



2022 UA Ag Production Seminar

DATE: April 6, 2022



THE UNIVERSITY OF ARIZONA COOPERATIVE EXTENSION
 Maricopa County Garden Planting Calendar for Fruits and Vegetables

Fruit • Vegetable	Time to Harvest	Jan.		Feb.		March		April		May		June		July		August		Sept.		Oct.		Nov.		Dec.	
		1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15
Artichokes, Globe	4-6 months		T	T	T	T	T															S	S	S	
Artichokes, Jerusalem	6-8 months		T	T	T	T	T	T	T	T															
Asparagus	2-3 years	T	T	T																		T	T	T	T
Basil	T = 30 S = 60-75 days				S	T/S	T/S	T/S	T/S	T/S	T/S														
Beans, Lima	60-100 days						S	S																	
Beans, Pinto	60-90 days														S										
Beans, Snap	60-90 days						S	S	S						S	S	S	S							
Beans, Yardlong	60-90 days						S	S	S	S	S	S	S												
Beets	60-80 days	S	S	S	S	S												S	S	S	S	S	S	S	S
Bleckeyed Peas	90-120 days							S	S	S	S	S	S	S	S	S									
Bok Choy	45 days	S	S	S	S												S	S	S	S	S	S	S	S	S
Broccoli	T=90-100 S=120-130 days	T/S	T														S	S	T/S	T/S	T/S	T/S	T/S	T/S	T/S
Brussel Sprouts	T=100-120 S=130-150 days																S	T/S	T/S	T/S	T/S	T/S	T/S		
Cabbage	T=80-90 S=120-130 days	T/S	T														S	S	T/S	T/S	T/S	T/S	T/S	T/S	T/S
Cabbage, Chinese	T=45 S=70-80 days	T/S	T														S	S	T/S	T/S	T/S	T/S	T/S	T/S	T/S
Carrots	60-100 days	S	S	S	S	S	S	S	S							S	S	S	S	S	S	S	S	S	S
Cauliflower	T=90-100 S=120-130 days	T/S	T														S	T/S	T/S	T/S	T/S	T/S	T/S	T/S	T/S
Celery	120-150 days																S	S	T/S	T/S	T/S	T/S	T/S	T/S	T/S
Chard	60-90 days	T/S	T/S														S	S	T/S	T/S	T/S	T/S	T/S	T/S	T/S
Collard Greens	80 days	S	S	S	S												S	S	S	S	S	S	S	S	S
Com, Sweet	70-90 days				S	S	S	S							S	S	S								
Cucumbers	60-90 days				S	S	S	S	S								S	S	S						
Cucumbers, Armenian	55 days				S	S	S	S	S	S	S	S	S												
Eggplant	70-120 days					T	T																		
Endive	80-120 days	S	S															S	S	S	S	S	S	S	S

S = Seeds T = Transplants X = Sets of Cloves

Importance of Identification and Monitoring in your IPM



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 PhD Student Entomology and Insect Science



What is a pest?

- Who defines what is a pest?
- A pest is **any organism that spreads disease, causes destruction or is otherwise a nuisance**



Treated

Untreated

Identification Is KEY!!!

- Not only identification of the pest is key but also the scenario



Pest or not?



Pest or not?



Pest or not?



Pest or not?



Pest or not?



Pest or not?



Pest or not?



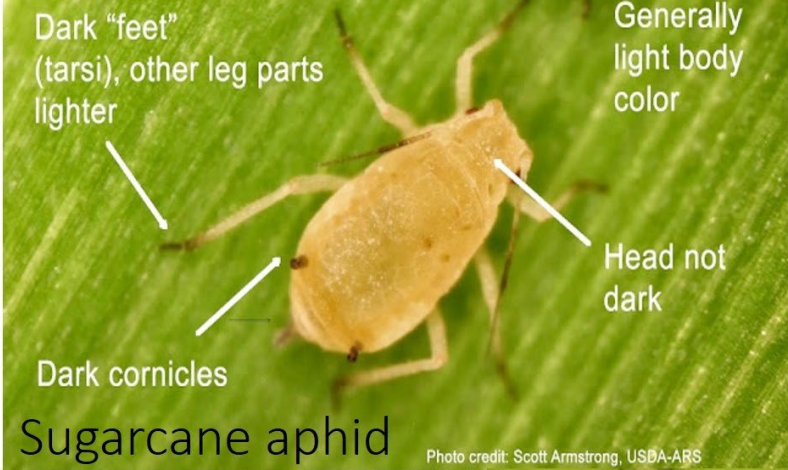
Forage (Hay, Haylage, Greenchop)



