

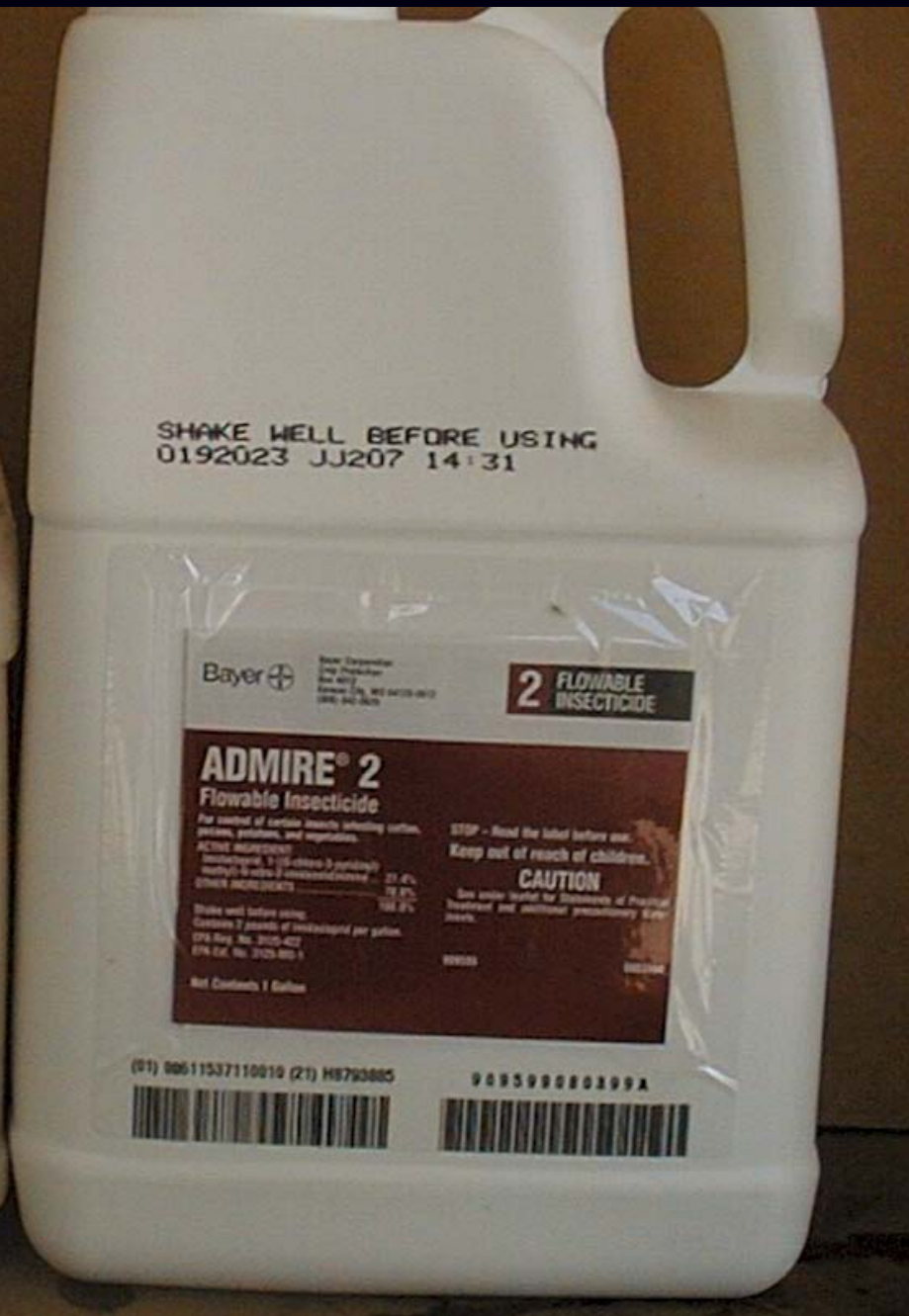


John C. Palumbo
Yuma Agricultural Center

10 Years of Admire In the Desert



- **Use Patterns**
- **The Past 10 years**
- **Looking Ahead**



Admire[®] (imidacloprid)

- Soil-applied, systemic compound that effectively controls sucking insects
- Novel mode of action –acts as a agonist by binding to post- synaptic Nicotinic receptors
- Flexible use patterns
- Selective activity

Admire

Most effective when:

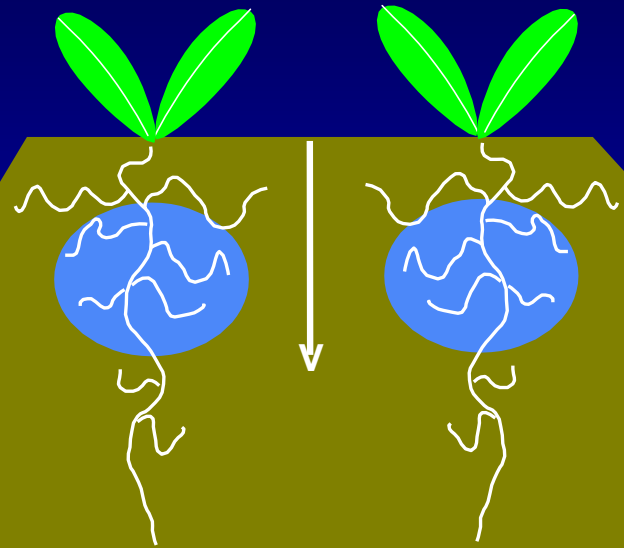
- * Applied at planting with label rates (12-20 oz)
- * Placed below the seed during shaping/ planting
- * Injected through drip after stand establishment





Soil Applications

- Chemical does not readily move in soil
- Placement is important



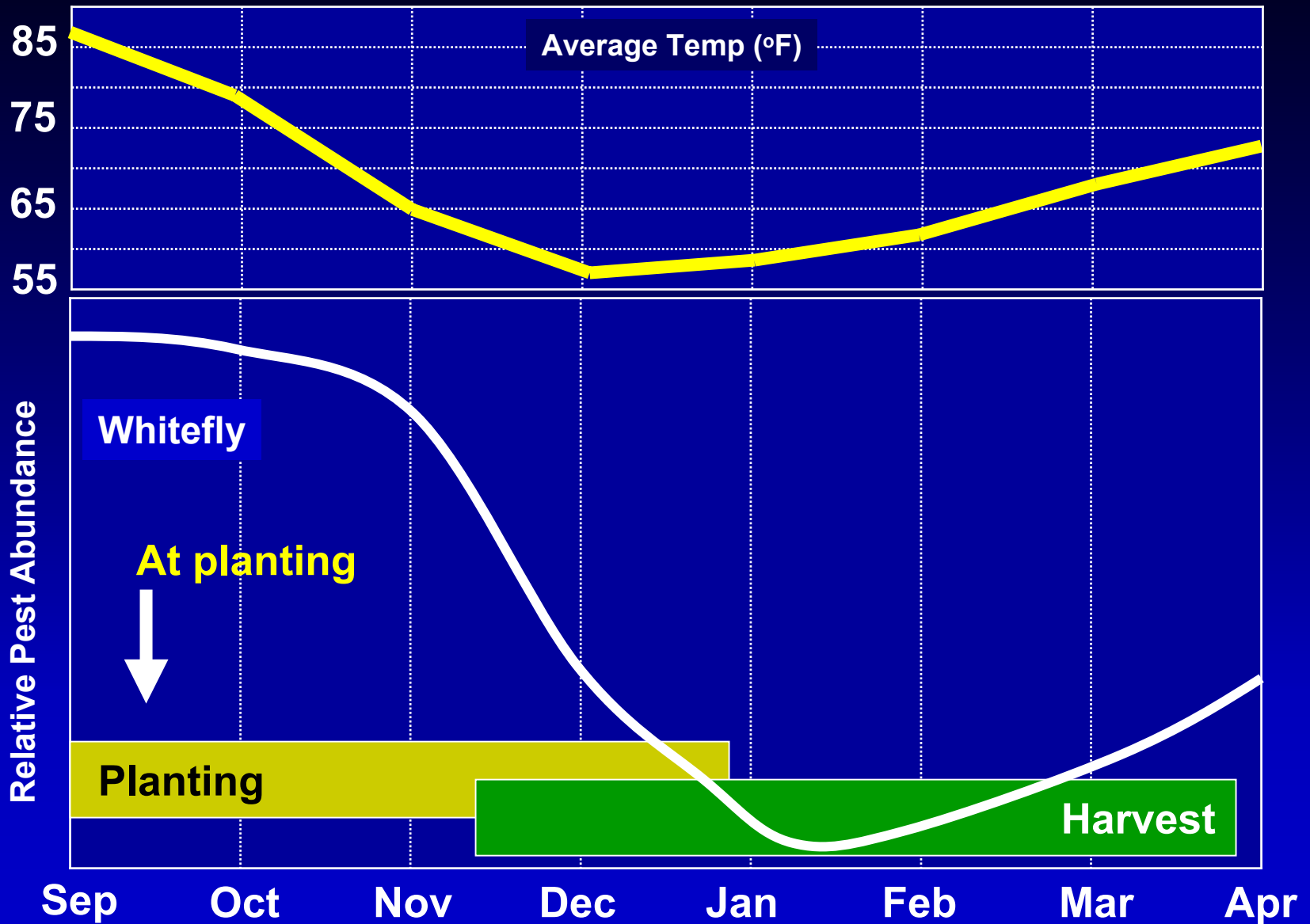
Key to performance:

- * Place Admire where it will stay in an aqueous solution within the root zone of the plant.



**Chemigation via
drip irrigation may
be the most optimal
application method**

Seasonal WF * Leafy Vegetables Dynamics



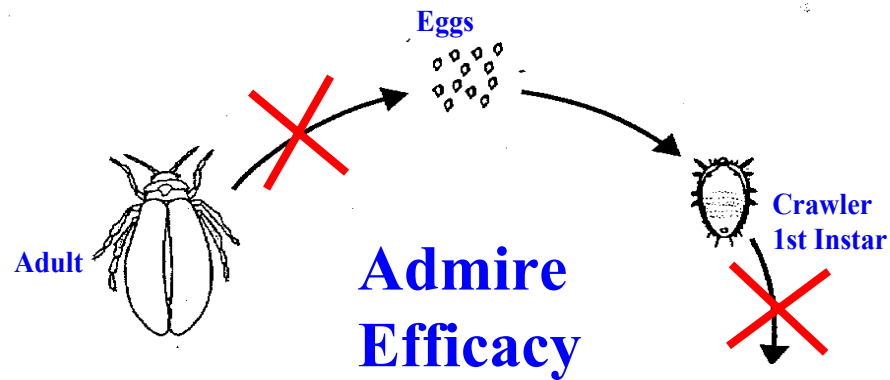
Admire

How does it work ?

