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2007

## Research Update Meeting 2007 - Cranberry Insects 2006 Update

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**Cranberry Insects: 2006 Update**  
Anne Averill/Marty Sylvia

# Outline

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1. Sampling
2. Reduced-risk compounds
3. Natural enemies
4. Cultural controls
5. Winter moth update

# 1. Sampling

- Pest status
  - presence
  - population size

# Sampling: blackheaded fireworm

- First generation (May)
  - Larval infestations
- Second generation (June)
  - Pheromone trap counts

# May: blackheaded fireworm sampling

## Visual observations vs. sweep sets

	<i>Observation</i>			<i>Sweep net</i>	
<i>Date--site</i>	<i># of 5 min sets</i>	<i>total # larvae</i>		<i># of sweep sets</i>	<i>total # larvae</i>
5/17--site 1	12	1		14	31
5/25--site 2	9	1		11	8
5/25--site 3	14	17		6	3
5/30--site 2	8	0		10	3

May: blackheaded fireworm sampling  
 Visual observations vs. sweep sets

	<i>Observation</i>		<i>Sweep net</i>	
<i>Date--site</i>	<i># of 5 min sets</i>	<i># of sets with 0</i>	<i># of sweep sets</i>	<i># of sets with 0</i>
5/17--site 1	12	11 (92%)	14	3 (21%)
5/25--site 2	9	8 (88%)	11	5 (45%)
5/25--site 3	22	6 (27%)	6	3 (50%)
5/30--site 2	8	8 (100%)	10	8 (80%)

# Sampling: bottom line blackheaded fireworm

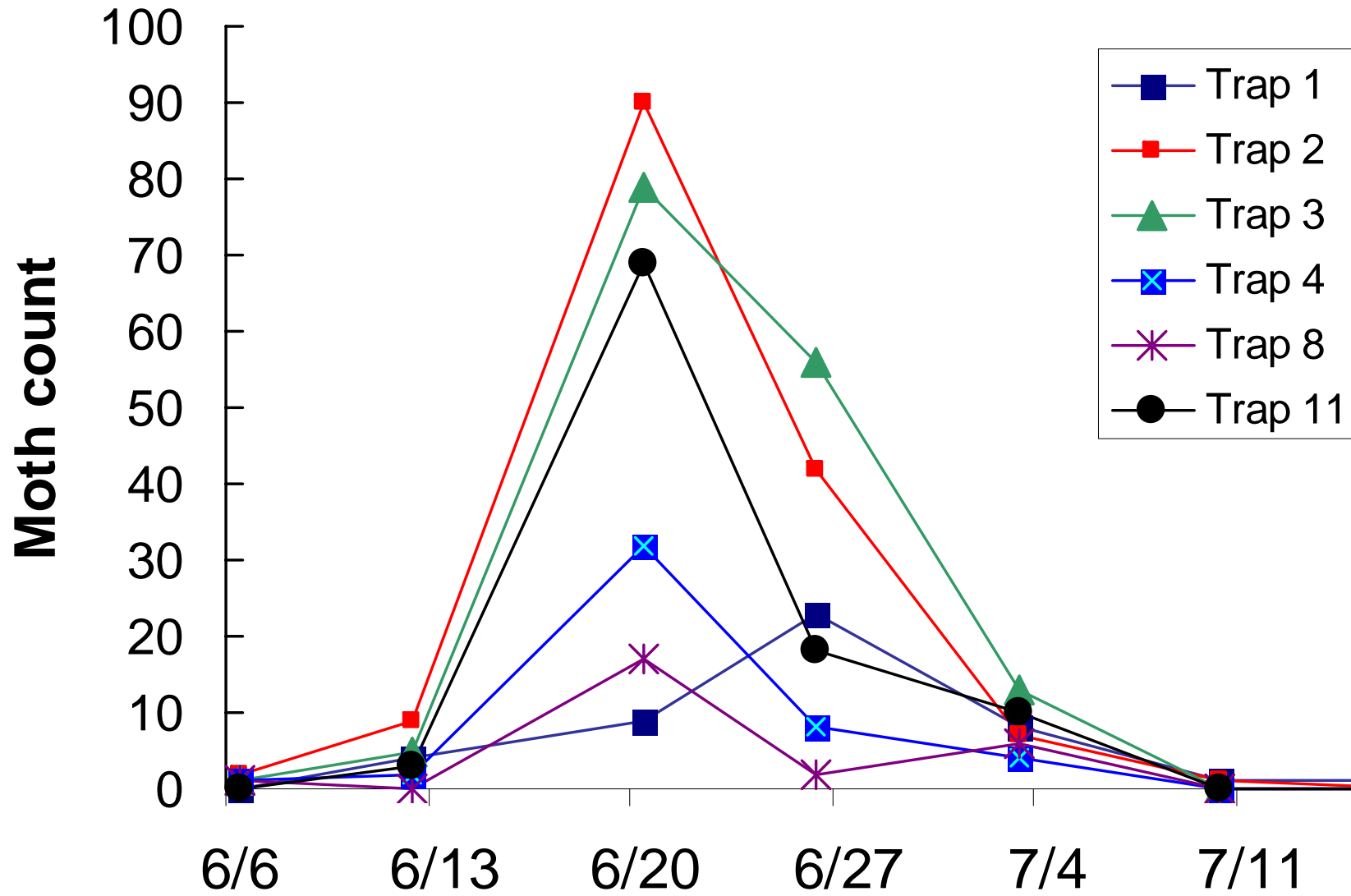
- First generation (May)
  - Preliminary assessment>>keep this in mind
  - Per minute effort, sweep-net sampling for both small and large larvae appears more efficient