Seed

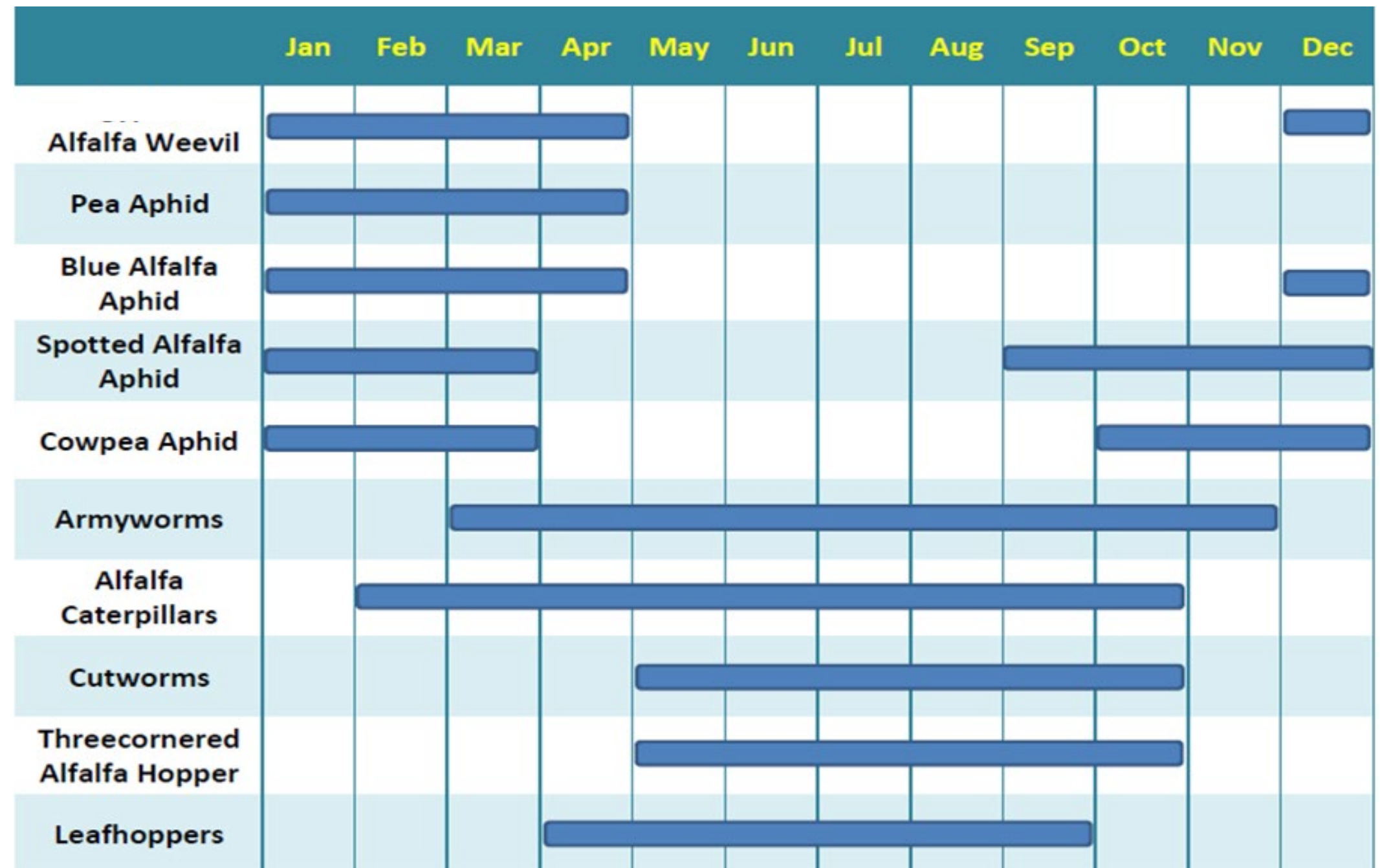


Pest or not?



How often should we be monitoring?

- Depends on the pest right...
- Could be at germination, every month, every other week, every week or maybe even every day!!!