Immatures

Eggs– Little to no effect

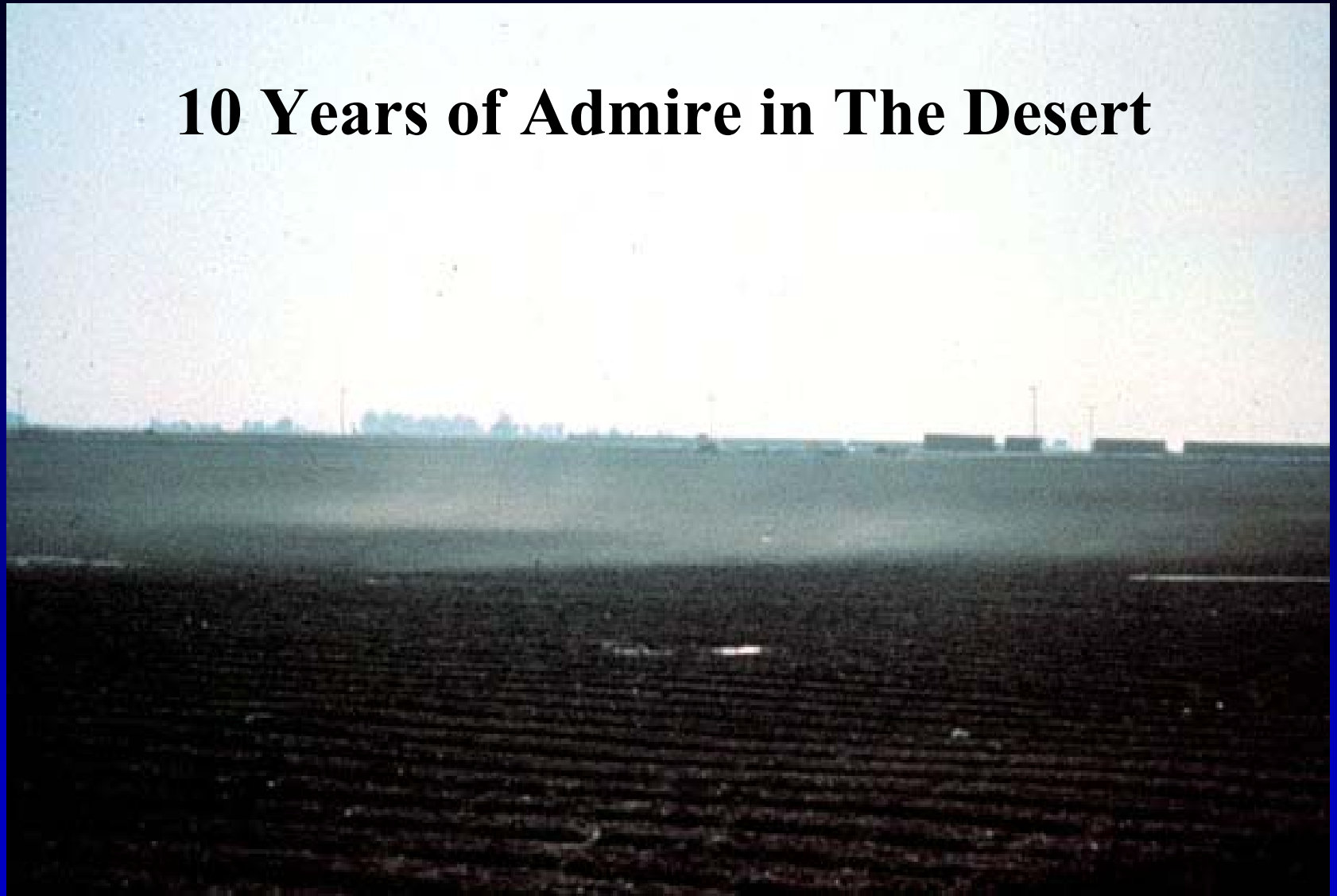
Crawlers -feed upon hatching and are highly susceptible





Whiteflies and Aphids in desert vegetable producing areas have not affected *Yield or Quality* since **Admire has been used on an areawide basis for the past 10 years.**

10 Years of Admire in The Desert





**Whitefly outbreaks
from 1991-1993
caused \$\$ millions
worth of damage
to vegetables and
melons in AZ/CA.**



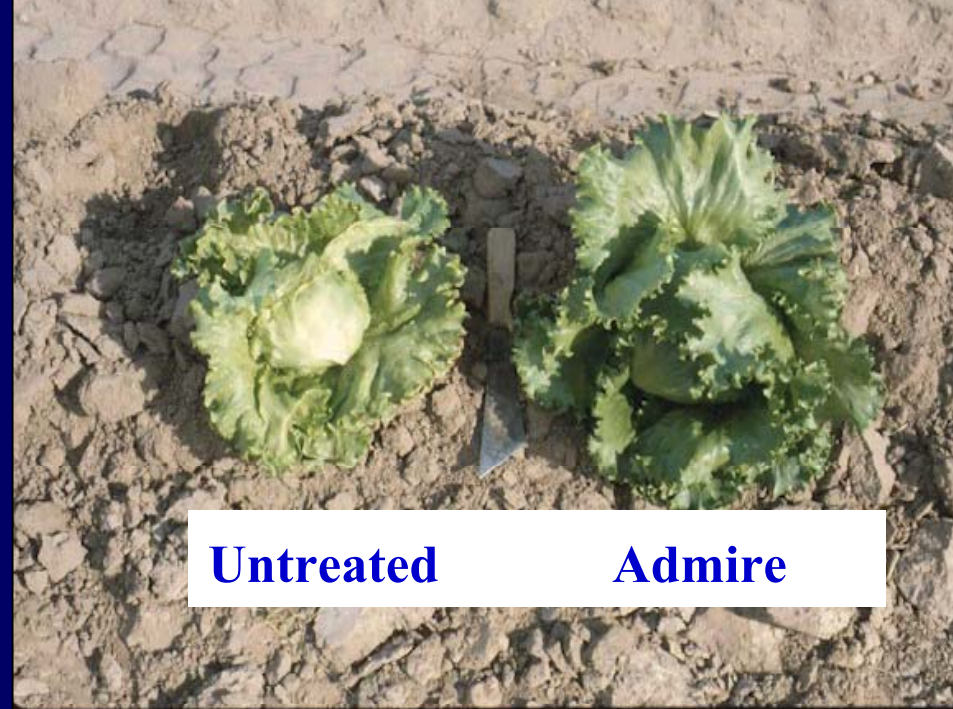
Admire

Sec 18 : 1993-1995

Sec 3: 1995

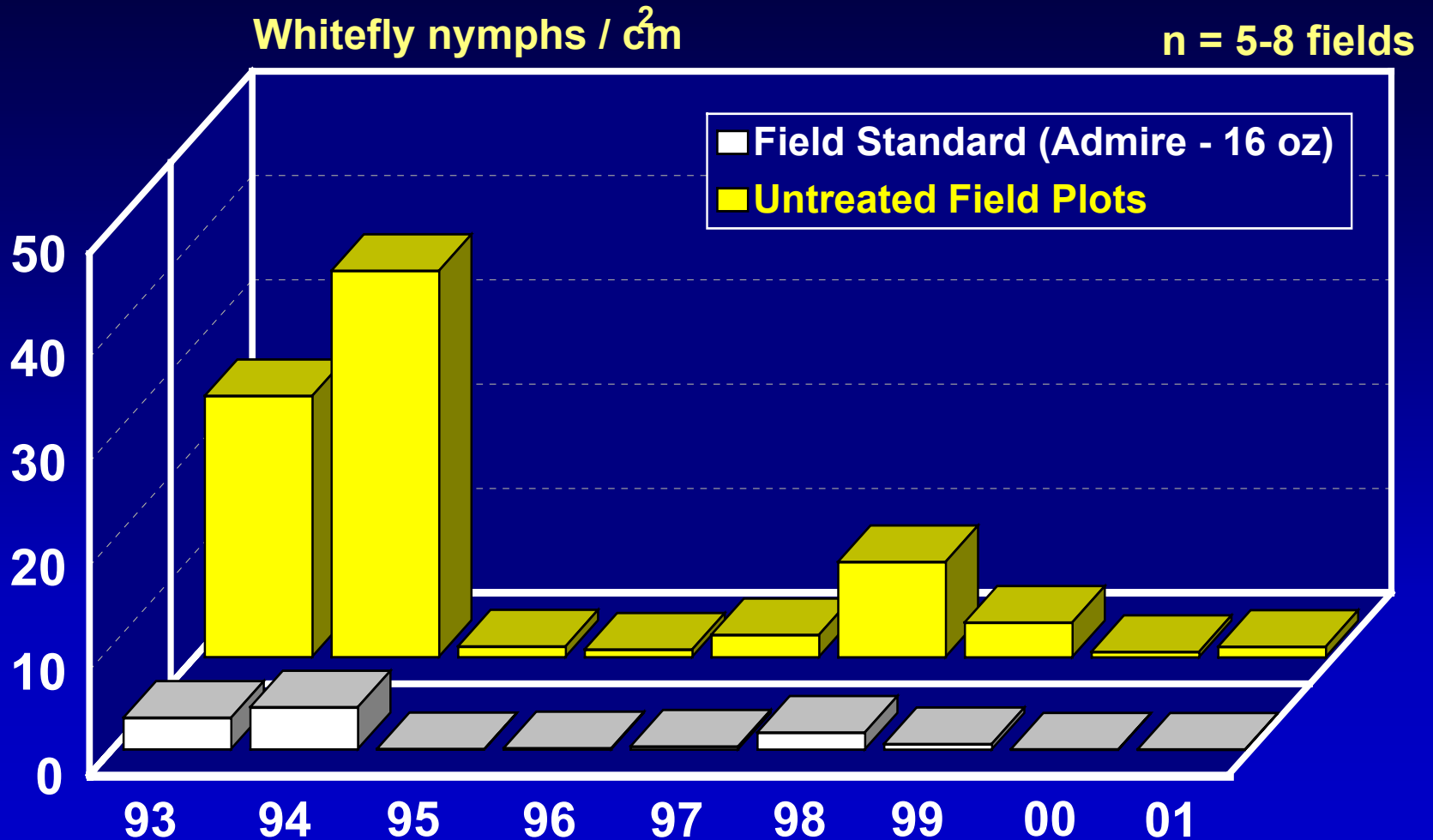
Whiteflies in the 90's

- **Reduced Yields**
 - leaf necrosis
 - fruit size
 - plant vigor
- **Reduced Quality**
 - Low sugars
 - sooty mold



Performance of Admire in Commercial Lettuce

Yuma, Gila, & Dome Valleys





Admire vs. Untreated (1993-2002)

