

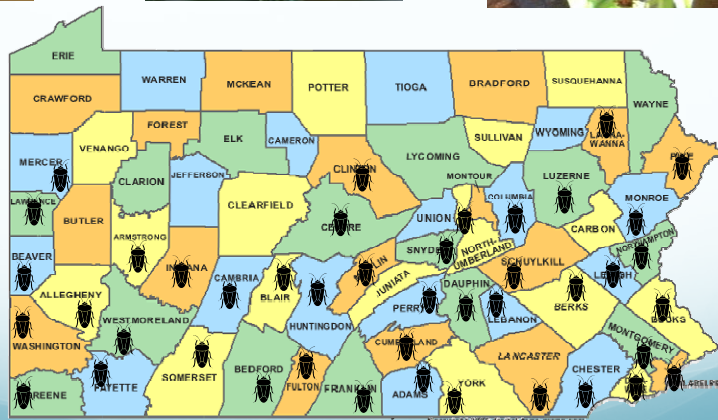
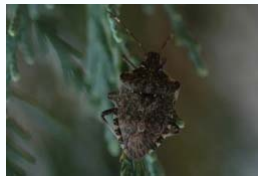
## Brown marmorated stink bug, *Halyomorpha halys* (Stål) (Hemiptera: Pentatomidae) Management in Orchards and Research Plans for 2011