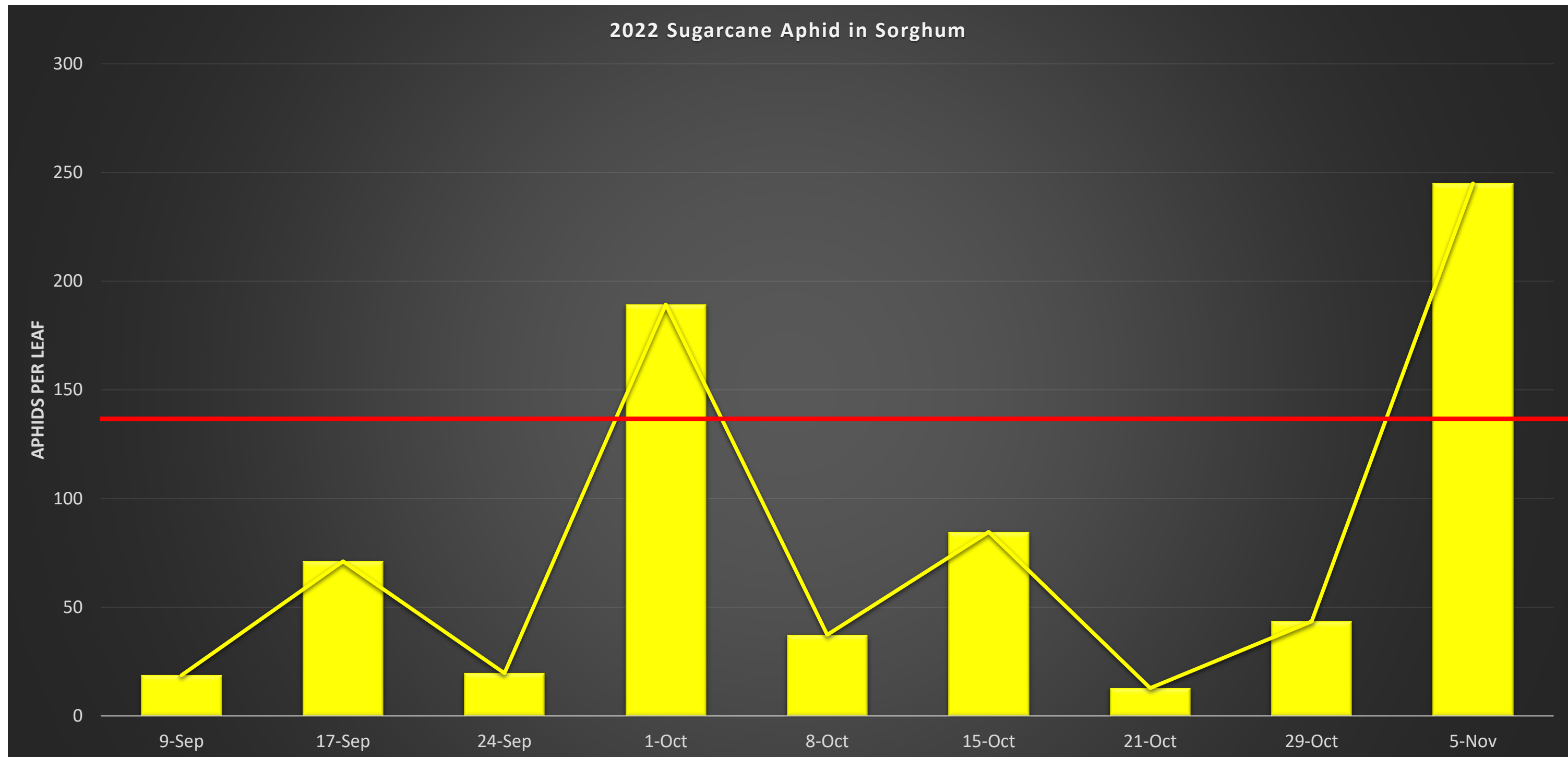


How should we be monitoring?

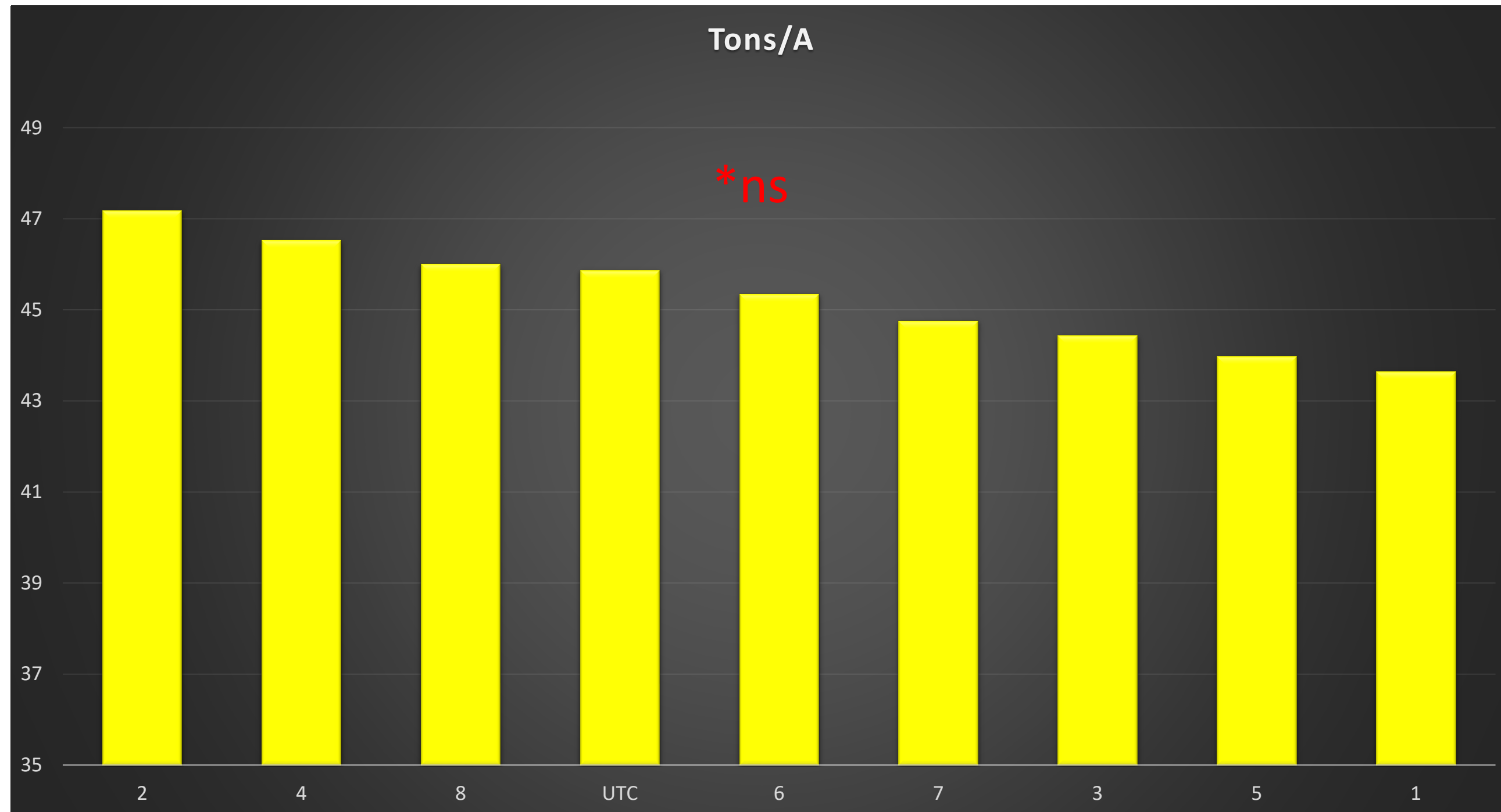
- In a representative manner!!!
- Alfalfa we do 5 sweeps in each quadrant of a field and take the averages.
- Sorghum and corn we take 5 random leaves far enough from one another and split field into quadrants once again to get field scale averages