# June: blackheaded fireworm sampling

## Pheromone trap captures

- In Wisconsin, captures vary widely among traps
- True in Massachusetts?
- Trap placement test at 4 bogs
  - Locations
    - bog edge every 20 m
    - bog center
    - uplands
      - high and low
  - Comparison among traps
    - Peak captures
    - Total captures



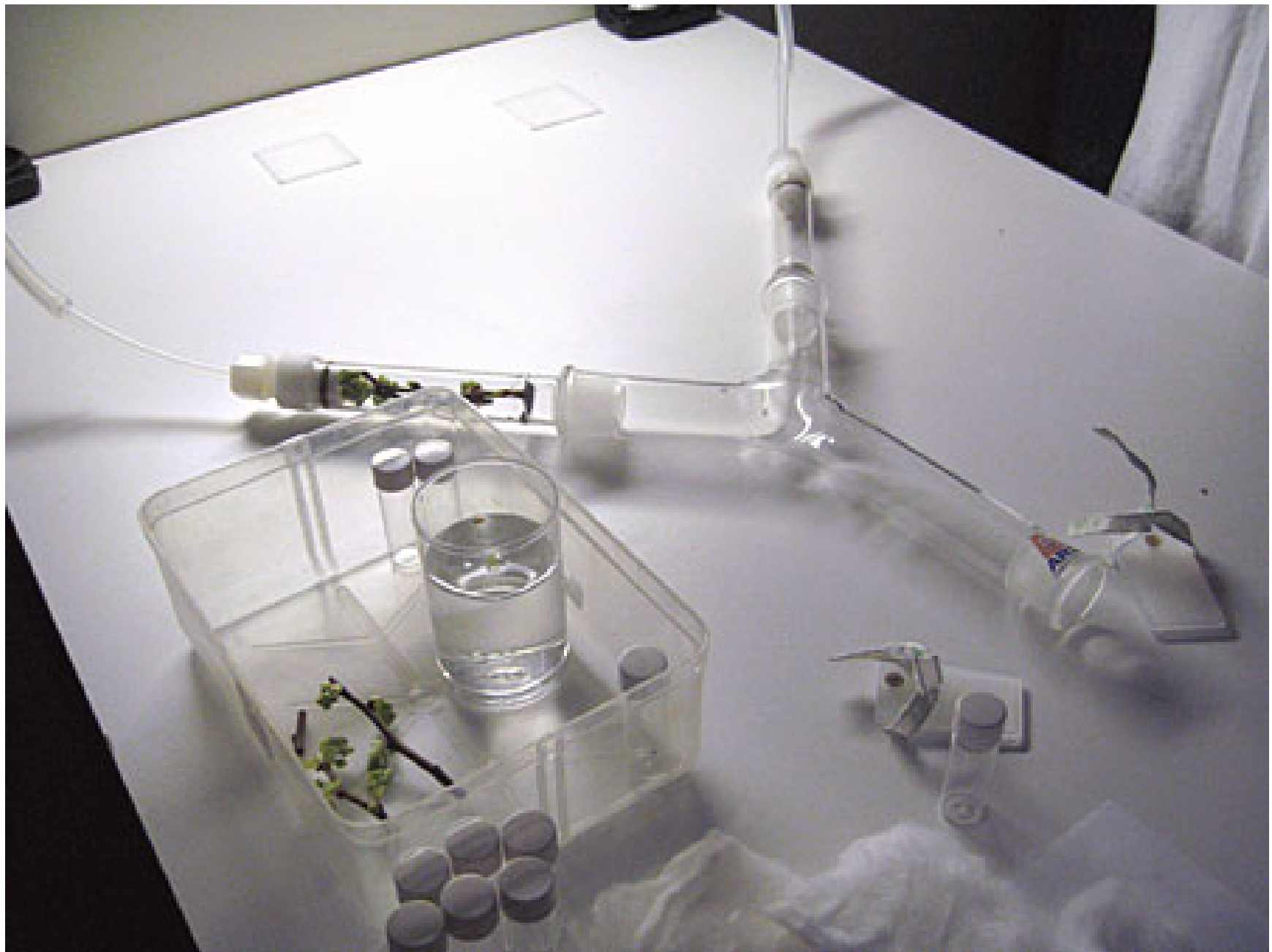
# June: blackheaded fireworm sampling

## Pheromone trap captures

- High variation in:
  - Total numbers/trap
- Low variation in:
  - Timing of peak of captures
  - Edge vs. center
- Unlike cranberry fruitworm, essentially no off-bog activity

# Sampling: cranberry fruitworm and weevil

- New trap development
- Collaboration
  - Rutgers: Cesar Rodriguez-Saona
  - Isolation of attractive host-plant volatiles