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## BMSB in Pennsylvania



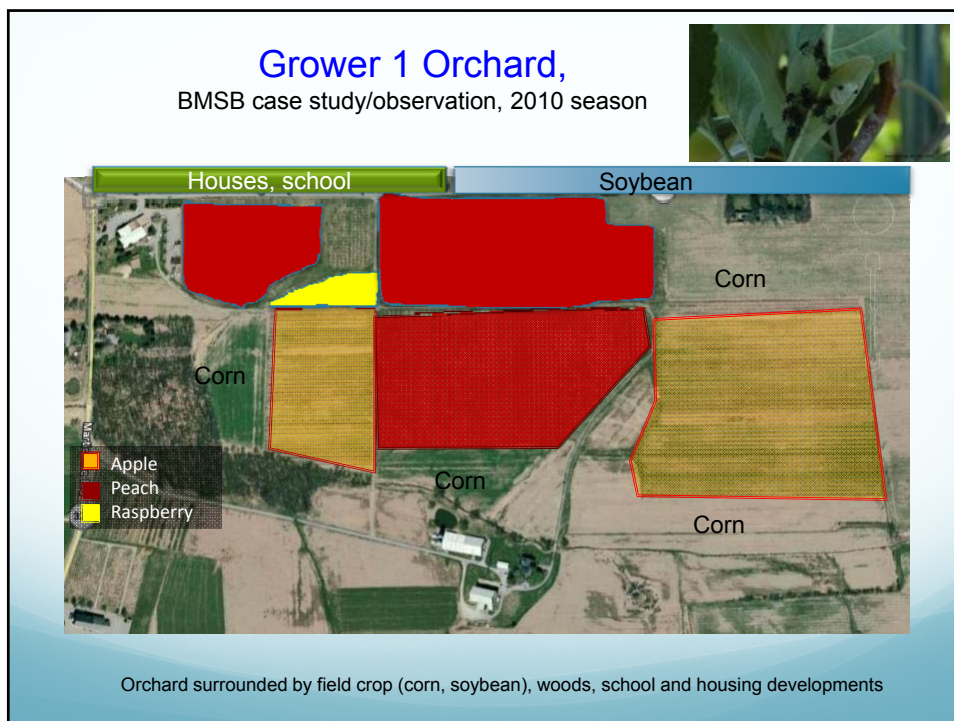
BMSB

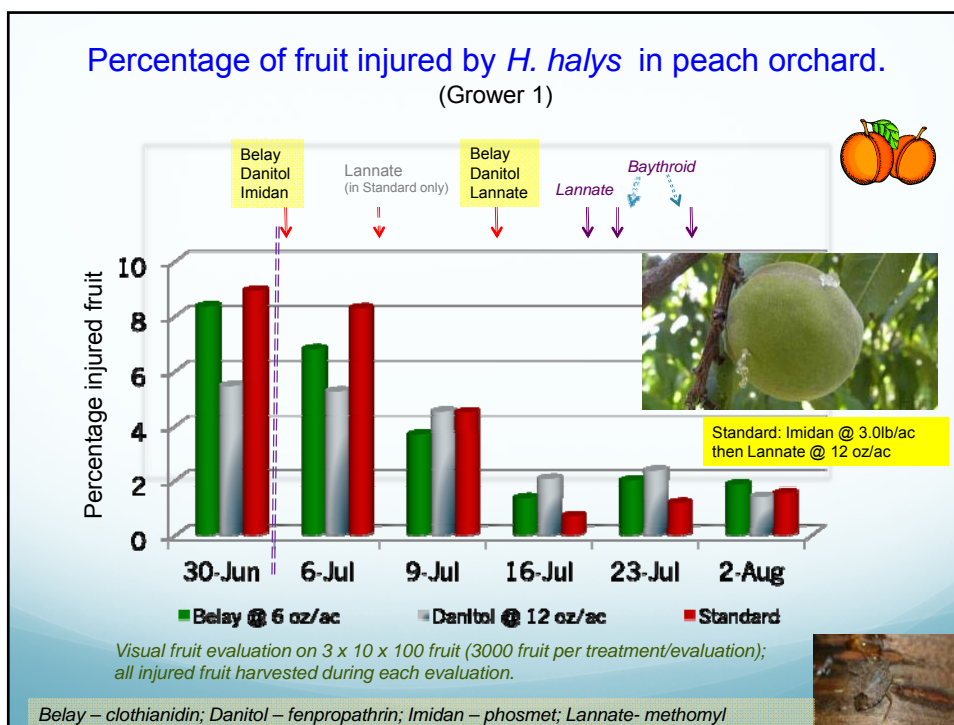
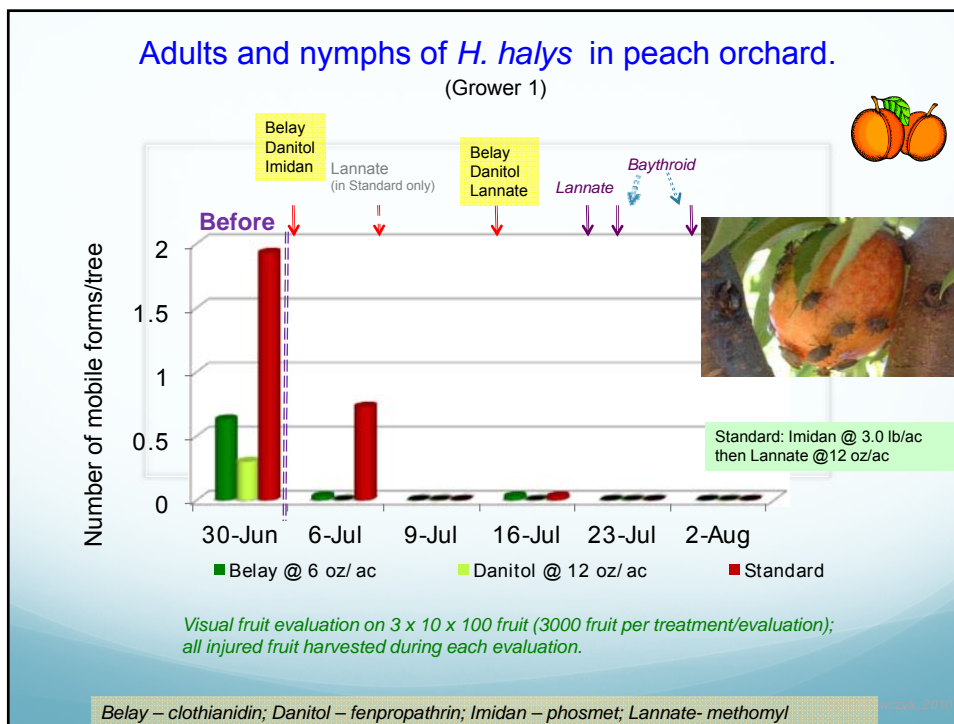
