Suppression of Western Flower Thrips by Overhead Sprinkler Irrigation in Romaine Lettuce

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Western Flower Thrips in Romaine Lettuce

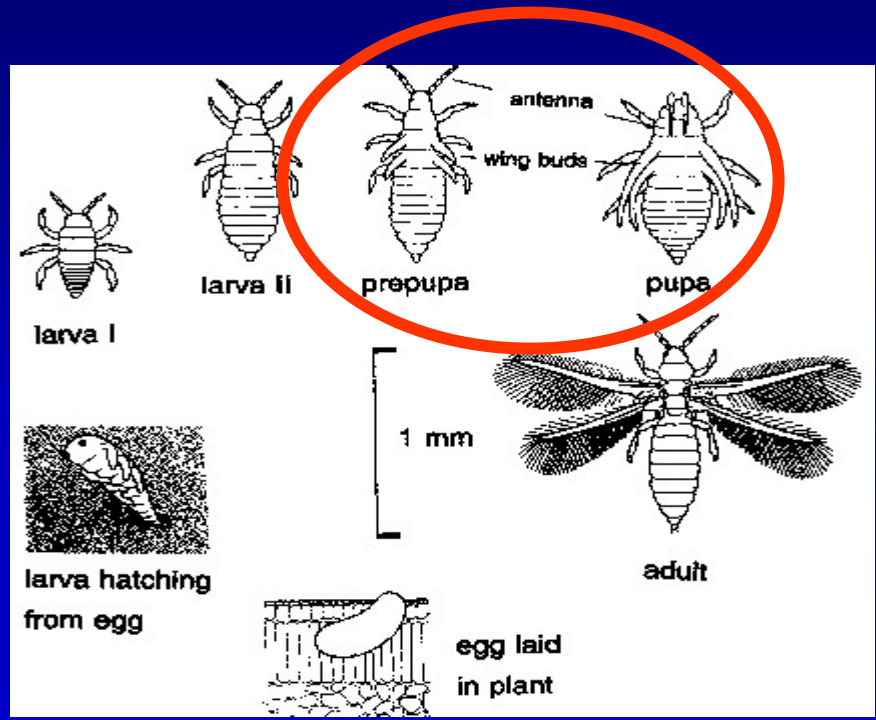
- No reliable sampling plan
- Lack of quantitative data on damage description
- Control is reliant on a few AI:
  - Lannate + pyrethroid
  - Success
- Resistance is a concern
- Lack of viable alternatives for organic romaine production

Biopesticides

- azidirachtin
- neem oil
- pyrethrum
- garlic extract
- Hot pepper wax
- Safer Soap
- Sulfur

Overhead Sprinkler Irrigation

- Dislodge thrips from plants
- Repel adults
- Drown immatures on plant
- Suffocate pupae in soil



Objectives

- Determine the influence of sprinkler duration, volume and frequency on thrips populations.

- Evaluate the use of insecticide spray regimes used in combination with sprinklers for suppressing thrips.

