

# **Winning the Shell Game**

## **Amber Snail Management in Nurseries**



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# Amber snails (Succineidae)

- semi-aquatic snails pulmonate snails
- established in nursery production facilities in many countries (Schuder et al. 2004; Villalobos et al. 1995, Wilen and Rosetta, 2009).
- top 12 ranked taxa of mollusc species of potential major pest significance in a preliminary risk assessment (Cowie et al. 2009)
- natural diet of *Oxyloma retusa* consists mainly of dead plants in the spring and both dead and green plants in the summer (Orstan, 2006).



# 2009 Amber snail survey

## ODA, APHIS, University of Hawaii

- 267 amber snails were collected
- 25 nursery locations
- Sent to Dr. Brenden Holland, UH for DNA analysis

## Results:

- 123 unique haplotypes
- *Oxyloma* sp. (native)
- *Oxyloma retusa* (native)
- *Succinea tenella* (Asian strain)
- *Succinea archeri* (a subtropical group with lineages in New Zealand and Galapagos)



Amber snails



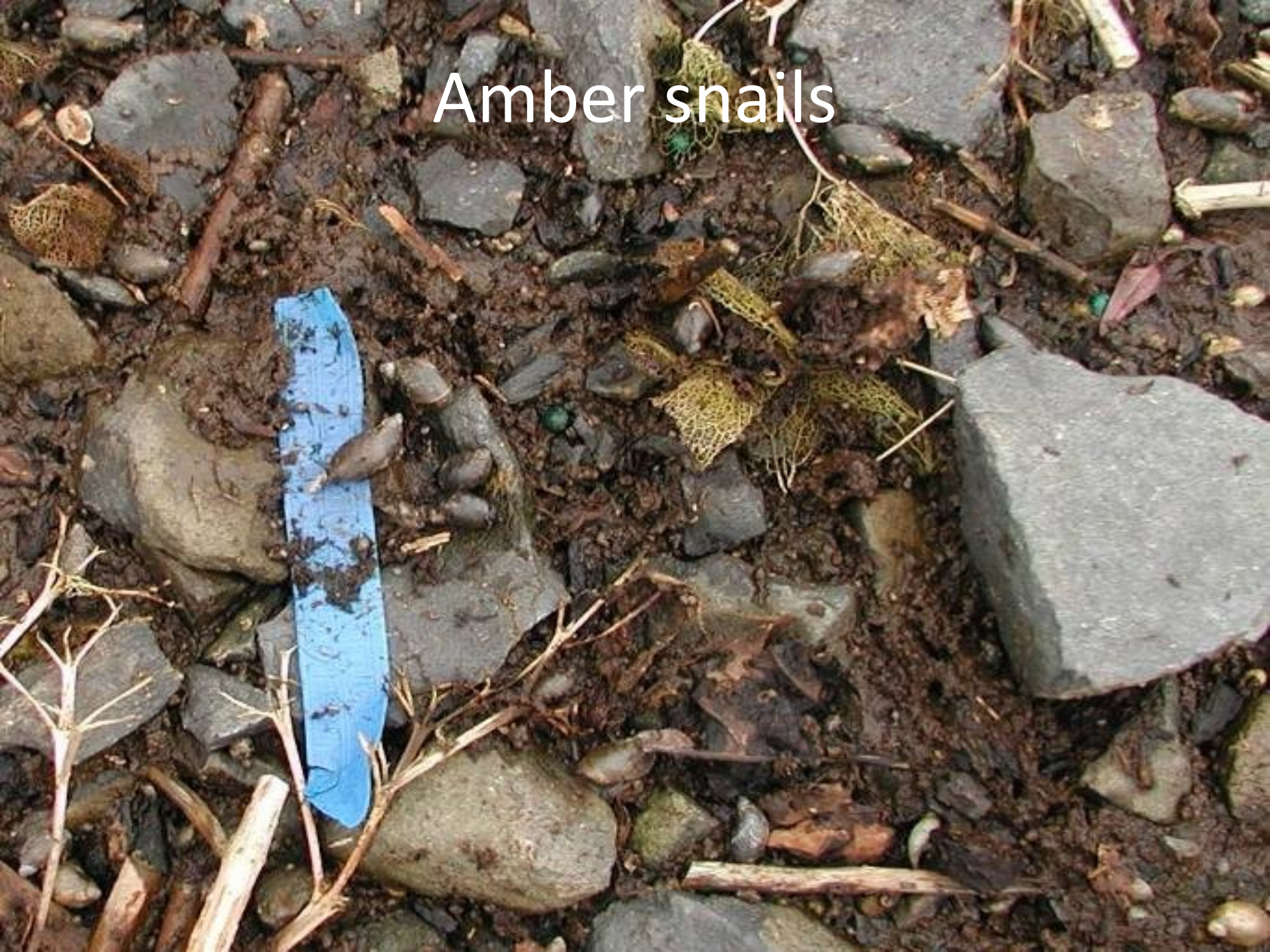


# Amber snails





Amber snails





Amber snails





# Amber snails















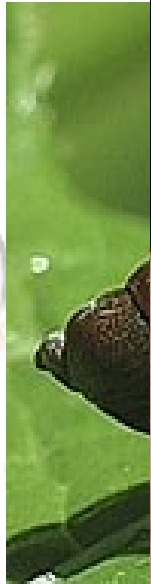






# Succineidae

- Amber snails *Succinea* spp. *Oxyloma* sp.



