

THRIPS

NEW THRIPS

17 in 15 years

Thrips species	Year	Origin	County detected
<i>Bolacothrips striatopennatus</i> (Schmutz)	1987	Asia	Hendry
<i>Dendrothripoides innoxius</i> (Karny)	1988	Asia	Palm Beach
<i>Organothrips indicus</i> Bhatti	1988	Asia	Hendry
<i>Scirtothrips dorsalis</i> Hood	1991	Asia	Okeechobee
<i>Danothrips trifasciatus</i> Sakimura	1992	Asia	Hendry
<i>Neohydatothrips portoricensis</i> (Morgan)	1992	Neotropical	Dade
<i>Baileyothrips limbatus</i> (Hood)	1993	Pacific	Palm Beach
<i>Chaetanaphothrips leeuweni</i> (Karny)	1993	Asia	Dade
<i>Psydrotithrips luteolus</i> Nakahara & Tsuda	1993	Pacific	Orange
<i>Retithrips syriacus</i> (Mayet)	1993	Africa	Broward
<i>Elixothrips brevisetis</i> (Bagnall)	1994	Asia	Broward
<i>Asprothrips seminigricornis</i> (Girault) foliage	1995	Pacific	Orange
<i>Stomatothrips angustipennis</i> Hood	1999	Neotropical	Hillsborough
<i>Dolichothrips indicus</i> (Hood)	1999	Asia	Pinellas
<i>Holopothrips</i> cf. <i>inquilinus</i> (Bournier)	2001	Neotropical	Dade
<i>Psectrothrips</i>	2002	Neotropical	Dade
<i>Androthrips ramachandrai</i> Karny	2002	Asia	Dade

Status of *Scirtothrips* *dorsalis*, Chilli thrips

Division of Plant Industry

Regulatory Response

- *Scirtothrips dorsalis*: was detected on October 14, 2005. *Scirtothrips dorsalis* has been known to occur in Hawaii since 1987, and there were previous detections in Florida in 1991 and 1994, however FDACS has had no detections in the intervening years.
- It was detected at a residential property located in Palm Beach county, Florida.
- The host was *Rosa* sp.

Division of Plant Industry

Regulatory Response

- *Scirtothrips dorsalis* is considered a serious plant pest of quarantine significance.
- When detected in retail garden centers or commercial nurseries, all infested nursery stock will be quarantined until the pest has been eliminated.
- Quarantine treatments will involve applying **University of Florida/IFAS pesticide recommendations** for controlling Chilli thrips on ornamentals.

Division of Plant Industry

Regulatory Response

Detections in Florida as of October, 2006

- Number of Counties: 24 (from Monroe to Alachua county)
- Number of Retail Garden Centers 90
- Number of Nurseries 11
- Number of Residential Properties 54
- Detected on Multiple Host Plants

Detections in Texas Retail Centers on Capsicum from a Southern State other than Florida.

S. dorsalis

Synonyms: Chilli, Castor, Berry, Assam and Yellow Tea Thrips

Host Plants:

Over 112 host plants including banana, beans, chrysanthemum, citrus, corn, cotton, cocoa, eggplant, ficus, grape, grasses, holly, jasmine, kiwi, litchi, longan, mango, onion, peach, peanut, pepper, rose, soybean, strawberry, tea, tobacco, tomato, viburnum, etc.

Is Scirtothrips dorsalis a **Serious Economic Pest for the US?**

- Assuming an overall U.S. crop yield loss from Chilli Thrips of 5 percent the total crop value loss would equal \$3.0 billion (primary hosts \$583 million and secondary hosts \$2.43 billion).
- Assuming an overall U.S. crop yield loss from Chilli Thrips of 10 percent the total crop value loss would equal \$5.98 billion (primary hosts \$1.2 billion and secondary hosts \$4.78 billion).

Chilli Thrips – Cross Commodity Task Force

- Cross Commodity Task Force established to address issues surrounding introduction of Chilli thrips (Facilitated by USDA-APHIS).
- Three sub-groups:
 - Industry (ornamentals, cotton, vegetables)
 - Regulatory (states, APHIS)
 - Scientists (Technical Advisory Group)

ECONOMIC IMPORTANCE

Major pest of:

- **strawberries** in Queensland, Australia
- **tea** in Japan and Taiwan
- **citrus** in Japan and Taiwan (Chiu *et al.* 1991, Tatara and Furuhashi 1992, Tschuchiya *et al.* 1995)
- **cotton** in the Ivory Coast (Bournier 1999)
- **soybeans** in Indonesia (Miyazaki *et al.* 1984)
- **chillies** and **castor bean** in India
- **peanuts** in several states in India (Mound and Palmer 1981).
- Ananthakrishnan (1984) also reports damage to the following hosts: **cashew, tea, chillies, cotton, tomato, mango, castor bean, tamarind, and grape.**
- **Rose** in India