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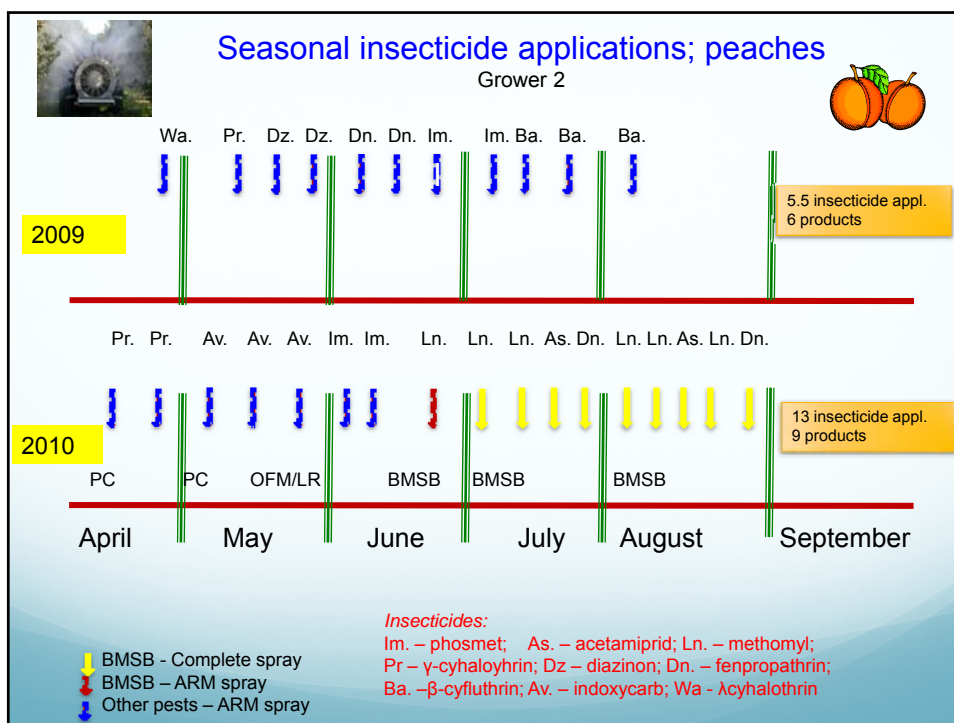
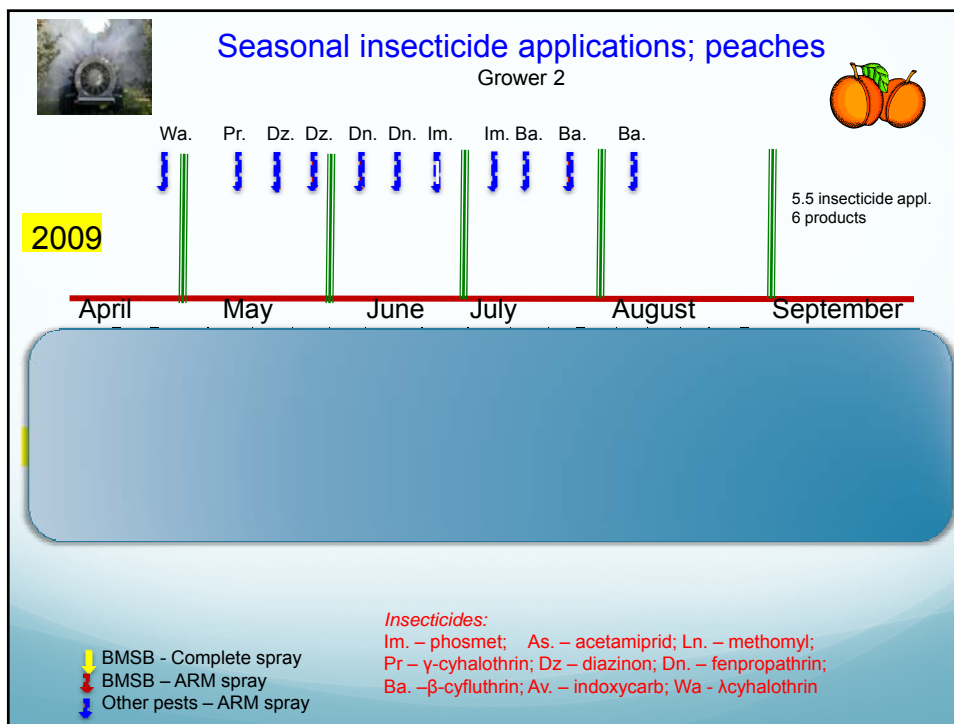
**Pre-2011 stink bug control recommendations (examples)**