# Prevention

- plant
- quarant
- Check
- under
- Check
- holes
- Don't
- aestiv
- Eggs



or deposited on or within the





Sept. 2010 amber snail spray trial





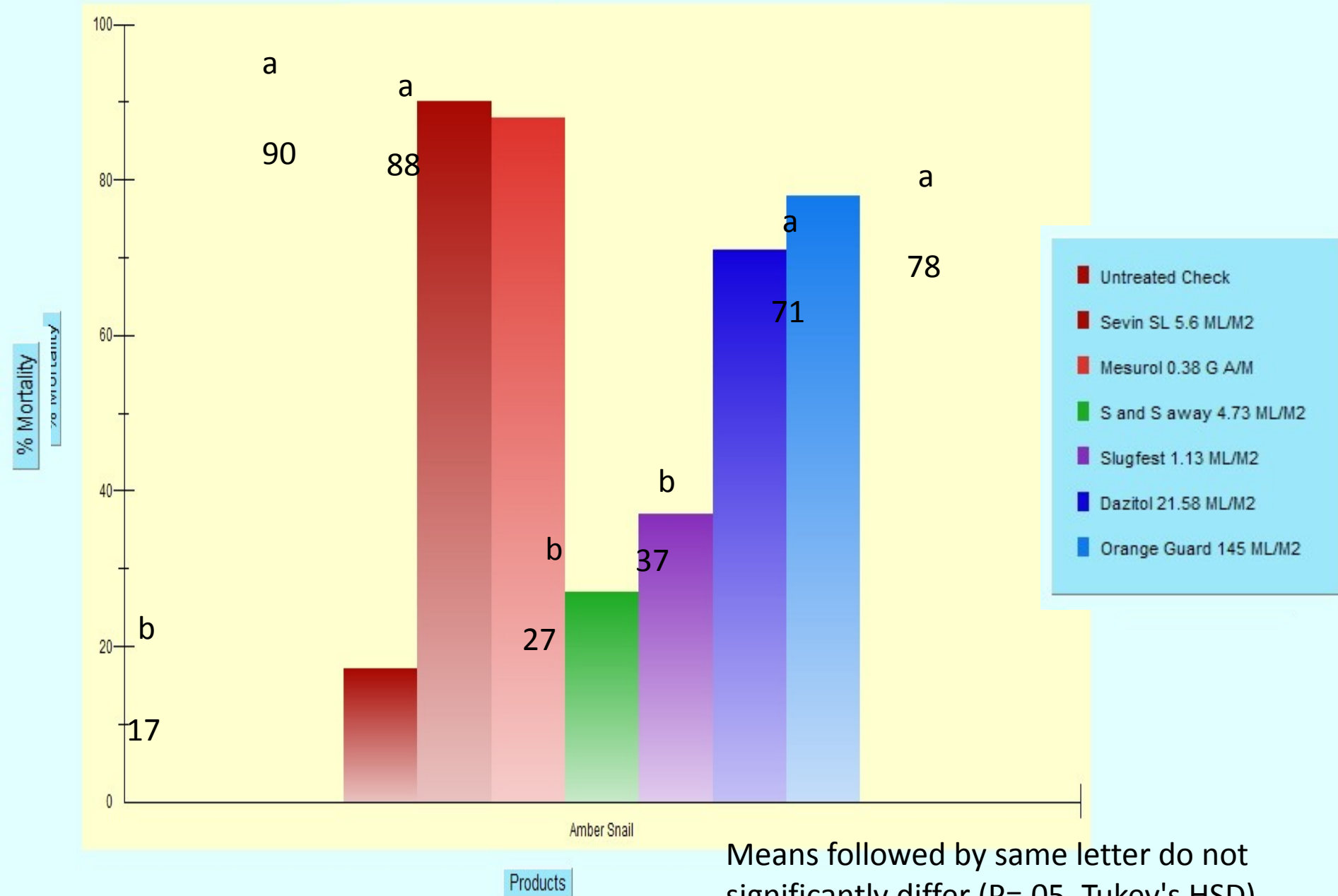


# Treatments Evaluated

- 1) methiocarb (Mesurol)
- 2) limonene (OrangeGuard)
- 3) capsaicin + allyl isothiocyanate (Dazitol)
- 4) cinnamon oil (Snail and Slug Away)