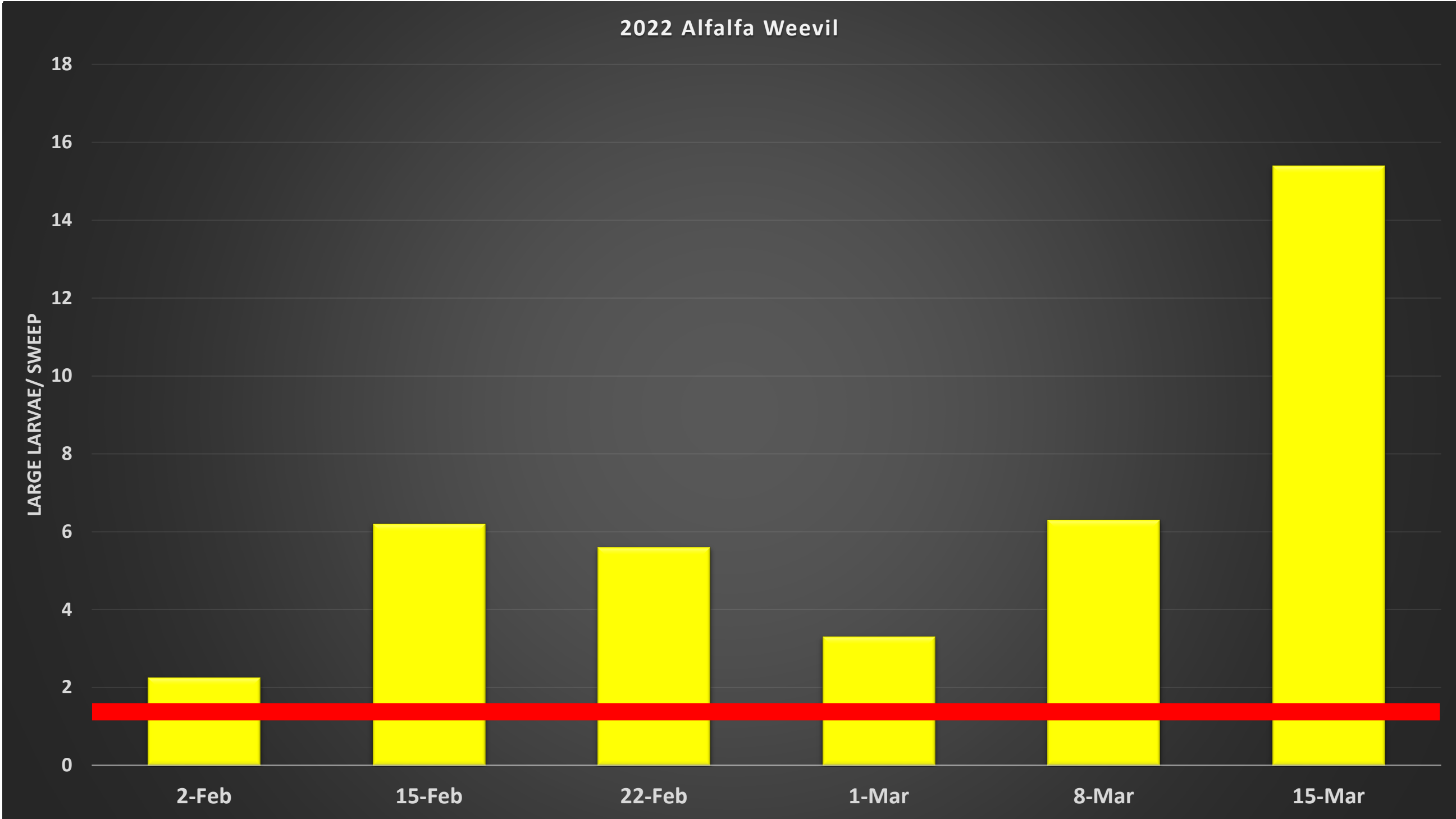
Sugarcane Aphid scenario...