Damage

Chilli Thrips Larva

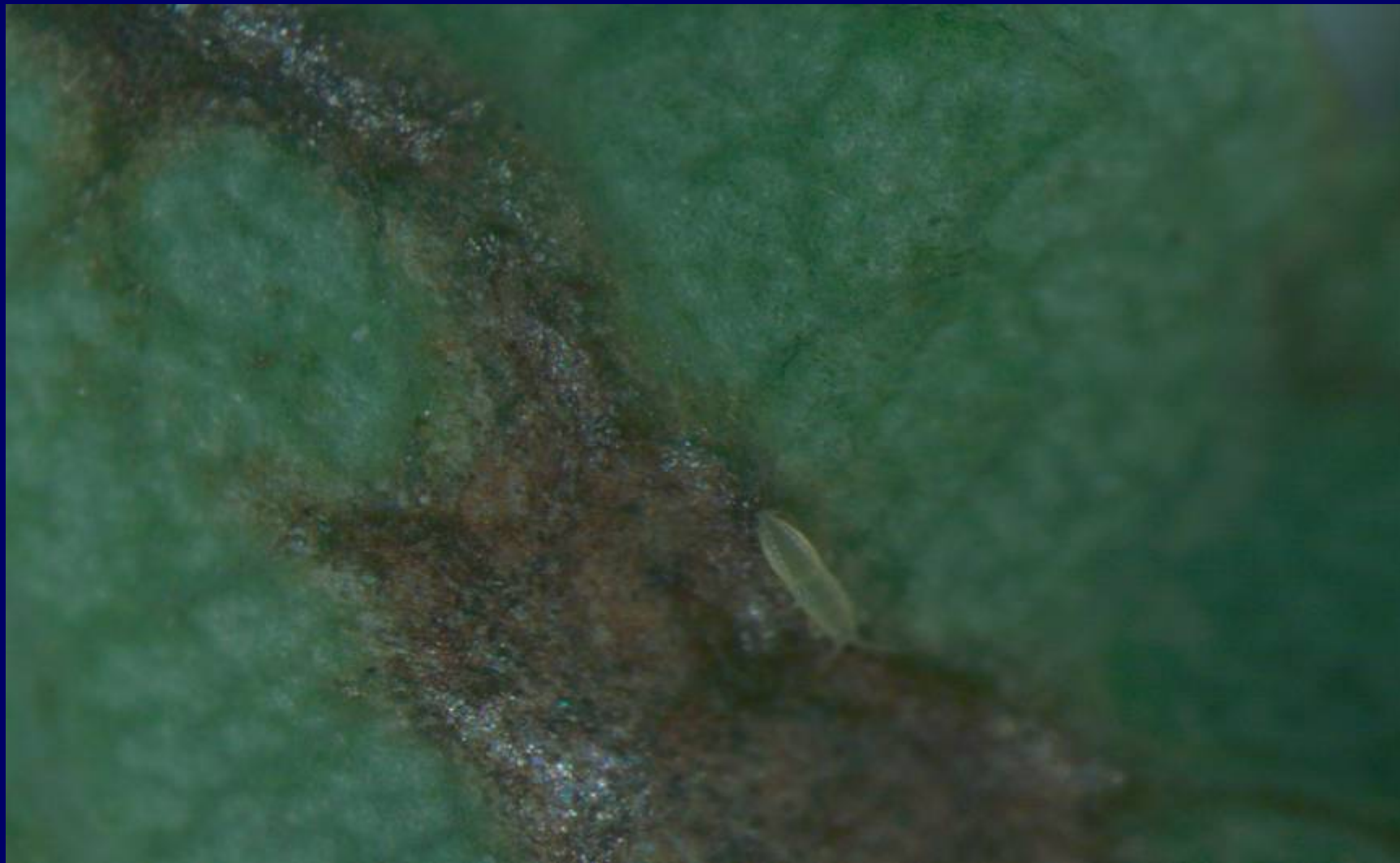


Photo by Dak Seal, UF/IFAS

Chilli Thrips Adult on Rose



Photo by Dak Seal, UF/IFAS

Chilli Thrips



Chilli Thrips



Chilli Thrips



Chilli Thrips



Chilli Thrips- rose



Chilli Thrips-rose



Chilli Thrips-rose



Chilli Thrips-rose



Chilli Thrips-rose





Ligustrum



Pittosporum



Chilli Thrips-pepper



Chilli Thrips-pepper



Chilli Thrips-impatiens



Chilli Thrips - *lisanthus*



Chilli Thrips - *lisanthus*



Chilli Thrips - *lisanthus*



Chilli Thrips-impatiens



Chilli Thrips - *lisanthus*



Chilli Thrips - *Antirrhinum majus* (snapdragon)



Chilli Thrips - zinnia





IVY



IVY



IVY



Scouting



Western flower thrips trapped on a yellow sticky card

**Tapping western flower
thrips onto white paper**





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Management

Cultural



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Management

Chemical

Monitoring and when to treat

Chemical

- abamectin
- acephate
- azadirachtin
- chlorfenapyr
- chlorpyrifos
- cyfluthrin
- diazinon
- dinotefuran
- fluvalinate
- lambda-cyhalthrin
- imidacloprid
- methiocarb
- novaluron
- oils
- pyridaben
- soaps
- spinosad

Management

Biological

Why Biological Control?