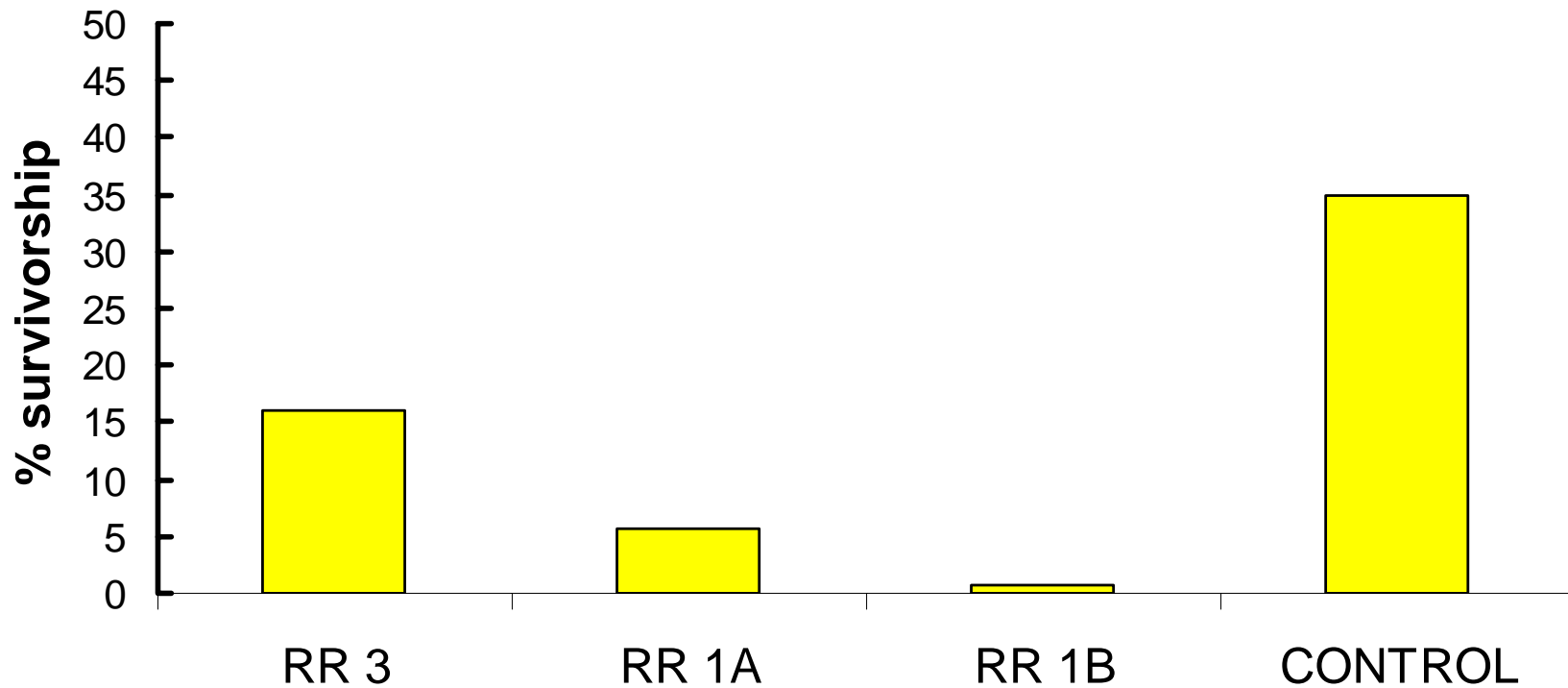
## 2. Reduced-risk (RR) insecticides

- Definition
- Modes of action
  - Synaptic and axonic poisons
  - Low human toxicity
- Advantages
  - Fit in cranberry pest management
  - Avoid development of insecticide resistance by alternation chemistries