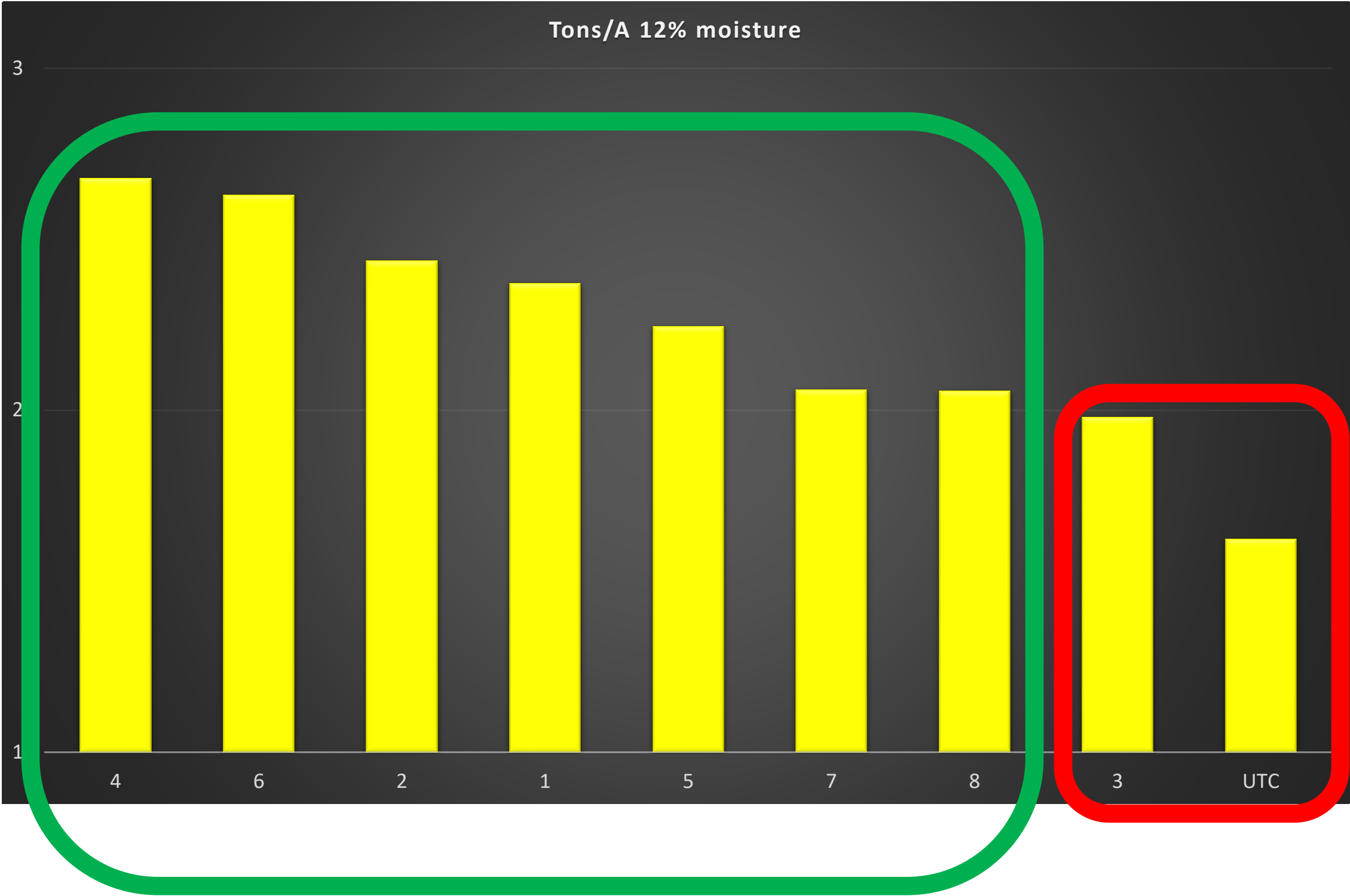
Sugarcane Aphid scenario...