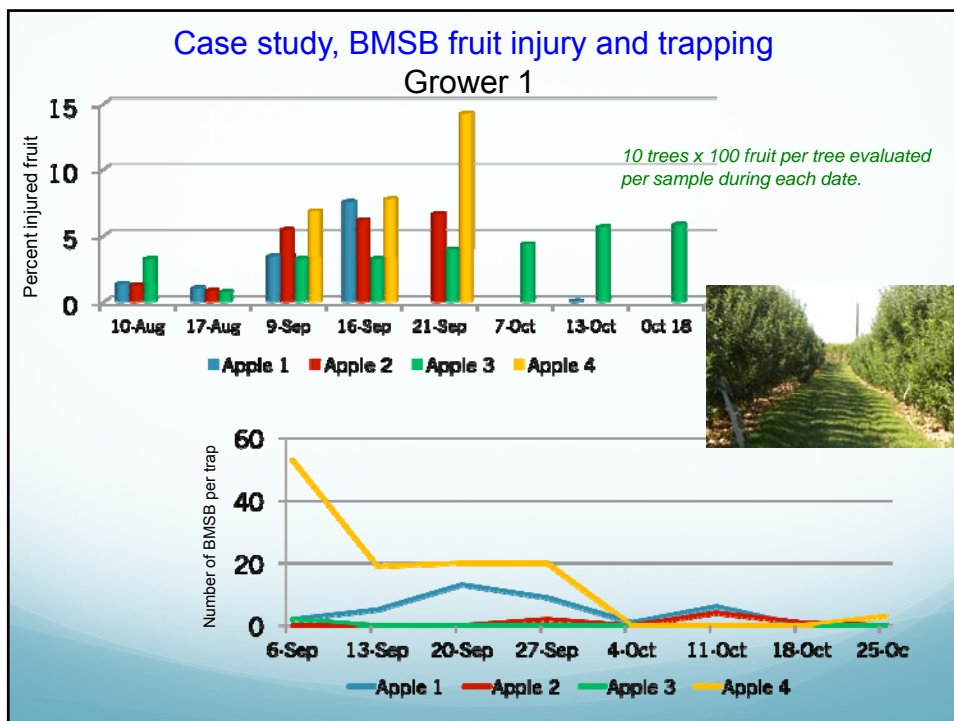
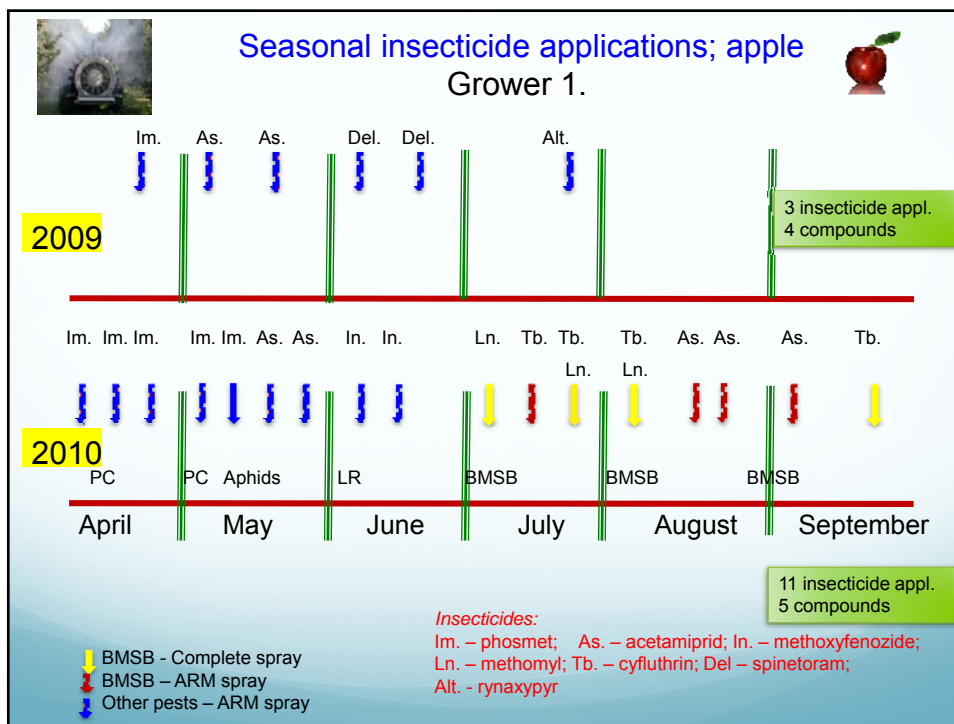
Product	Source			
	PSU '10 Apple, sb/tpb(scale 1-4)	Cornell '10 Apple, tpb only (scale 1-3)	Rutgers '09 Peach, tpb only (scale 1-4)	WSU '09 Apple, tpb, sb (scale 1-4)
Actara	2	2	2	-
Asana	2	1	1	-
Assail	2	2	2	4 (sb)
Avaunt	2	2	2	NR
Baythroid	1	1	NR	NR
Beleaf	2	1	1	-
Calypso	2	3	NR	4 (sb)
Danitol	2	1	-	1
Imidan	3	3	2	NR
Lannate	1	3	2	2
Warrior	1	1	2	1
Delegate/Altacor	NR/NR	NR/3	1/-	NR/NR

