



Recent Innovations In Insect Control



Modern Chemical Era

ORGANOCHLORINES

DDT, endosulfan

1940

ORGANOPHOSPHATES

phosdrin, dimethoate

1946

CARBAMATES

Sevin, Lannate

1956

FORMAMIDINES

Fundal, Galecron

1965

PYRETHROIDS

Ambush, Pounce

1972

Modern Chemical Era

- 1940-1990, 6 major classes of chemistry
- Since 1992:

CHLORNICTINYLS

Admire, Provado

PYRROLES

Alert

PYRIDINE IGR

Knack

THIADIAZINE IGR

Applaud, Courier

SPINOSYNS

Success

TRANSGENIC COTTON

Bollguard

DIACYLHYDRAZINE- IGR

Confirm, Intrepid

PYRIDINE AZOMETHIN

Fulfill

MACROCYCLIC LACTONE

Proclaim

OXADIAZINE

Avaunt, Steward



Routes of Activity

- Soil systemic
- Translaminar
- Ingestion / Contact
- Vapor/ Inhalation

The Two Most Important Chemistries in Vegetables

Spinosyns



Chloronicotinyls



Worm Management In Desert Head Lettuce Pre- 1997



	Stand Establishment		Post-thinning to Pre-heading			Heading to Harvest		
	<i>Coty</i>	<i>2-4 lf</i>	<i>4-8 lf</i>	<i>9-14 lf</i>	<i>Pre-heading</i>	<i>Early Head</i>	<i>Head 2-4"</i>	<i>Head >4"</i>
Lannate								
Larvin								
Orthene Endosulfan								
Bt, Cryolite Pyrethroids								

- 1995- BAW resistance to Lannate was documented in Yuma and La Paz counties.



Worm Management In Desert Head Lettuce-2003

	Stand Establishment		Post-thinning to Pre-heading			Heading to Harvest		
	<i>Coty</i>	<i>2-4 lf</i>	<i>4-8 lf</i>	<i>9-14 lf</i>	<i>Pre-heading</i>	<i>Early Head</i>	<i>Head 2-4"</i>	<i>Head >4"</i>
Success								
Proclaim								
Avaunt								
Intrepid								
Confirm								
Lannate								
Larvin								
Orthene Endosulfan								