Application methods

Admire Rates

Insect Evaluations

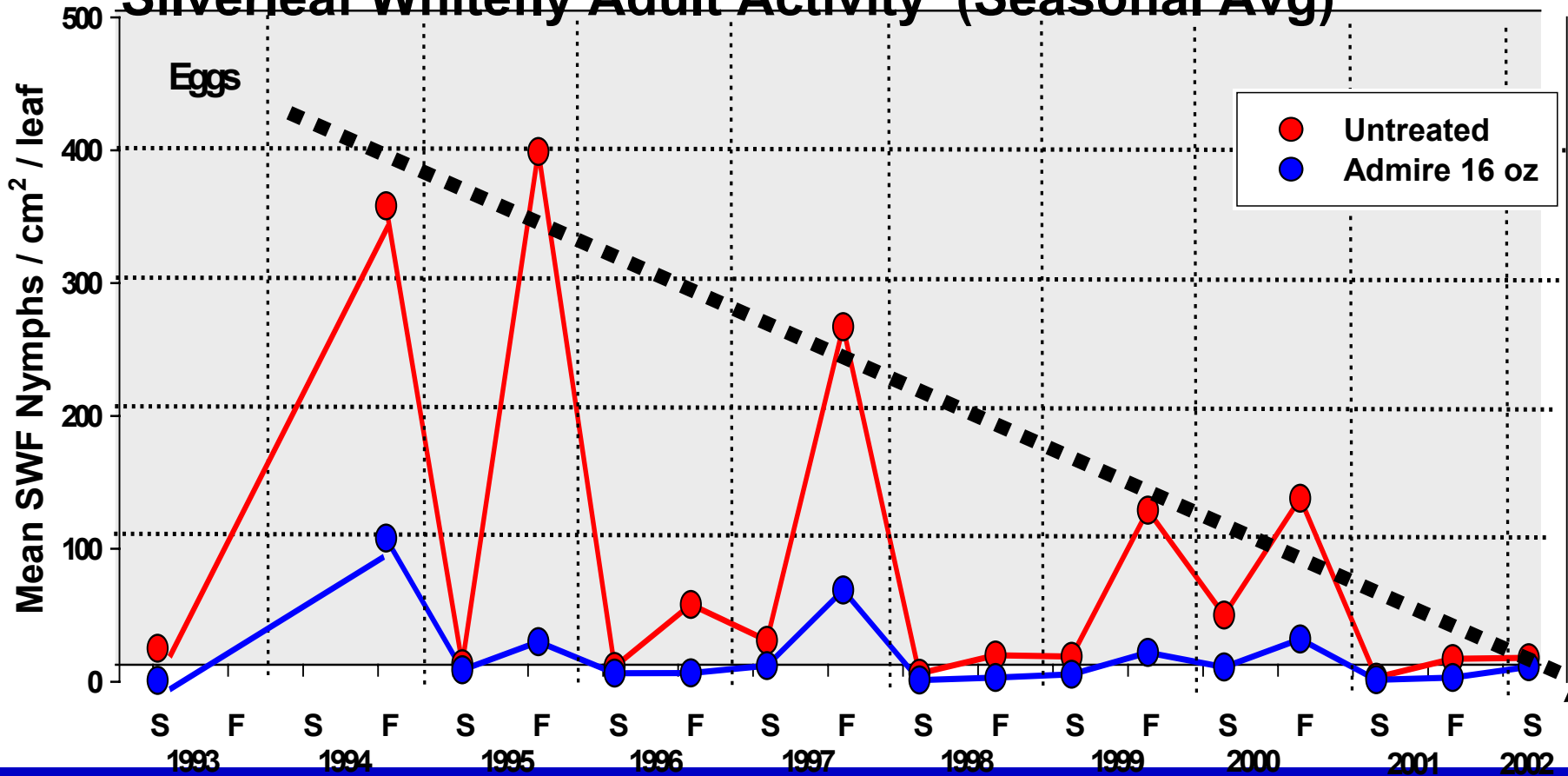


Same Each Year

10 Years of Admire in the Desert

Fall and Spring Melons

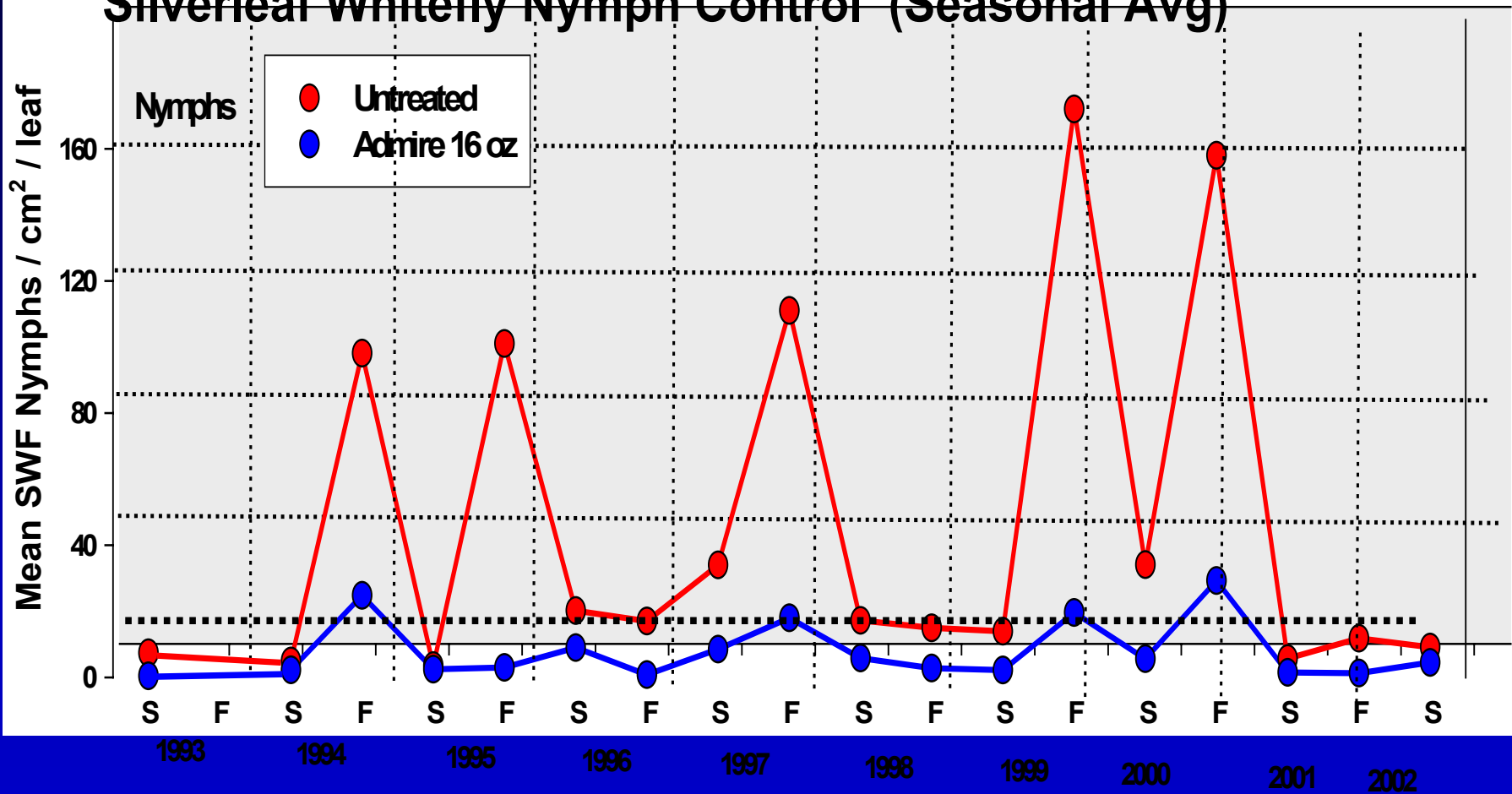
Silverleaf Whitefly Adult Activity (Seasonal Avg)



10 Years of Admire in the Desert

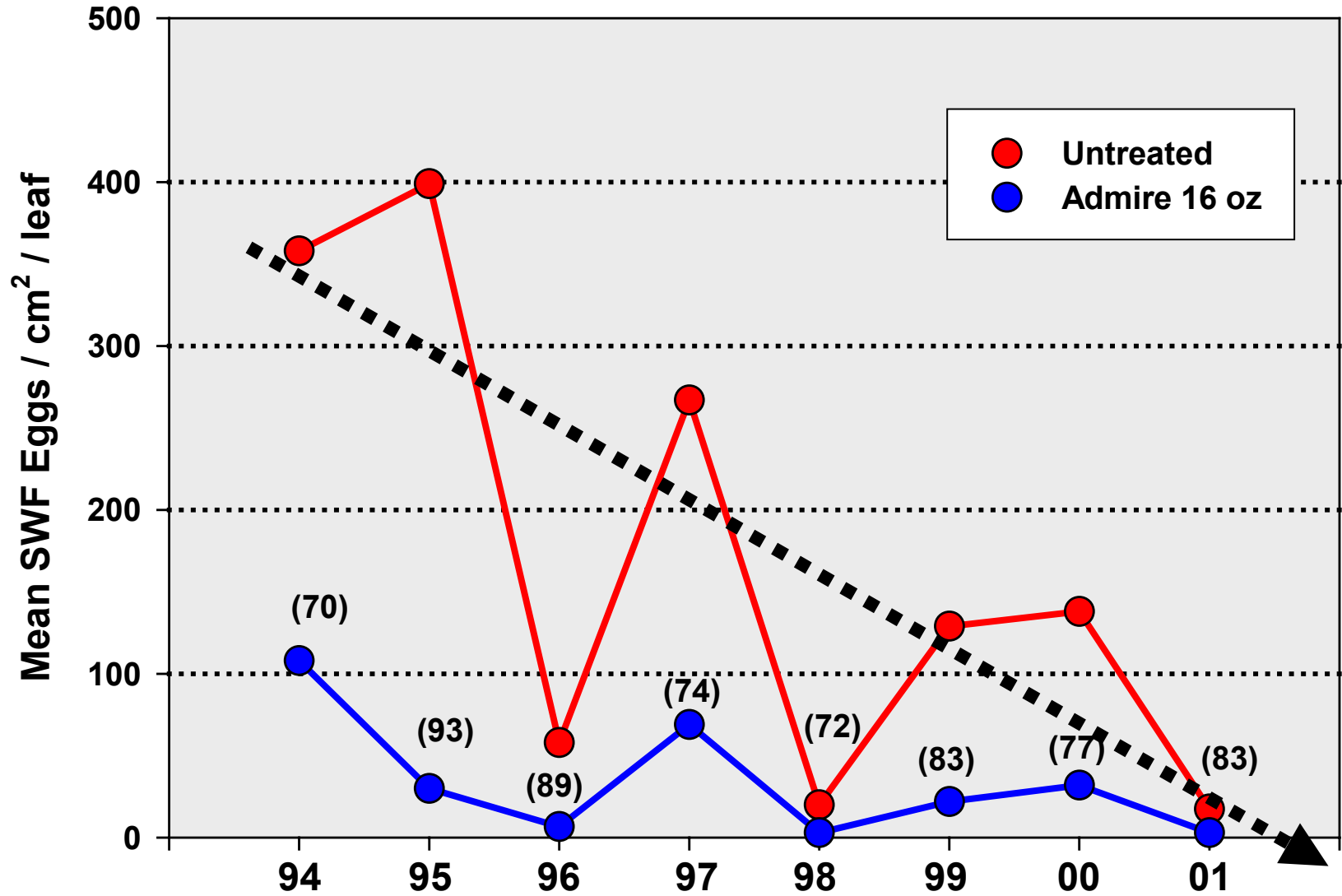
Fall and Spring Melons

Silverleaf Whitefly Nymph Control (Seasonal Avg)



