

The Poinsettia 04 Strain
*A Biotype of *Bemisia tabaci**
New to the Americas

T. J. Dennehy

Judy Brown

Outline

1. Evidence that the whitefly collected on poinsettia in Tucson are the Q biotype:
 - a. Frank Byrne, UC-Riverside.
 - b. Judy Brown's Lab.
 - c. my lab (EARML).
2. Arizona Whitefly Biotypes: 2001.
3. Arizona whitefly biotypes: 2003.
4. Insecticide resistance of the Poinsettia 04 strain.
 - a. Knack (Pyriproxyfen)
 - b. Courier (Buprofezin)
 - c. Admire/Provado (Imidacloprid)
 - d. Acetamiprid
 - e. Thiamethoxam
 - f. Danitol + Orthene (Fenpropathrin + Acephate)

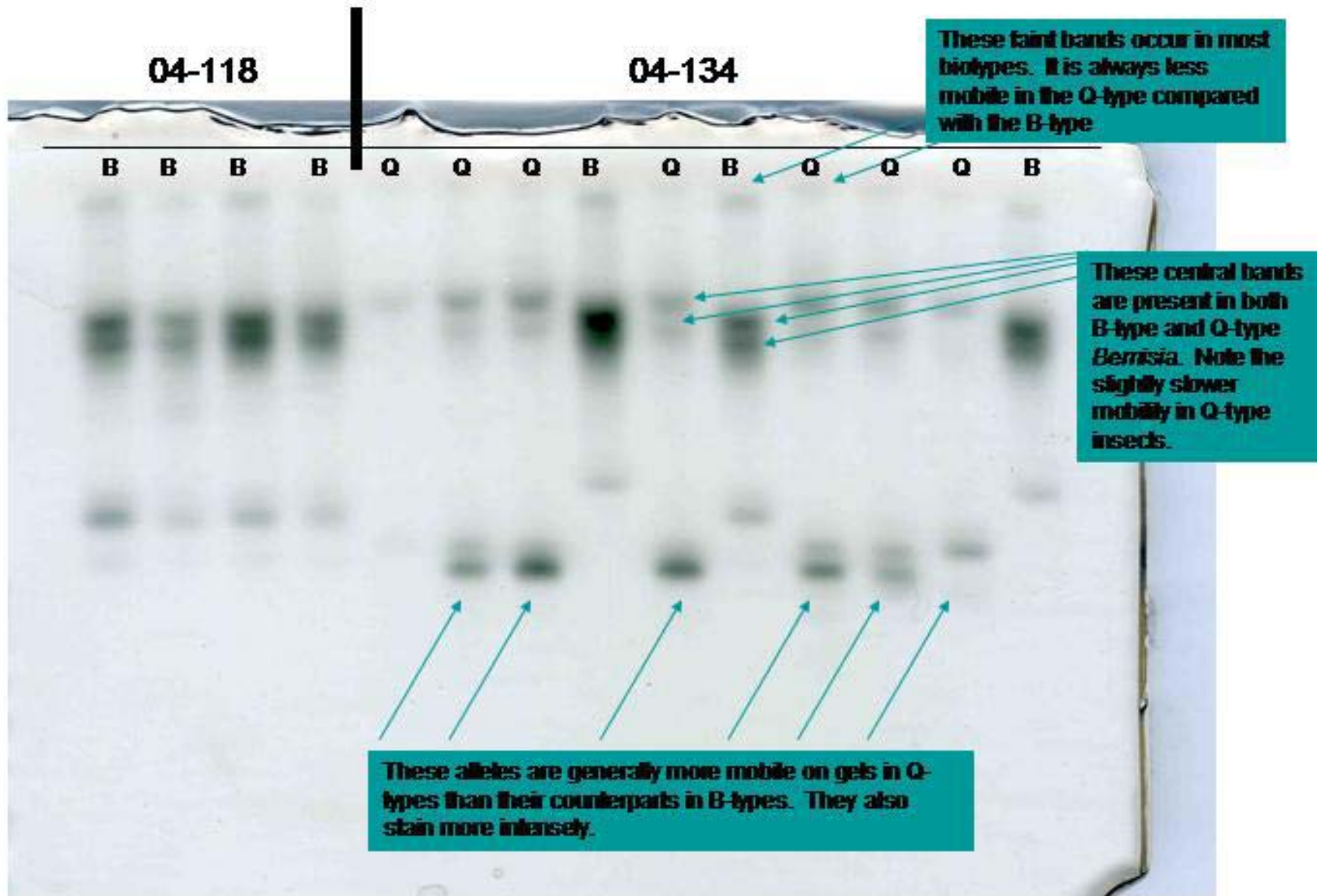
Extension Arthropod Resistance Management Laboratory