 Stand-alone application
 Tank-mix application



10 Years of Admire in The Desert

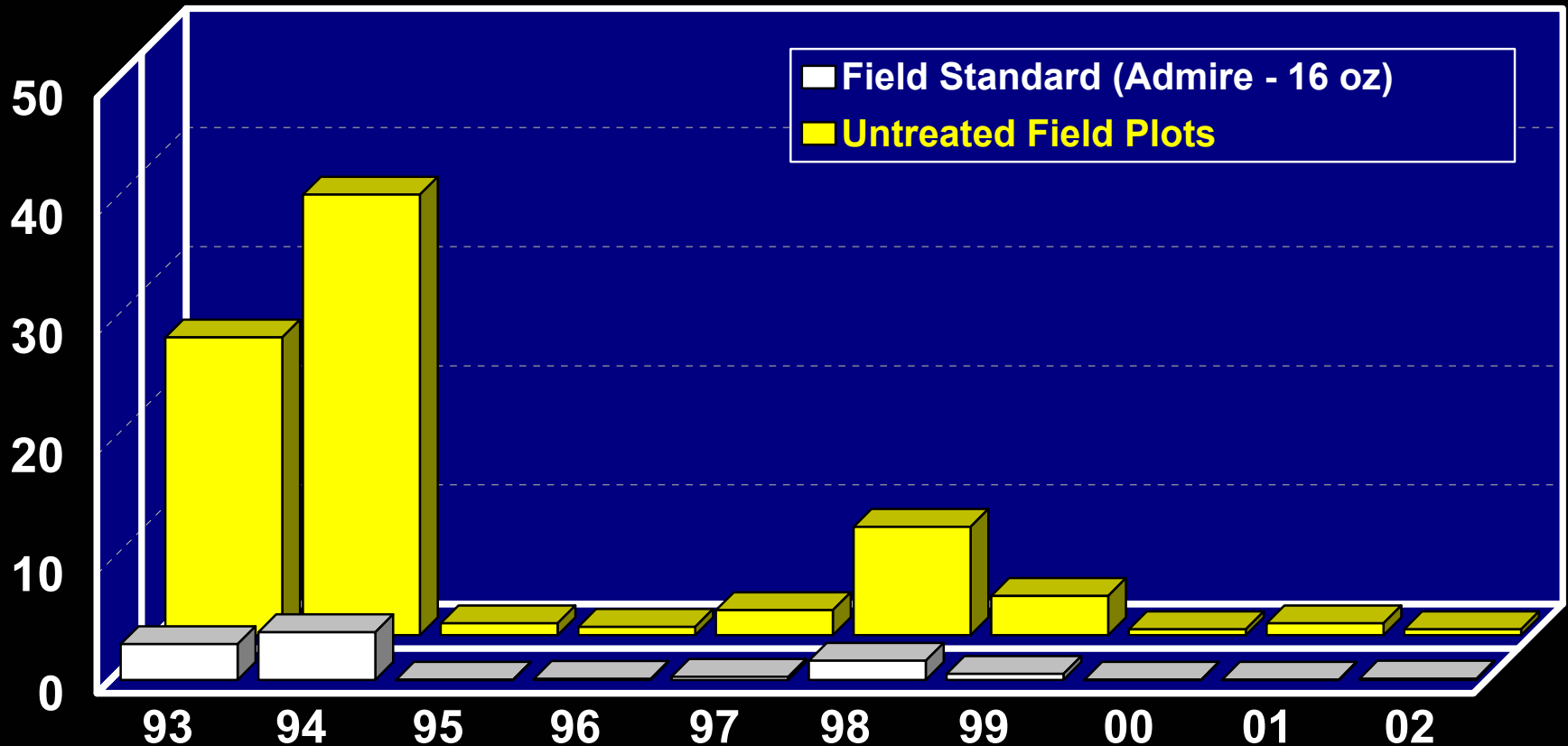


Sustained Field Performance of Admire in Commercial Head Lettuce

Yuma, Gila, & Dome Valleys

Whitefly nymphs / cm