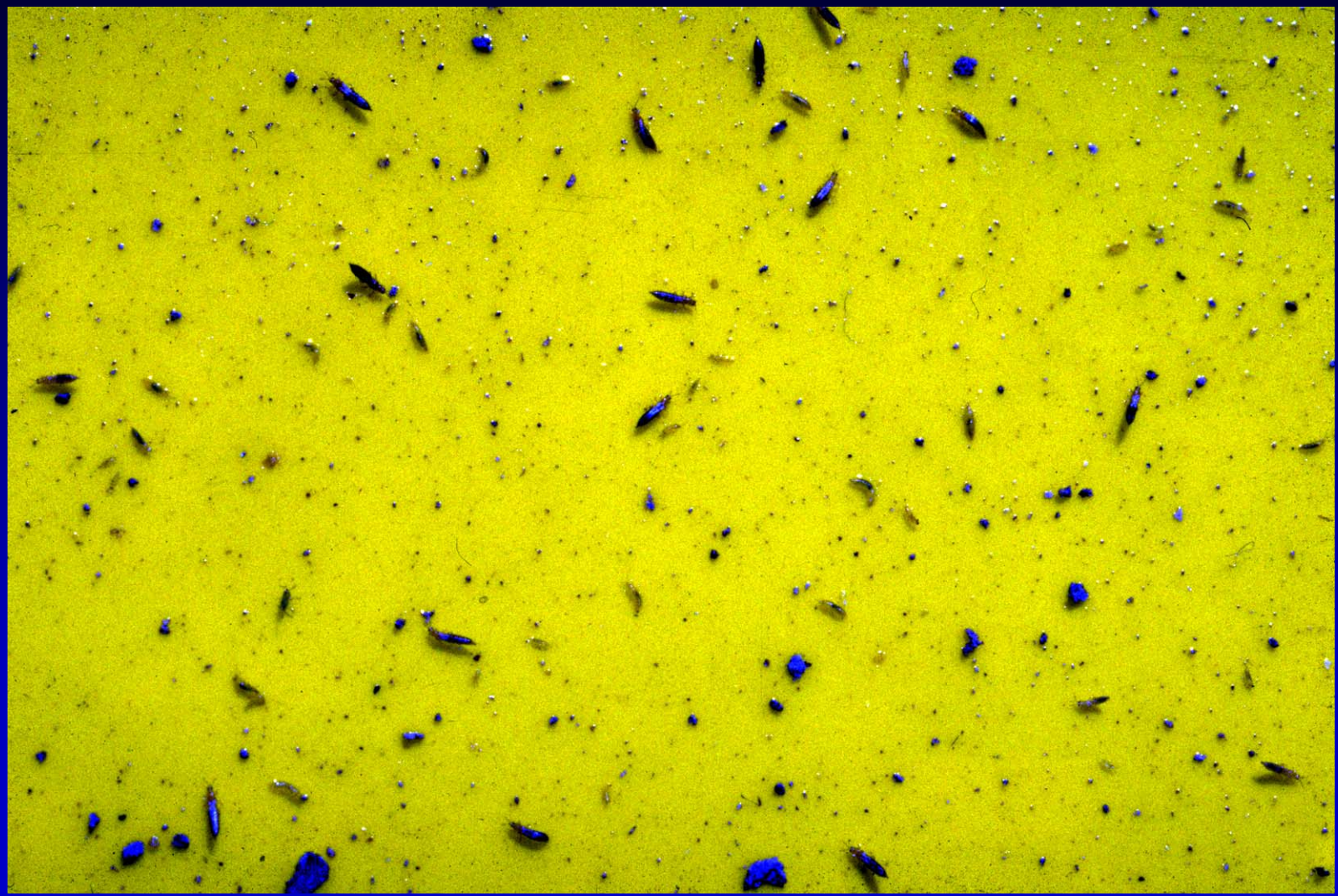
Overhead Sprinkler Treatments

Duration/Volume