# Reduced-risk numbered compounds in screening program

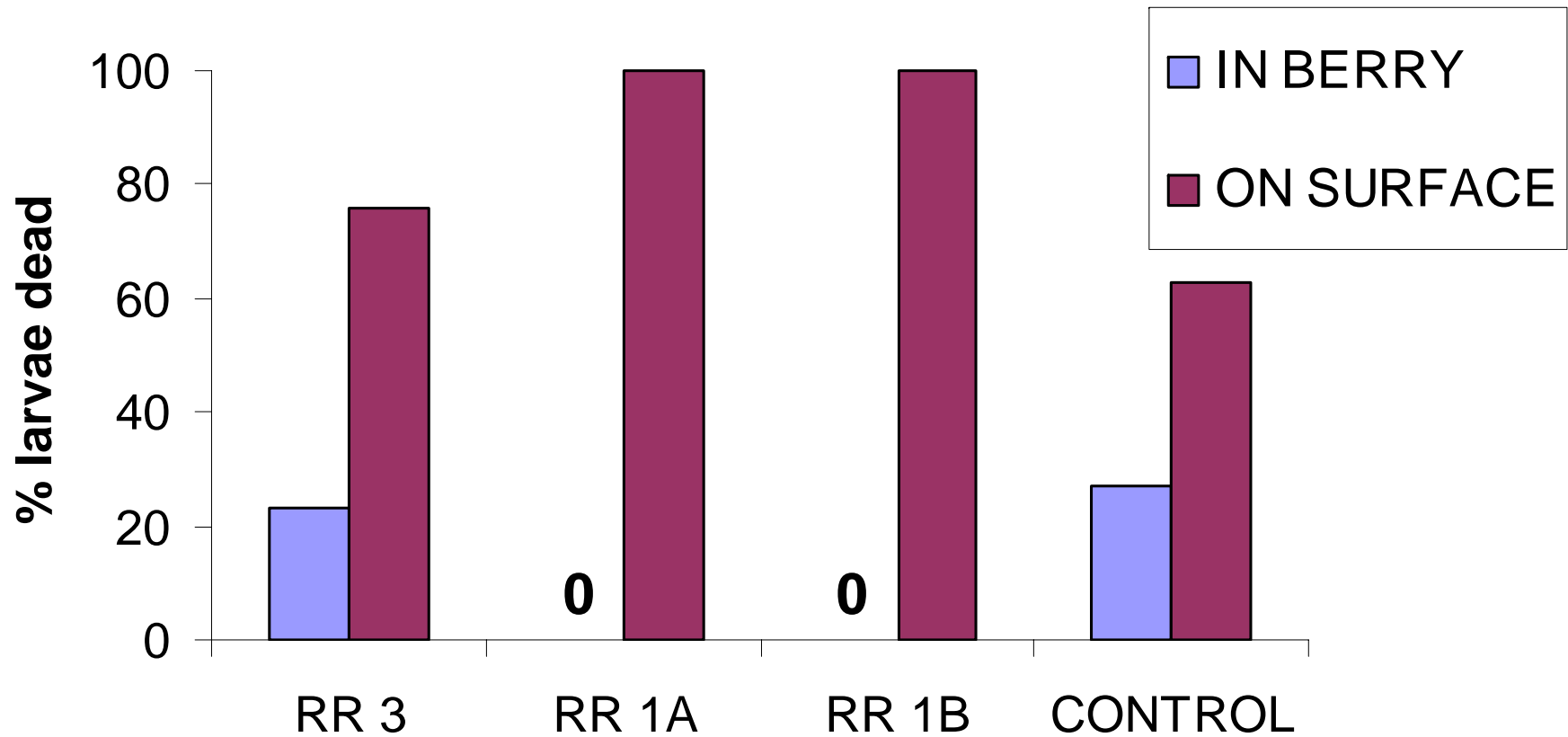
- NEO A—widely used neonicotinoid
- RR 1A—moving forward
- RR 1B—test sample arrived in August, same mode of action as RR1A
- RR 2—way, way down the line
- RR 3—maybe not as promising