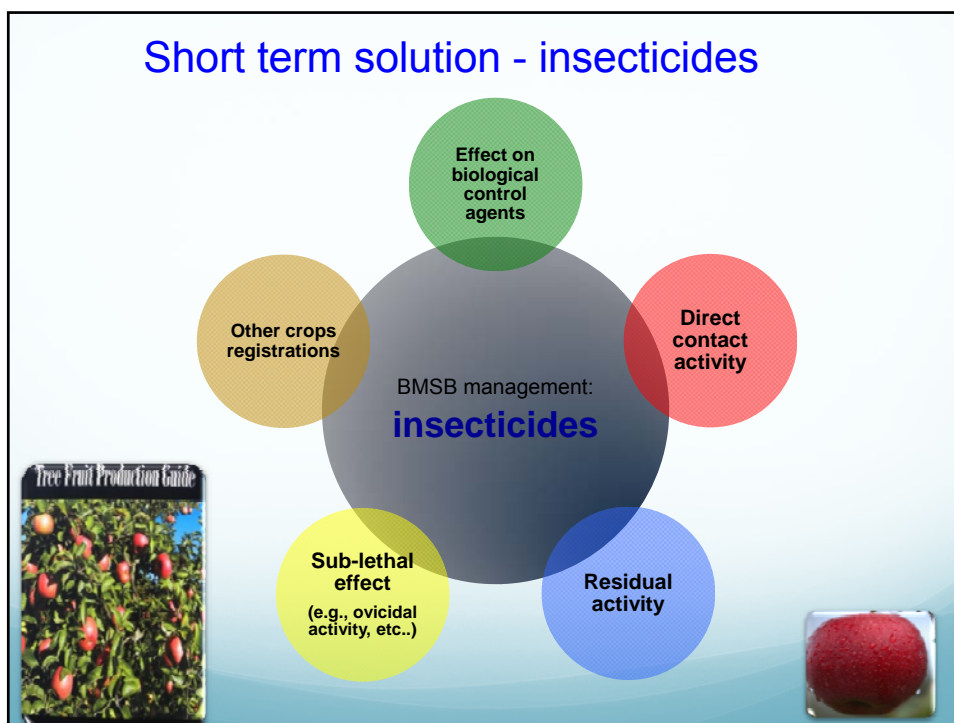
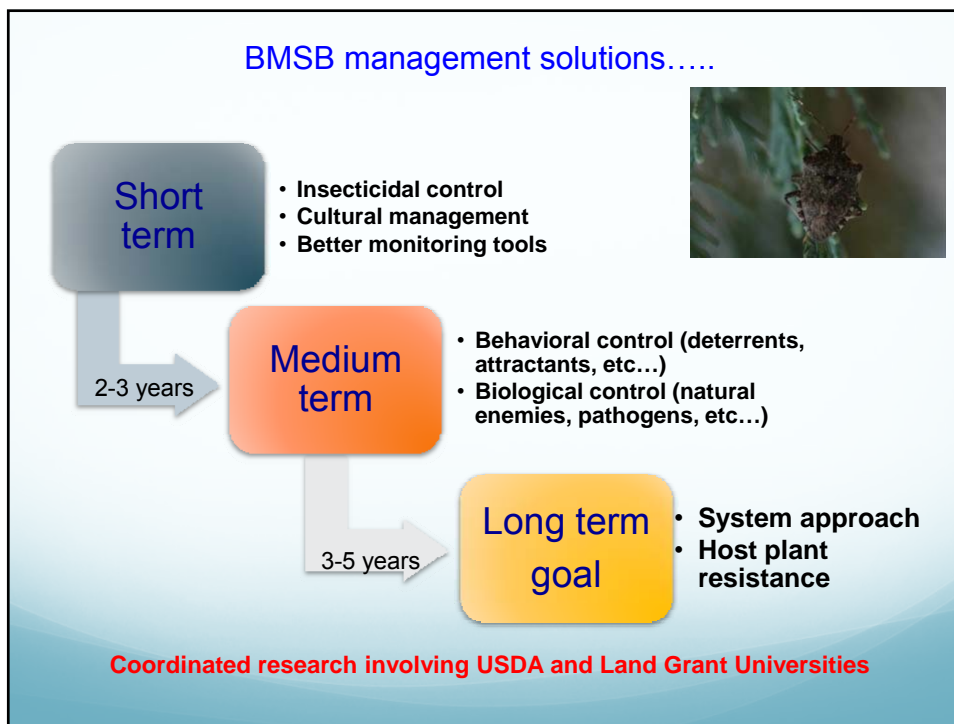
*Ranking based on apple recommendations (except NJ); the lower the number the better efficacy*