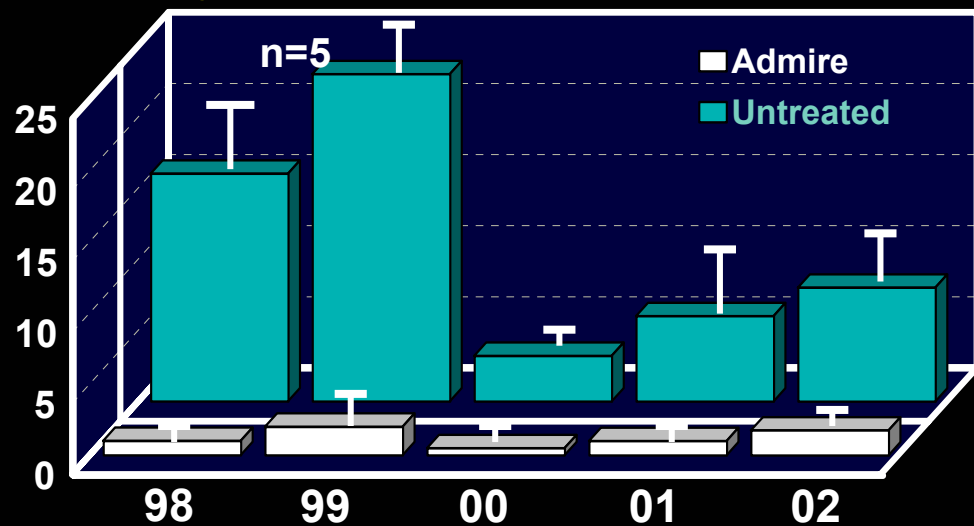
n = 5-8 fields



Fall Broccoli



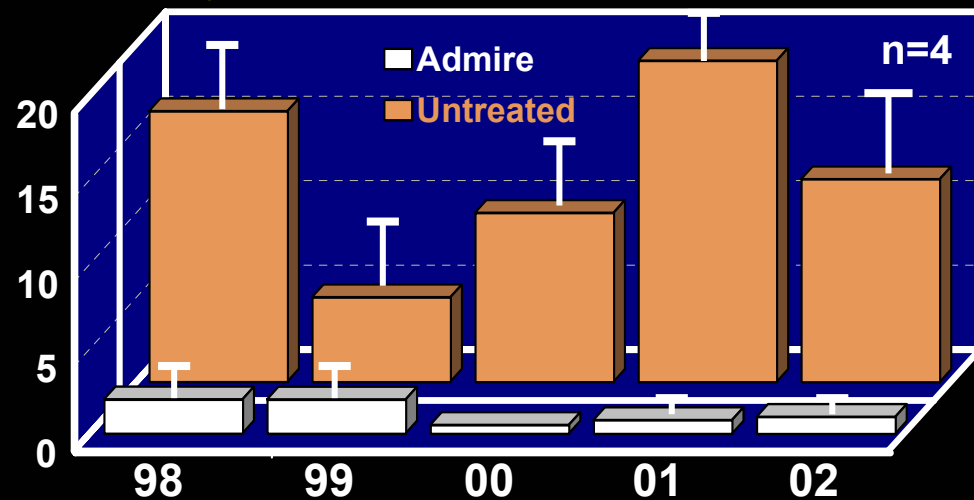
Nymphs / cm²



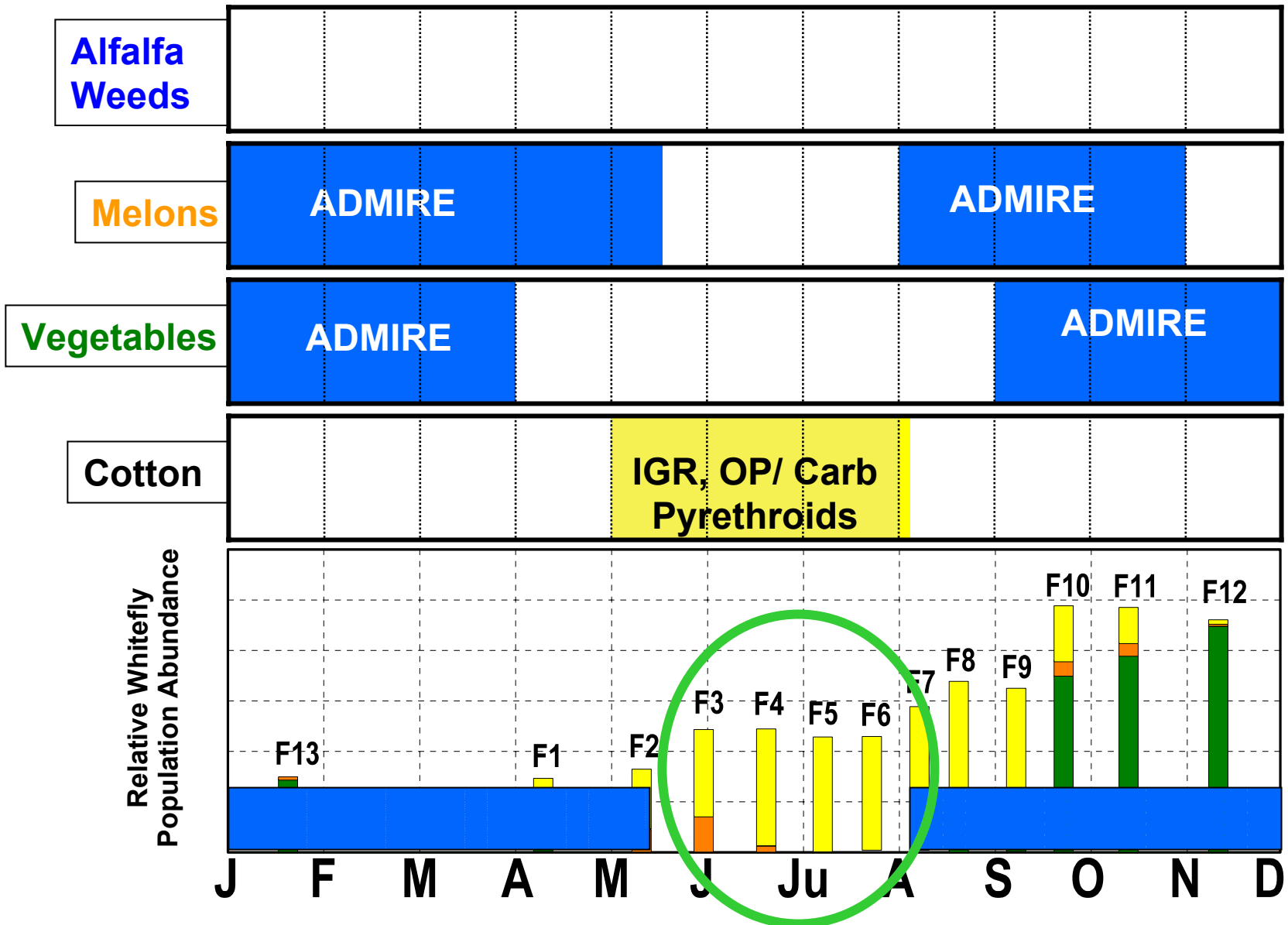
Fall Cantaloupes



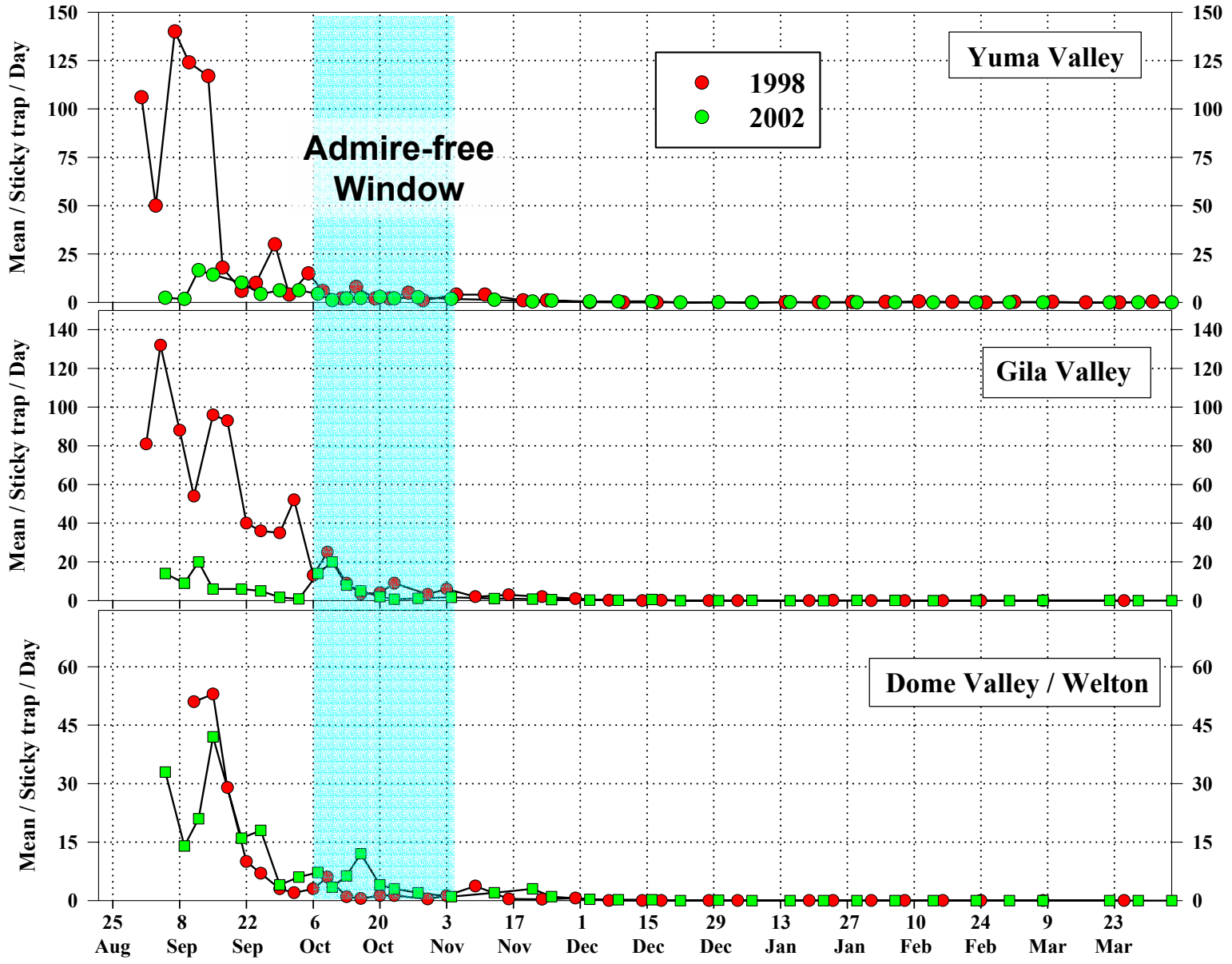
