VirginiaTech
Invent the Future

Impact of Brown Marmorated Stink Bug on Wine Grapes and Research Plans for 2011

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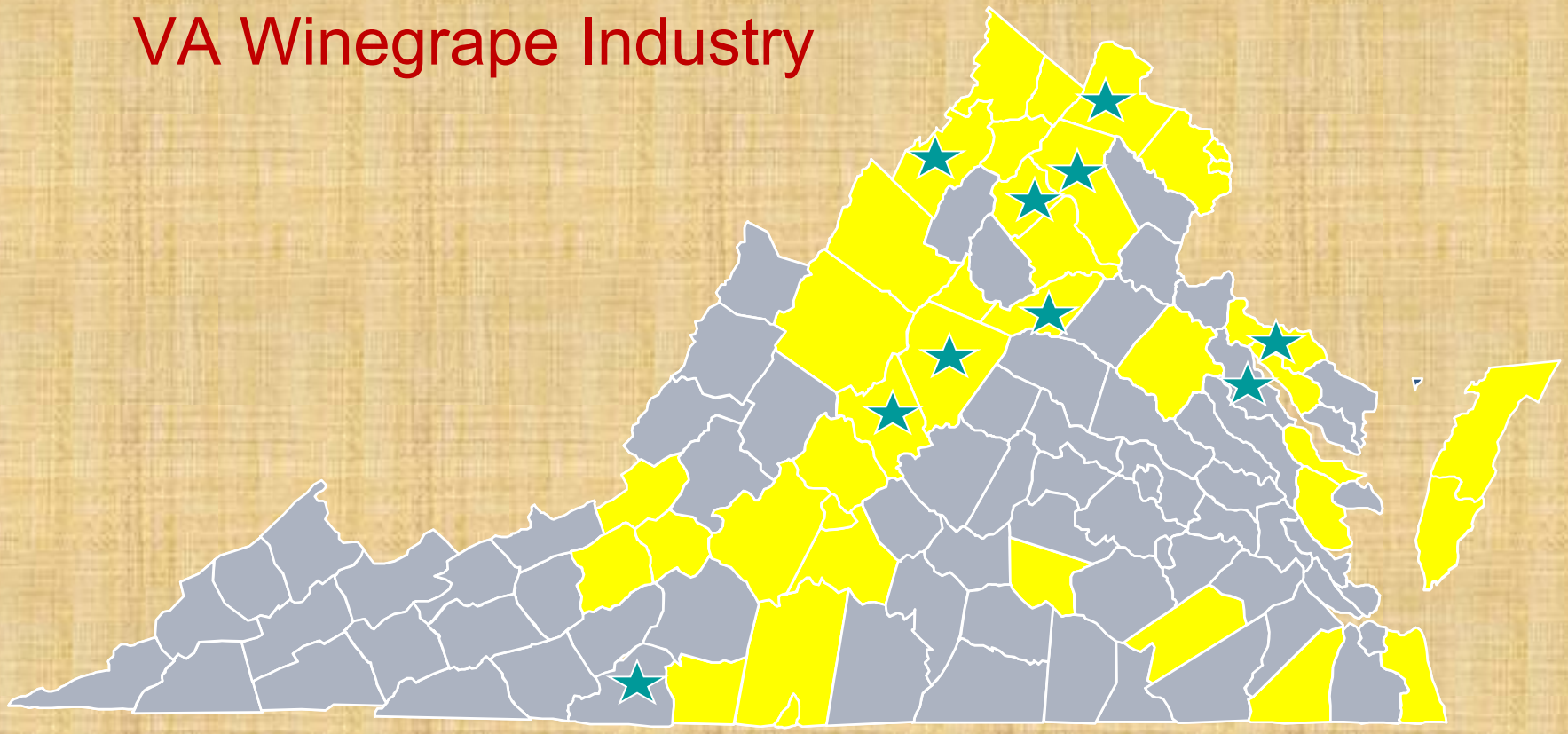
“these bugs are getting out of hand. what is the best way to get rid of them they are all in our homes . if the department whom brought them here should have their testing/ experimentation revoked or figure out a way to control them. this is ridiculous it almost like the plague of the biblical days. so if you have any suggestion please let me know, or i will keep searching for something to do the job.” Virginia homeowner 2010

