

39TH ANNUAL TRI-COUNTY WALNUT DAY

**2007 RETAIN RESEARCH RESULTS AND
MANAGEMENT OF SCALES INFESTING WALNUTS**

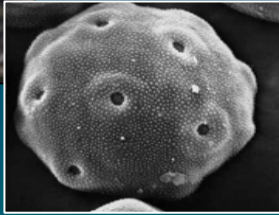
ROBERT BEEDE

UC FARM ADVISOR

KINGS AND TULARE COUNTIES

[HTTP://CEKINGS.UCDAVIS.EDU](http://cekings.ucdavis.edu)

What causes PFA?



too much
pollen



ethylene



PFA



2007 ReTain[®] Trials- Kings Co.

Bob Beede, UC Farm Advisor

➤ Trials: Nine Total

- A. Two Aerial, Replicated (Serr Variety)
- B. One ground with Tulare, Replicated
- C. One ground with Serr, Replicated
- D. One Comparing Catkin Shaking to ReTain on Serr, Replicated
- E. Two Demonstration Trials (Serr)
- F. Two Phytotoxicity Trials (Serr and Tulare)

ReTain[®] Application Timing

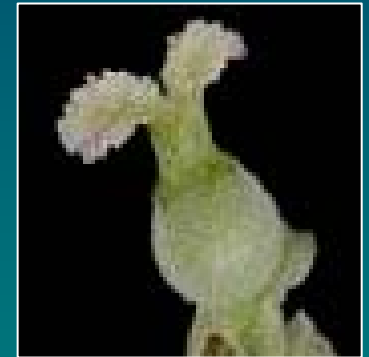
30% peak female bloom



too early
not
receptive



peak pollen receptivity



late
not
receptive

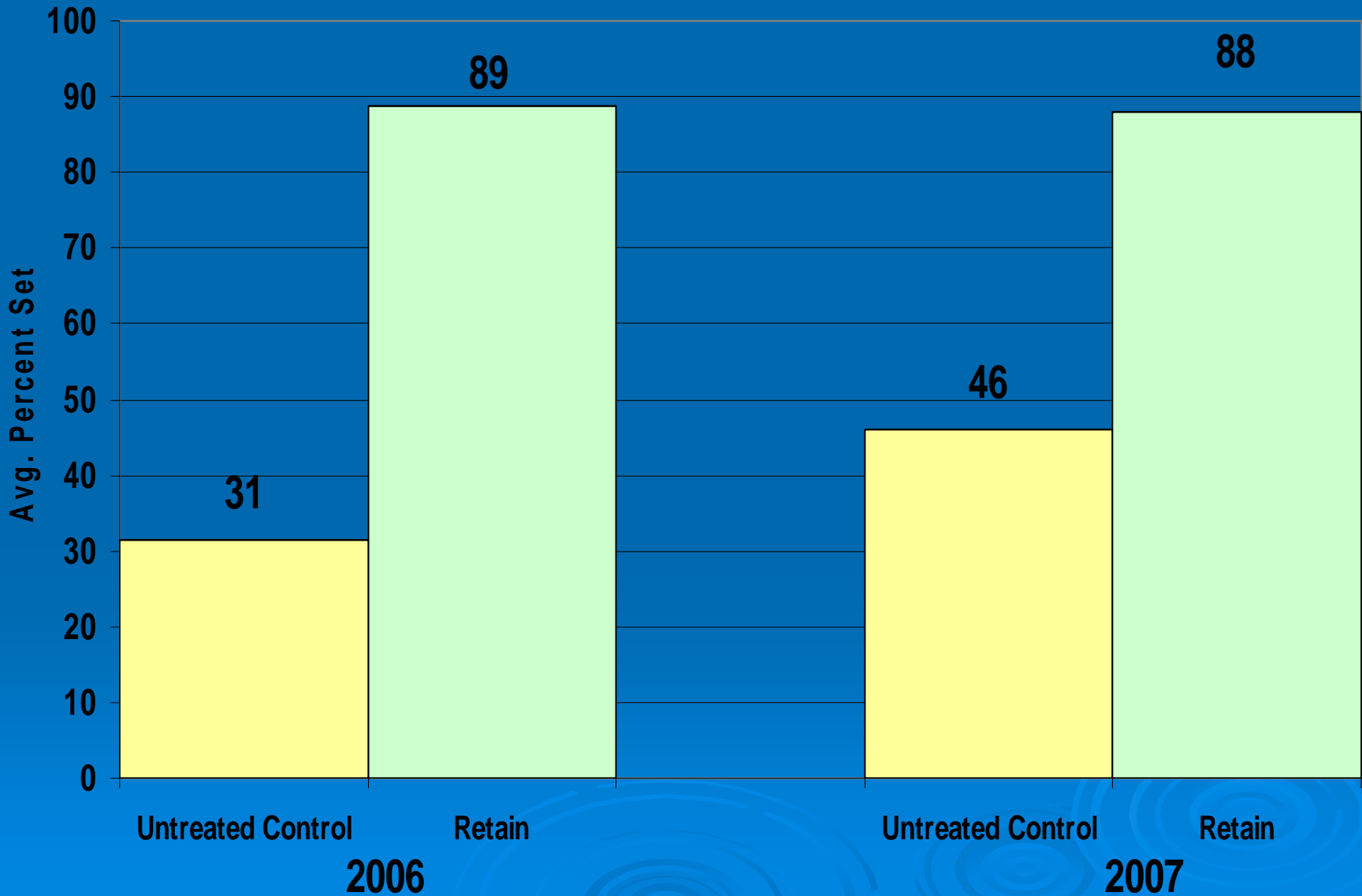
BY KELLY ANDERSON

