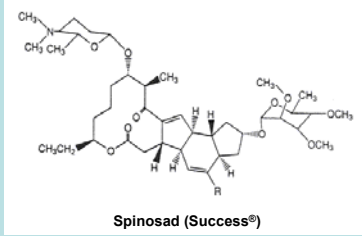


Reduced-Risk Insecticides



Reduced-Risk Pesticides Initiative

- Both biological and conventional pesticides are eligible.
- A Reduced-Risk pesticide is defined as one which may reasonably be expected to accomplish the following:
 - (1) reduces pesticide risks to human health;
 - (2) reduces pesticide risks to non-target organisms;
 - (3) reduces the potential for contamination of valued, environmental resources, or
 - (4) broadens adoption of IPM or makes it more effective.

EPA 1992. Federal Register (57): 23140

Reduced Risk Insecticides Presently Registered on Desert Crops

Trade name	Common name	Chemical class
Success	spinosad	macrocyclic lactone
Avaunt	indoxacarb	oxadiazine
Confirm	tebufenozide	molting hormone agonists
Intrepid	methoxyfenozide	molting hormone agonists
Courier	buprofezin	chitin synthesis inhibitor
Knack	pyriproxyfen	juvenile hormone mimic
Assail	acetamiprid	neonicotinoid
Fulfill	pymetrozine	pyridine azomethine

Economic Efficacy of Reduced Risk Products on Desert Pests

	Worms	WF	LM	Beetles	Aphids	Thrips
Success	●●●		●●●			●●●
Avaunt	●●●					
Confirm	●●●					
Intrepid	●●●					
Knack		●●●				
Courier		●●●				
Assail		●●●		●●●	●●●*	
Fulfill		●●			●●●*	

Economic Efficacy of Reduced Risk Products on Desert Pests

	Worms	WF	LM	Beetles	Aphids	Thrips
Success	●●●		●●●			●●●
Avaunt	●●●					
Confirm	●●●					
Intrepid	●●●					
Knack		●●●				
Courier		●●●				
Assail		●●●		●●●	●●●*	●
Fulfill		●●			●●●*	
Pyrethroid	●●●	●●●	●●●	●●●	●●●	●●●

Neonicotinoid Compounds

1st Generation

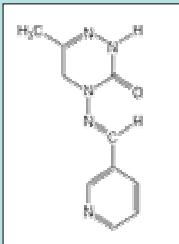
- Imidacloprid
- Acetamiprid (RR)
- Nithiazine

2nd Generation

- Desmethylthiamethoxam
- Nitenpyram
- Thiacloprid (RR)
- Thiamethoxam
- Clothianidin

Pseudo-nicotinoids

- Dinotefuron
- Flonicamid (RR)



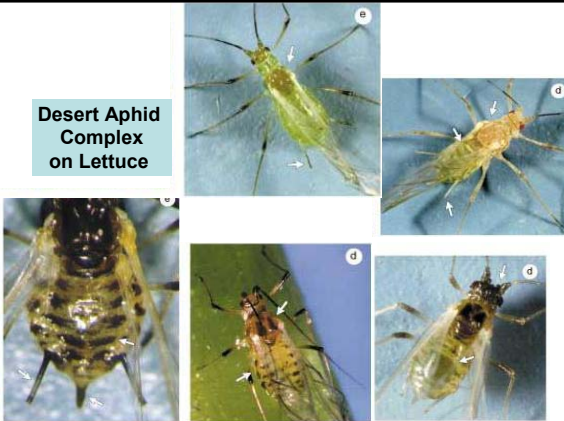
Pymetrozine (Fulfill®)

- pyridine azomethine
- Antifeedant compound
- Translaminar / systemic
- Reduced-risk insecticide