### Insecticide activity against BMSB

Direct contact topical bioassays



**Subject**


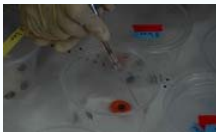

- BMSB from overwintering colony
- Male and female adults tested separately, 6x5 per gender (60 total per product)

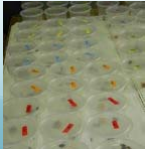


**Test**

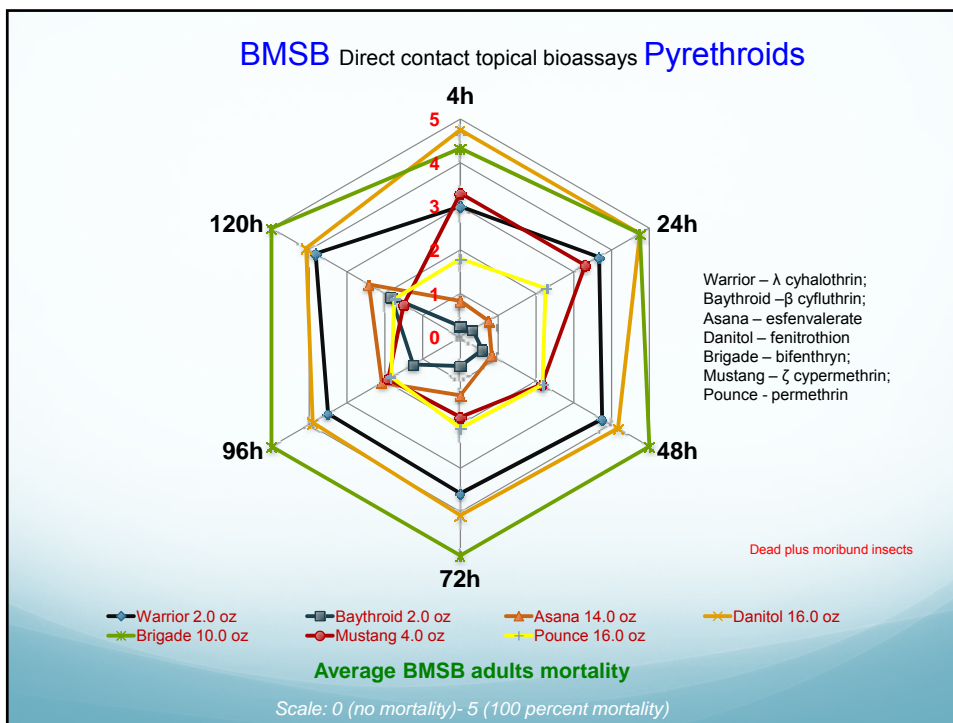
- Commercial grade insecticide solutions at equivalent of field rate (100 gal/acre), surfactant added;
- Each individual bug treated directly with 2 µl of solution