Partnership

Long-term data collection

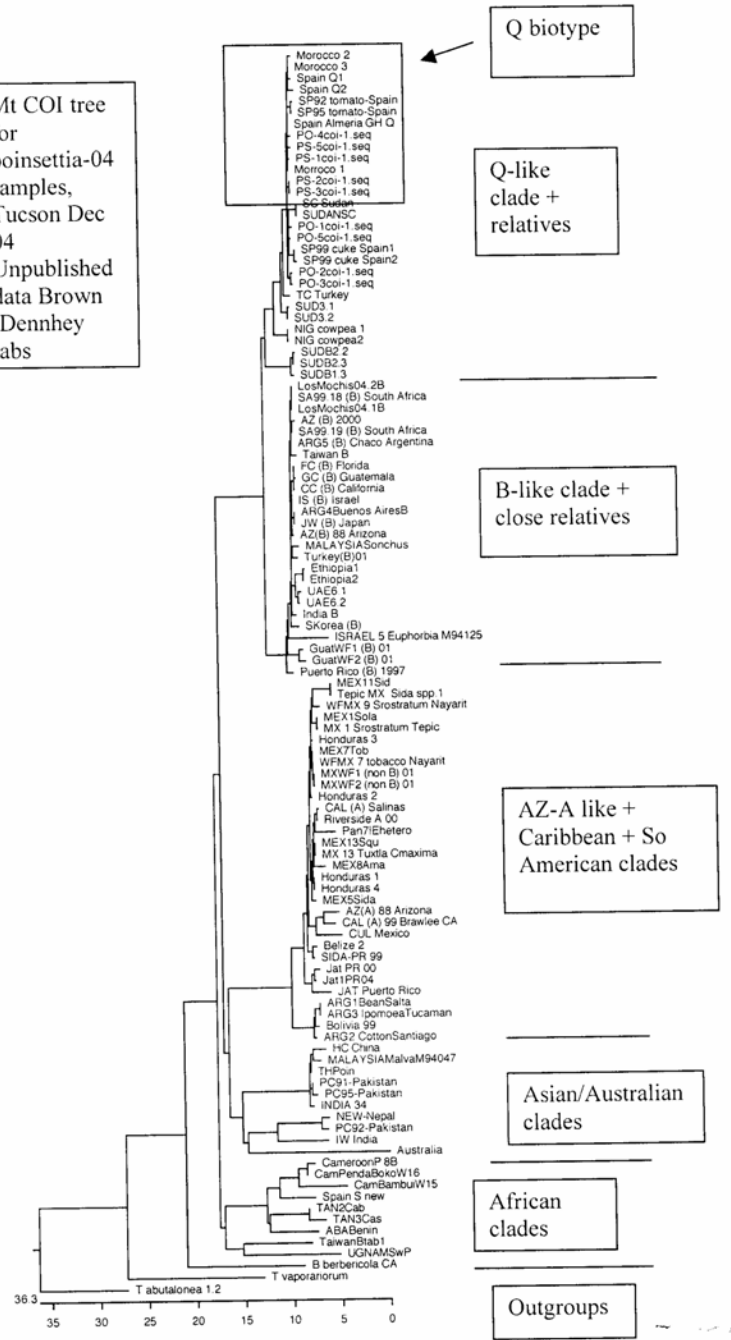
Long-term industry support

Linkages with campus-based
research efforts



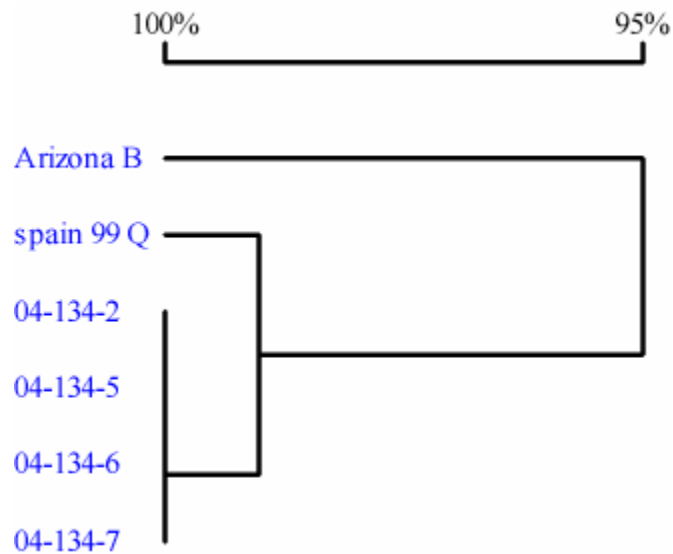
Testing of Poinsettia 04 Strain by Frank Byrne, UC Riverside, using gell electrophoresis of esterases. The sample we sent Frank contained a mixture of Q and B biotypes.

Mt COI tree for poinsettia-04 samples, Tucson Dec 04
 Unpublished data Brown/Dennhey labs



Results from Judy Brown's Laboratory. COI sequence homology.

The homology tree graphically depicts the close relatedness to Poinsettia 04 strain whiteflies (highlighted) to the Q strains that have been reported in the literature and to the many other strains that Judy's lab has evaluated from around the world.

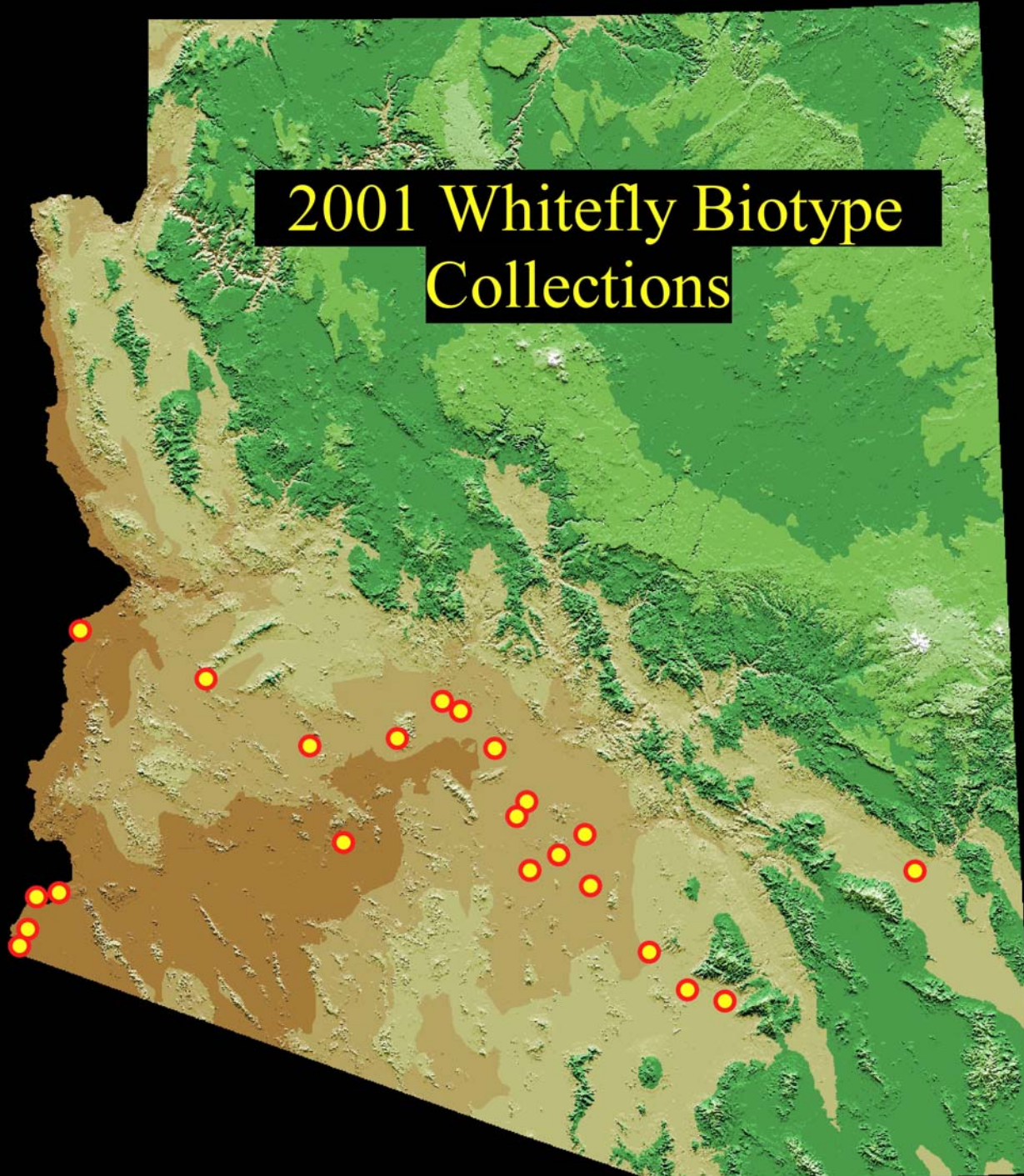


EARML evaluations of Poinsettia 04 strain confirmed the > 99% homology to the Spain Q type and less than 95% homology to the Arizona B biotype in sequences of the mitochondrial cytochrome oxidase 1 gene.