Economic Efficacy of Reduced Risk Products on Desert Pests

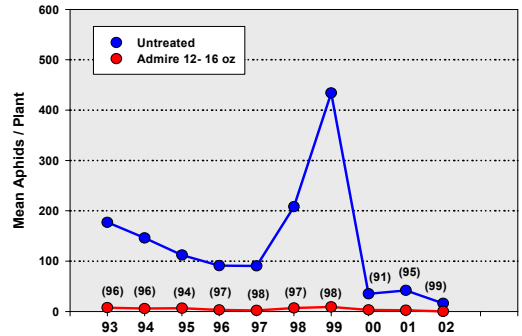
	Worms	WF	LM	Beetles	Aphids	Thrips
Success	●●●		●●●		●●●	●●●
Avaunt	●●●					
Confirm	●●●					
Intrepid	●●●					
Knack		●●●				
Courier		●●●				
Assail		●●●		●●●	●●●*	
Fulfill		●●			●●●*	

Desert Aphid Complex on Lettuce



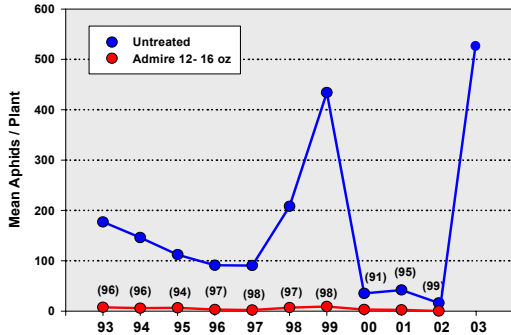
10 Years of Admire in the Desert

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



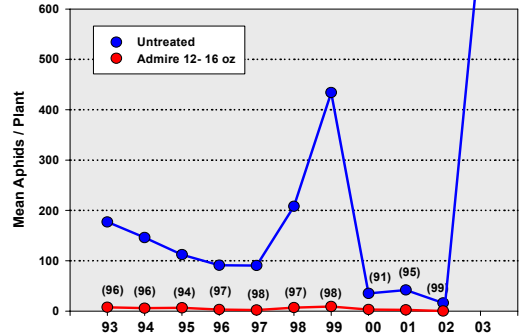
10 Years of Admire in the Desert

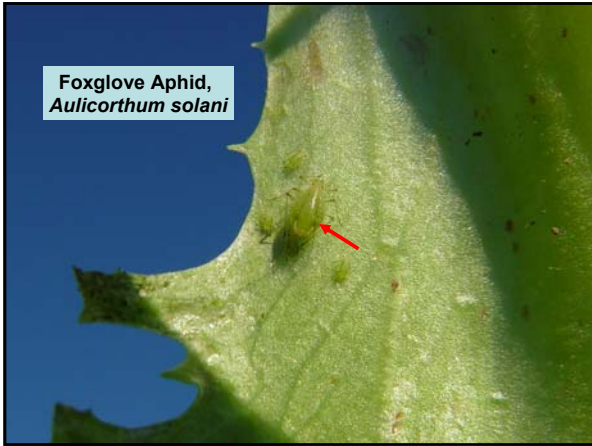
Green Peach / Potato / *A. lactucae* Complex – Harvest Infestations



10 Years of Admire in the Desert

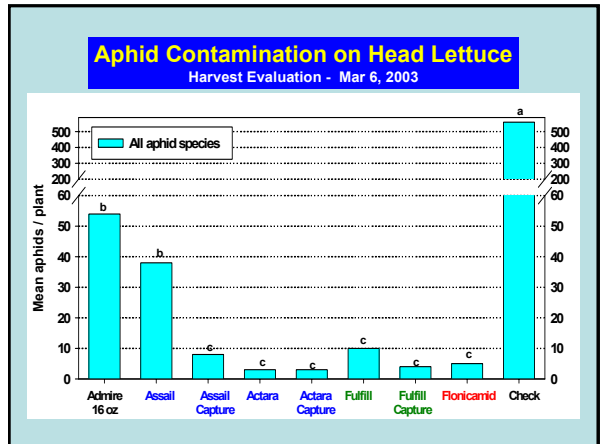
Total Aphid Complex – Harvest Infestations