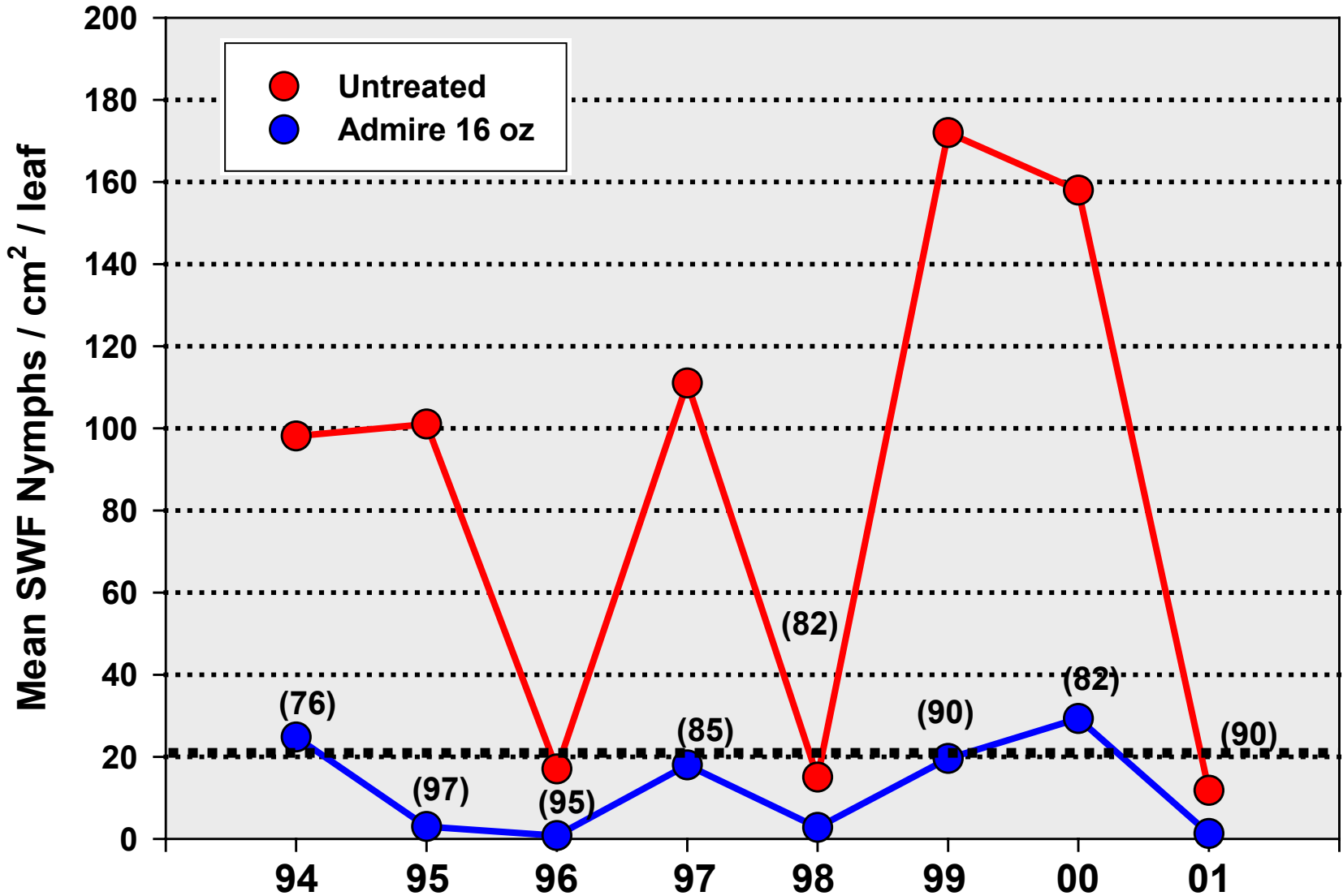
Whitefly Egg Densities on Fall Melons

(% reduction compared to untreated check)



Whitefly Nymph Densities on Fall Melons

(% reduction compared to untreated check)



Fall Melons 2001

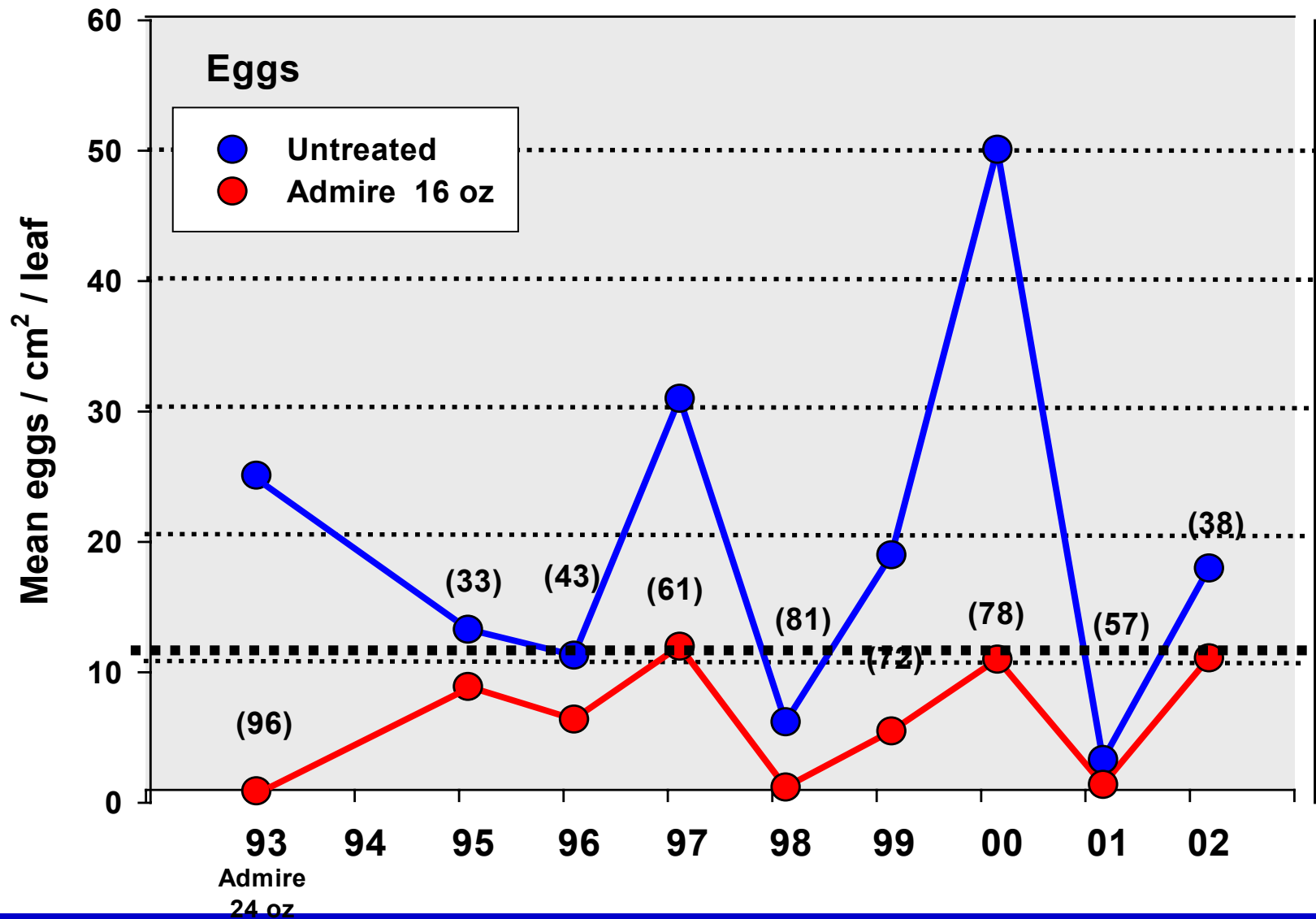
Pre-harvest (60 DAP)



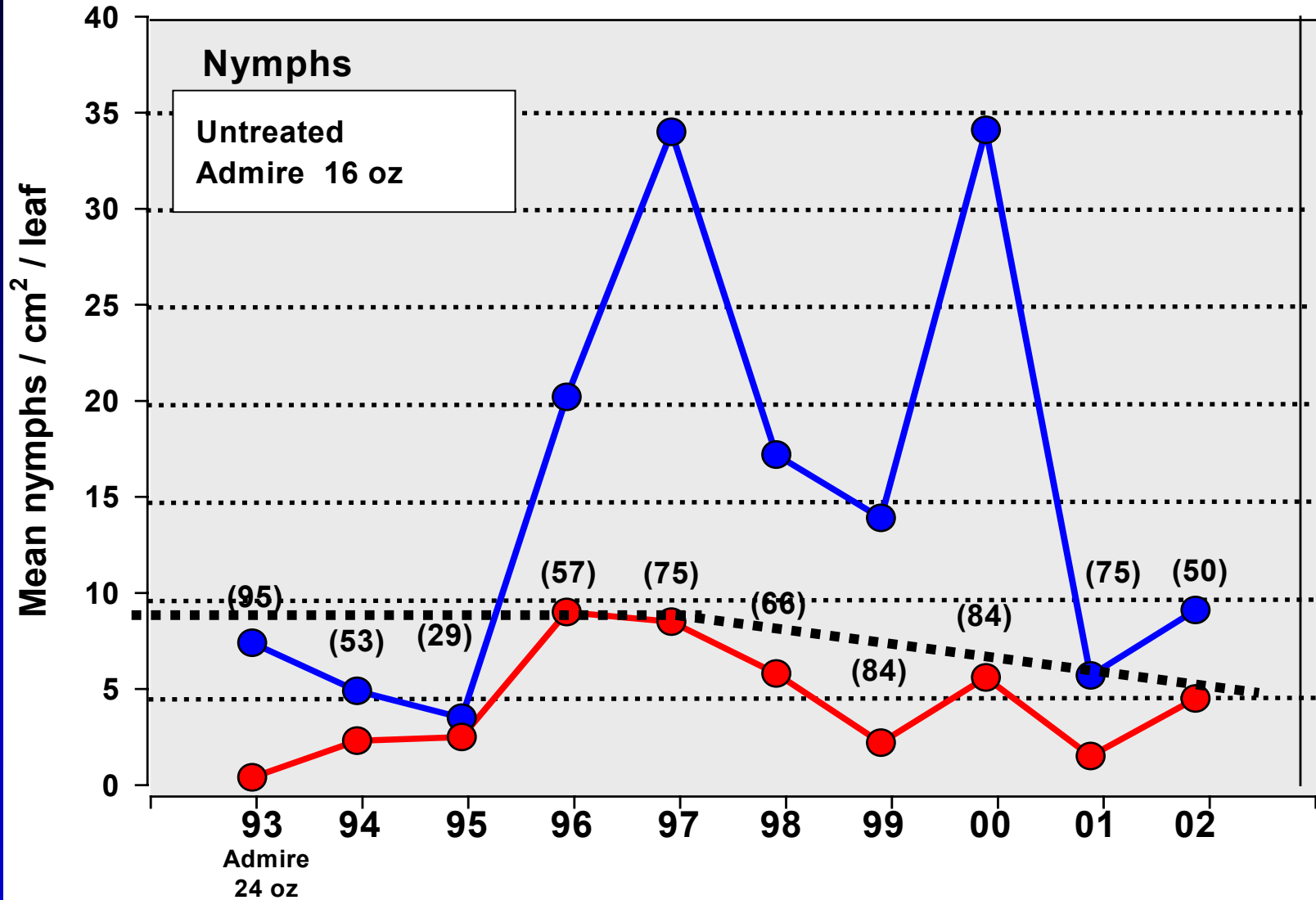
Admire

Untreated
check

Seasonal Whitefly Densities - Spring Melons



Seasonal Whitefly Densities - Spring Melons





Mosaic Viruses *ZYMV, WMV2, PRSV*

- * very low incidence in AZ / CA melons since 1993



Cucurbit Leaf Curl Virus

- * Geminivirus first reported in 1998
- * no economic damage reported in commercial fields