BMSB Submission Records

Eric Day

2004, 2005, 2006, 2007, 2008, 2010

BMSB Distribution Relative to VA Winegrape Industry



★ - **10 Leading Virginia Wine Counties**

2004, 2005, 2006, 2007, 2008, 2010

Voltinism

- One generation in most of Asia (Hoebeke 2002, Funayama 2007)
- One generation reported in Pennsylvania and New Jersey (Hoebeke 2002, Nielsen and Hamilton 2009)
- Two generations in WV (Leskey unpubl.)
- Up to 6 generations in China (Hoffman 1931)

Polyphagous

- Host list probably about 300 spp.
- In Japan, *Prunus* a reproductive host
- *Paulownia* used as reproductive host in spring
- *Viburnum*, *Fraxinus* important mid-season hosts
- *Vitis* rarely reported as a host

(Panizzi et al. 2000, Nielsen & Hamilton 2009)

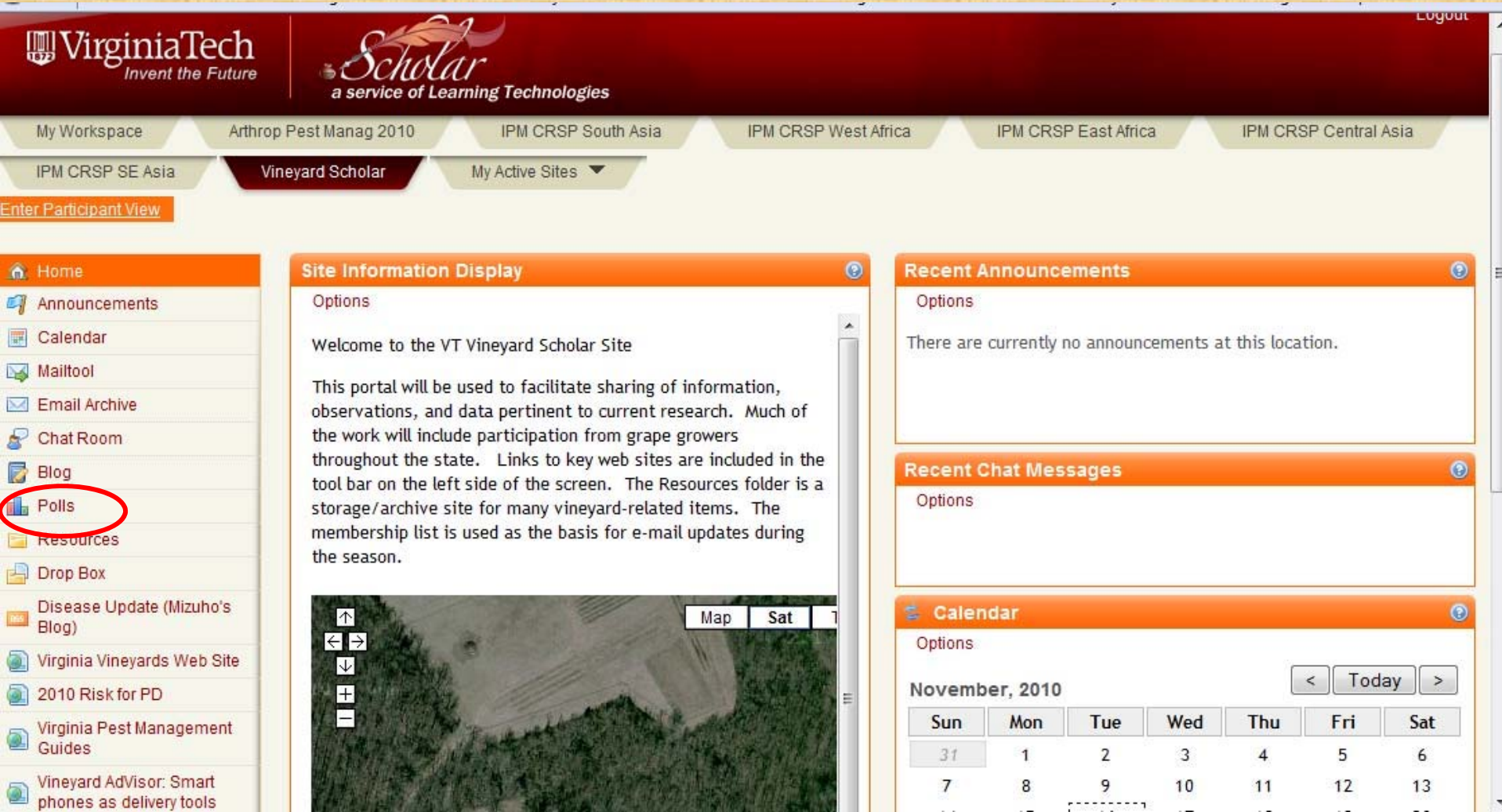
Potential for Pest Status of BMSB in Vineyards