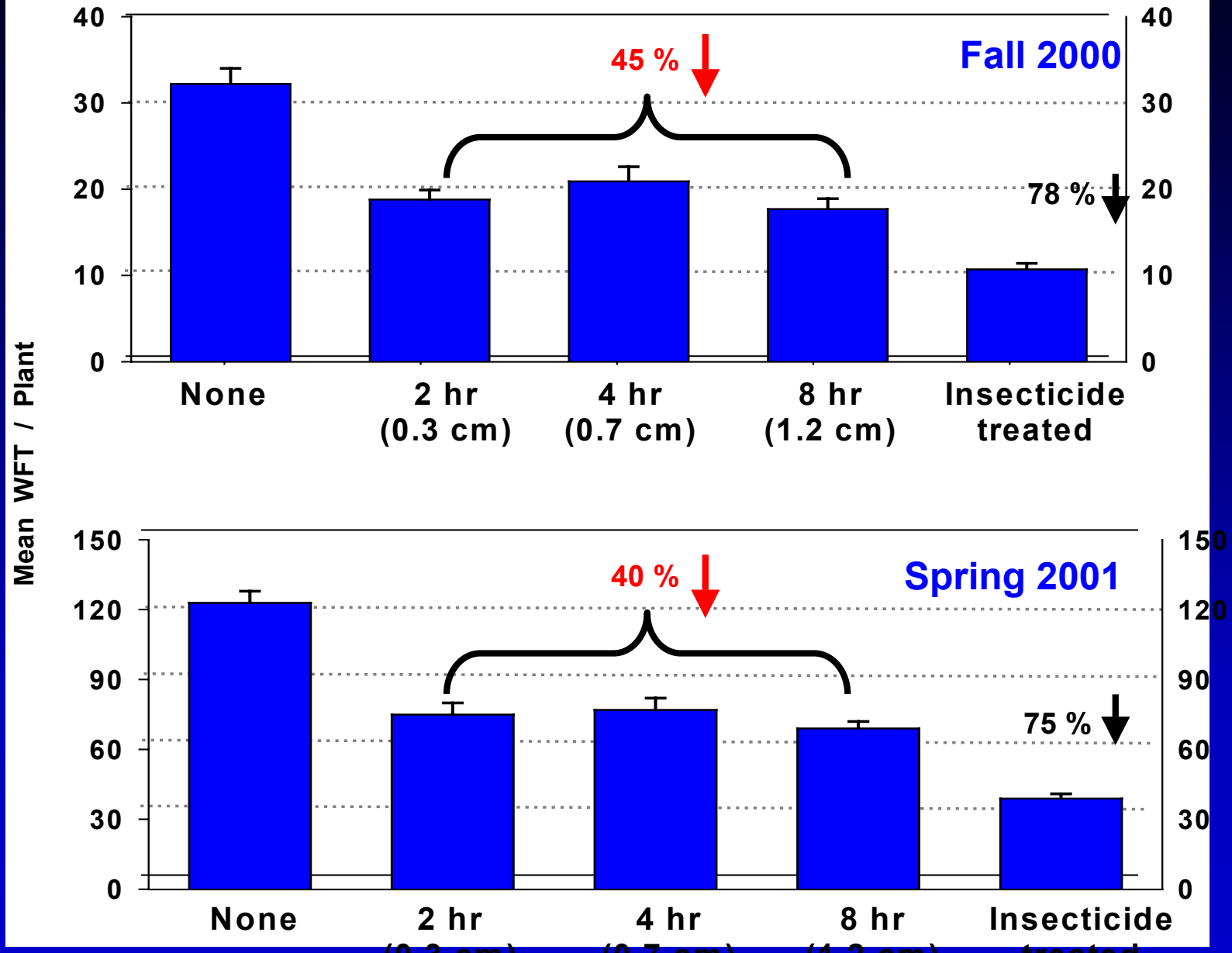
- 2 hrs (0.3 cm)
- 4 hrs (0.7 cm)
- 8 hrs (1.2 cm)