Admire

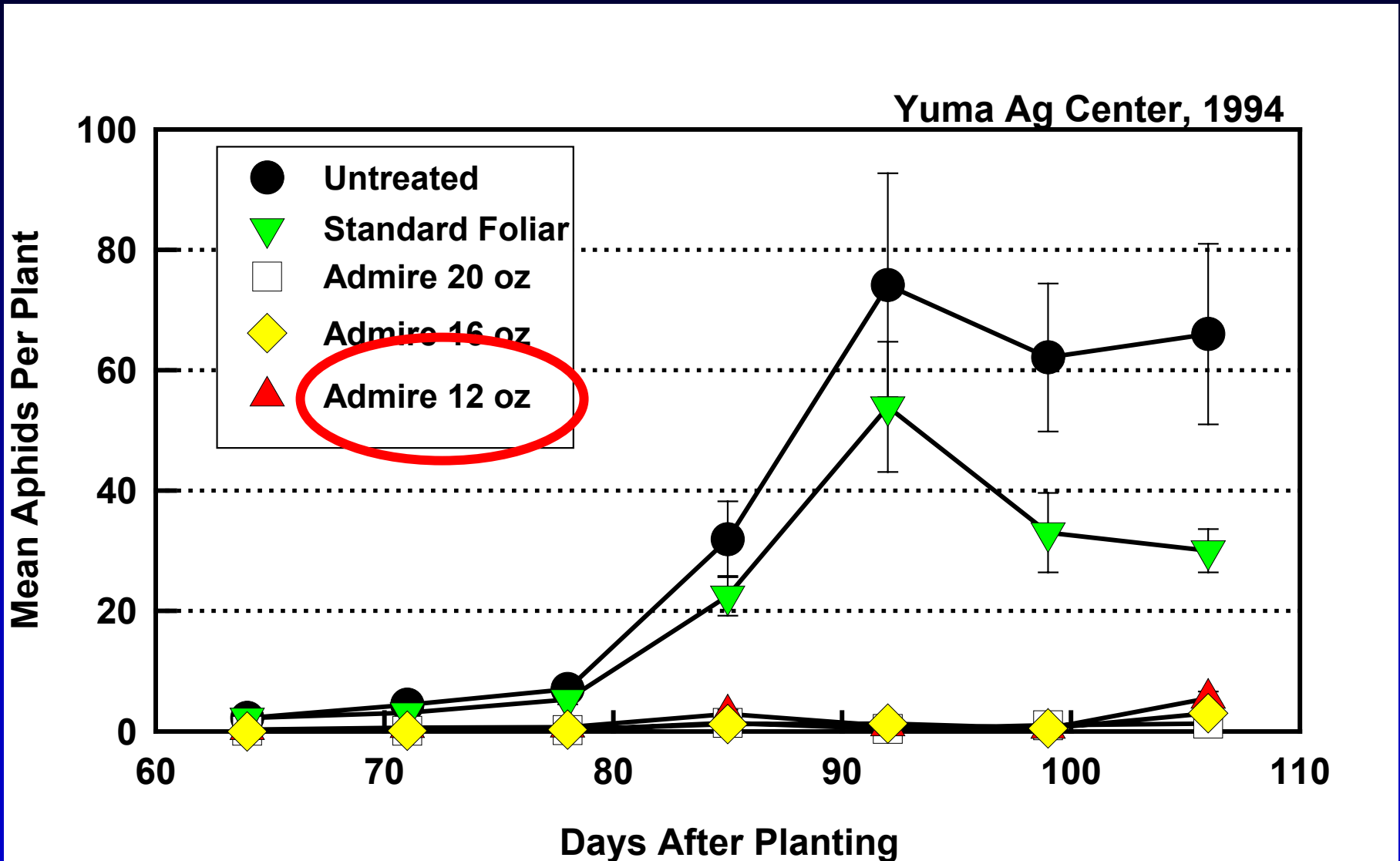
- Conservation of natural enemies
- Easy on pollinators



**The removal of Phosdrin[®] from the market
in 1993-1994 caused serious concern
for the future of aphid control in lettuce**



Season-long Control of Green Peach Aphid In Head Lettuce at Low Rates

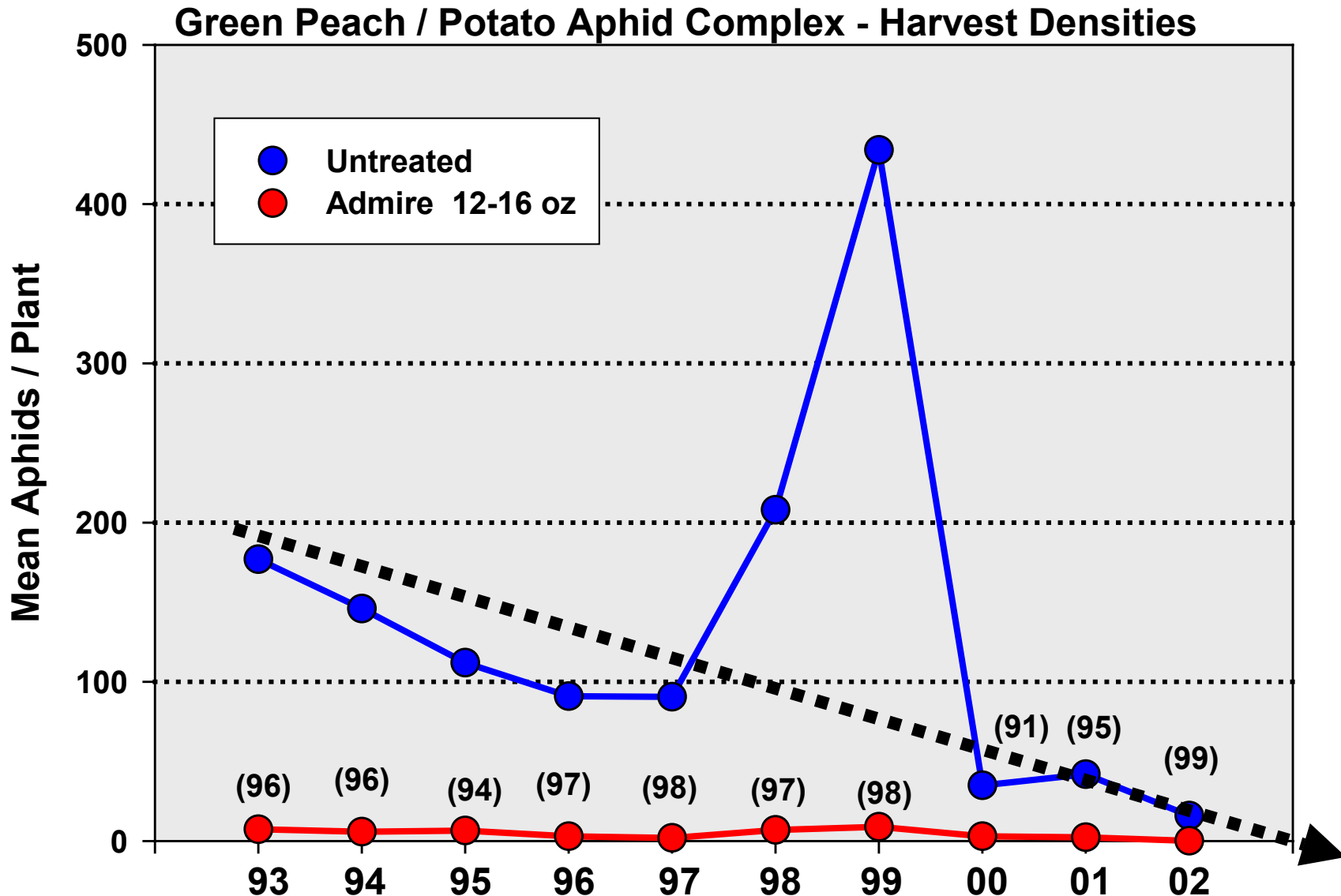


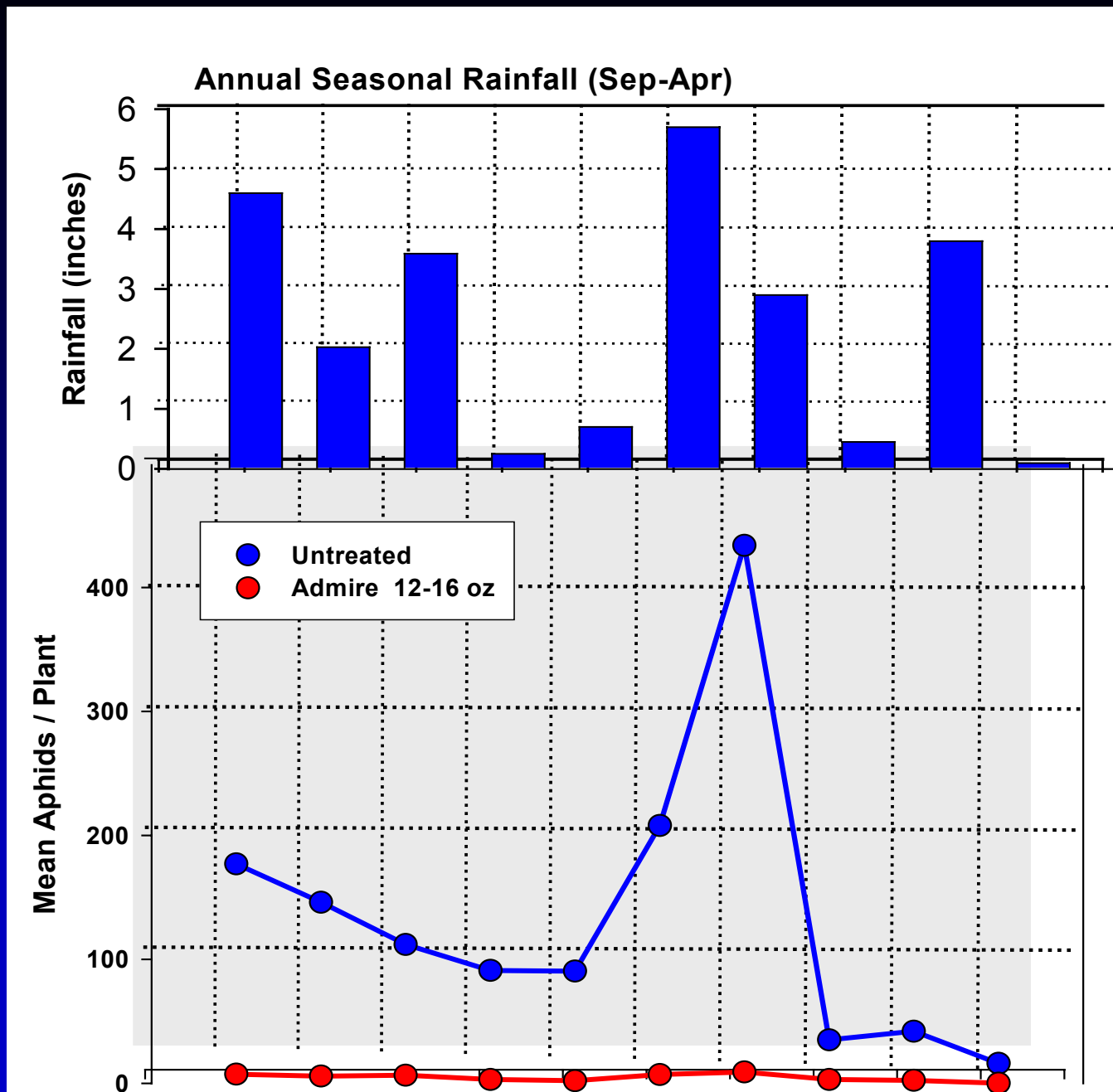
Head Lettuce

**Systemic translocation of Admire
in frame leaves in first 60 days
prevents GPA from significantly
colonizing lettuce plants**



10 Years of Admire in the Desert



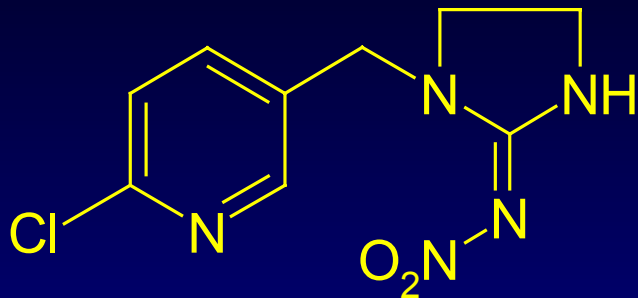


Sustained Admire Efficacy In Desert Crops - 10 Years

- **Large, untreated host crop acreages**
- **Diverse seasonal crops with alternating insecticide use patterns**
- **Population Dynamics**
- **Inherent Toxicity of soil-applied Imidacloprid**

So what's to be concerned about ?