- 5) metaldehyde (Slug-Fest)
- 6) carbaryl (Sevin)
- 7) untreated control.



## Product efficacy for the control of Amber Snails



# March 2011 amber snail trial

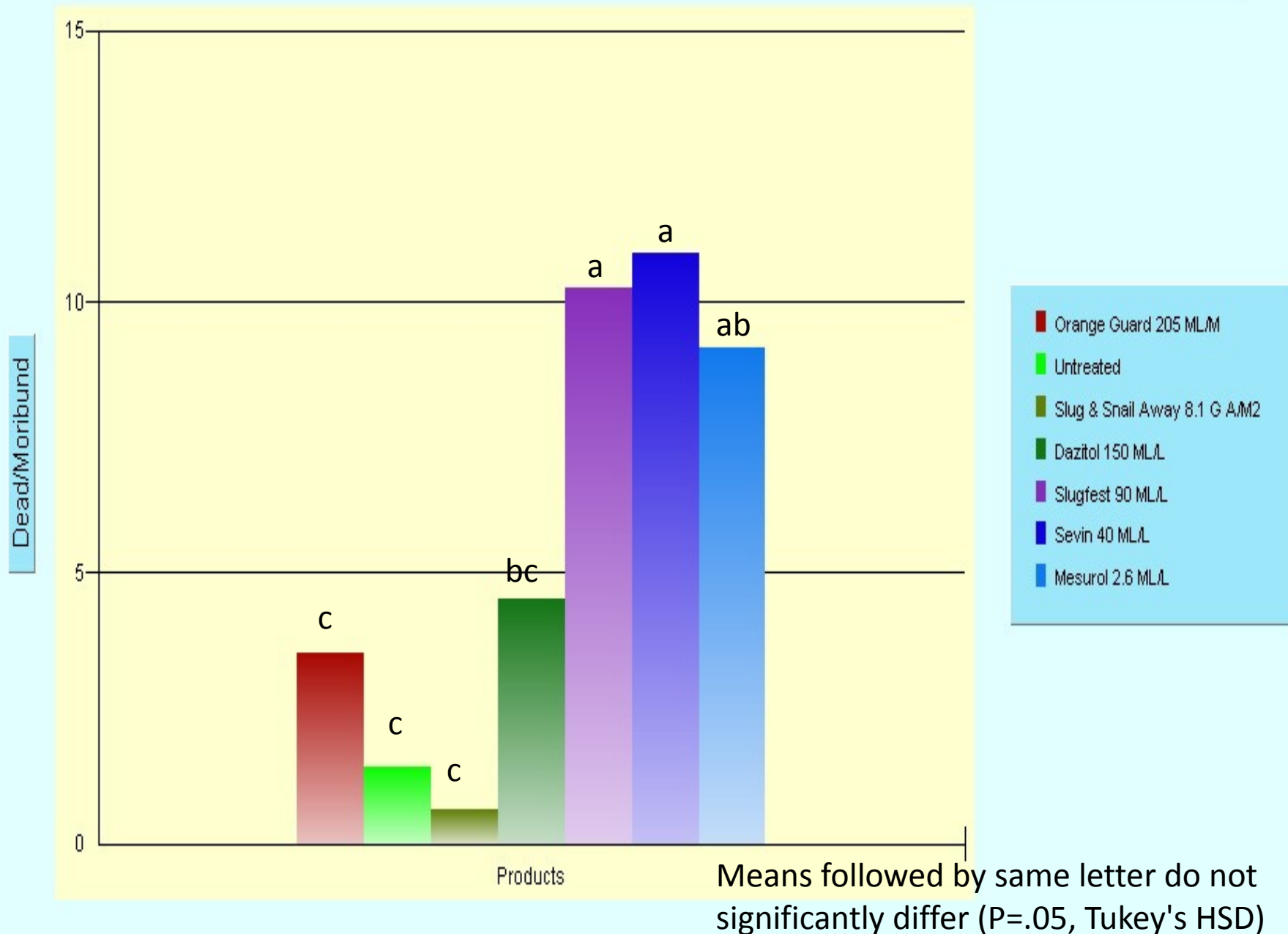
- Repeated the same 7 treatments (increased rate of Slugfest to 2%)
- Used infested nursery plants (hydrangeas)
- Supplemented with 5 additional snails







