



**Title:** Head Lettuce Insect losses Workshop  
**Sponsor:** University of Arizona  
**Date:** 5-02-06  
**Location:** Yuma Civic Center

**California**  
3 hours

**Arizona**  
3 hours

## Arizona Head Lettuce Insect Losses Workshop

*Crop Insect Loss and Impact Assessment Working Group*

May 2, 2006



## 2005 Head Lettuce Insect Losses Working Group

- **Goal:** To develop head lettuce insect losses, control costs, and related insect control information for the state of Arizona.
- Data has traditionally been provided using incomplete surveys and “expert” opinion.
- Your opportunity to ground the process with “real world” data.

## Why is this Process Important?

In combination with the Pesticide Use Database (derived from 1080 data):

- Section 18 Emergency Exemptions
- Defense and Support of older A.I.s
- FQPA: next go-around – endosulfan/pyrethroids
- Quantitative database for measuring IPM
- Supports funding for UA Res / Extn programs
- Help to re-direct efforts of University

## Why is this Process Important?

- Translates your job into economic terms for your customers
- Confirms the *importance* of the PCA to the lettuce industry
- Demonstrates value of new pest control technologies
- Shows importance of insect pests and their management in desert lettuce production

## Part 1.

### Arizona Head Lettuce Insect Losses Survey - 2005/2006

#### Part 1

1. Please indicate: PCA  Grower \_\_\_ Industry \_\_\_ Other \_\_\_
2. Reporting Area (county or counties): Yuma
3. Date submitted: (dd/mm/yy): 5/2/2006

	Fall Lettuce (Sep - Nov)	Spring Lettuce (Dec-Mar)
4. Head Lettuce Acreage to which this estimate applies (total acres):		
5. Estimated yields in cartons (per acre) for this acreage:		
6. Potential yield in cartons (per acre) for this acreage. Assume ideal conditions		
7. Percent reduction in yield by: <b>Weather</b> (% reduction)		
8. Percent reduction in yield by: <b>Chemical injury</b> (% reduction)		
9. Percent reduction in yield by: <b>Weeds</b> (% reduction)		
10. Percent reduction in yield by: <b>Disease</b> (% reduction)		
11. Percent reduction in yield by: <b>Insects</b> (% reduction)		
12. Percent reduction in yield by: <b>Birds</b> (% reduction)		
13. Percent reduction in yield by <b>Other Factors</b> : List factors below. (% reduction)		

## Responses For Fall and Spring Head Lettuce :



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	Fall Lettuce (Sep - Nov)	Spring Lettuce (Dec-Mar)
4. Head Lettuce Acreage to which this estimate applies (total acres):	1500	1000
5. Estimated yields in cartons (per acre) for this acreage:	850	975
6. Potential yield in cartons (per acre) for this acreage. Assume ideal conditions	1050	1100
7. Percent reduction in yield by: <b>Weather</b> (% reduction)		
8. Percent reduction in yield by: <b>Chemical injury</b> (% reduction)		
9. Percent reduction in yield by: <b>Weeds</b> (% reduction)		
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## Percent (%) Reductions in Yield



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7. Percent reduction in yield by: <b>Weather</b> (% reduction)	5	6
8. Percent reduction in yield by: <b>Chemical injury</b> (% reduction)	1	1
9. Percent reduction in yield by: <b>Weeds</b> (% reduction)	2	2
10. Percent reduction in yield by: <b>Disease</b> (% reduction)	9	11
11. Percent reduction in yield by: <b>Insects</b> (% reduction)	5	4
12. Percent reduction in yield by: <b>Birds</b> (% reduction)	3	5
13. Percent reduction in yield by <b>Other Factors</b> : List factors below. (% reduction)		

## Percent (%) Reductions in Yield



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12. Percent reduction in yield by: <b>Birds</b> (% reduction)	3	5
13. Percent reduction in yield by <b>Other Factors</b> . List factors below. (% reduction) <b>Vertebrates, rodents, salt, poor crop management,</b> <b>poor thinning and weeding, bad market</b>		

## Insecticide Applications



Application Costs: It is possible that acreage could have been treated using both air and ground sprayer, thus, when combined, percentages may total > 100%. These estimates are for <b>Insecticide Applications</b> .	Fall Lettuce (Sep - Nov)	Spring Lettuce (Dec-Mar)
14. Percent acres (for this estimate) treated by <b>air</b> in 2004/2005:	100	90
15. Average number of insecticide treatments by <b>air</b> :	3.5	3
16. Cost (\$) per acre for a single aerial application:	8.50	9.00
17. Percent acres (for this estimate) treated by <b>ground</b> in 2004/2005:		
18. Average number of insecticide treatments by <b>ground</b> :		
19. Cost (\$) per acre for a single ground application:		

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16. Cost (\$) per acre for a single aerial application:	8.50	9.00
17. Percent acres (for this estimate) treated by <b>ground</b> in 2004/2005:	100	90
18. Average number of insecticide treatments by <b>ground</b> :	4	4
19. Cost (\$) per acre for a single ground application:	14.50	15.00

## Insect Management Fees



Insect Management Fees: Estimate the cost (\$) of insect management fees paid by growers to pest control advisors.	Fall Lettuce (Sep - Nov)	Spring Lettuce (Dec-Mar)
20. Percent of acres where insect monitoring, scouting and sampling was conducted:	100	100
21. Number of field visits per week:	4	3
22. Estimated cost (\$) per acre for insect monitoring/advisory:	22.50	21.00
Comments:		