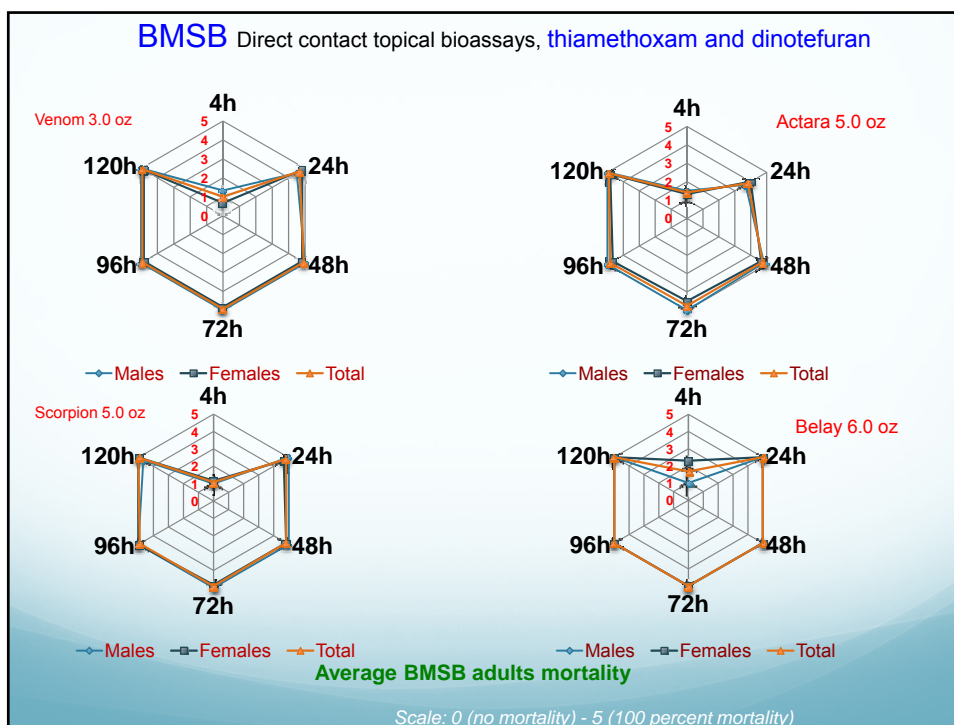
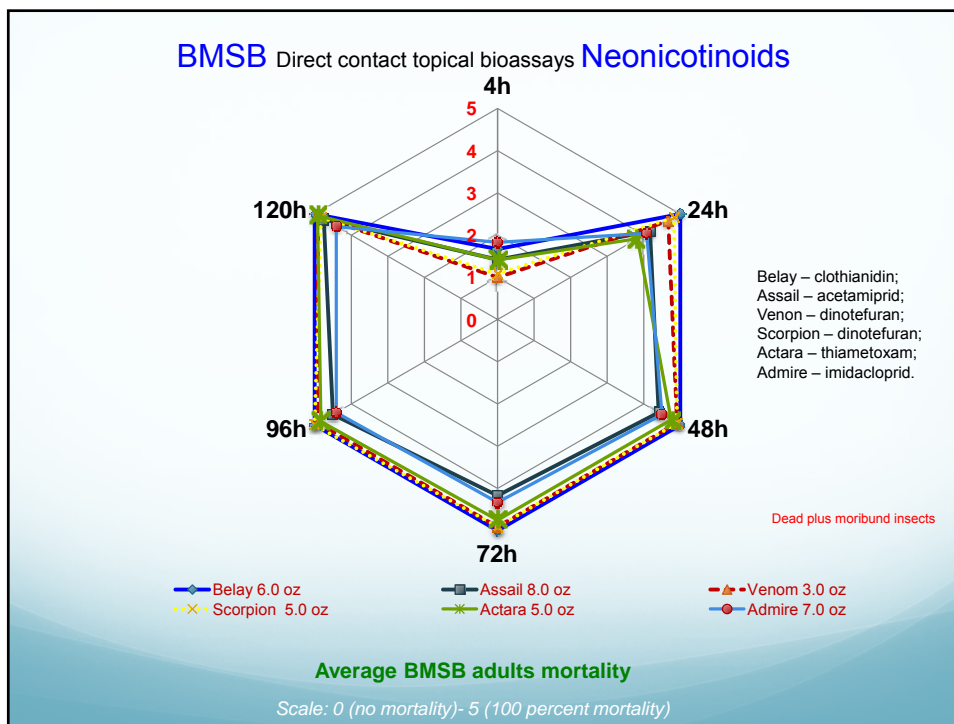
**Results**

- Mortality assessed at 4, 24, 48, 72, 96 and 120 hours after treatment
- Surviving individuals kept for further observation