## Efficacy of various products against Amber Snails in Oregon.





# 2012 Bait Trials

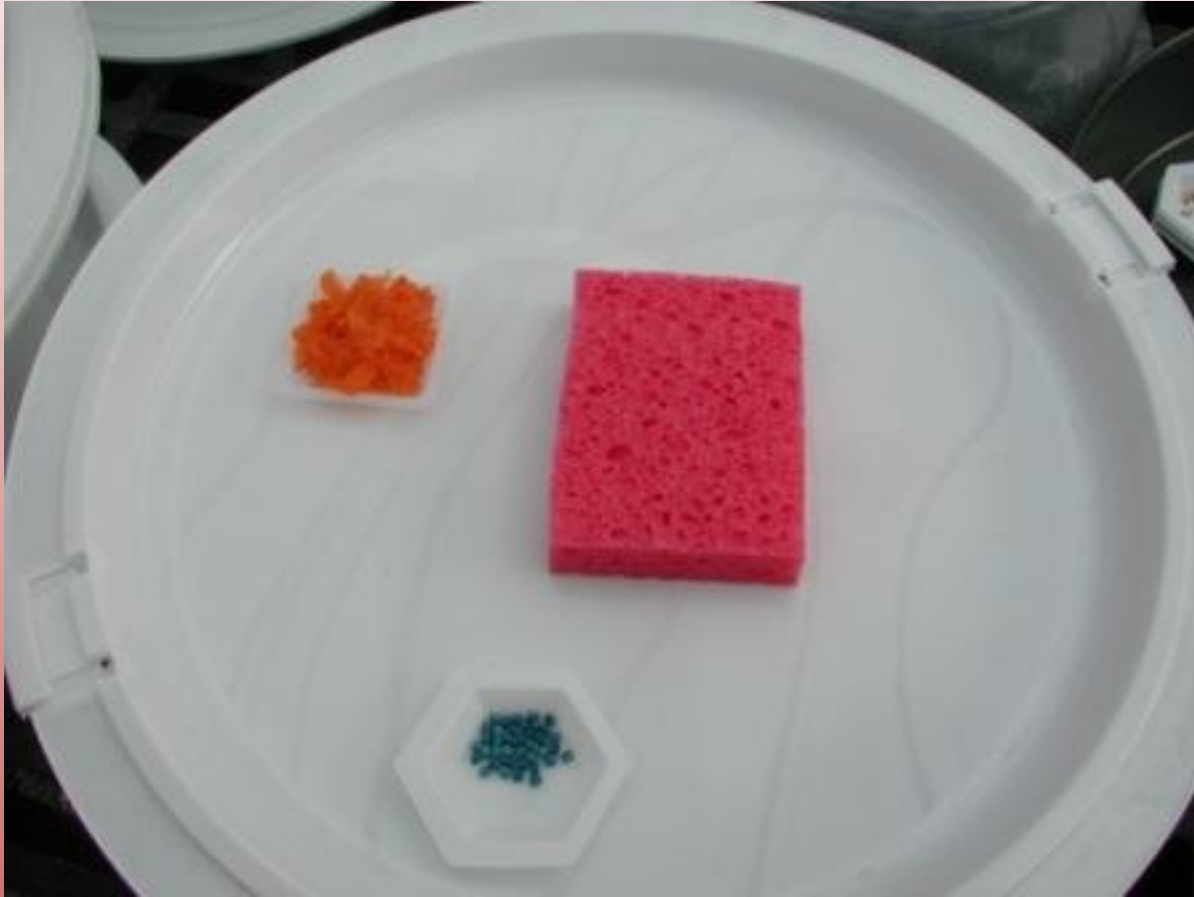


# 2012 Bait Trials





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# 2012 Bait Trials