2007 RETAIN TRIALS TULARE COUNTY

- GROWER: BLAIN
- VARIETY: SERR
- AGE: 30+YRS
- SPACING: 40X40 = 27 TREES/AC
- TRIAL TYPE: DEMONSTRATION
- TRIAL SIZE: 17 TREES (.63 ACRES)

Blain Farms ReTain Trial on Serr Walnuts

Avg. Nut Set



BLAIN FARMS 2006-2007 YIELD COMPARISON



2007 RETAIN TRIAL KINGS-COUNTY

- GROWER: WARMERDAM
- VARIETY: TULARE
- AGE: 8 YRS.
- SPACING: 40X40 DOUBLE PLANTED
- (54 TREES/AC)
- TRIAL TYPE: REPLICATED SIX TIMES
- TRIAL SIZE: 4 TREES/PLOT (.074AC)

DATA RESULTS- WARMERDAM (TULARE)

2007 RETAIN TRIAL KINGS-COUNTY

AVERAGE SET RETAIN: 67% DATE 5/4/07

AVERAGE SET CONTROL: 65%

1ST HARVEST	
TREATMENT	DRY INSHELL AVERAGE
TREATED	375
CONTROL	346
2ND HARVEST	
TREATED	66
CONTROL	64

PER ACRE YIELD INCREASE: 432 LBS.

2007 RETAIN TRIAL KINGS-COUNTY

- GROWER: WARMERDAM
- VARIETY: SERR
- AGE: 15 YRS
- SPACING: 40X40 DOUBLE PLANTED
- TRIAL TYPE: DEMONSTRATION
- TRAIL SIZE: .37/AC (1ROW 10 EACH)