Neonicotinoid Chemistry



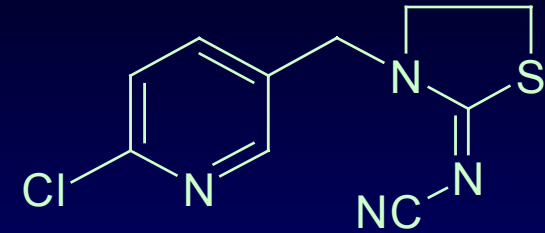
Imidacloprid

ADMIRE
PROVADO



Thiamethoxam

PLATINUM
ACTARA



Thiacloprid

CALYPSO



Acetamiprid

ASSAIL

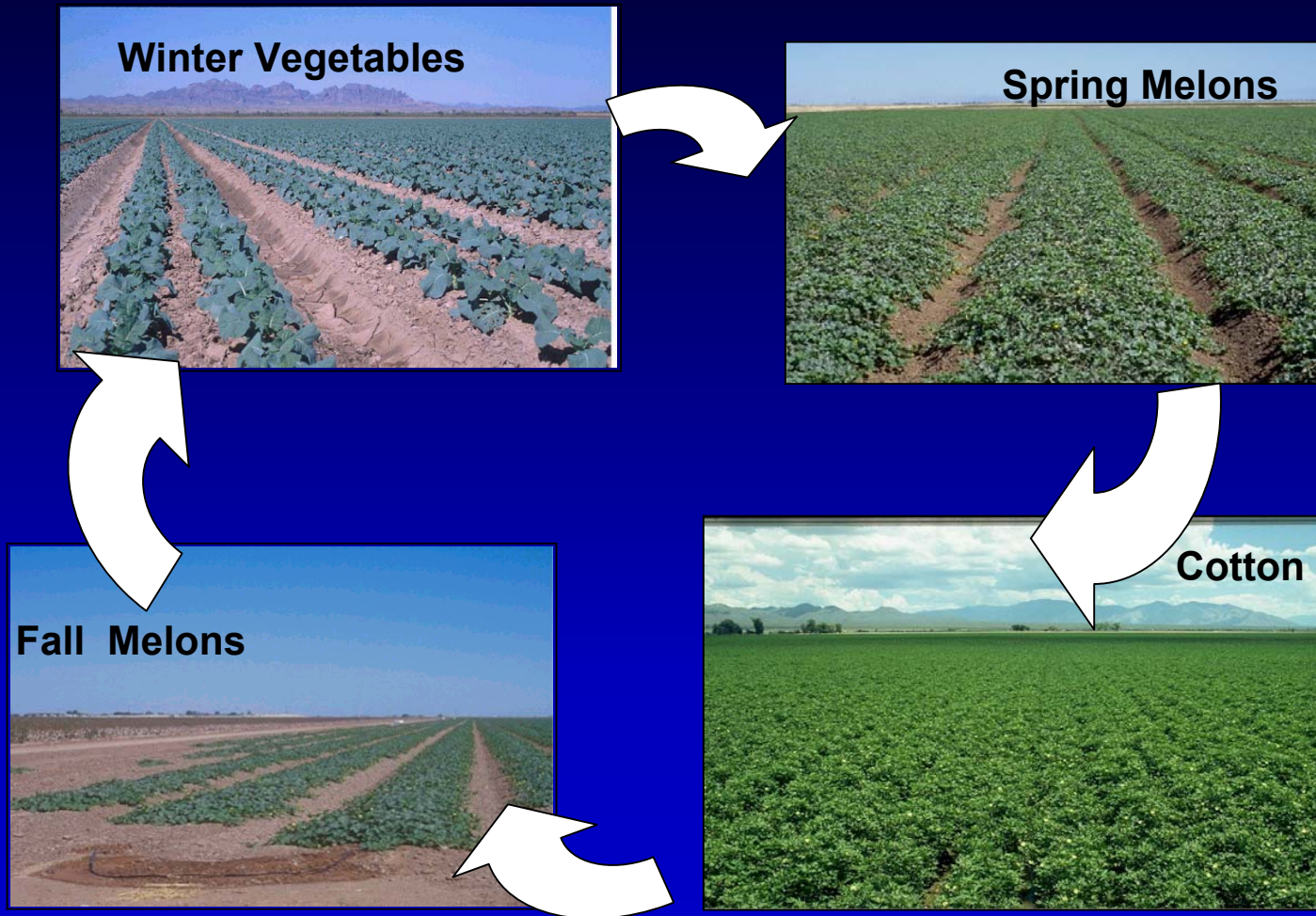


Dinotefuran

So what's to be concerned about ?

- 1) **Expanded registrations of neonicotinoids:**
 - Actara/Platinum/Centric: cotton, melons
 - Assail/Intruder: cotton, leafy vegetables
 - Calypso: (labels pending)
 - Dinotefuron (labels submitted to EPA)
- 2) **Multiple applications allowed by labels.**
- 3) **Lack of Alternative Chemistries in the Pipeline**
- 4) **A Real Risk of Resistance**

Sustaining Neonicotinoid Efficacy in **Multi-crop Communities**



Cross-commodity Guidelines for Neonicotinoids

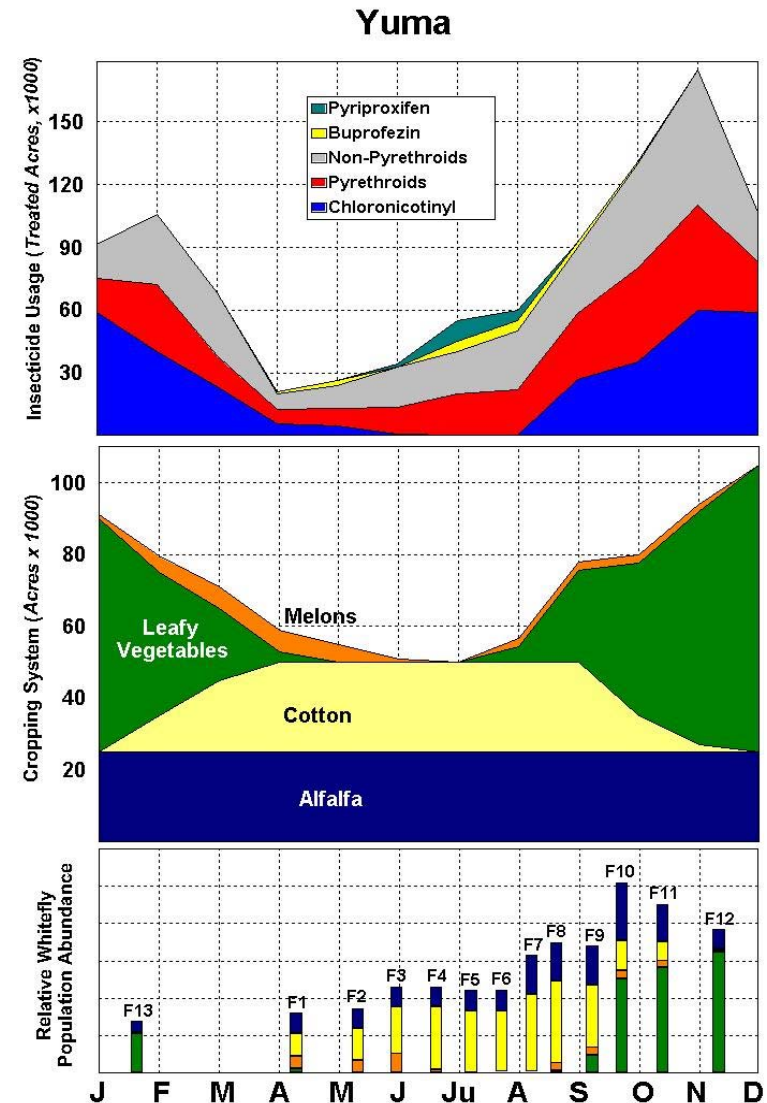
1) Multi-crop Communities

Cotton: Do not apply neonicotinoids in cotton.

Centric, Leverage, Intruder.

Melons /Vegetables :

- A single neonicotinoid use (soil or foliar) per crop
- Do not apply a foliar neonicotinoid spray after the use of a soil application of Admire or Platinum.



Cross-commodity Guidelines for Neonicotinoids

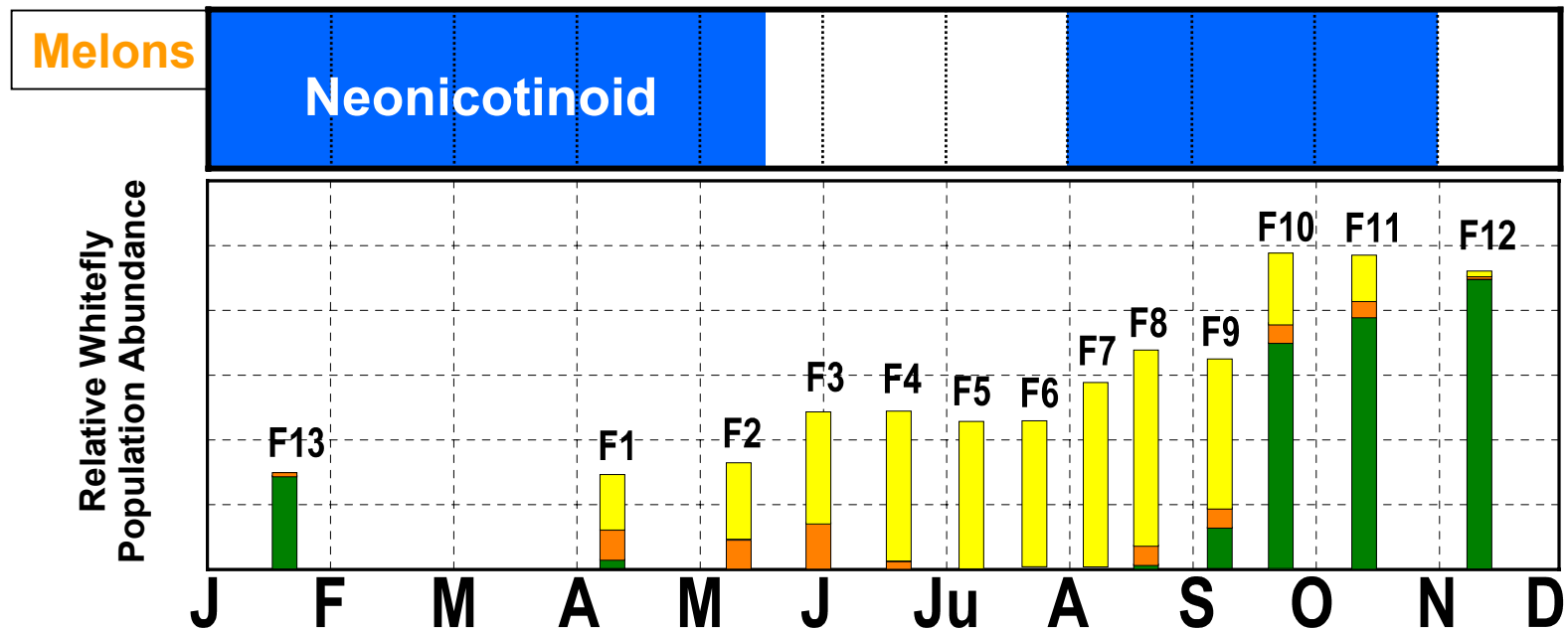
1) Multi-crop Communities (YUMA)

Melons /Vegetables :