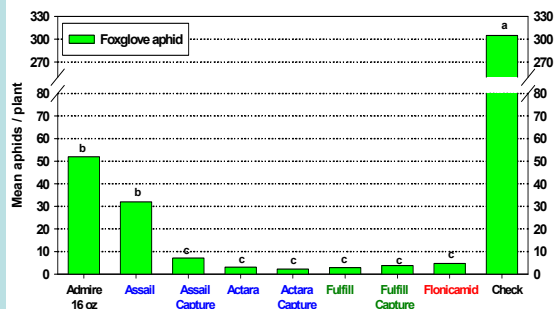
**Comparison of Neonicotinoid Insecticides
For Aphid & Thrips Control in Head Lettuce**

- Nov 14 wet date
- 3 Sprays (Jan 21, Feb 4, Feb 16)
- **Threshold:**
1st colonization = 0.7 aphids /plant
11 % plant infested >1 aphid
- Mar 6 - Harvest



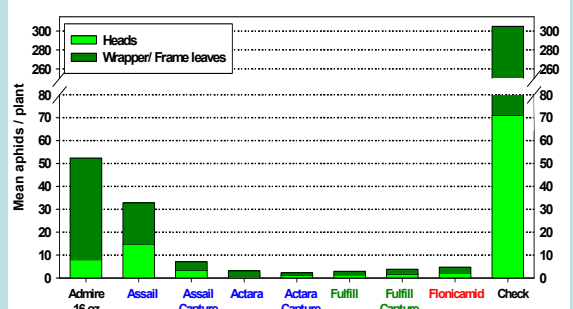
Aphid Contamination on Head Lettuce

Harvest Evaluation - Mar 6, 2003



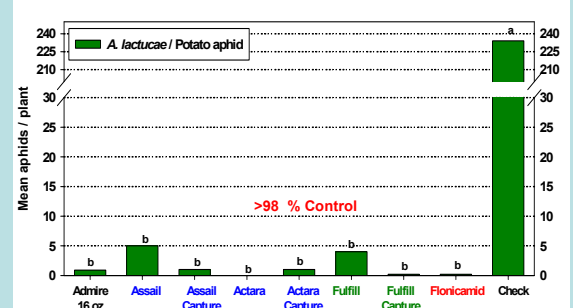
Aphid Contamination on Head Lettuce

Harvest Evaluation - Mar 6, 2003



Aphid Contamination on Head Lettuce

Harvest Evaluation - Mar 6, 2003



Aphid Efficacy in Romaine

Spray # 1 (Mar 13)

Spray # 2 (Mar 21)

Spray # 3 (Mar 30)

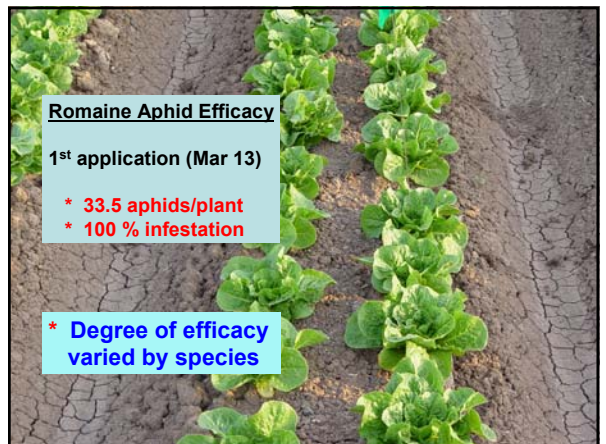
Dimethoate	+ endosulfan	0.75 pt + 1 qt
endosulfan		1 qt
Provado	+ endosulfan	3.75 oz + 1 qt
Flonicamid	+ endosulfan	0.133 lb ai + 1 qt
Actara	+ endosulfan	4 oz + 1 qt
Assail	+ endosulfan	1.7 oz + 1 qt
Fulfill	+ endosulfan	2.75 oz + 1 qt