Homology matrix of 6 sequences

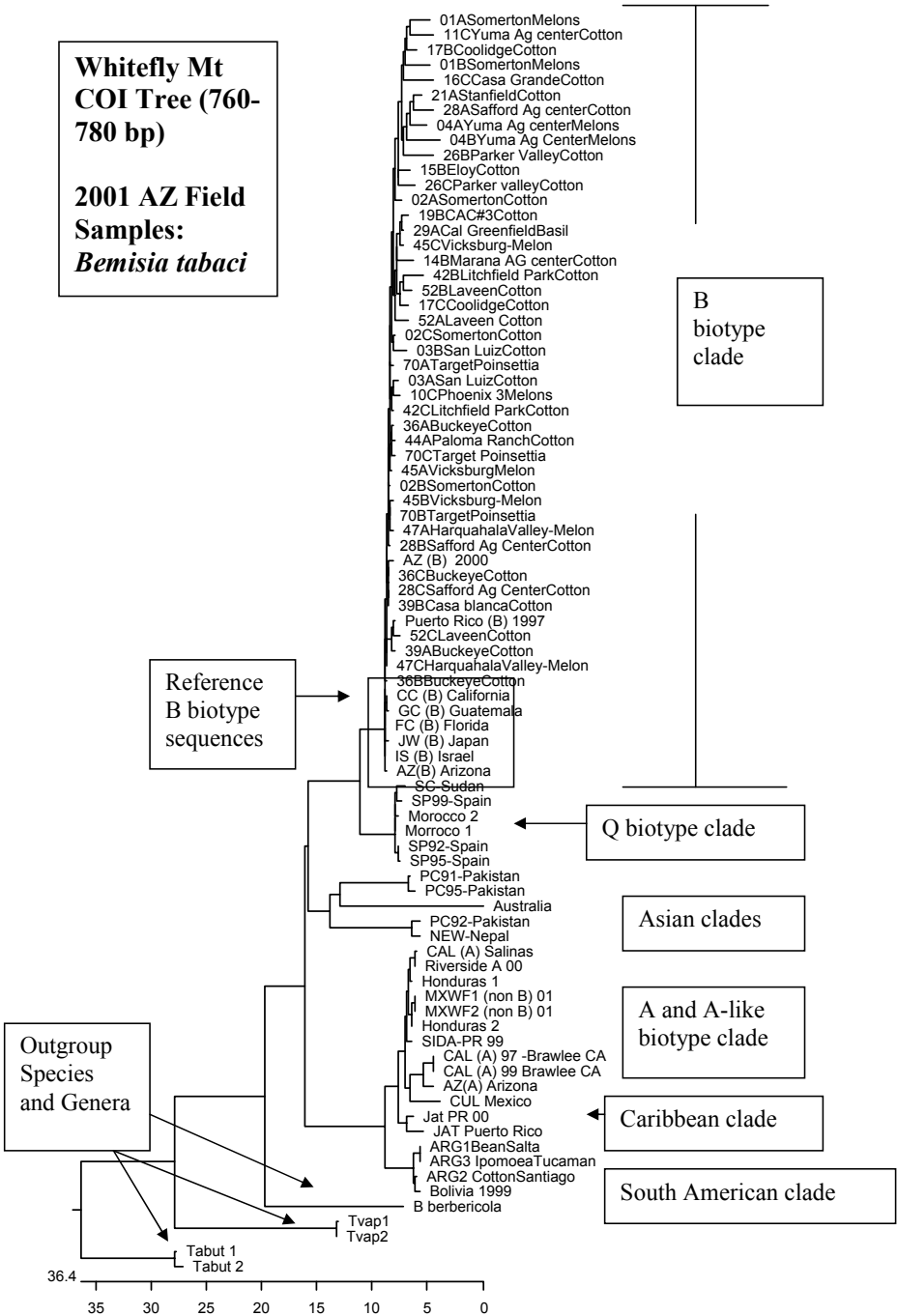
Arizona B	100%					
Spain 99 Q	94.2%	100%				
04-134-2	94.9%	99.3%	100%			
04-134-5	94.9%	99.1%	100.0%	100%		
04-134-6	94.9%	99.1%	100.0%	100.0%	100%	
04-134-7	94.8%	99.1%	100.0%	100.0%	100.0%	100%

2001 Whitefly Biotype Collections



**Whitefly Mt
COI Tree (760-
780 bp)**

**2001 AZ Field
Samples:
*Bemisia tabaci***



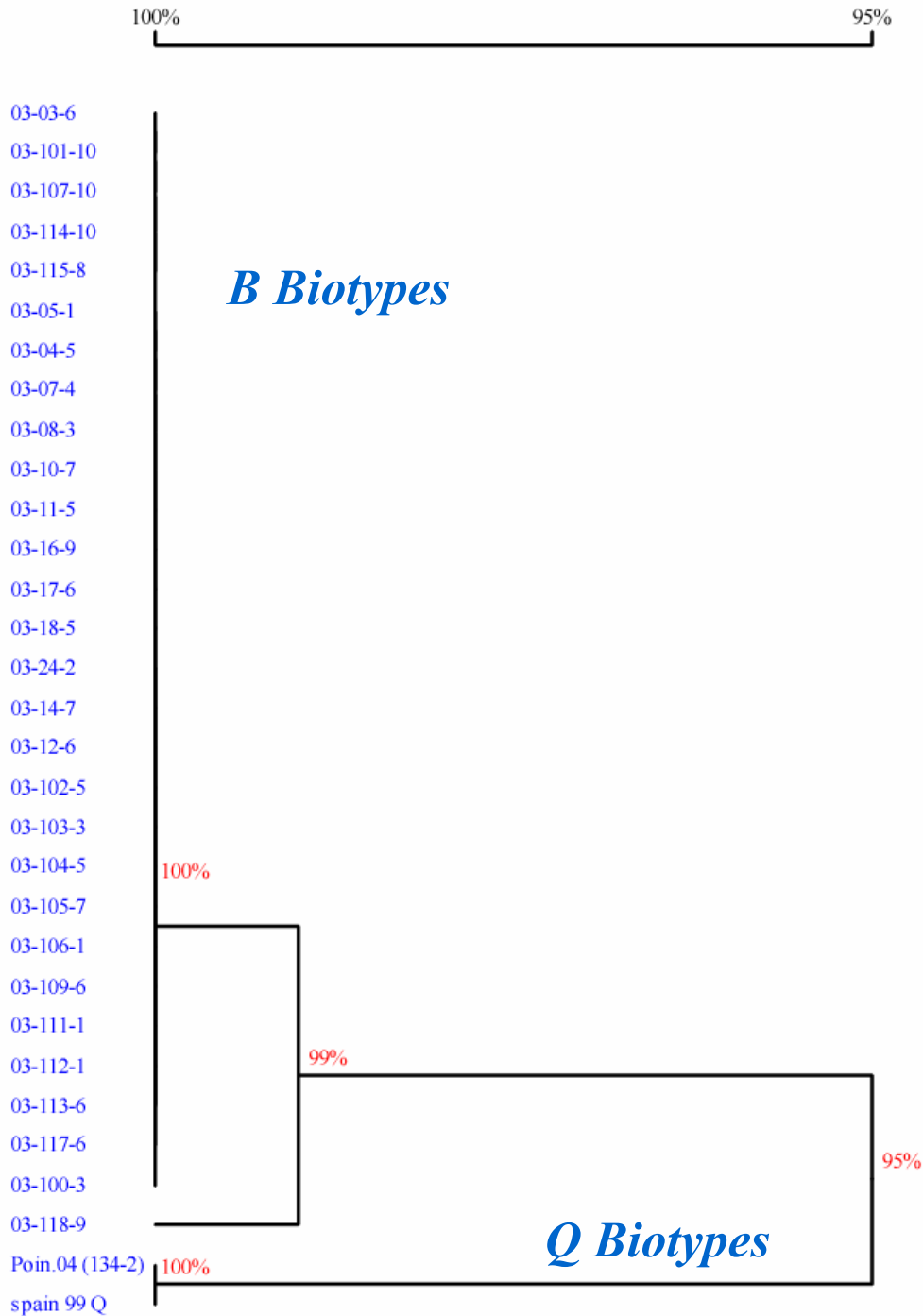
43 different Arizona whiteflies collected in 2001 from 22 different locations (highlighted).

Cultures were reared by EARML and tested jointly by personnel from EARML and Judy Brown's laboratory.

All were the B biotype.