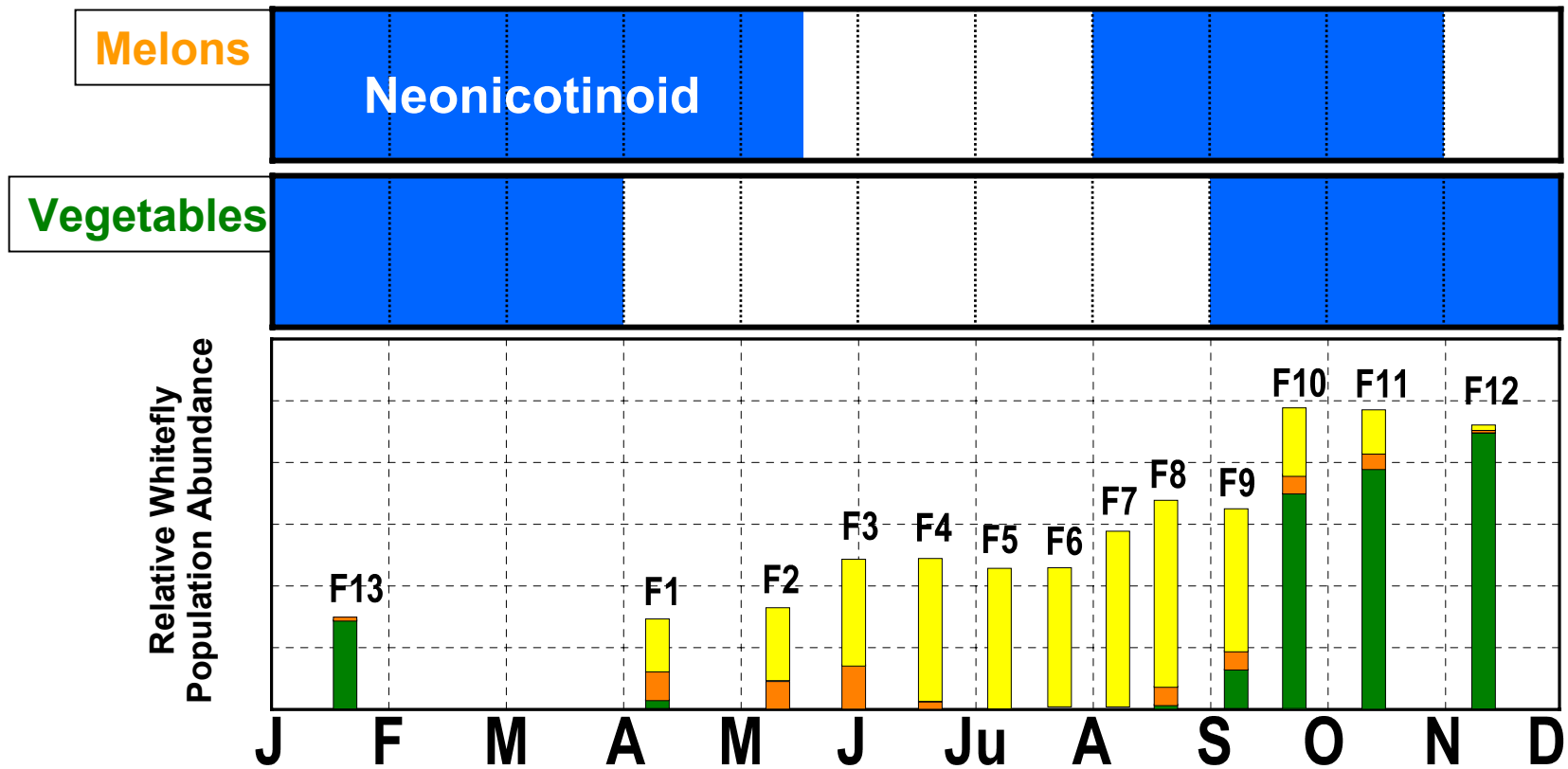
- **Consider foliar alternatives for vegetables that are planted after WF movement subsides and harvested before aphids typically become abundant.
(e.g., October in Yuma Valley)**

Resistance Risks Associated with Shared Neonicotinoid Uses in a Multi-Crop Community

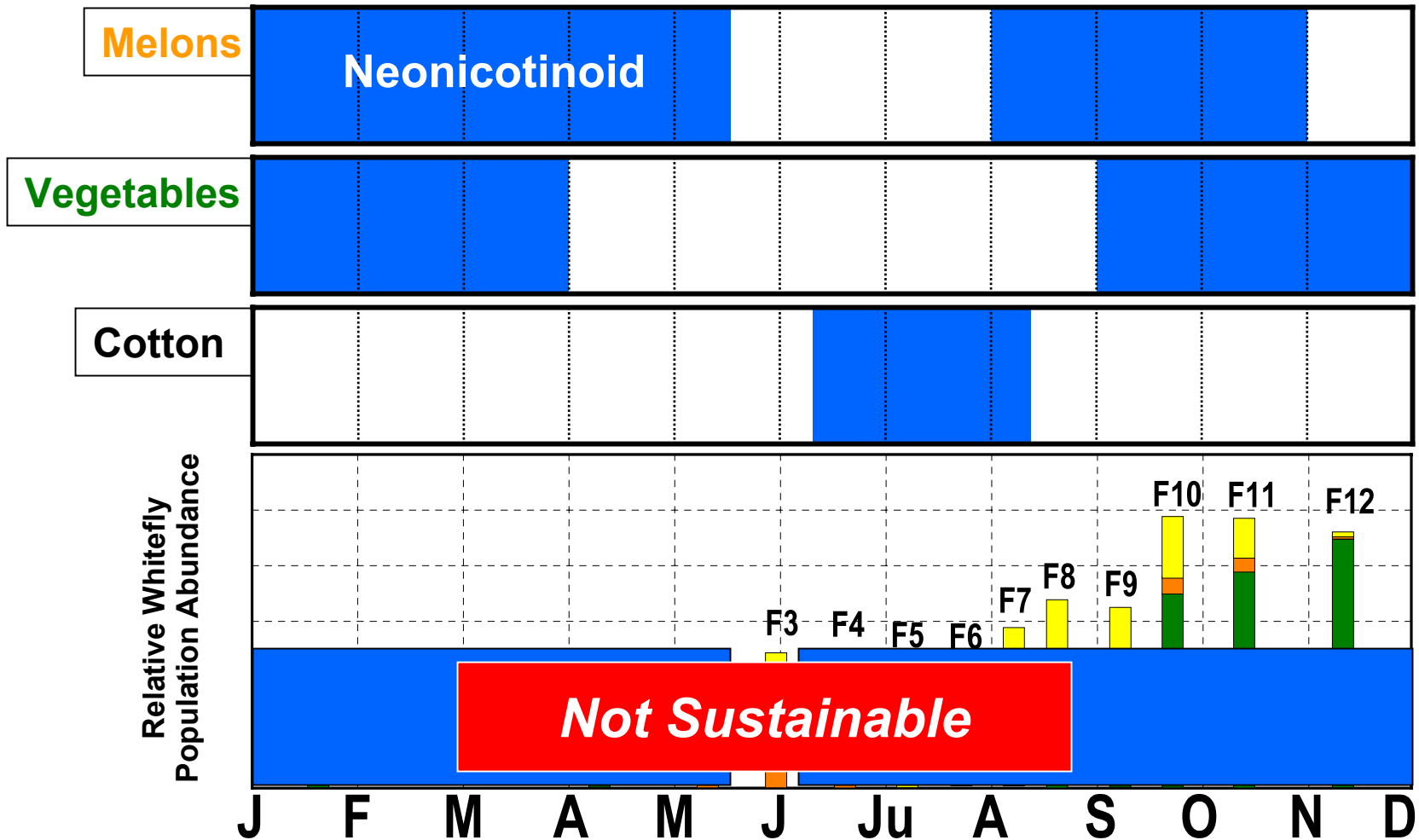
(eg., Yuma – current usage)



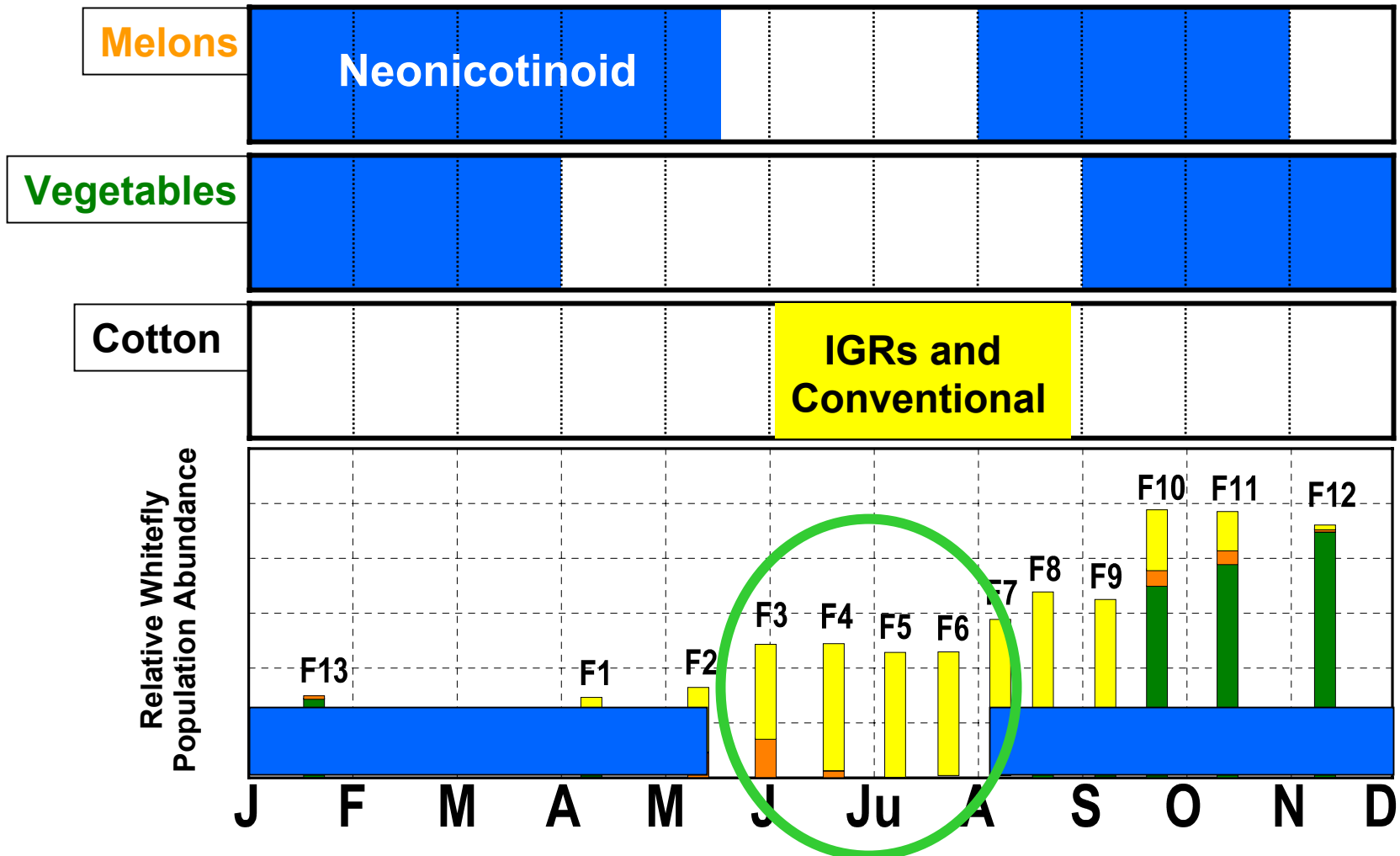
Resistance Risks Associated with Shared Neonicotinoid Uses in a Multi-Crop Community (eg., Yuma – current usage)