# Lab screen: cranberry fruitworm larval survivorship





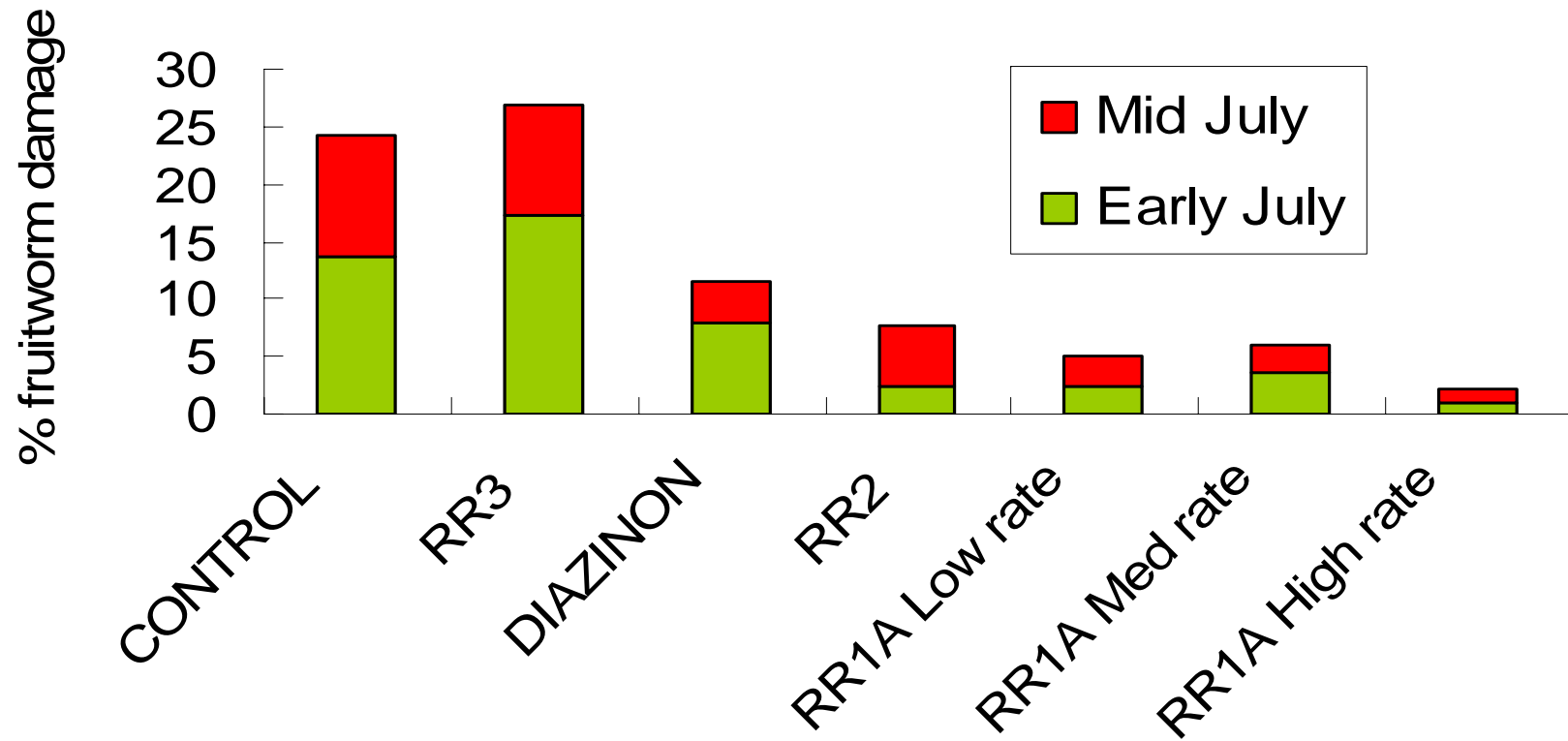
# Lab screen: cranberry fruitworm corpse sites