- To fulfill the requirements of an Organic Herb Production Grant.
- Chilli Thrips was attacking the basil, mint, and hot peppers.
- Chemicals caused significant phytotoxicity and impacted the other biological controls.

Materials and Methods:

Chilly Chili Pepper



davesgarden.com

Amblyseius swirskii



(© Bert Mans)

KOPPERT
BIOLOGICAL SYSTEMS

03420040A2B4E
WEEK 45

SWIRSKI-MITE PLUS

SWIRSKI-MITE PLUS

SWIRSKI-MITE PLUS

SWIRSKI-MITE PLUS



A sachet contains bran, *Carpoglyphus lactis* (Dried Fruit Mite or Sugar Mite) and the predatory mite *A. swirskii*.



Material and Methods:

- **Chilly Chili peppers were grown from seeds. When plants reached a height of 10-15 cm they were transplanted into Vergro amended soil and allowed to acclimate in a greenhouse for 3 days prior to being placed in a study.**
- **Each study consisted of isolating individual plants on trays in water moats to reduce the potential for predatory mites moving between treatments.**



Material and Methods:

- This study consisted of isolating five plants on each isolation unit. Eight isolation units were established, four for each treatment.
- Two treatments were established:
 - Control: no predatory mites
 - One Sachet per 5 plants for the duration of the study. The sachet was placed on one plant in the group of 5.

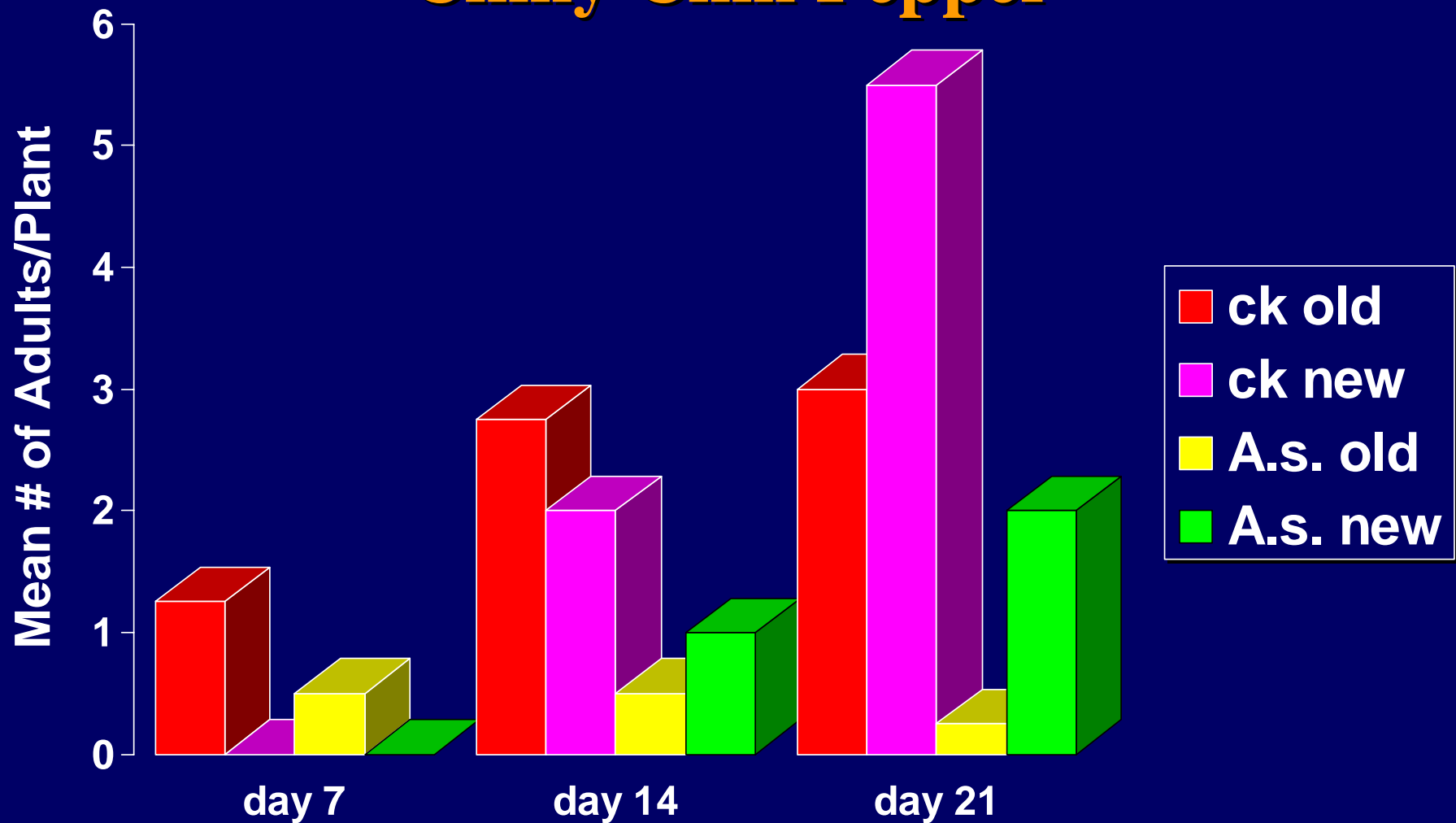
Material and Methods:

Three new leaves and 3 old leaves were marked on each plant. On days 7, 14 and 21 after treatment the number of immature and adult thrips was counted using a dissecting microscope.