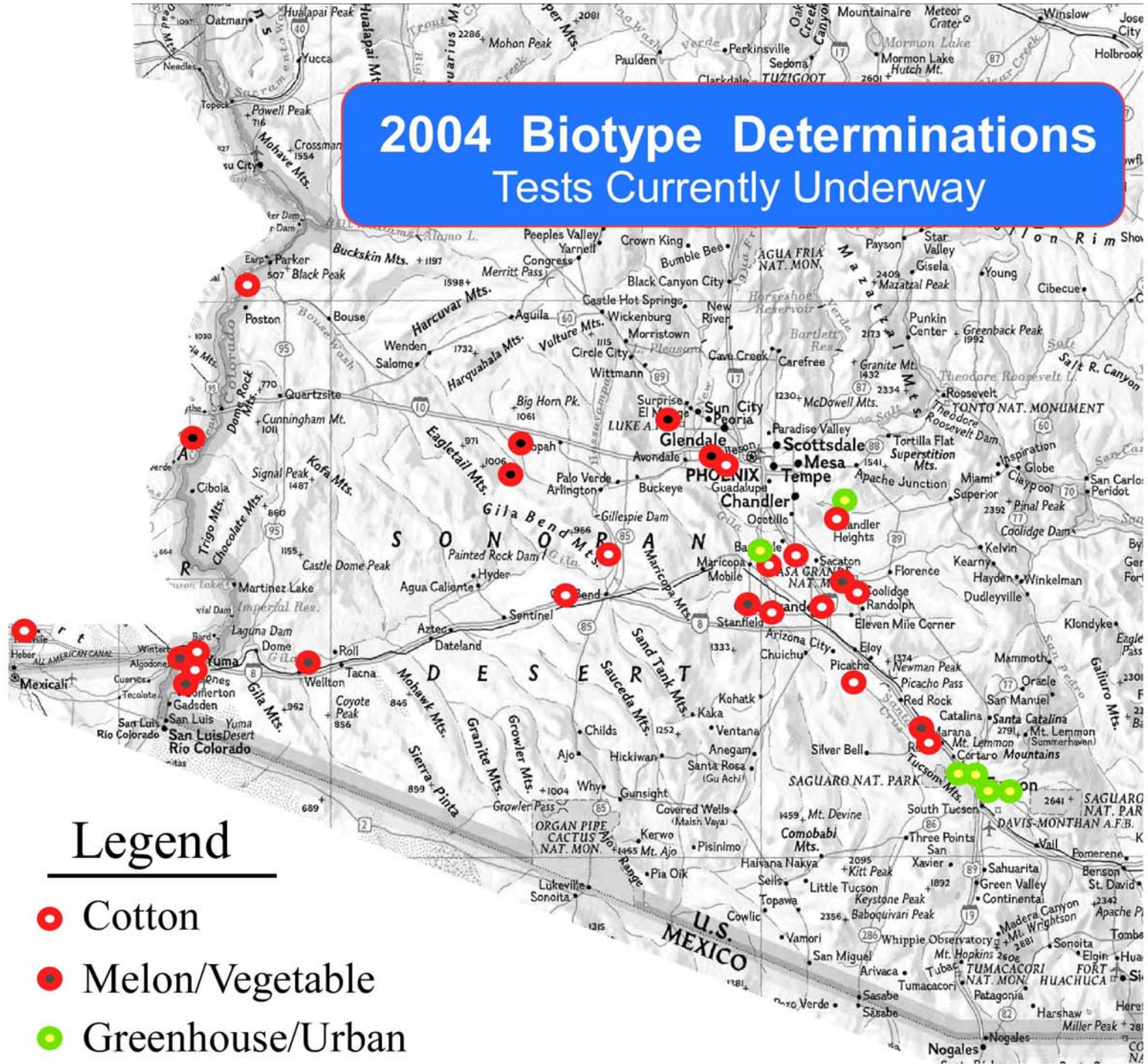
2003 Biotype Determinations





Arizona
 whiteflies
 collected in
 2003 from 29
 different
 locations were
 all the B
 biotype