**DEAD FRUITWORM LARVAE**

# Field screen: cranberry fruitworm damage after single spray (7 July 06)



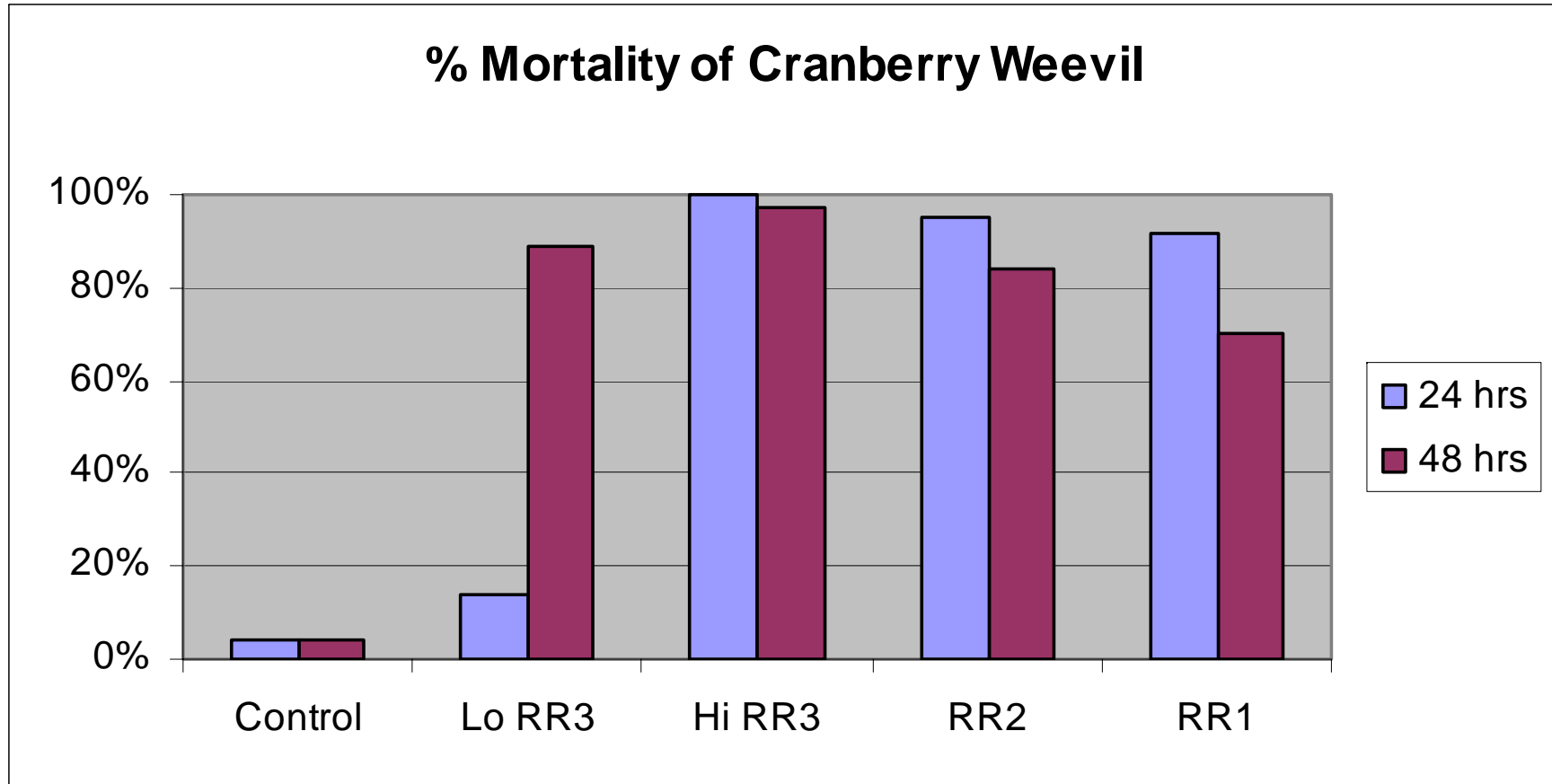
# Cranberry weevil

- Update on management options
  - Actara currently showing excellent control
  - Avaunt (spring population only) expected 07-08
  - Another new compound moving through registration, currently at EPA
- Lab screening
  - RR2, RR1A, RR3 all show activity

# Cranberry weevil

- Actara
  - Treatment between May 15 and June 15
  - Reduced rates 2 and 3 oz. work fine
  - Highly toxic to bees
- Don't wait too long to treat
  - Weevil eggs laid
  - Bees arrive