## Part 2. Insecticide Treated Acres and Insect Losses



Part 2. Arizona Head Lettuce Insect Losses Survey - 2005/2006

Pest	A		B		C		D		E	
	% acres where pest was present		% acres treated for this pest		Number of insecticide applications required to control this pest		Cost \$ of one application per / acre (include application cost)		% reduction in yield due to this pest	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
23 Seedling Pests -ground beetles, earwigs, crickets										
24 Flea beetles										
25 Leafminers										
26 Salt marsh caterpillar										
27 Beet armyworm										
28 Thrips	100	100	30	85						
29 Budworm/bollworm										
30 Other Lep larvae										
31 Silverleaf whitefly										
32 Green peach aphid										
33 Fonglove aphid										
34 Lettuce aphid										
35 Other aphid species										
36 Thrips										
37 Trash bugs (lygus, leaf-hoppers, False chinch bugs, etc.)										
38 Other insects (list below)										

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27 Beet armyworm										
28 Thrips	100	100	30	85	1	3				
29 Budworm/bollworm										
30 Other Lep larvae										
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32 Green peach aphid										
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	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
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24 Flea beetles										
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26 Salt marsh caterpillar										
27 Beet armyworm										
28 Thrips	100	100	30	85	1	3	32.50	32.00	0.5	1
29 Budworm/bollworm										
30 Other Lep larvae										
31 Silverleaf whitefly										
32 Green peach aphid										
33 Foxglove aphid										
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		B		D		
		% acres treated		Cost \$ of one application per acre		
		Fall	Spring	Fall	Spring	
39a	Chemigation treatments used at stand	Once:	90	25	12.50	12.50
39b	establishment during 2004/2005:	2 or more:				
40	Soil-applied insecticide used (Admire pre-emergence):		100	75	70	70

**Major pests in 2004-2005 - Treated Acres and No. of Sprays**

Fall Head Lettuce		Spring Head Lettuce	
			
<b>Beet armyworm</b> 94% acres 3.6 sprays	<b>Cabbage looper</b> 98% acres 3.0 sprays	<b>Thrips</b> 86% acres 2.5 sprays	<b>Green peach aphid</b> 56% acres 2.2 sprays

**Major pests in 2004-2005 - % Reduction in Yield**

Fall Head Lettuce		Spring Head Lettuce	
			
<b>Seedling pests</b> 2.6 % loss	<b>Beet armyworm</b> 2.3 % loss	<b>Thrips</b> 1.7% loss	<b>Seedling pests</b> 1.4% loss

**Part 3. Insecticide Use Survey**



**Arizona Head Lettuce Insect Losses Survey - 2004/2005**

Part 3.

	Fall Lettuce (September -November)		Spring Lettuce (December-March)	
	Acres (%) treated with this product	Avg no of times treated with product	Acres (%) treated with this product	Avg no of times treated with product
<b>Orthene (acephate)</b>	<b>10</b>	<b>1</b>	<b>25</b>	<b>1.5</b>
Dimethoate				
Metasystox-R				
Diazinon - Foliar				
- Chemigation				
Lannate				
Larvin				
Endosulfan				
Pyrethroids - Foliar				
- Chemigation				
Admire (imidacloprid)				

**Arizona Head Lettuce Insect Losses Survey - 2004/2005**

Part 3.

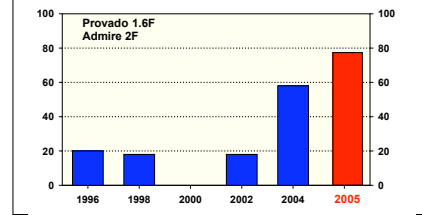
	Fall Lettuce (September -November)		Spring Lettuce (December-March)	
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Metasystox-R				
Diazinon - Foliar				
- Chemigation				
Lannate				
Larvin				
Endosulfan				
Pyrethroids - Foliar				
- Chemigation				
Admire (imidacloprid)				

New additions: Assail, Oberon, Azadirachtin / Neem, Entrust



**ARIZONA AGRICULTURAL STATISTICS SERVICE**  
**2004 ANNUAL STATISTICS BULLETIN**

**% Head Lettuce Acres Treated with Imidacloprid**



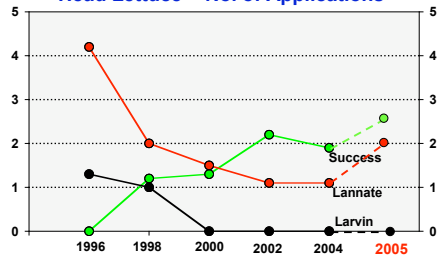
• This is data that is currently used for regulatory processes

<http://www.nass.usda.gov/az/>



ARIZONA AGRICULTURAL  
STATISTICS SERVICE  
2003 ANNUAL STATISTICS BULLETIN

Head Lettuce – No. of Applications

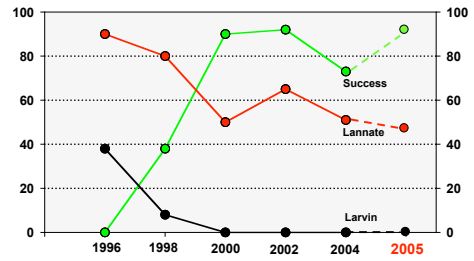


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ARIZONA AGRICULTURAL  
STATISTICS SERVICE  
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% Head Lettuce Acres Treated



<http://www.nass.usda.gov/az/>

Let's get started!