- Weekly - 3 hrs
- 2X weekly - 4.5 hrs
- 3X weekly - 3 hrs

Measurement of Thrips Abundance

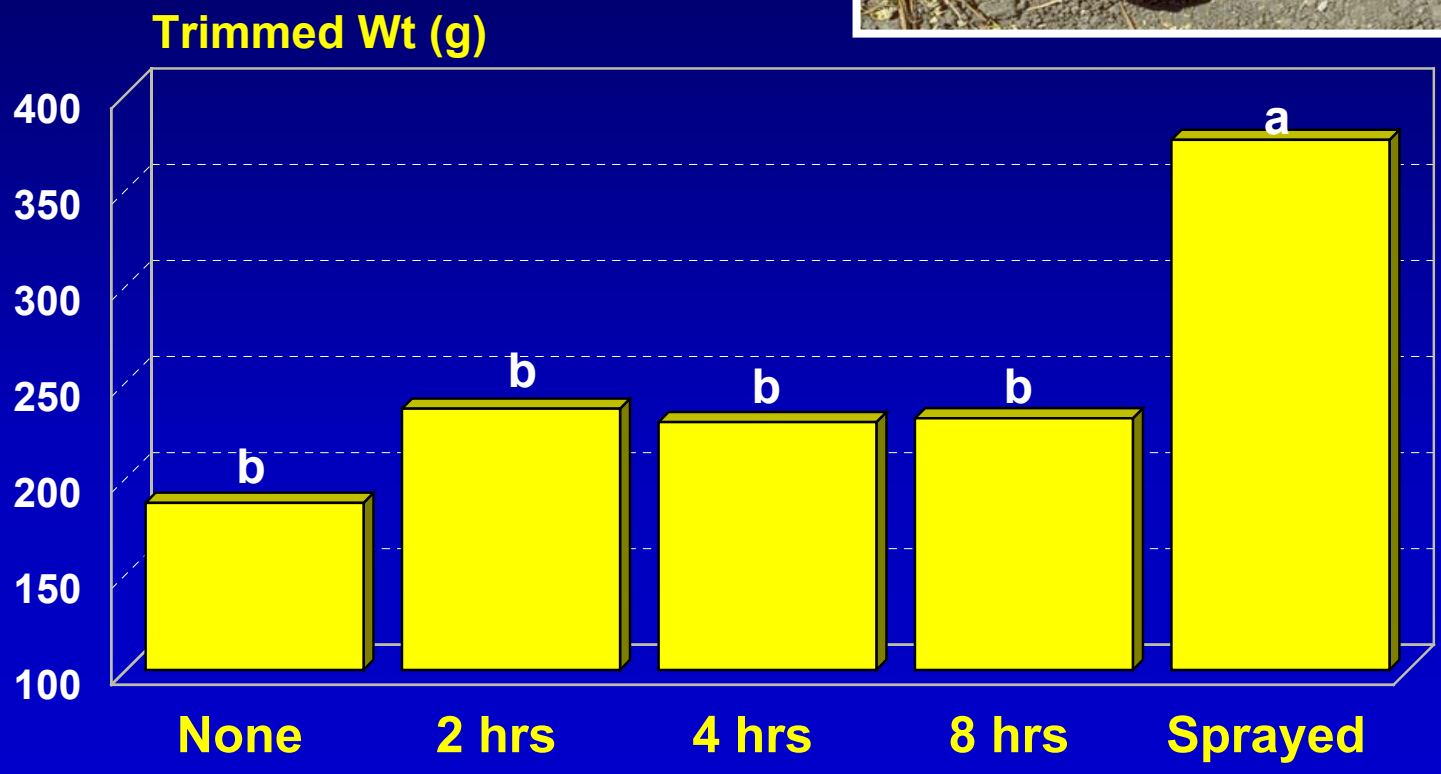


Sprinkler Duration / Volume