Nymphs / cm²



Sustained Whitefly Management in the Desert

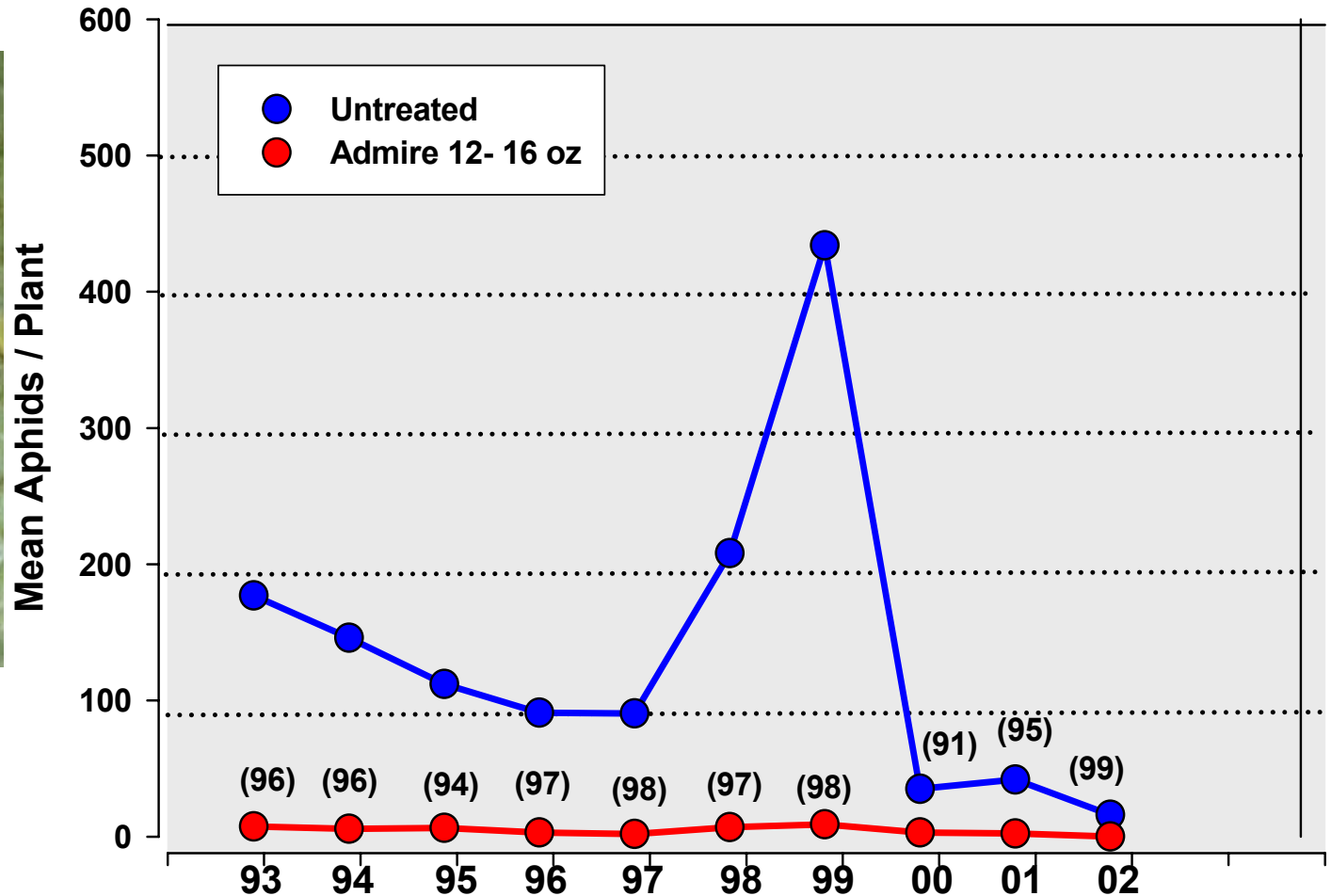


Whitefly Flight Activity - Yellow Sticky Trap Catches



Admire and Aphids in the Desert

Green Peach / Potato / *A. lactucae* Complex – Harvest Infestations