Romaine Aphid Efficacy

1st application (Mar 13)

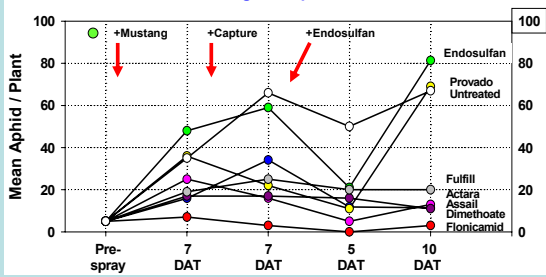
- * 33.5 aphids/plant
- * 100% infestation

* Degree of efficacy varied by species



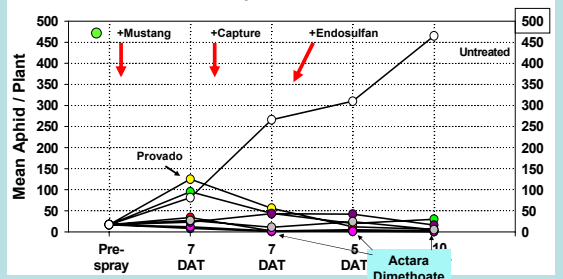
Aphid Efficacy in Romaine YAC- 2003

Foxglove Aphid



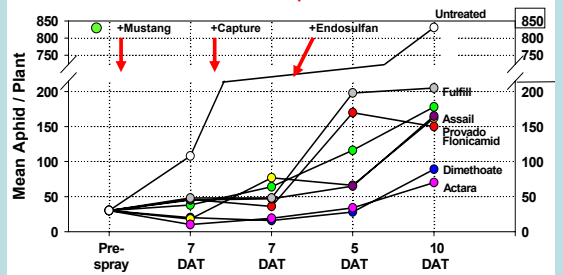
Aphid Efficacy in Romaine YAC- 2003

Potato Aphid / *A. lactucae*



Aphid Efficacy in Romaine YAC- 2003

Lettuce Aphid



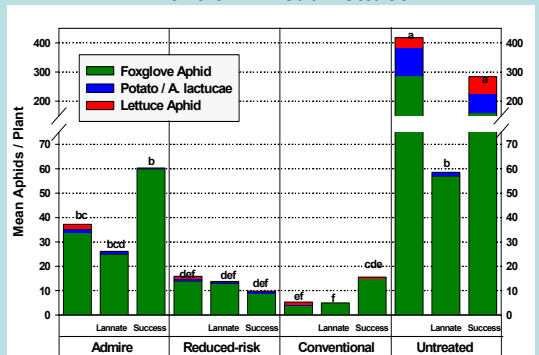
Interactions between Aphid and Thrips Control in Head Lettuce

Threshold:

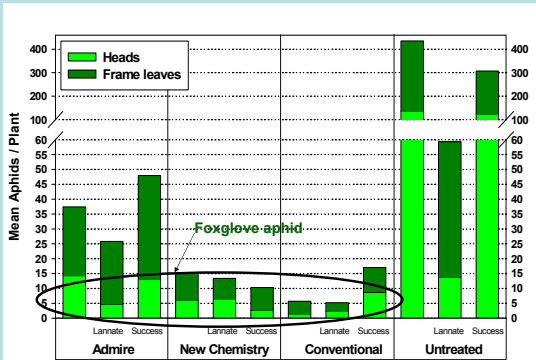
1st colonization = 0.9 aphids /plant

7 % of plants infested > 1 aphid

Interactions between Aphid and Thrips Control in Head Lettuce



Interactions between Aphid and Thrips Control in Head Lettuce



Arizona Crop Information Site

<http://www.ag.arizona.edu/crops>