204 Biotype Determinations Tests Currently Underway

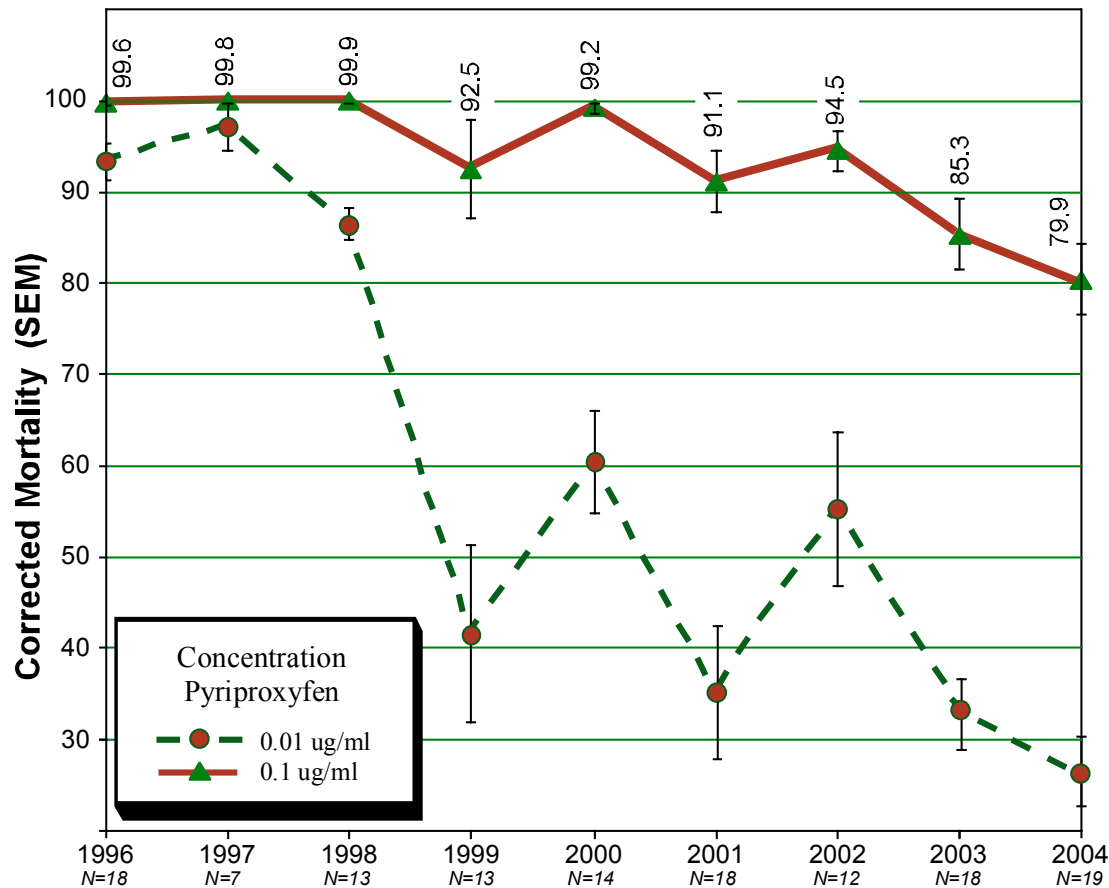


Legend

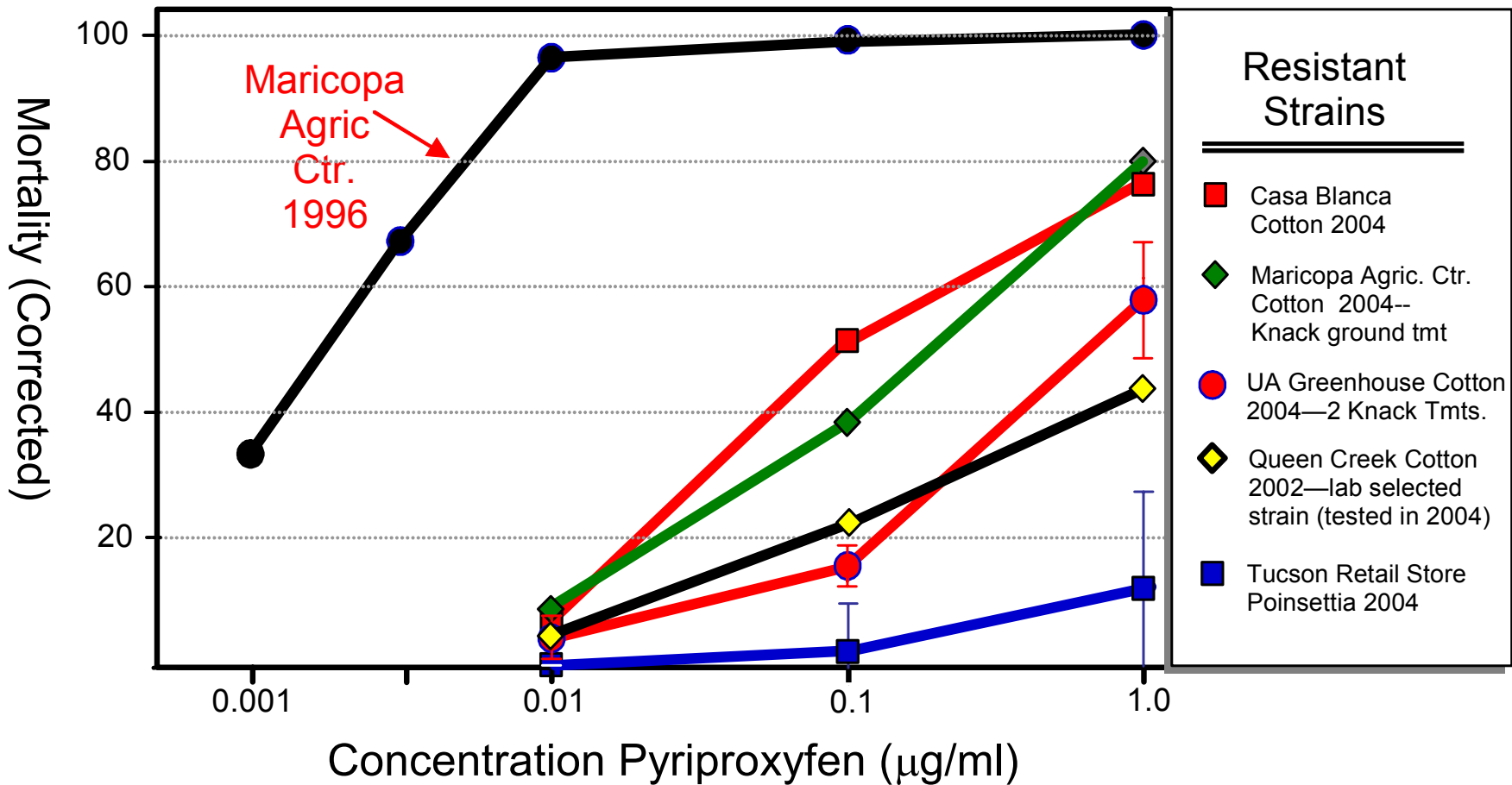
- Cotton
- Melon/Vegetable
- Greenhouse/Urban

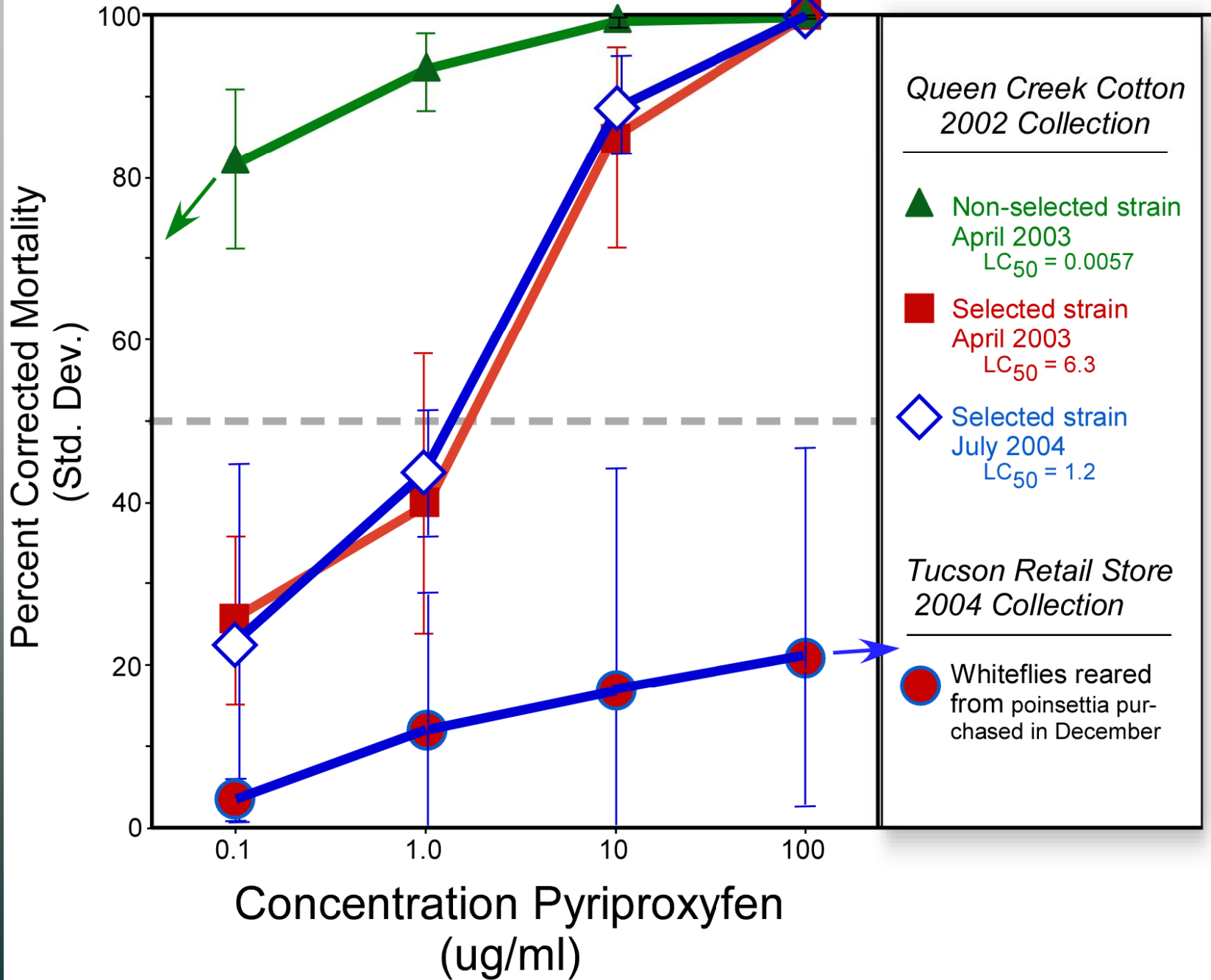
Knack (pyriproxyfen)