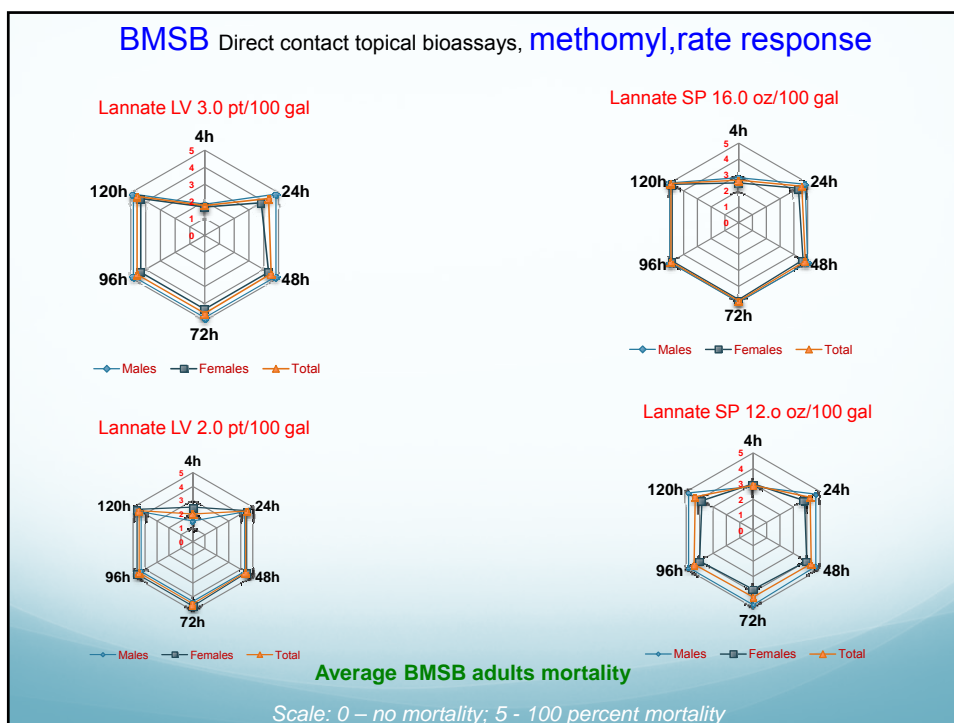
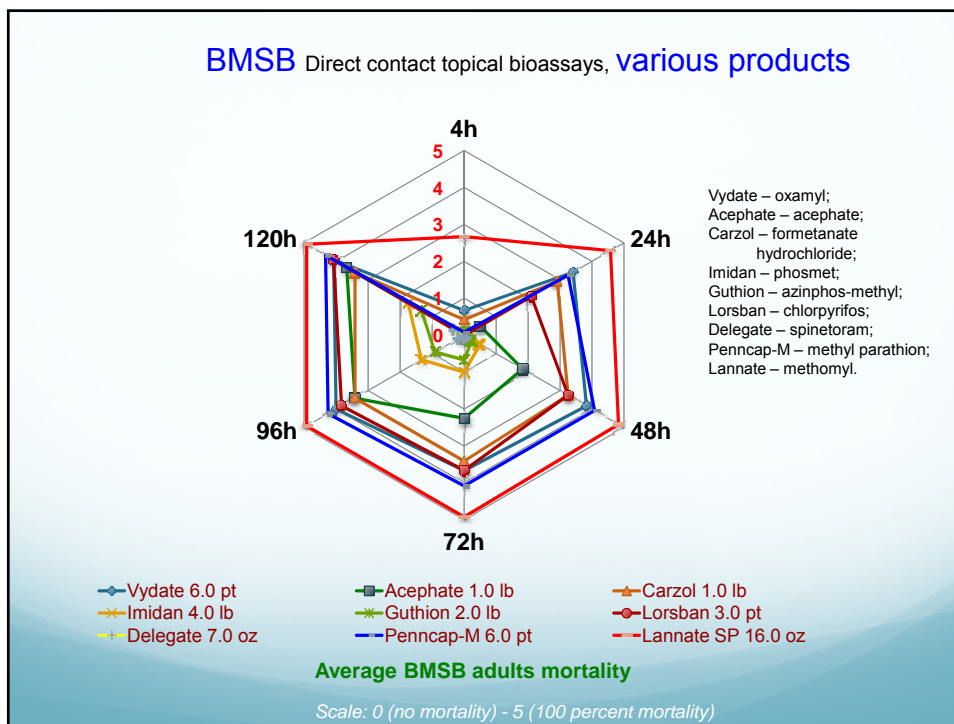












Summary .....



**Brown marmorated stink bug (*aka Asian stink bug*)  
is not your usual insect pest**



- Plethora of available host plants**
- Unrestricted movement ability**
- Undefined biology/monitoring issues**
- Inconspicuous initial injury on fruit**
- Each instar (except eggs) can cause damage**
- No effective biological control**

Recommendations.....

**BMSB management suggestions for the 2011 season**

<b>Monitoring</b>	<ul style="list-style-type: none"> <li>• Start early during the season</li> <li>• Monitor inside / outside</li> <li>• Do not forget late season</li> </ul>
<b>Insecticides</b>	<ul style="list-style-type: none"> <li>• Use effective but the least disruptive products to BC</li> <li>• Rotate chemistries</li> <li>• Evaluate impact on other pests</li> <li>• Consider PHI's</li> </ul>
<b>Applications</b>	<ul style="list-style-type: none"> <li>• Only when and where needed</li> <li>• Alternate row middle applications</li> <li>• Border rows only applications</li> <li>• Applications at surrounding vegetation</li> <li>• Early season applications are important</li> </ul>

# Questions ?



Photo by T. Haas



Photo by T. Haas



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