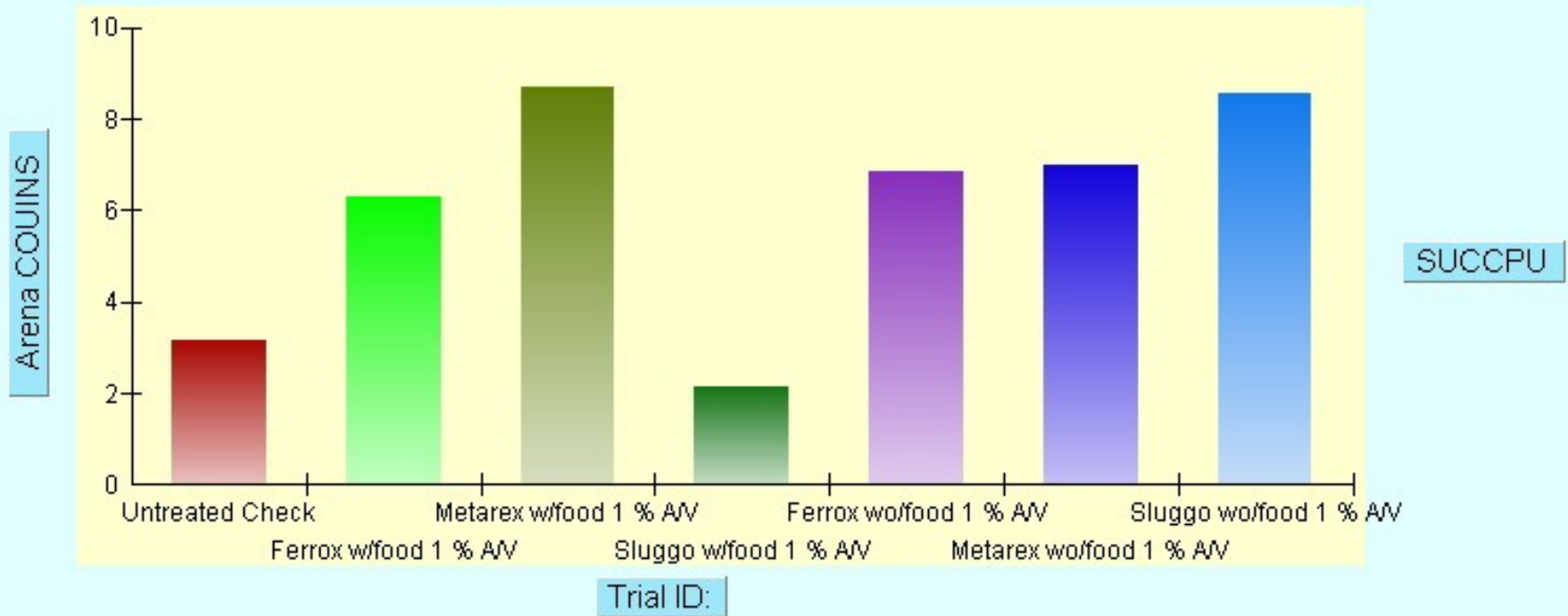


# 2012 Bait Trials



# 2012 Bait Trials

## Amber Snail Bait Trial











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