Study 1

Control of Chilli Thrips

Chilly Chili Pepper



N=20

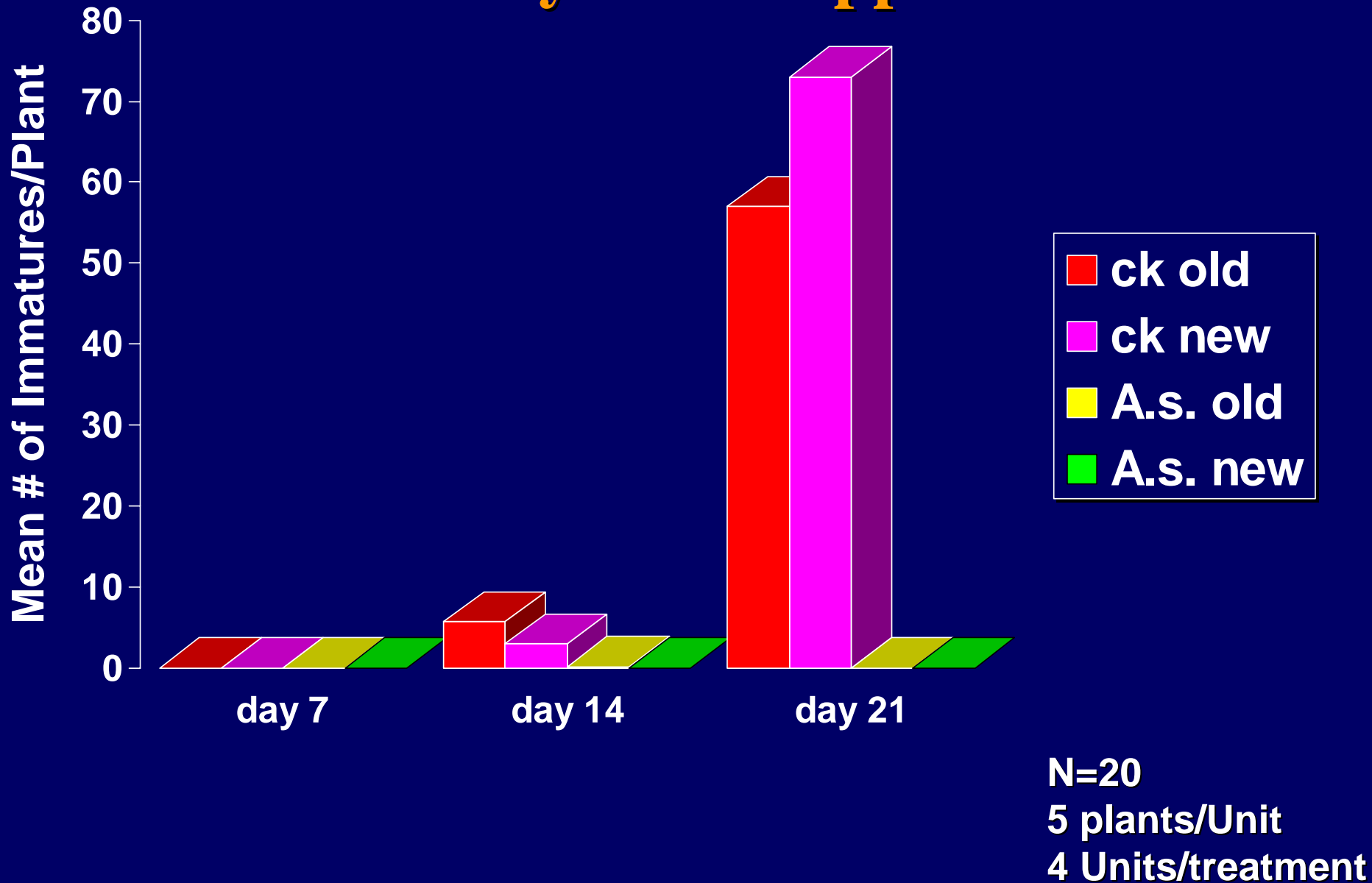
5 plants/Unit

4 Units/treatment

Study 1

Control of Chilli Thrips

Chilly Chili Pepper



Material and Methods:

- Twenty isolation units, with one plant per unit, were established on a raised bench within an infested greenhouse.
- Four treatments were established:
 - Control: no predatory mites
 - 2 A.S.: Two adult female predators were added to each plant weekly
 - 3 A.S.: Three predators per plant weekly
 - Sachet: One sachet was added to each plant for 72 h