Arizona Whiteflies—B Biotype



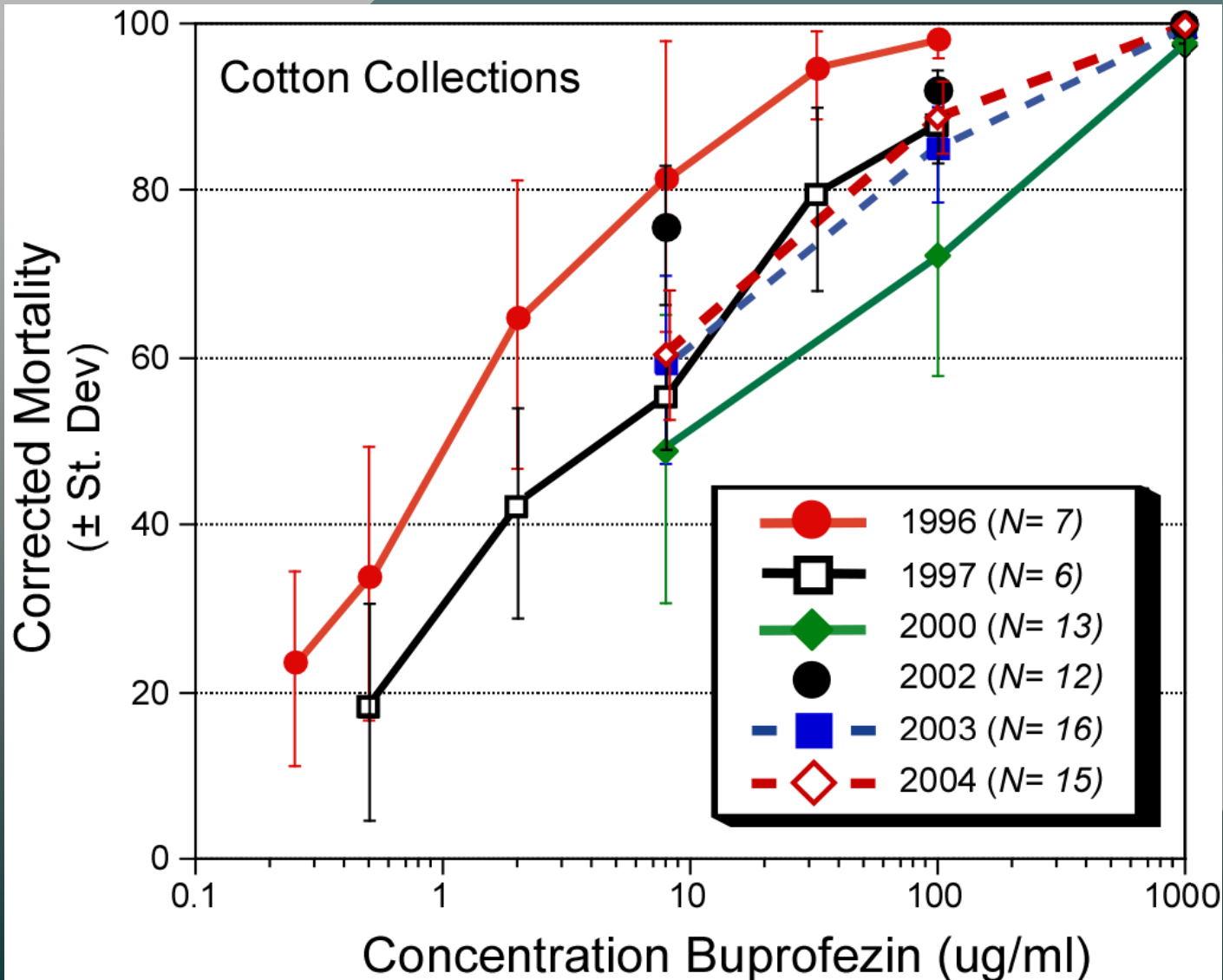
Poinsettia 04 strain (Q biotype) vs other Resistant Strains from Arizona





Buprofezin

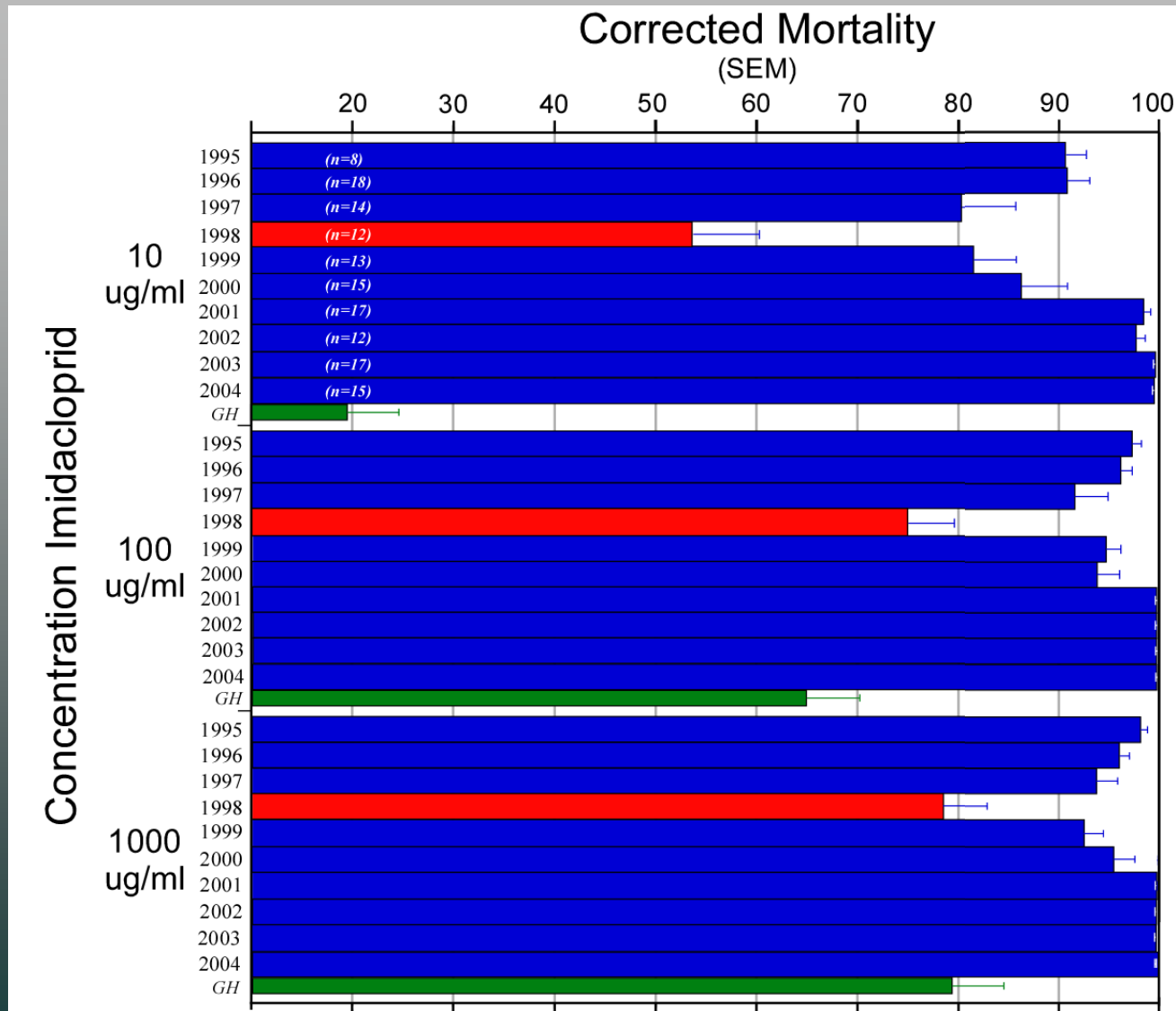
Courier (buprofezin)