2007 RETAIN TRIAL KINGS-COUNTY

TREATED BLOOM AVERAGE (94%) TAKEN ON 4/27/07

CONTROL BLOOM AVERAGE (38%) TAKEN ON 4/27/07

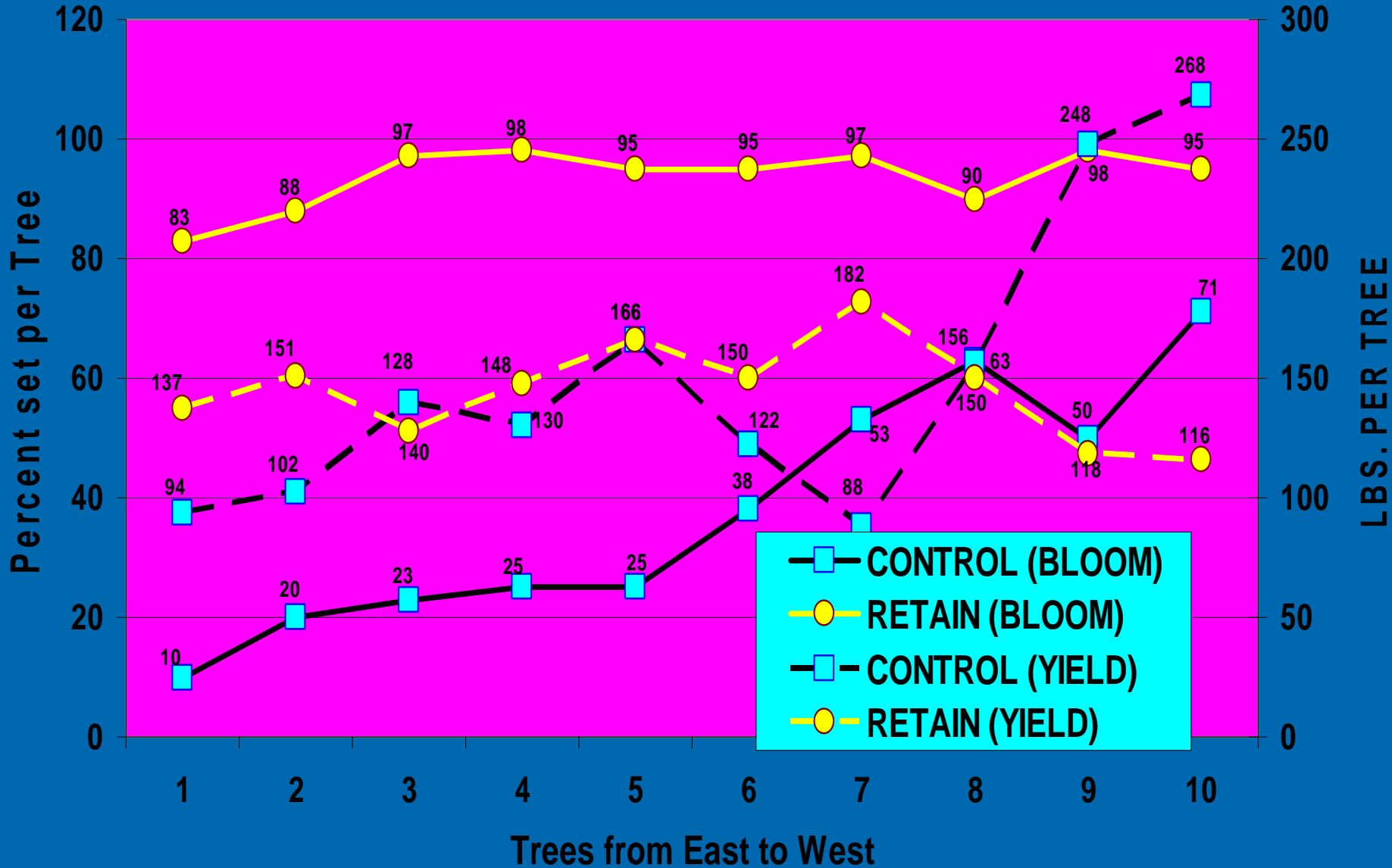
SERR CULTIVAR

TREATMENT	DRY INSHELL	AC.	YIELD/AC*
RETAIN	448.26	0.37	2420.604
CONTROL	499.62	0.37	2697.948

*CALCULATED VALUE

Warmerdam Farms (Serr) Retain Trial 2007.