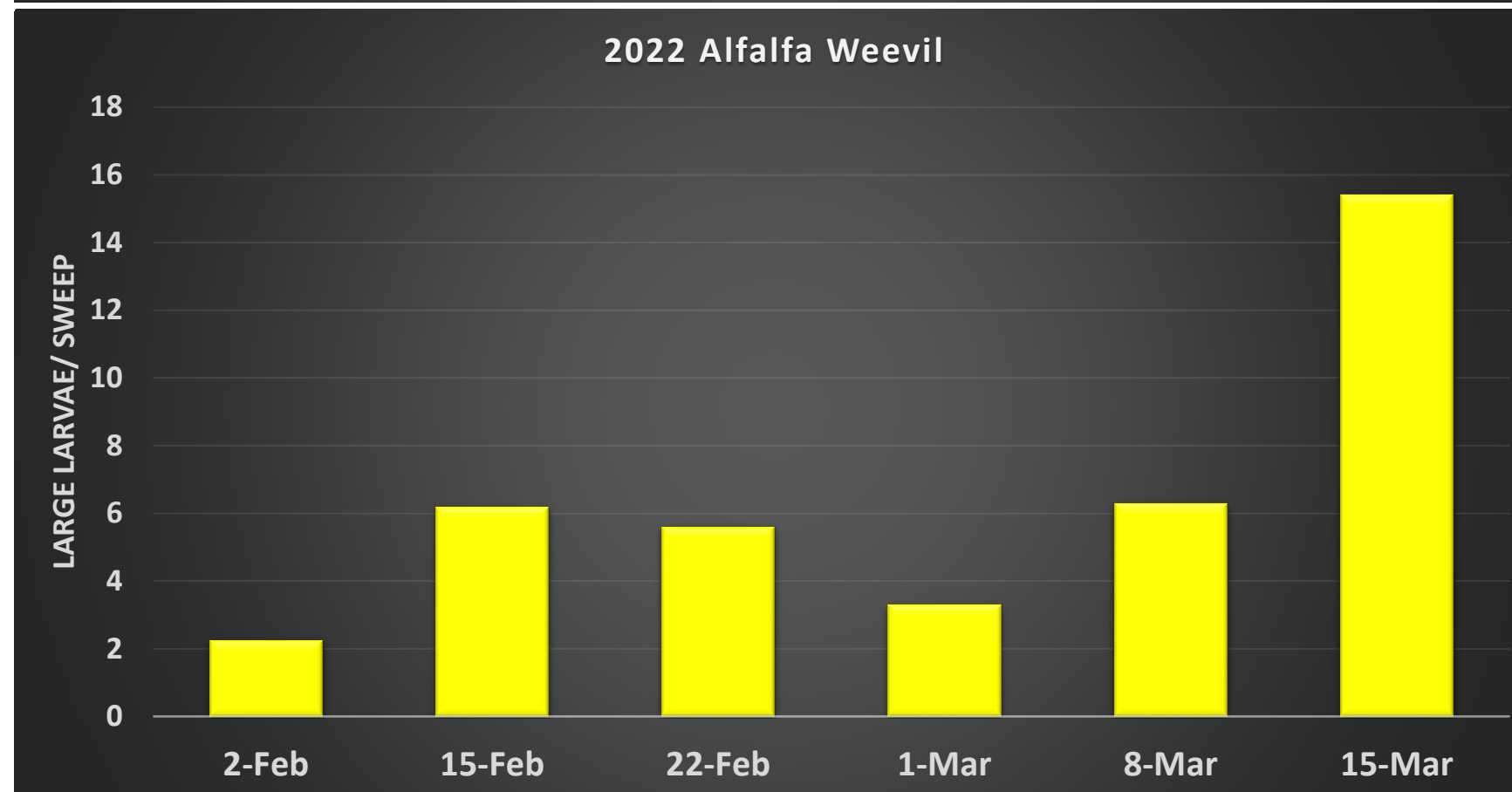
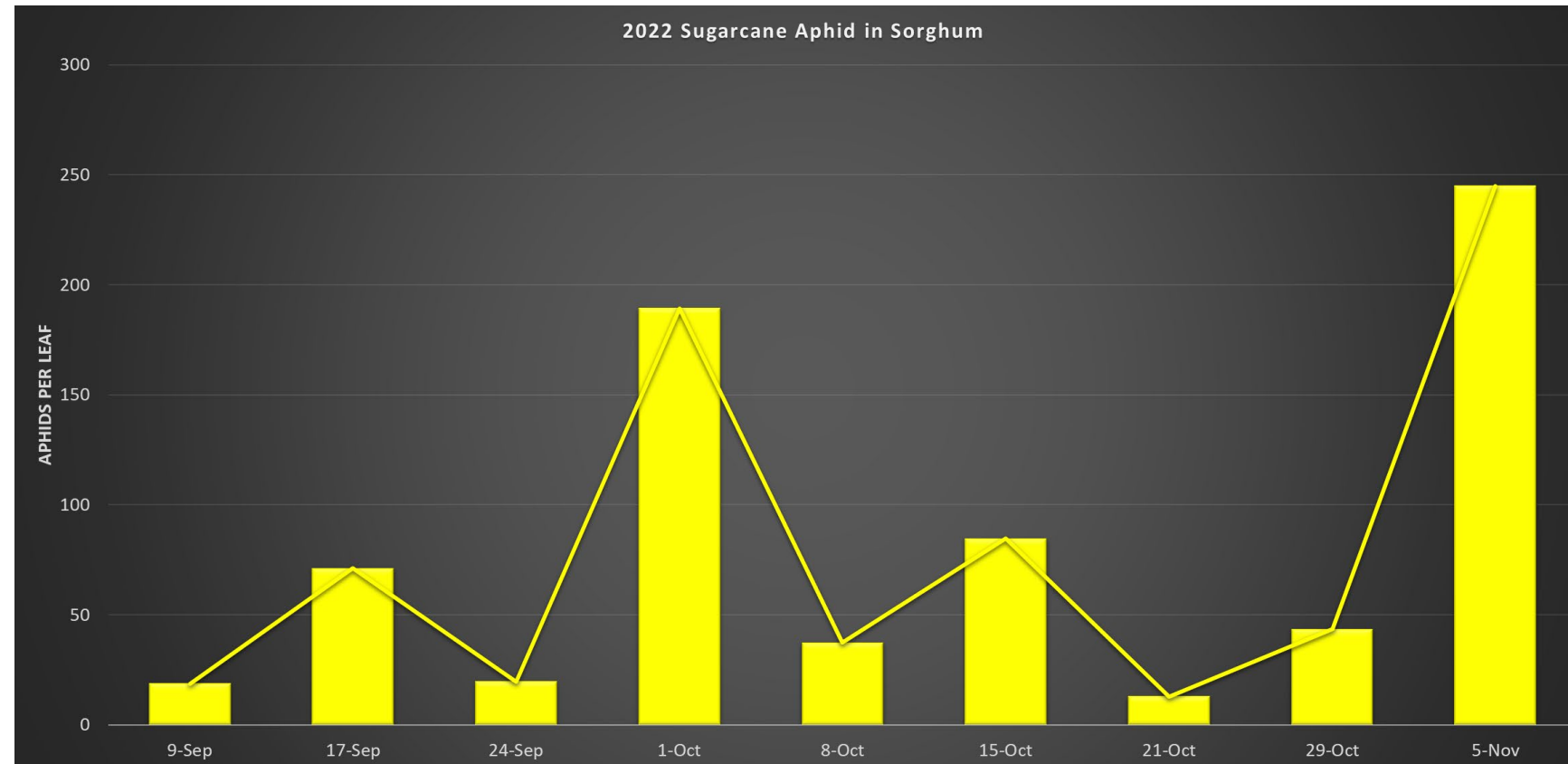
Weevil scenario...