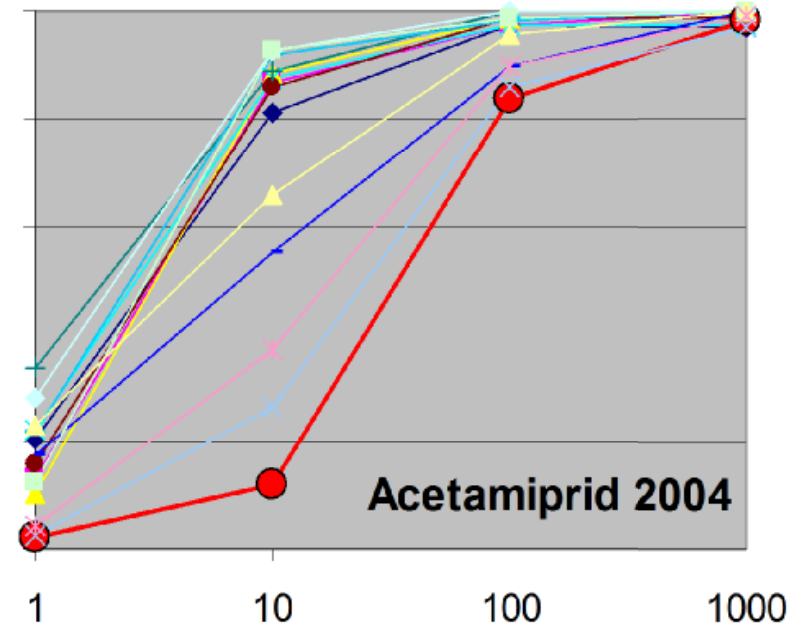
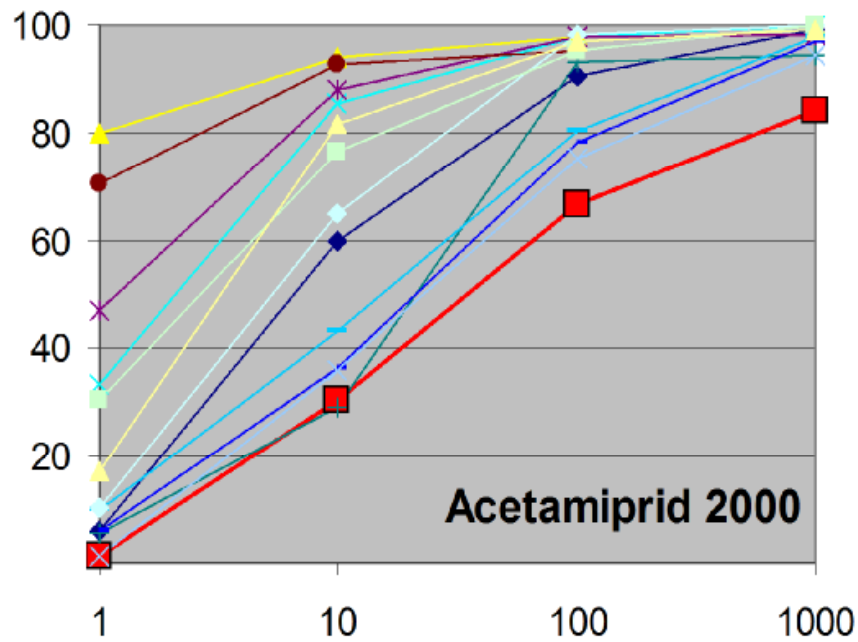
Neonicotinoid Insecticides

<i>Active Ingredient</i>	<i>Subgroup</i>	<i>Producer</i>	<i>1st reg</i>	<i>Trade Names</i>
Imidacloprid	nitroguanidine	Bayer	1993	Admire, Confidor, Gaucho, Marathon, Merit, Premise, Provado
Acetamiprid	cyanoamidines	Nippon Soda / DuPont	1996	Mospilan, Assail, Intruder, Tristar
Thiamethoxam	nitroguanidine	Syngenta	1997	Actara, Centric, Cruiser, Flagship, Platinum
Thiacloprid	cyanoamidines	Bayer	2000	Calypso
Clothianidin	nitroguanidine	Takeda/Sumitomo / Bayer	2002	Fullswing, clutch, Poncho
Dinotefuran	nitroguanidine	Mitsui	2002	Starkle
Nitenpyram	nitromethylene	Mitsui/Takeda	****	Capstar
Nithiazine	nitromethylene	BASF	*****	(Not acting on nicotinic Ach receptor)

Admire/Provado (Imidacloprid)