Chart shows as we move West there is less PFA



2007 RETAIN AERIAL TRIAL KINGS-COUNTY

- VARIETY: SERR
- AGE: 30+ YRS
- SPACING: 30X30 (48 TREES/AC)
- 4 TREES PER REP
- 9 REPS PER TREATMENT

NORTH

R-33

R-30

R-27

R-24

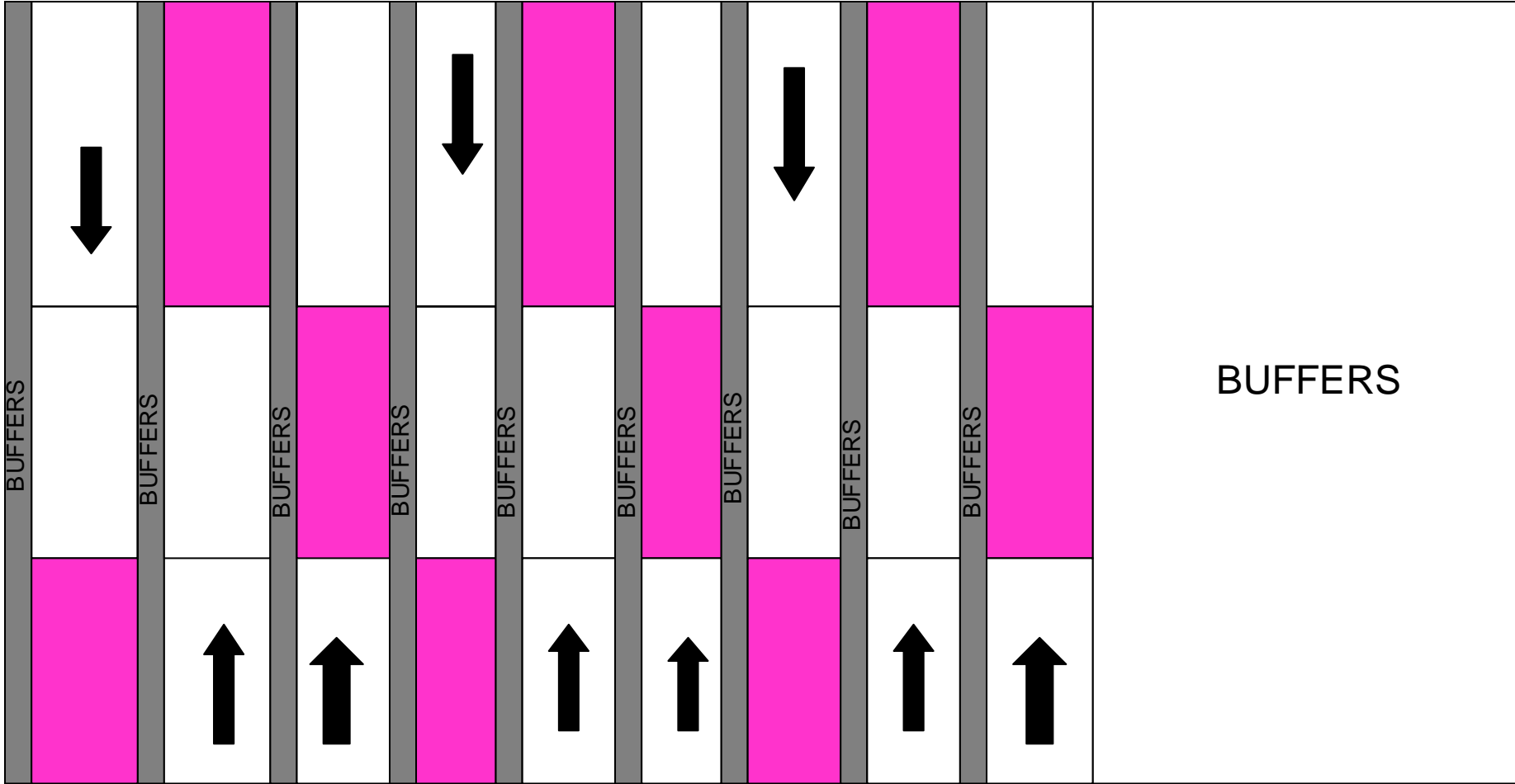
R-21

R-18

R-15

R-12

R-9



BUFFERS

SOUTH

DATA RESULTS

2007 RETAIN TRIAL KINGS-COUNTY

TREATMENT BLOOM AVERAGE (PINK AIR 52%)
(BLUE GROUND 92%) (WHITE CONTROL 43%)

TREATMENT	DRY INSHELL	AC.	YIELD/AC*
GROUND	258	0.38	6110.53 A
AIR	241	0.38	5707.89 B
UTC	217	0.38	5139.47 B

*CALCULATED VALUE

2007 RETAIN TRIAL: KINGS-COUNTY

EFFECT OF CATKIN SHAKING ON RETAIN PERFORMANCE

- GROWER: FREITAS
- VARIETY: SERR
- AGE: 10 YRS
- TRIAL TYPE: REPLICATED (10, SINGLE TREE PLOTS WITHIN TWO FIVE ACRE BLOCKS
- TREATMENTS: UNTREATED AND TREATED TREES WITHIN BLOCKS CATKIN SHOOK **FOUR** TIMES VERSUS **NO** CATKIN REMOVAL