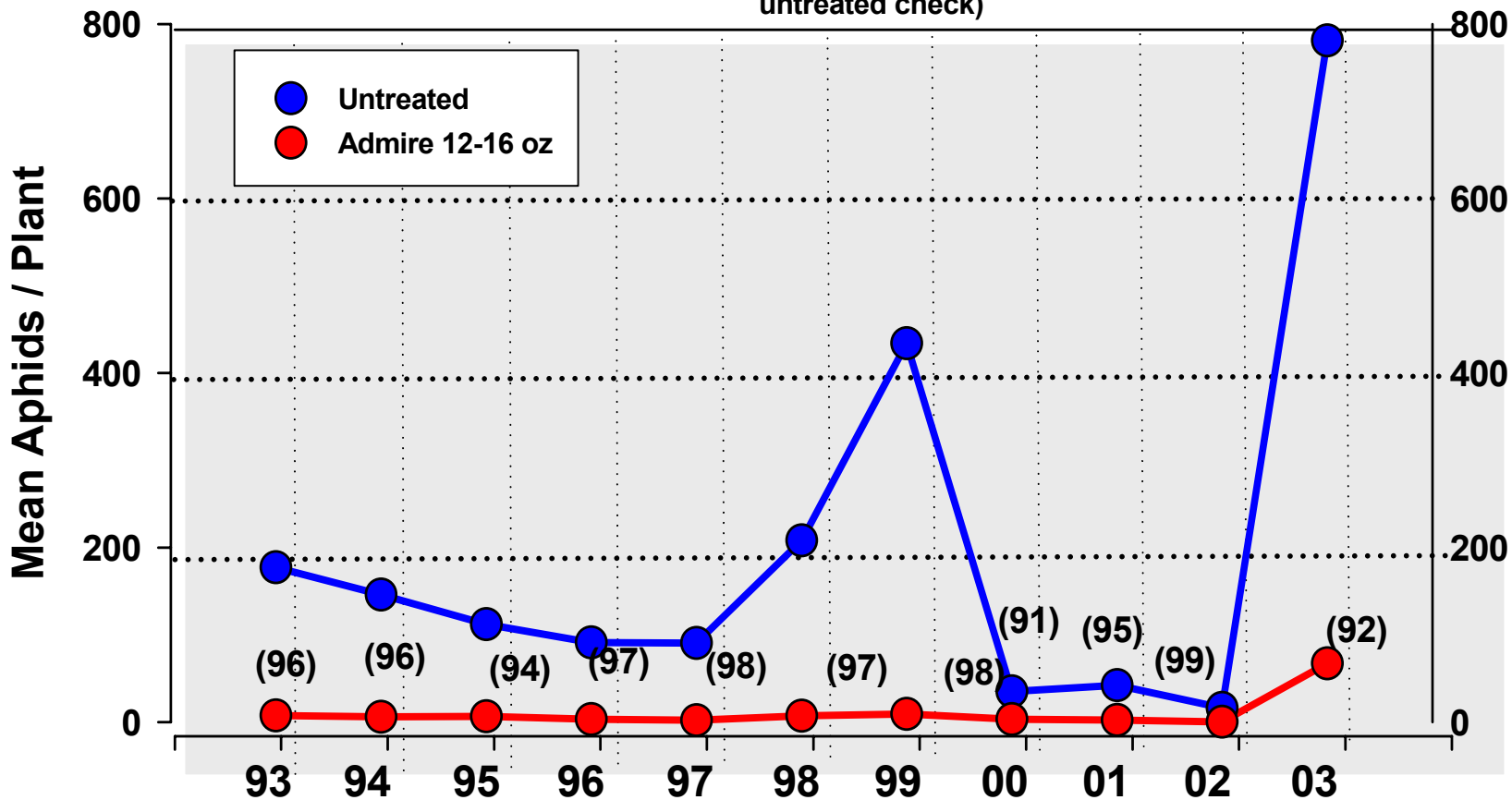


Admire and Aphids in the Desert

Total Aphid Complex

Harvest Densities

(% reduction compared with untreated check)



What happened in 2003 ?

- **Mild Winter – one of the warmest Januarys on record in Yuma.**
- **An increase winter / spring lettuce acreage not treated with Admire**
- **Emergence of the Foxglove aphid as a pest of lettuce**

Foxglove Aphid







Lettuce Aphid







**Green Peach
Aphid**