Resistance Risks Associated with Shared Neonicotinoid Uses in a Multi-Crop Community (eg., Yuma – potential usage)



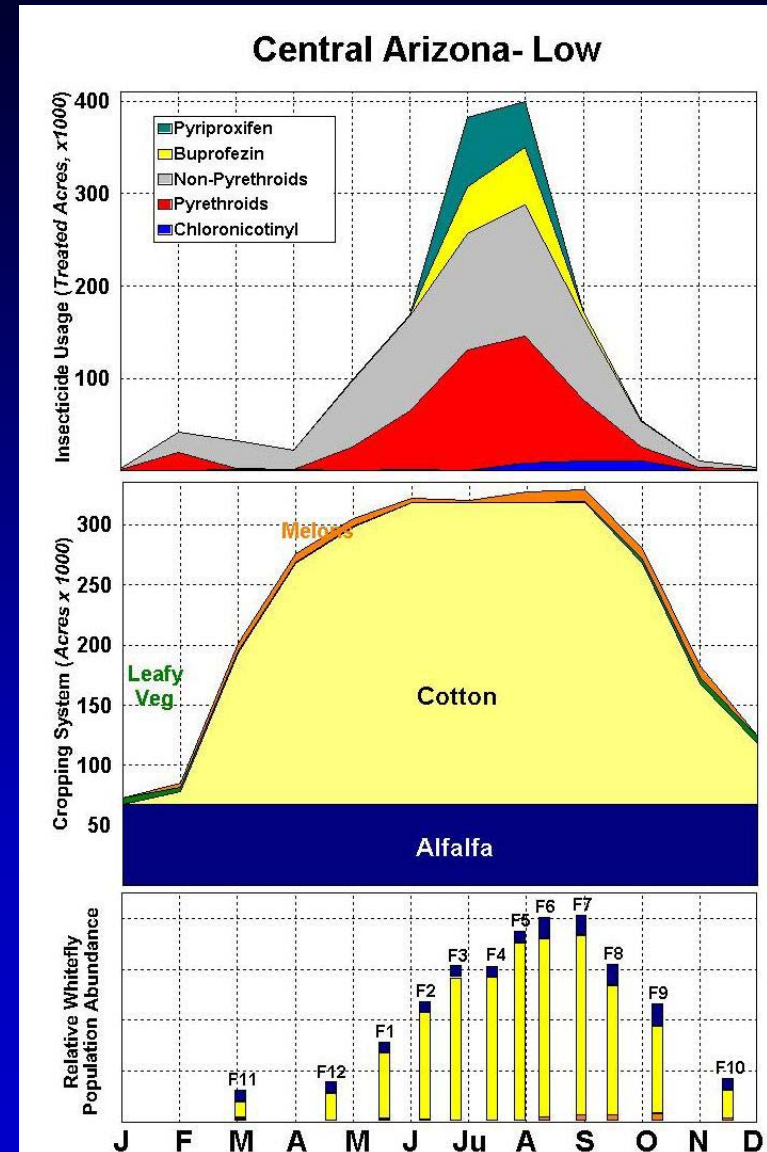
Preserve a *Neonicotinoid-free Period* in Multi-Crop Communities (e.g., Yuma-Recommended)



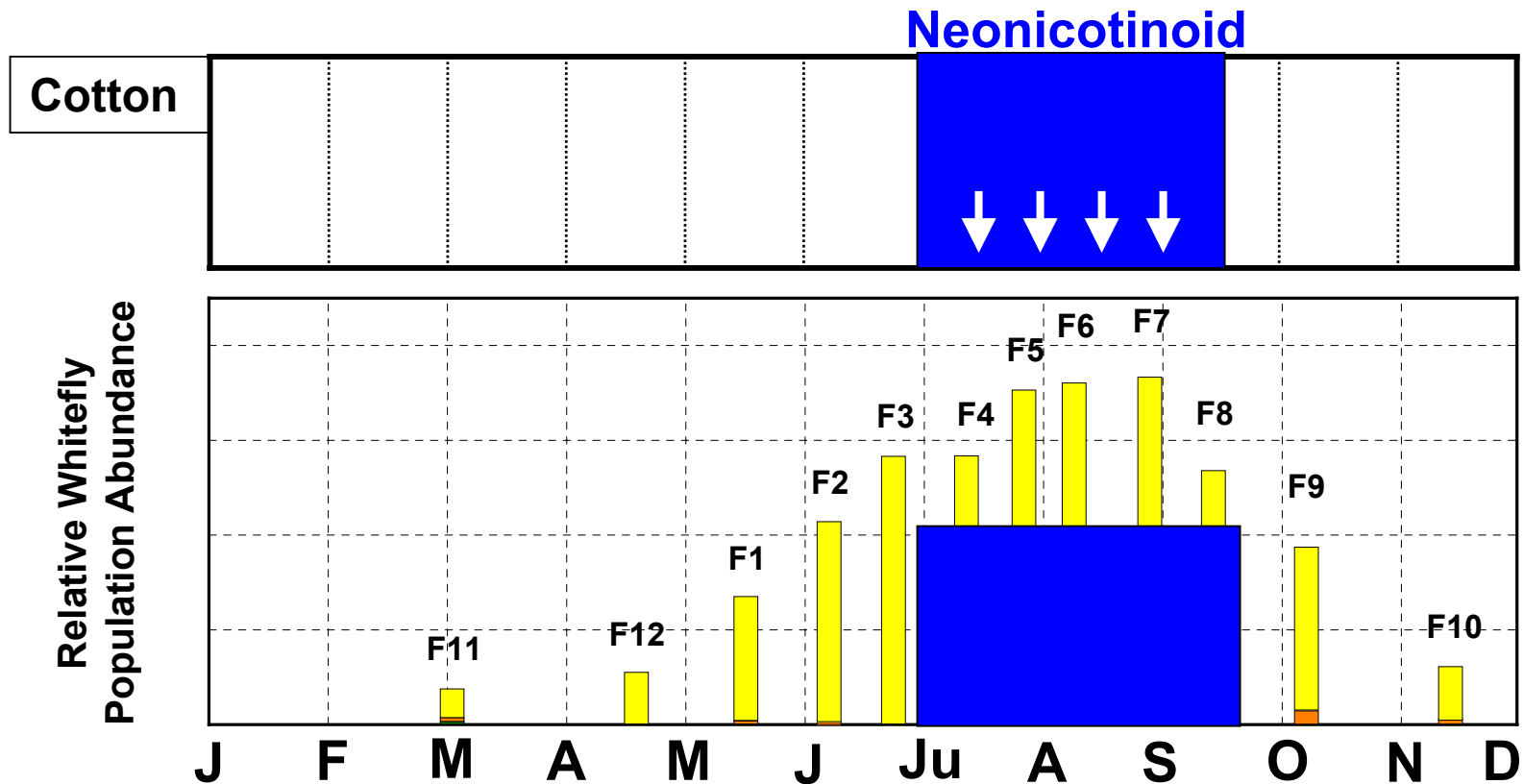
Cross-commodity Guidelines for Neonicotinoids

2) Cotton-intensive community

- No more than 2 neonicotinoid uses per cotton crop
- Sprays should only be used following an initial IGR spray (Stage II of IRM Program)
- Sprays should not to be applied consecutively, but rotated with conventional chemistries (Stage II or III)

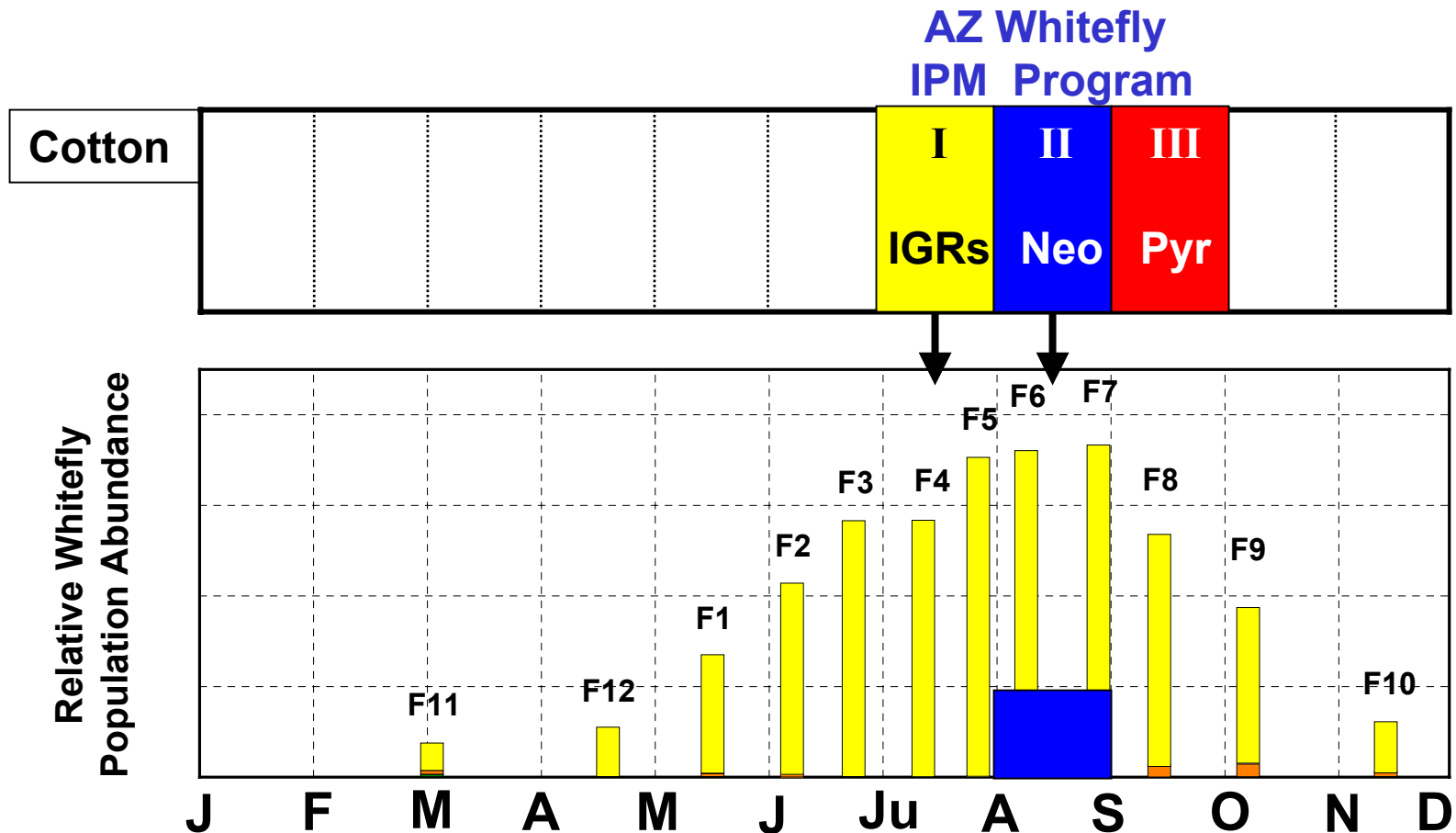


Resistance Risks Associated with Neonicotinoid Uses in a Cotton-intensive Community (e.g., Buckeye-label max)



“ Remember the Pyrethroids ”

Resistance Risks Associated with Neonicotinoid Uses in a Cotton-intensive Community (e.g., Buckeye-recommended use)





Whiteflies and Aphids in desert vegetable producing areas have not affected *Yield or Quality* since **Admire has been used on an areawide basis for the past 10 years.**