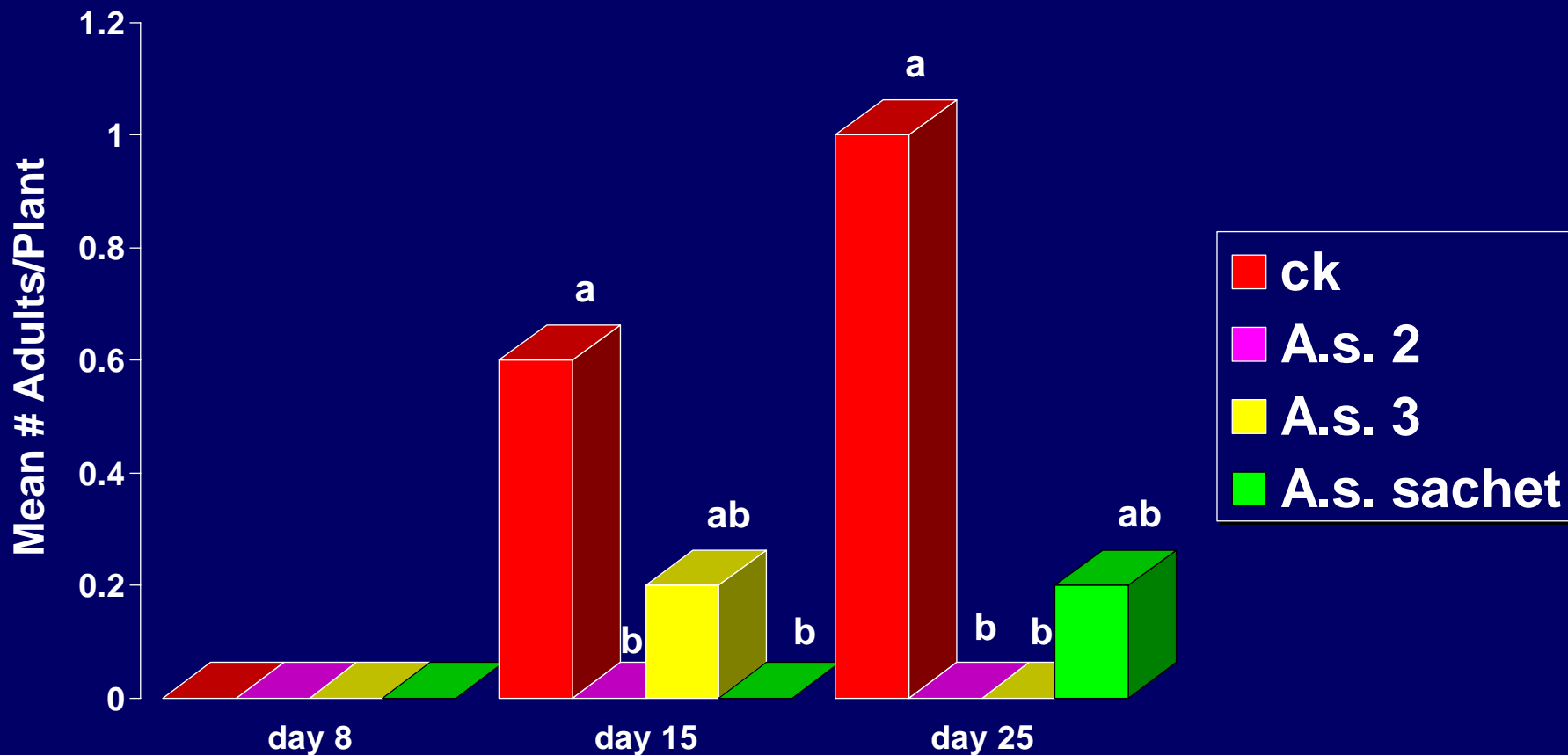
Material and Methods:

Three leaves were marked on each plant.

On days 8, 15 and 25 after treatment the number of immature thrips, adult thrips and *A. swirskii* was counted using a dissecting microscope.