- Injury to berries
- Introduction of rots, other pathogens
- Delays in postharvest sorting
- Contamination of wine at crush
- Nuisance in wine tasting rooms

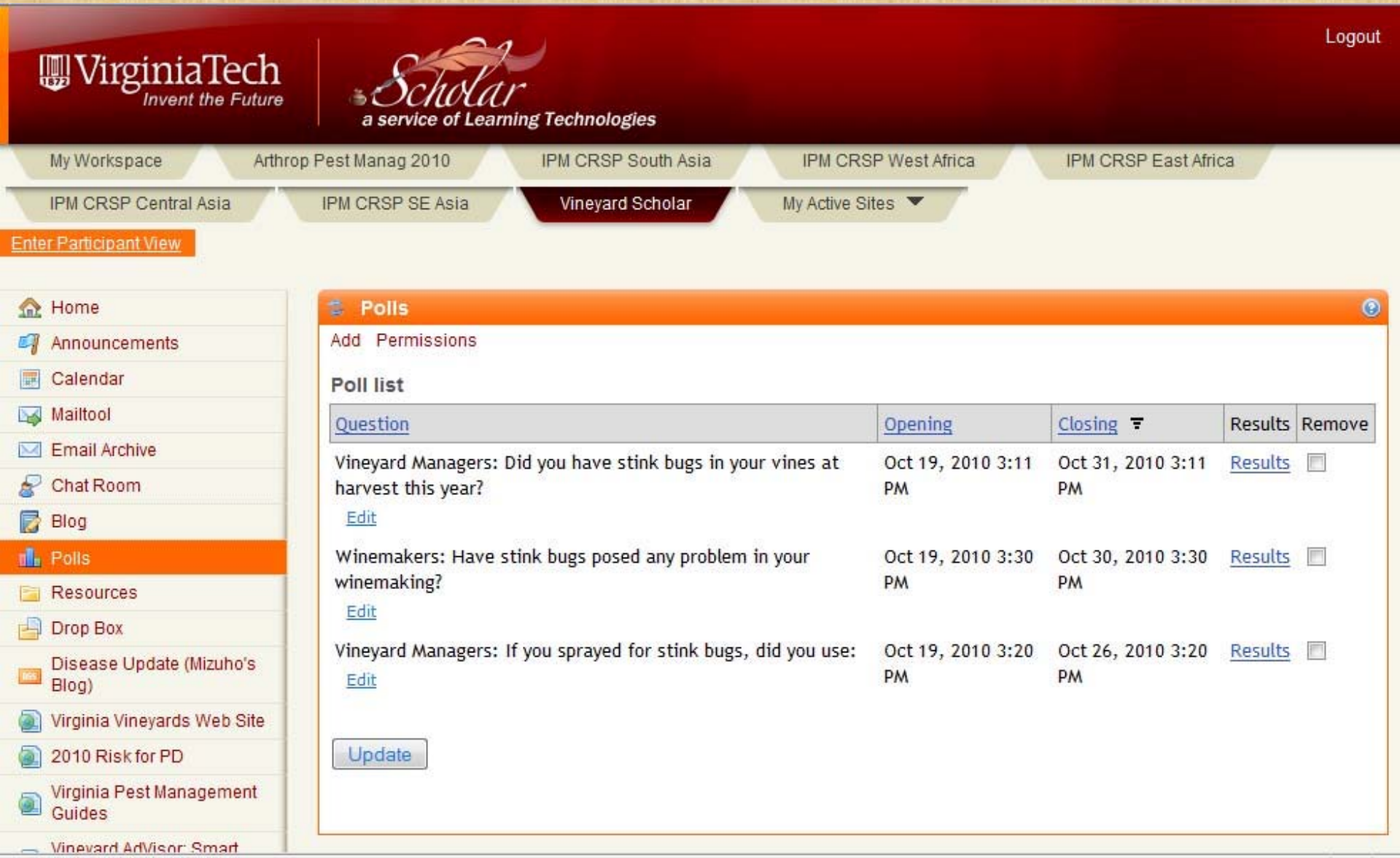
Preliminary data on stink bug taint

- Adding known numbers of BMSB to trial lots of grapes and crushed
- Preliminary results: Fewer than 10 BMSB per lug can impart a perceptible taint (Fiola 2010)

Vineyard Scholar Site



Vineyard Scholar Polls



Scholar Poll Question 1
Vineyard Managers: Did you have stink bugs in your vines at harvest this year? (n=18)

- Many, a problem for us 22%
- A few, not too severe 72%
- No, none noticed 6%

Scholar Poll Question 2
Vineyard Managers: If you sprayed for stink bugs, did you use: (n=3)

- Neonicotinoid 0%
- Pyrethroid 67%
- Other 33%

Scholar Poll Question 3
Winemakers: Have stink bugs posed any problem in your winemaking? (n=6)

- None seen 0%
- A few SB seen, no taint 83%
- SB seen, we're concerned 17%
- Taint detected in wine 0

Vineyard Harvest Spray Trial 2010

- Grower complained of high number of BMSB in vines at harvest
- Made pre-treatment counts afternoon of 2 Sep
- Immediately following, grower applied two 0d PHI chemical treatments:
  - Belay (clothianidin) 6 fl oz/A
  - PyGanic (pyrethrin) 64 fl oz/A