Romaine Harvest

Spring 2001



Overhead Sprinkler Treatments

Duration/Volume

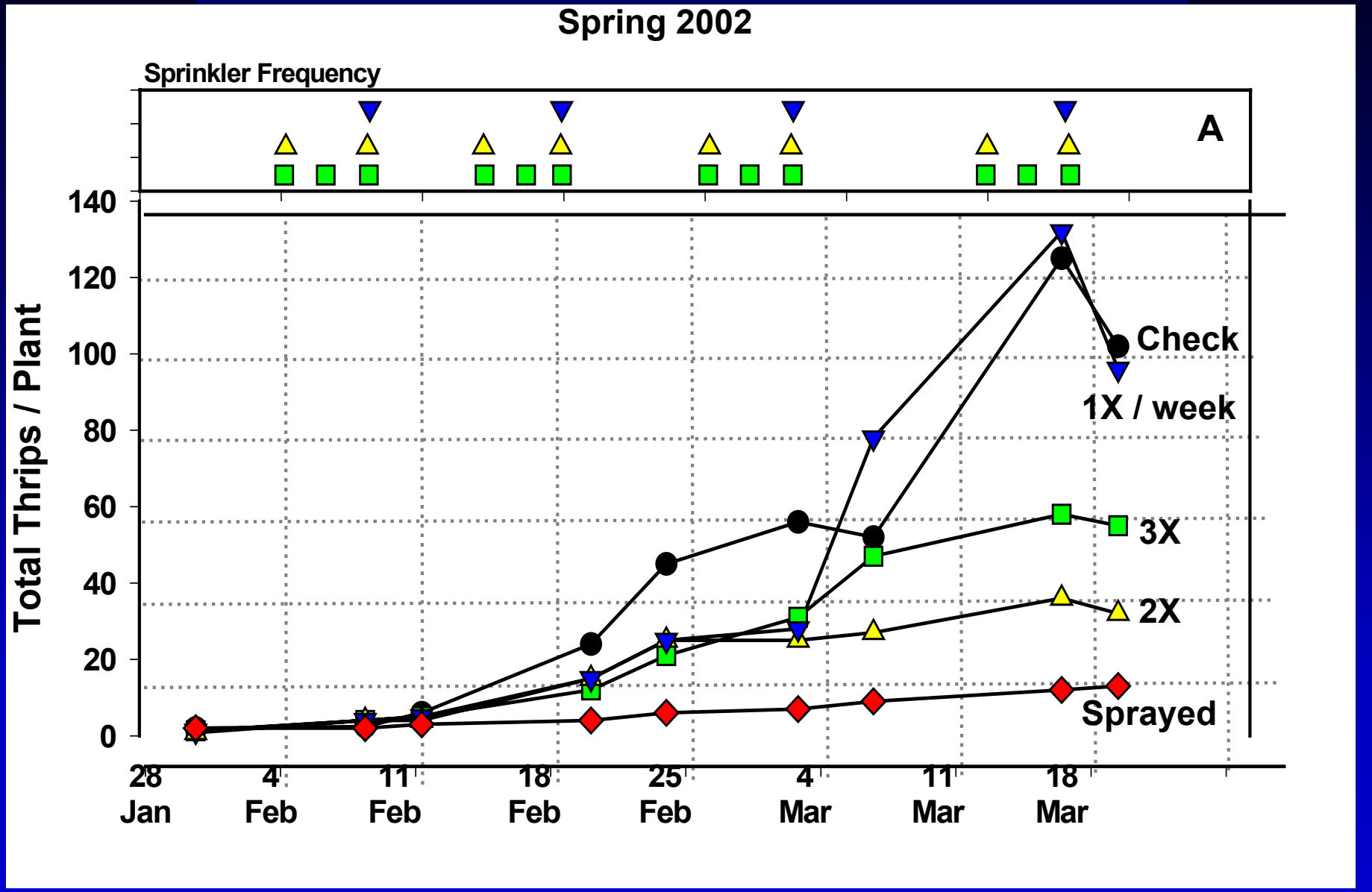
- 2 hrs (0.3 cm)
- 4 hrs (0.7 cm)
- 8 hrs (1.2 cm)