# Cranberry weevil lab screen

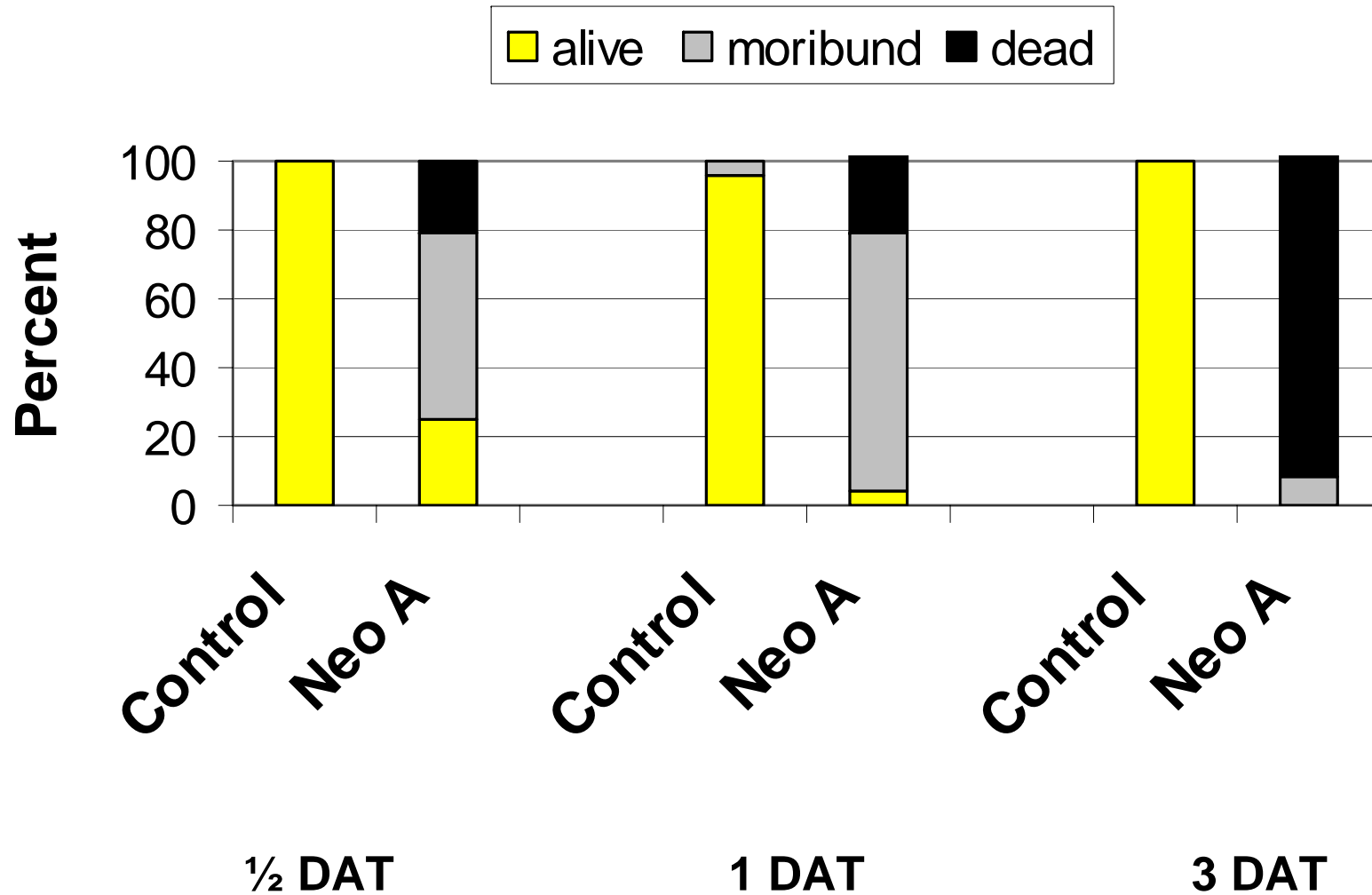


# Red-headed flea beetle

- Increased number of reports
- Possible explanations
- Evaluation of RR compound (NEO A)



# Lab trial: Flea beetle





## 3. Natural enemies

- Blackheaded fireworm
  - Populations appear unregulated
  - Field collections of larvae
    - Difficult to rear
    - Parasitism low
      - Atypical of leafrollers

## 4. Cultural controls

- Update: survivorship of overwintering cranberry fruitworm
- What is the effect of lowered sanding?
  - Hibernacula treatments
    - +sand; +trash, +both
      - Hibernacula formation
      - Hibernacula overwintering cover

## 5. Winter moth update

- Observed regularly in cranberry
- Spread documented elsewhere in state



Flightless female

Workshop title:

Cranberry Management Update

Location: Plymouth Radisson

Date: 1/31/07

Time: 8AM-4PM

Session Number: UMA 2007-9

4 contact hours, category 30