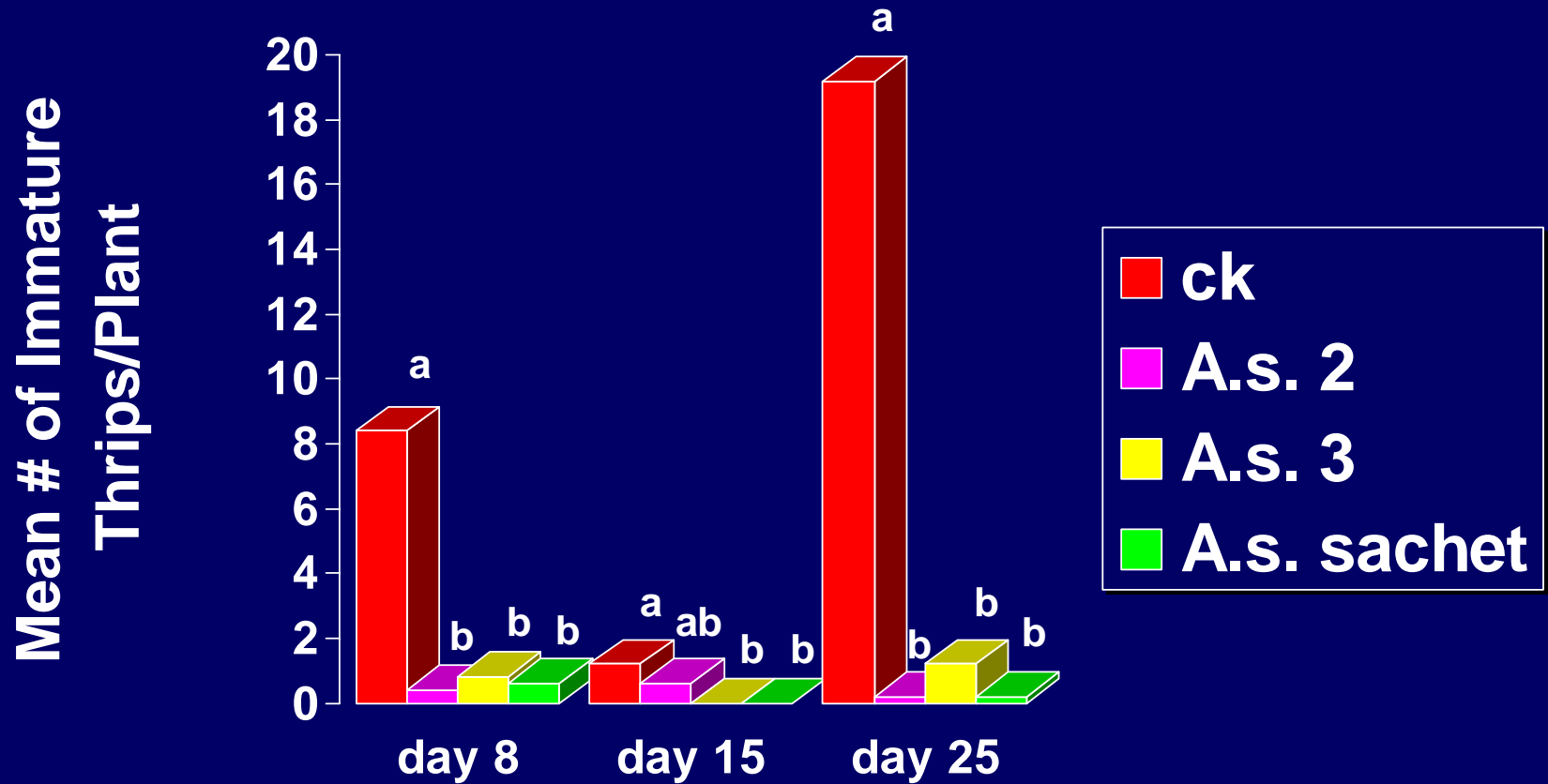
Control of Chilli Thrips

Chilly Chili Pepper



Control of Chilli Thrips

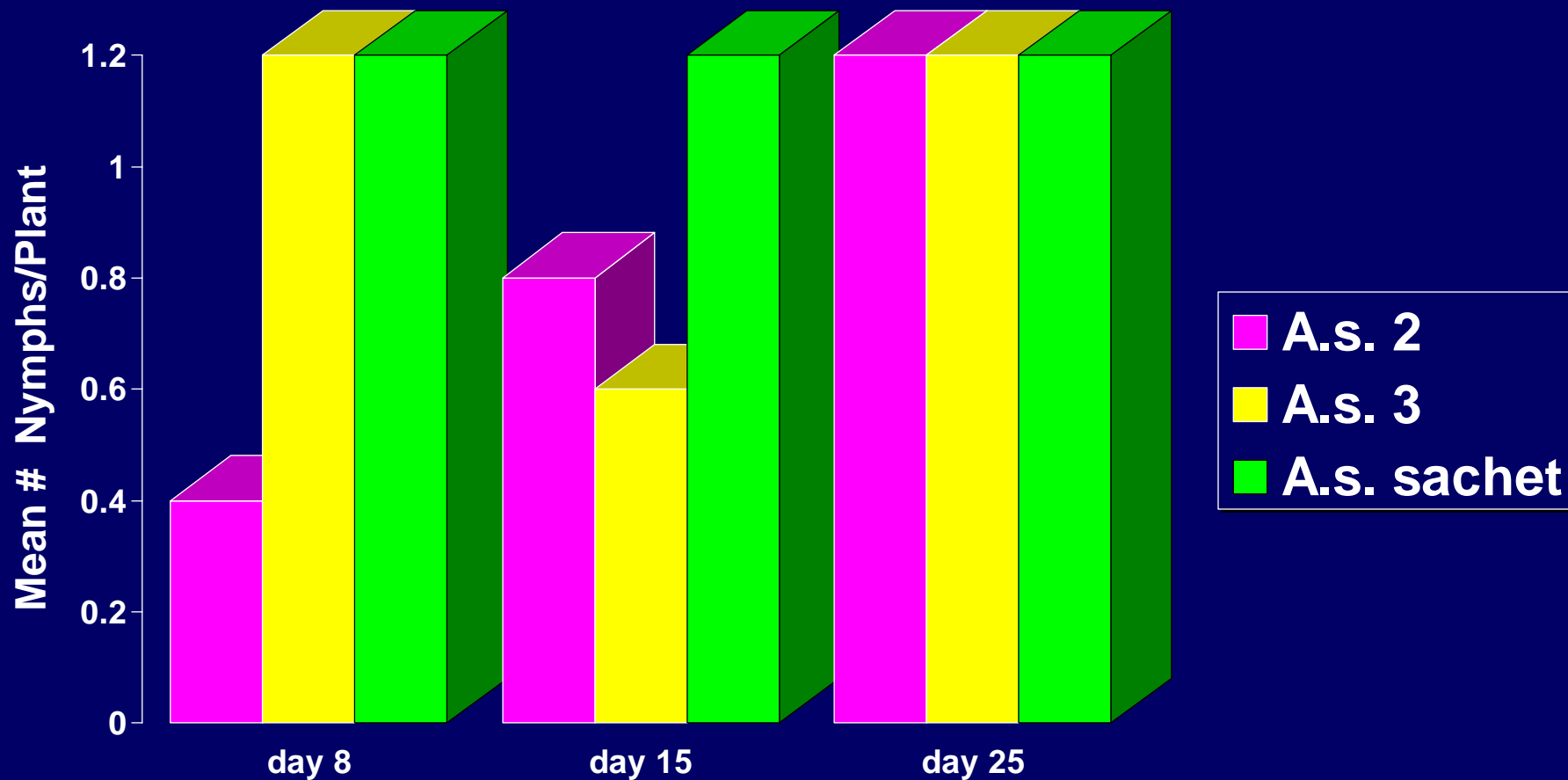
Chilly Chili Pepper



Study 2

Control of Chilli Thrips

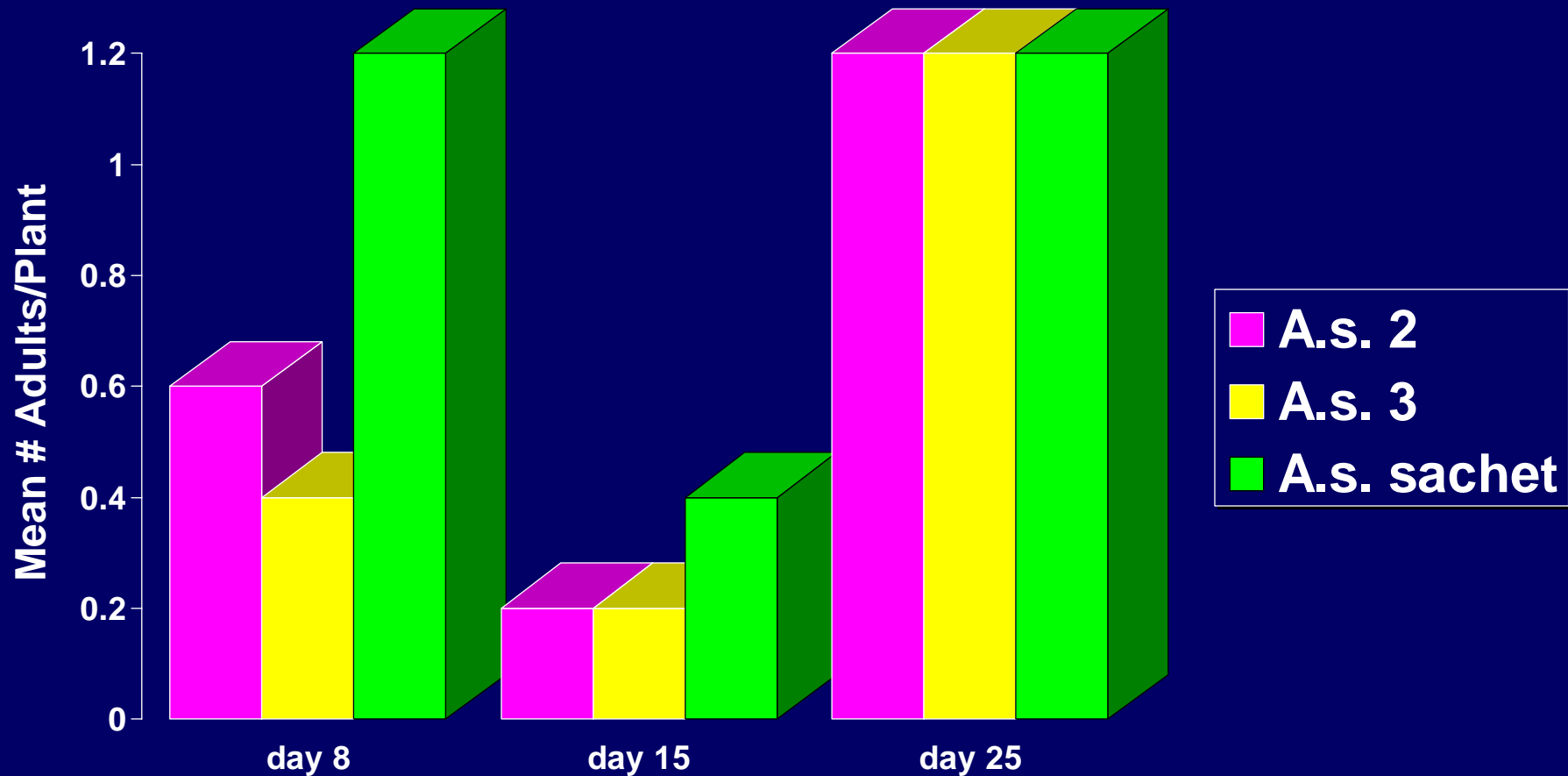
Chilly Chili Pepper