Weevil scenario...



So We Should Know Our Pest



Know Your Crop and the Pests (and Beneficials) Associated with it!!!

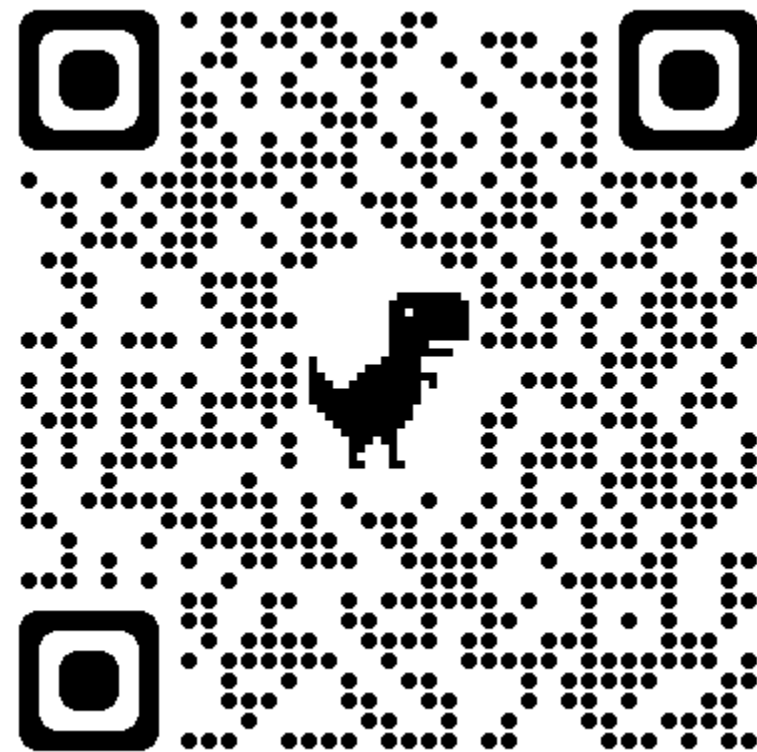
Example: Leaf Lettuce

- Main Pests
- ID correctly and know life history
- Know the damage that they cause
- Look into Management and Control options

Know Your Crop and the Pests (and Beneficials) Associated with it!!!

Example: Leaf Lettuce (Cont...)

<https://acis.cals.arizona.edu/>



Know Your Crop and the Pests (and Beneficials) Associated with it!!!

Example: Leaf Lettuce (Cont...)



Know Your Crop and the Pests (and Beneficials) Associated with it!!!

Example: Leaf Lettuce (Cont...)