Frequency

- Weekly @ 9 hrs
- 2X weekly @ 4.5 hrs
- 3X weekly @ 3 hrs

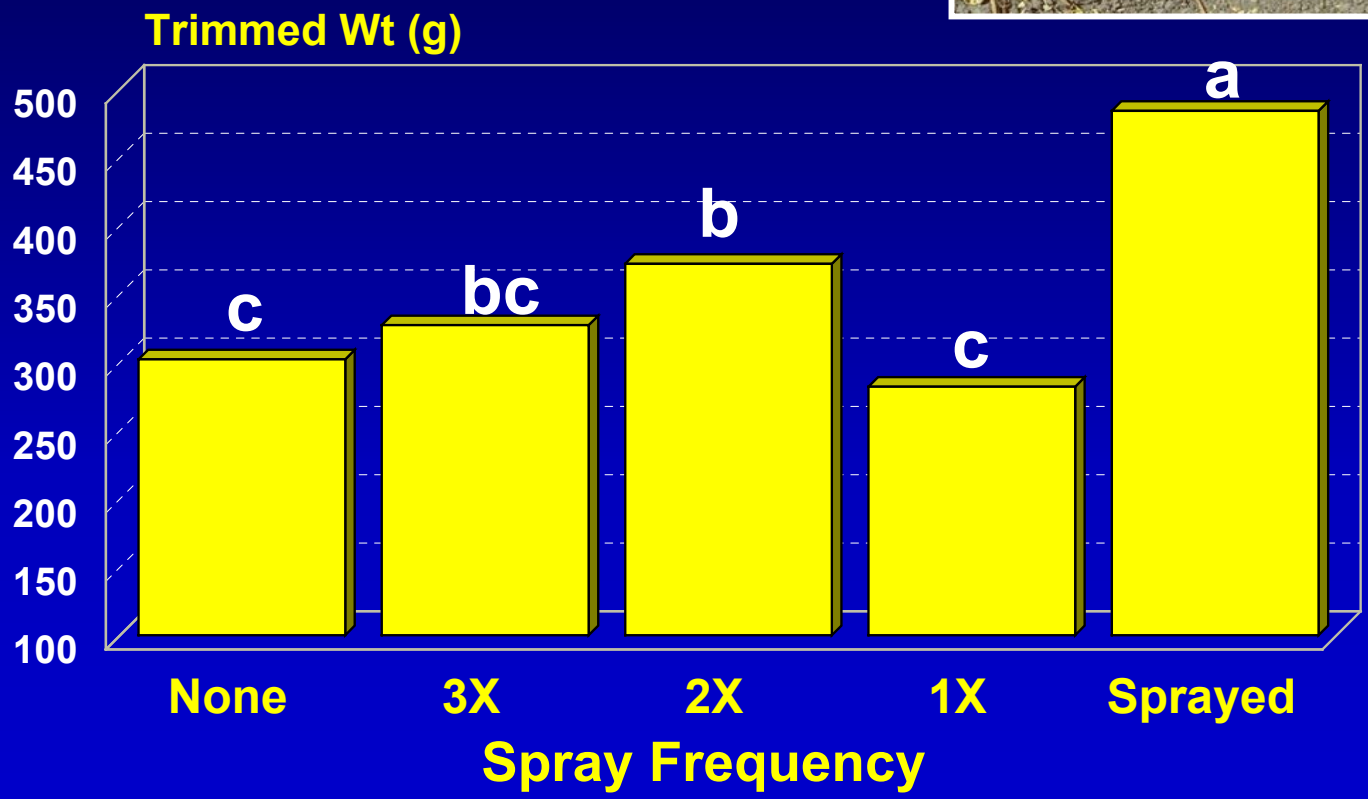
@ 1.4 - 1.8 cm / week

Sprinkler Irrigation Frequency



Romaine Harvest

Spring 2002



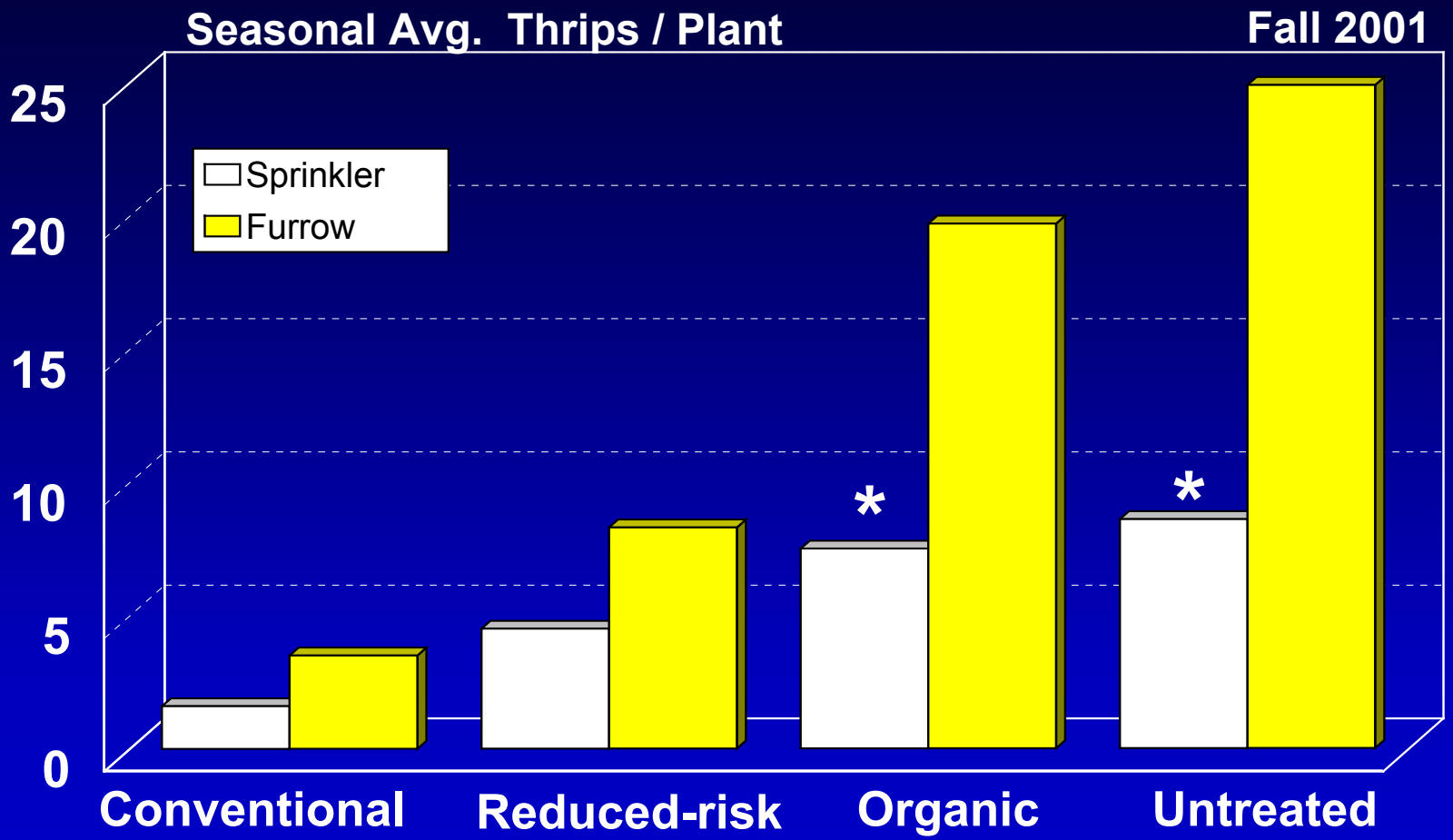
Interaction of Sprinkler and Insecticides for Thrips Suppression in Romaine

Alternated Sprays and Sprinkler Irrigation Runs at 5-6 d intervals

Fall 2001 Trial

Conventional	Untreated	Untreated	Reduced-risk	Rep I
Organic	Reduced-risk	Conventional	Organic	
Untreated	Organic	Conventional	Untreated	Rep II
Reduced-risk	Conventional	Organic	Reduced-risk	
Organic	Reduced-risk	Untreated	Conventional	Rep III
Conventional	Untreated	Reduced-risk	Organic	