Amblyseius swirskii

Study 2

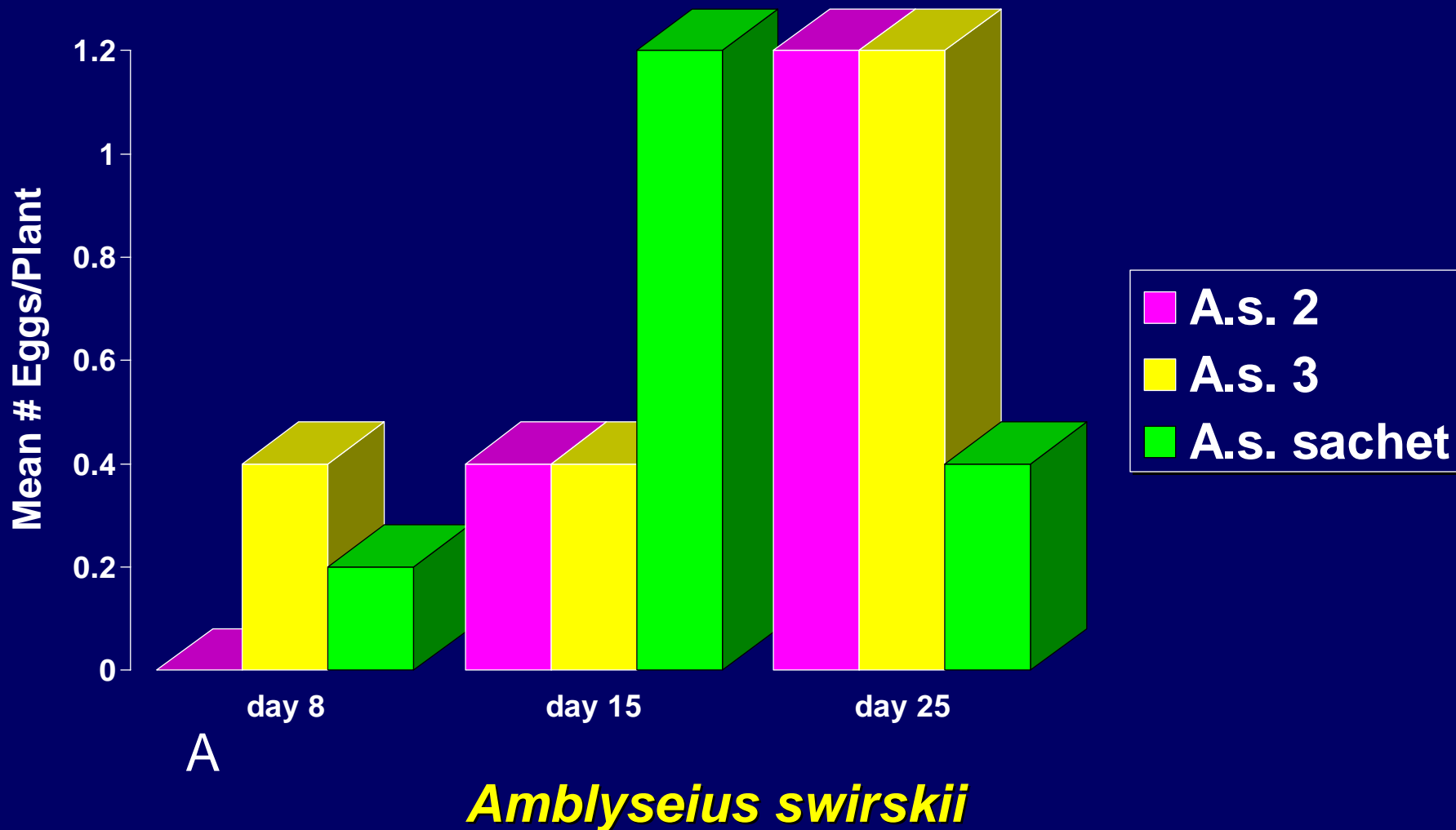
Control of Chilli Thrips Chilly Chili Pepper



Amblyseius swirskii

Study 2

Control of Chilli Thrips Chilly Chili Pepper



Conclusions:

The use of this particular predatory mite shows significant promise as a preventative treatment for this thrips pest.

This predatory mite has shown a similar ability to control whiteflies (*Bemisia tabaci*) and broad mite (*Polyphagotarsonemus latus*). Both of these pests are significant pests of many ornamental plants that are attacked by Chilli thrips.

The End