The screenshot shows the Arizona Pest Management Center website. At the top left is the logo for the Arizona Pest Management Center, and below it is the University of Arizona logo. A search bar with a 'SEARCH' button is located in the top right. A navigation menu is visible, with 'Agricultural IPM' selected, which has opened a dropdown menu. The dropdown menu includes the following items: 'Agricultural IPM Home', 'Vegetables >', 'Field Crops >', 'Other Crops >', 'Agricultural Pesticide Safety', 'Agricultural IPM Outputs >', 'Events', and 'Frequently Asked Questions'. Below the navigation menu, the main content area features a large heading 'Arizona Pest Management Center' and a sub-heading 'Information for Arizona communities and farms'. A line graph titled 'Spring Lettuce' is displayed, showing two data series: '% Acres Pest Present' (black line with circles) and '% Acres Treated for Pest' (red line with squares). The y-axis ranges from 70 to 100. The graph shows that the percentage of acres treated for pest is consistently higher than the percentage of acres where the pest is present.

Category	% Acres Pest Present	% Acres Treated for Pest
Spring Lettuce	~85	~95

Know Your Crop and the Pests (and Beneficials) Associated with it!!!

Example: Leaf Lettuce (Cont...)

The screenshot shows the Arizona Pest Management Center website. At the top left is the logo for the Arizona Pest Management Center, and at the top right is a search bar with a 'SEARCH' button. Below the logo is the text 'THE UNIVERSITY OF ARIZONA'. A navigation menu is visible with the following items: Home, Pest Identification, Agricultural IPM, IPM Assessment, Community IPM, Pesticide Education and Training, and About Us. The 'Agricultural IPM' menu is expanded, showing a list of options: Agricultural IPM Home, Vegetables, Field Crops, Other Crops, Agricultural Pesticide Safety, Agricultural IPM Outputs, Events, and Frequently Asked Questions. The 'Vegetables' option is further expanded to show a list of crops: Lettuce, Melons, Cole Crops, Spinach, Vegetable Outputs, VIPM Updates, VIPM Archive, Vegetable Video Archive, VIPM Update Cartoons, and Events. The background of the website features a large image of a green leaf with several small insects on it.

Know Your Crop and the Pests (and Beneficials) Associated with it!!!

Example: Leaf Lettuce (Cont...)

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Know Your Crop and the Pests (and Beneficials) Associated with it!!!

Example: Leaf Lettuce (Cont...)

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Cabbage Looper

Trichoplusia Ni (Hubner)

Description and Life History: The cabbage looper is a very destructive pest on lettuce and will feed on many other crops including cole crops, leafy greens, melons, tomatoes, and cotton (Fig. 8). Cabbage loopers occur year round in Arizona's central and southwestern desert areas. Populations are especially a problem in the fall, when newly-planted winter vegetables are emerging.



Figure 8. Cabbage looper larva.

Cabbage looper moths lay single, dome-shaped eggs on the under side of older leaves. A single female may lay 275 to 350 eggs. Eggs will darken as they age, and will hatch in 2 to 5 days. The larvae are light green in color and have a distinctive white stripe along each side of the body. The larvae have two sets of legs in the front of the body and three sets of fatter, unjointed prolegs at the rear. They move in a "looping" manner, arching the middle portion of the body as they move forward. Two to four weeks are required for full development to a 5th instar larva. Cabbage looper pupae appear as greenish to brown pupas wrapped in a delicate white cocoon of fine threads usually attached to the underside of the leaf. Pupation usually takes 10 to 16 days. The moth is mottled brown in color, and has a small silvery spot (sometimes a figure 8) near the middle of its front wing. Cabbage loopers may have 3 to 5 generations per year.

Damage: Loopers damage plants by eating ragged holes in leaves, and sometimes working their way into heads. They also cause damage by contaminating marketable portions with their bodies and frass. High populations can chew seedlings severely enough to kill them or slow growth enough to inhibit uniform maturing of the crop, but most economic damage occurs after heading. Young plants between thinning and heading can tolerate substantial feeding by loopers and other caterpillars without loss of yield or quality. Heads contaminated with loopers, or tunneled into by loopers are not marketable.

Management and Control: Monitoring for cabbage looper and other Lepidopterous pests should involve sampling plants twice a week once seedling emergence begins. When populations appear to be increasing, check more often. Follow the guidelines used for monitoring beet armyworms. On lettuce, monitor for eggs and larvae of loopers while checking for other caterpillar pests that feed on leaves and heads. Action thresholds are similar to those of beet armyworm: treat seedlings or small plants when populations of small loopers are large enough to stunt growth. If other Lepidopterous species are present, also include them in this total. Between thinning and heading, treat if the worm population reaches one larva per 50 plants. During head formation, treat if sample counts exceed one larva per 25 plants. Cabbage loopers are especially sensitive to B.t.s. Including a B.t. with insecticide applications targeting beet armyworms will usually control any cabbage loopers present.

[Cabbage Looper Image Gallery](#)

[Cabbage Looper Publications](#)