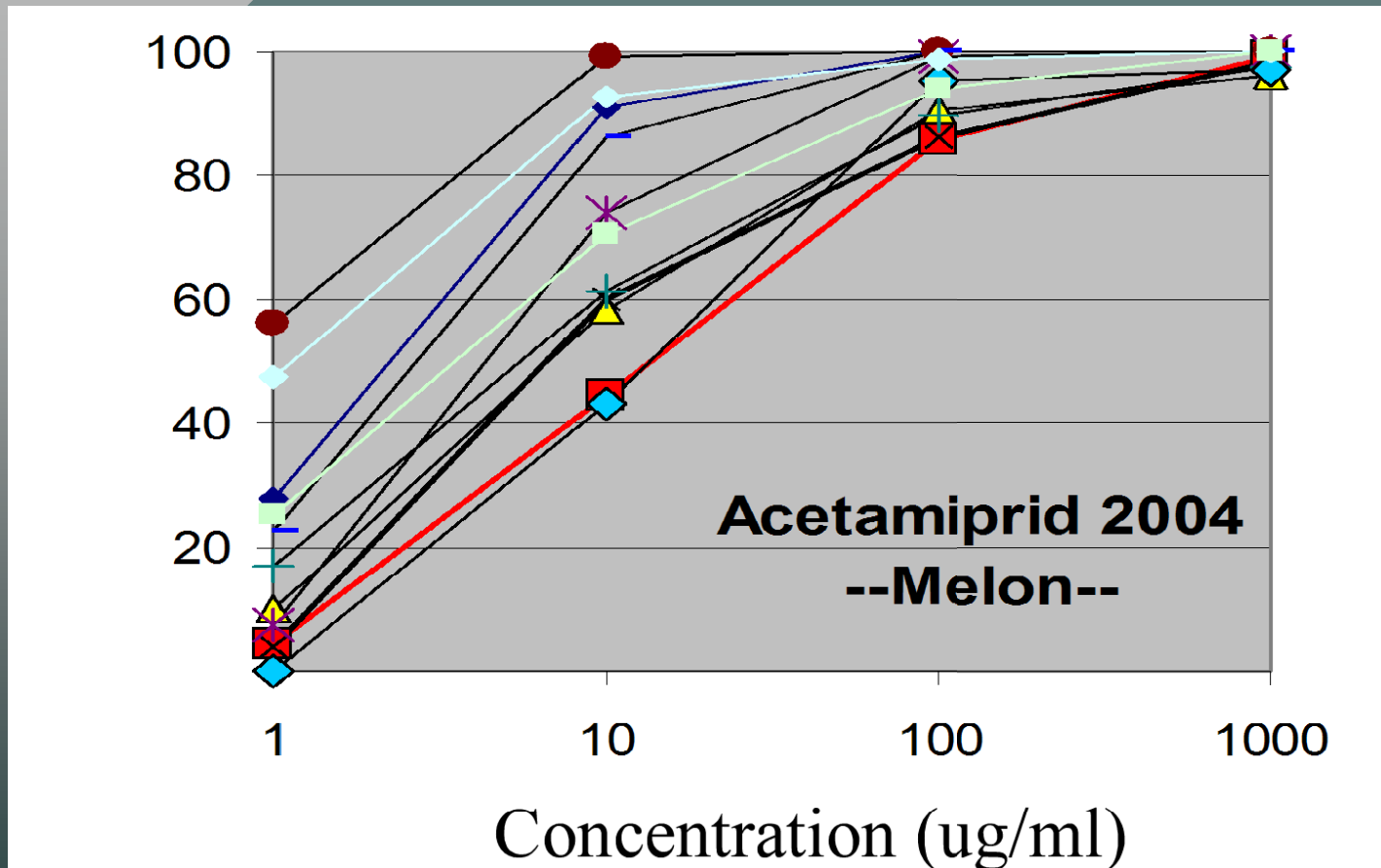


Centric (acetamiprid)--Cotton

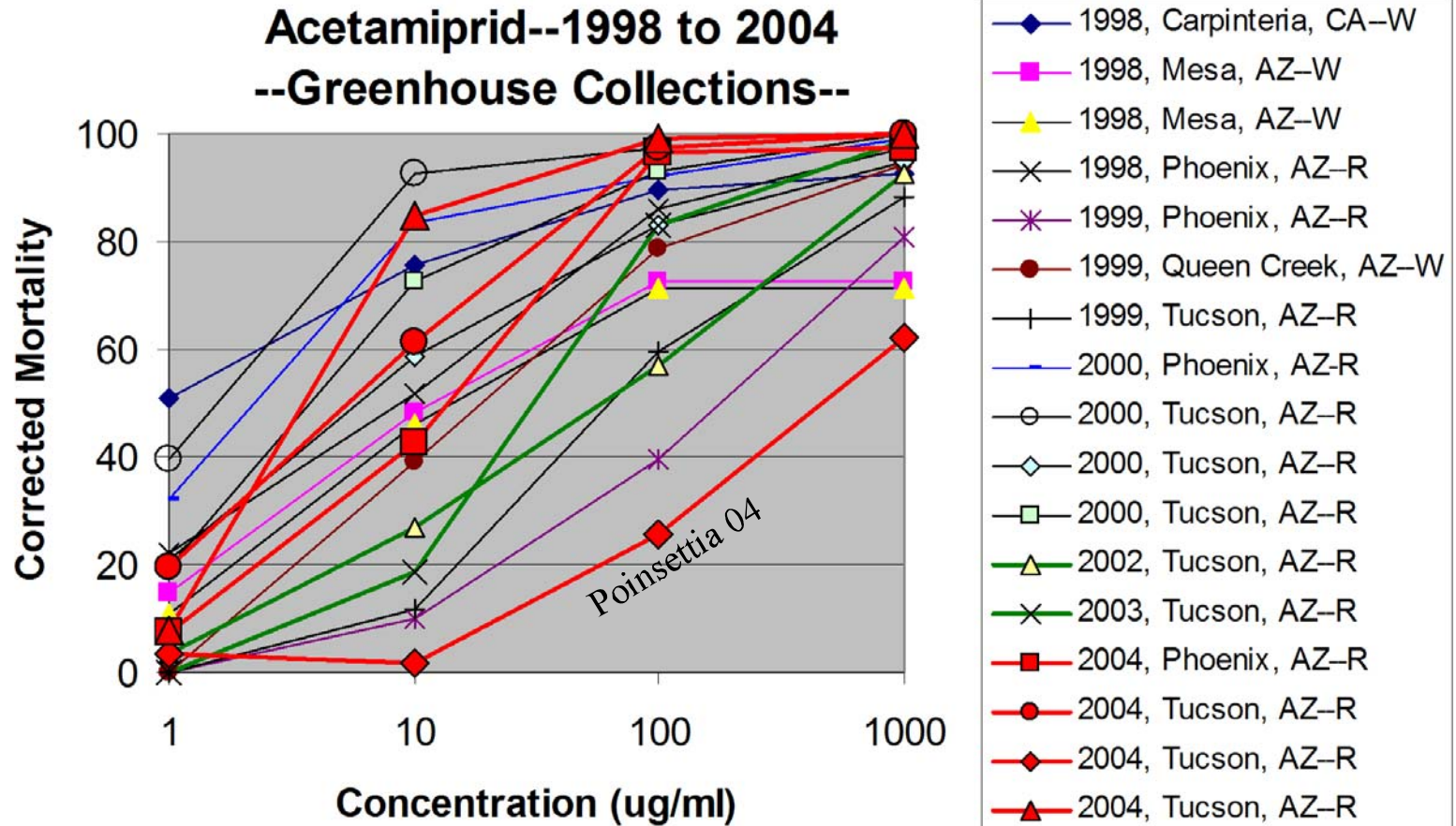


Concentration Acetamiprid ($\mu\text{g/ml}$)

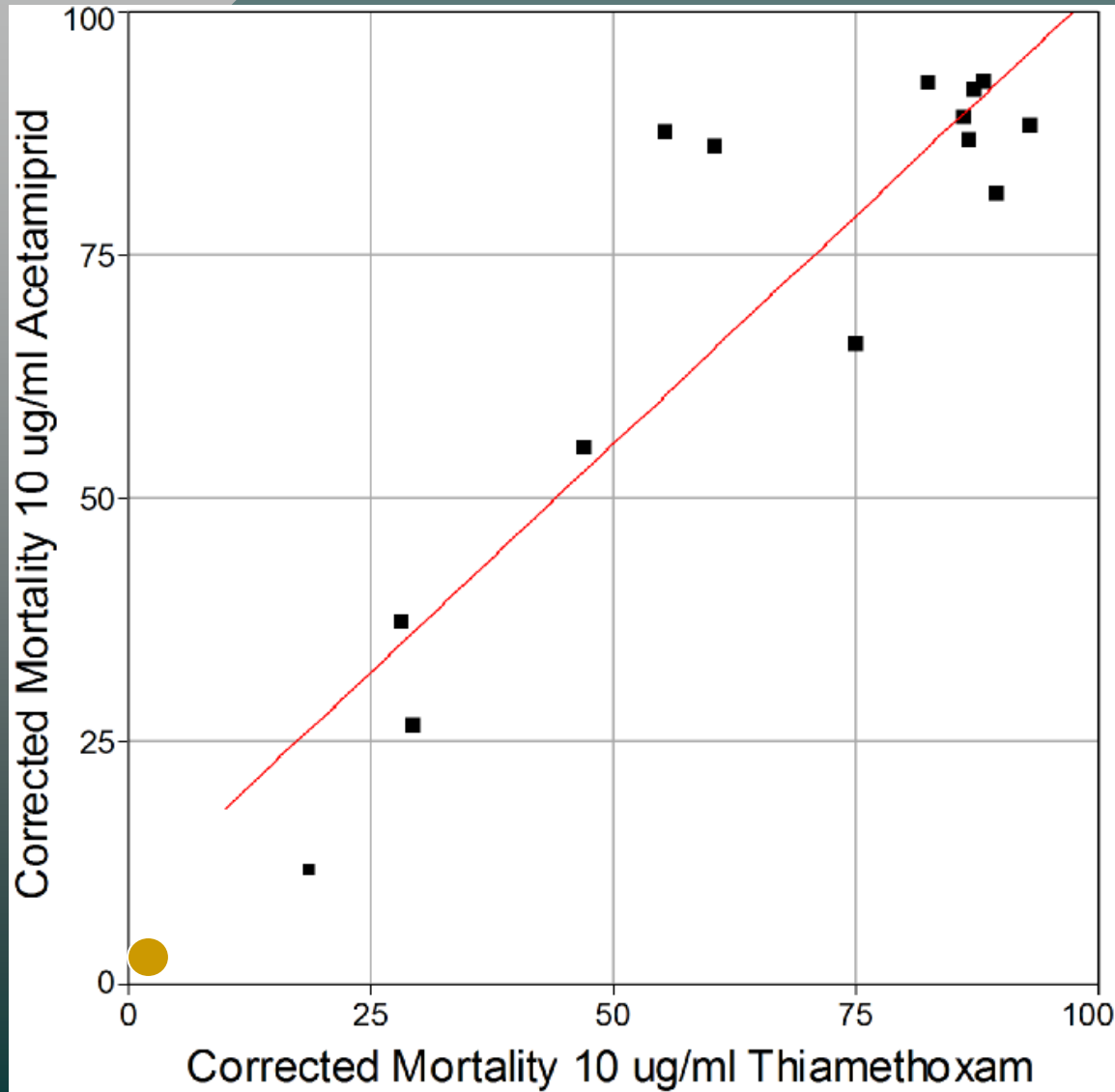
Centric (acetamiprid)--Melons



Centric (acetamiprid)



Acetamiprid vs Thiamethoxam



Actara, Centric, Cruiser, Flagship, Platinum

(Thiamethoxam)

Danitol + Orthene

1.5 Million Square Feet of Greenhouse



Product	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Begonia												
Begonia												
Calendiva												
Calla Lily												
Calla Lily												
Mini Carnation												
Chenille												
Cineraria												
Cyclamen												
Daffodil												
Exacum												
Gerbera												
Hibiscus												
Hyacinth												
Hydrangea												
Ivy												
Kalanchoe												
Easter Lily												
Oriental Lily												
Lisianthus												
Mum												
Poinsettia												
Pothos												
Tulip												

Resistant Whiteflies Shipped to Tucson on Holiday Poinsettias