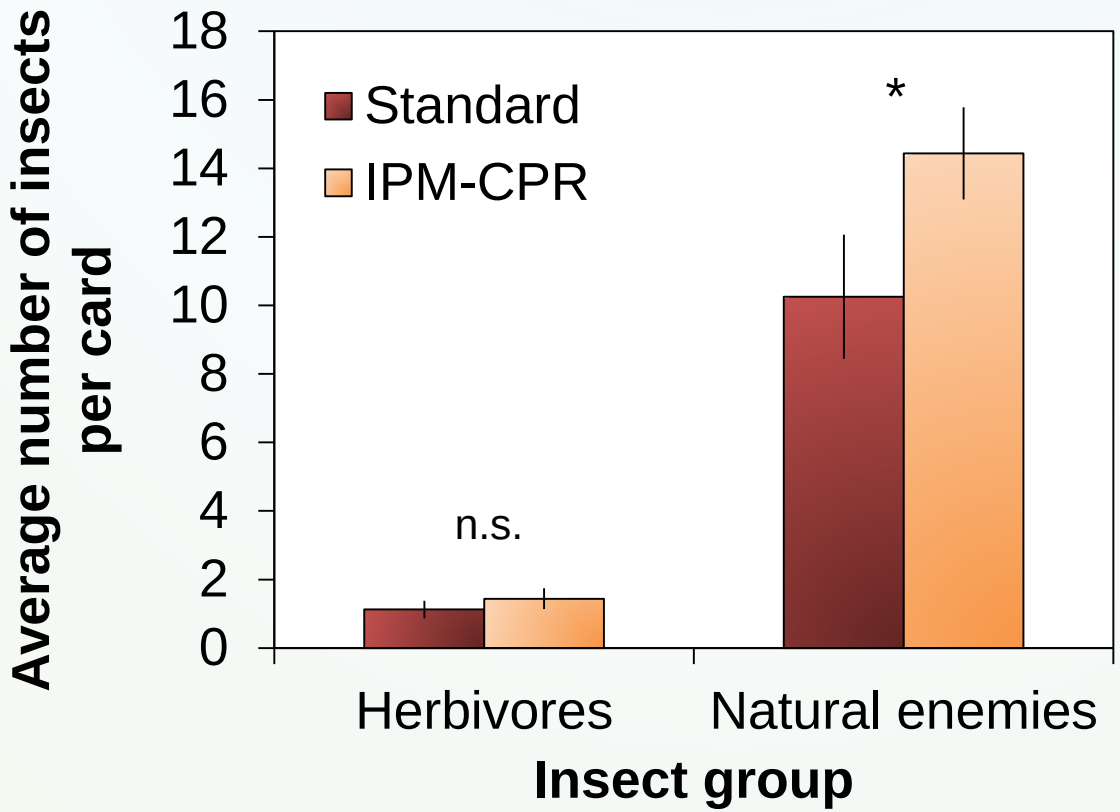


Fewer wooly apple aphid colonies in IPM-CPR orchards (2014)



How does IPM-CPR impact natural enemies?

More natural enemies found on sticky cards in IPM-CPR orchards



How about the cost?

Costs of IPM-CPR

Year	Farm	Cost ($US ha^{-1})			
		Border[a]	IPM-CPR[b]	ARM[a]	Solid[a]
2012	1	54.22	182.18	118.39	
	2	104.18	232.14	191.52	383.03
	3	65.65	193.61	149.20	
2013	1	59.22	229.18	129.29	
	2	190.56	360.53	350.29	700.59
	4	102.86	272.82	168.06	
	1b	79.39	249.35	129.29	
	4b	49.70	219.67	159.31	

Conclusions thus far...

- IPM-CPR reduces insecticide use by up to 75%
- Pest control and fruit damage at levels equal to current management recommendations
- Promising data in apples as well
- May reduce negative impact on natural enemies
  - Important for secondary pests?

Next steps...

- Further test IPM-CPR in apples
- Expand IPM-CPR to other BMSB infested regions
- How large of orchard blocks is IPM-CPR effective?
- Can a BMSB threshold be incorporated for management initiation?

Acknowledgements

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Questions?