Interaction of Sprinkler and Insecticides for Thrips Suppression in Romaine



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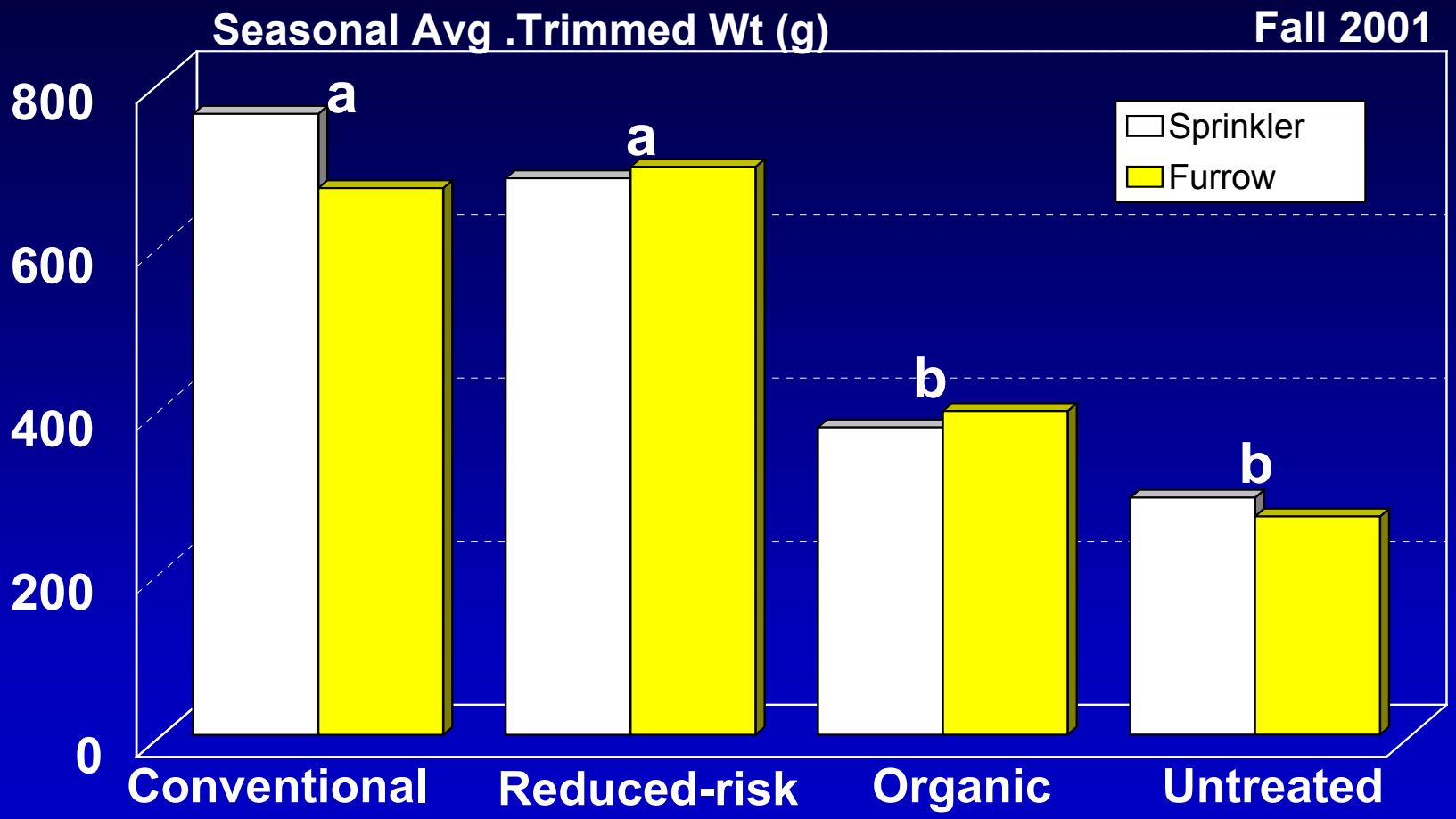

Interaction of Sprinkler and Insecticides for Thrips Suppression in Romaine

Spring 2002 Trial

Spray	Irrigation
Conventional *Lannate ~ Succes rotation*	Sprinkler Furrow
Reduced-risk *Success ~ Assail rotation*	Sprinkler Furrow
Organic *AzaDirect+Garlic ~ Sulfur*	Sprinkler Furrow
Untreated	Sprinkler Furrow

Arizona Crop Information Site

www.ag.arizona.edu/crops