4
5

Vineyard Harvest Spray Trial Results

Pre-treatment – 14% of clusters with BMSB

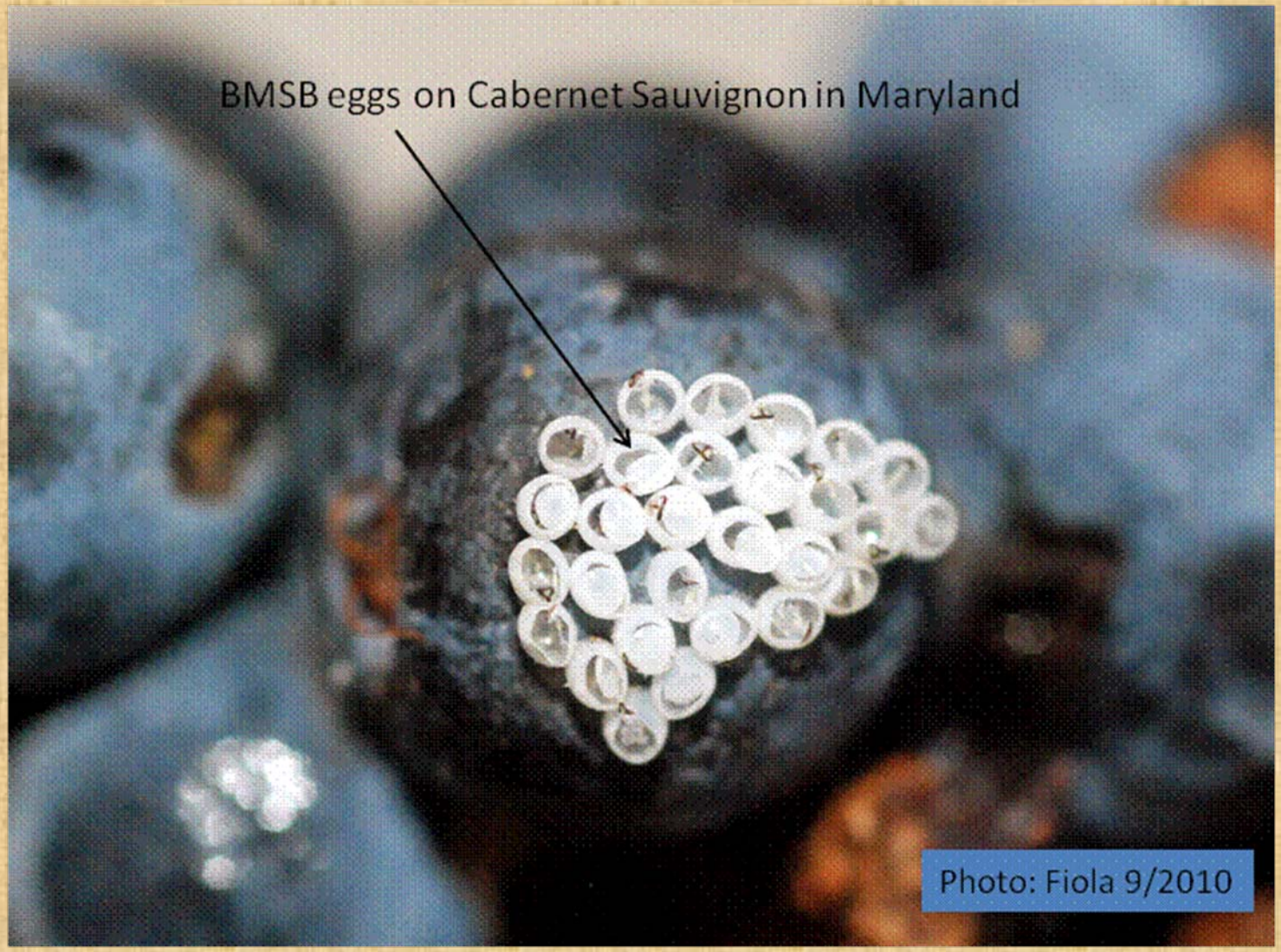
Post-treatment

	Vines with stink bugs		SB/vine	
Clothianidin	1	6.7%	0.1	ab
Pyrethrin	0	0%	0	a
Control	4	26.7%	0.7	b

Tukey's HSD, $\alpha = 0.05$

Diurnal shift in behavior?


BMSB eggs on Cabernet Sauvignon in Maryland
Photo: Fiola 9/2010


BMSB eggs on Cabernet Sauvignon in Maryland
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Problems related to chemical control of BMSB in vineyards

- Mortality
- Recovery
- Immigration
- Induction of secondary pests

Problems related to chemical control of BMSB in vineyards

- Mealybugs/leafroll virus

Research plans for 2011

- Phenology
- Mechanics of injury, symptoms
- Baseline data on egg parasitization
- Control
- Grower practices