NORTH

Joe Freitas Retain Trial Map (2007) Corner of 13th and Jackson

23	22	21	20	water pump	17	16	15	14	13	12	11	10	9
1	1	1	1	19	18	1	1	1	1	1	1	1	1
2	2	2	2	1	1	2	2	2	2	2	2	2	2
3	3	3	3	2	2	3	3	3	3	3	3	3	3
23	4	4	4	3	3	4	4	4	4	4	4	4	4
	5	5	5	W-T	4	5	5	P	5	5	5	5	P
	22	6	W-T	5	5	6	6	P-T	6	6	6	6	P-T
		7	7	W	6	7	7	P	7	7	W-T	7	7
		21	8	7	7	8	8	8	8	8	W	8	8
			9	W	W	9	9	9	9	9	W-T	9	9
			20	9	9	10	10	10	10	10	10	10	10
				10	10	11	11	11	11	11	11	11	11
				11	11	12	12	P	12	12	12	12	P
				12	12	13	13	P-T	13	13	W	13	13
				19	13	14	14	14	14	14	W-T	14	14
					14	15	15	15	15	15	W-T	15	15
					15	16	16	P	16	16	16	16	16
					16	17	17	17	17	17	P	17	17
					18	18	18	18	18	18	18	18	18
						19	19	W-T	19	19	P-T	19	19
						20	20	W	20	20	P	20	20
						17	21	21	21	21	21	21	P
							22	22	22	22	W-T	22	22
							23	23	23	23	W	23	23
							24	P-T	24	24	24	24	W-T
							25	25	25	25	P-T	25	25
							26	26	26	26	26	26	P
							16	27	27	27	W	27	27
								28	28	28	28	28	W-T
								29	29	29	29	29	29
								15	14	13	12	11	10
													9

CATKIN SHAKE

NO CATKIN SHAKE

WEST

EAST

Notes. B=Buffer, P=Pink Treated, W=White Control DR= Data row BR= Buffer Row
T=Tagged

FREITAS CATKIN SHAKE TRIAL 2007

KINGS-COUNTY

TREATMENT	INSHELL WT.	TREATMENT	INSHELL WT.
RETAIN SHAKE	75 A	RETAIN NO SHAKE	76 A
TREATMENT	INSHELL WT.	TREATMENT	INSHELL WT.
UTC SHAKE	70 A	UTC NO SHAKE	58 A

NOTE: CATKINS WERE SHAKEN 4 DIFFERENT TIMES
WTS. REPRESENT THE AVERAGE WT. PER TREE

2007 PHYTOTOXICITY TRIAL KINGS-COUNTY- SERR VARIETY

	TREATMENT	AVG. SET (%)
1.	CONTROL	38% D
2.	RETAIN ALONE	78% AB
3.	RETAIN PLUS COPPER	58% C
4.	COPPER THEN RETAIN 1 DAY AFTER TREATMENT	71% BC
5.	COPPER THEN RETAIN 3 DAYS AFTER TREATMENT	83% AB
6.	RETAIN THEN COPPER 1 DAY AFTER TREATMENT	82% AB
7.	RETAIN THEN COPPER 3 DAYS AFTER TREATMENT	82% AB
8.	RETAIN PLUS CAL 5s	94% A

RETAIN® and PFA:

What Can We Tell Growers?

1. Pistillate Flower Abortion (PFA) is the result of too much pollen landing on the flower receptors.
2. Excessive pollen triggers a peak in ethylene production about 24 hrs. later. The plant hormone, ethylene, is associated with tissue aging, which results in the flower falling off the tree.
3. ReTain® is a plant growth regulator which is proven to block a precursor to ethylene production, and thus prevents flower drop from PFA.
4. The economic value of ReTain® application is ENTIRELY dependent upon flower density, the level of PFA with the orchard, and the percentage of the orchard acreage affected by PFA.
5. ReTain® is not a cure-all for poor orchard performance associated with poor water management, nematodes, low fertility, or canopies compromised by excessive shading or sustained stress. These factors all reduce flower number, which is the critical component for high yields!

Walnut and **San Jose Scale:** **Biology, Damage** **and Control**

Bob Beede
UCCE Farm Advisor
Kings County



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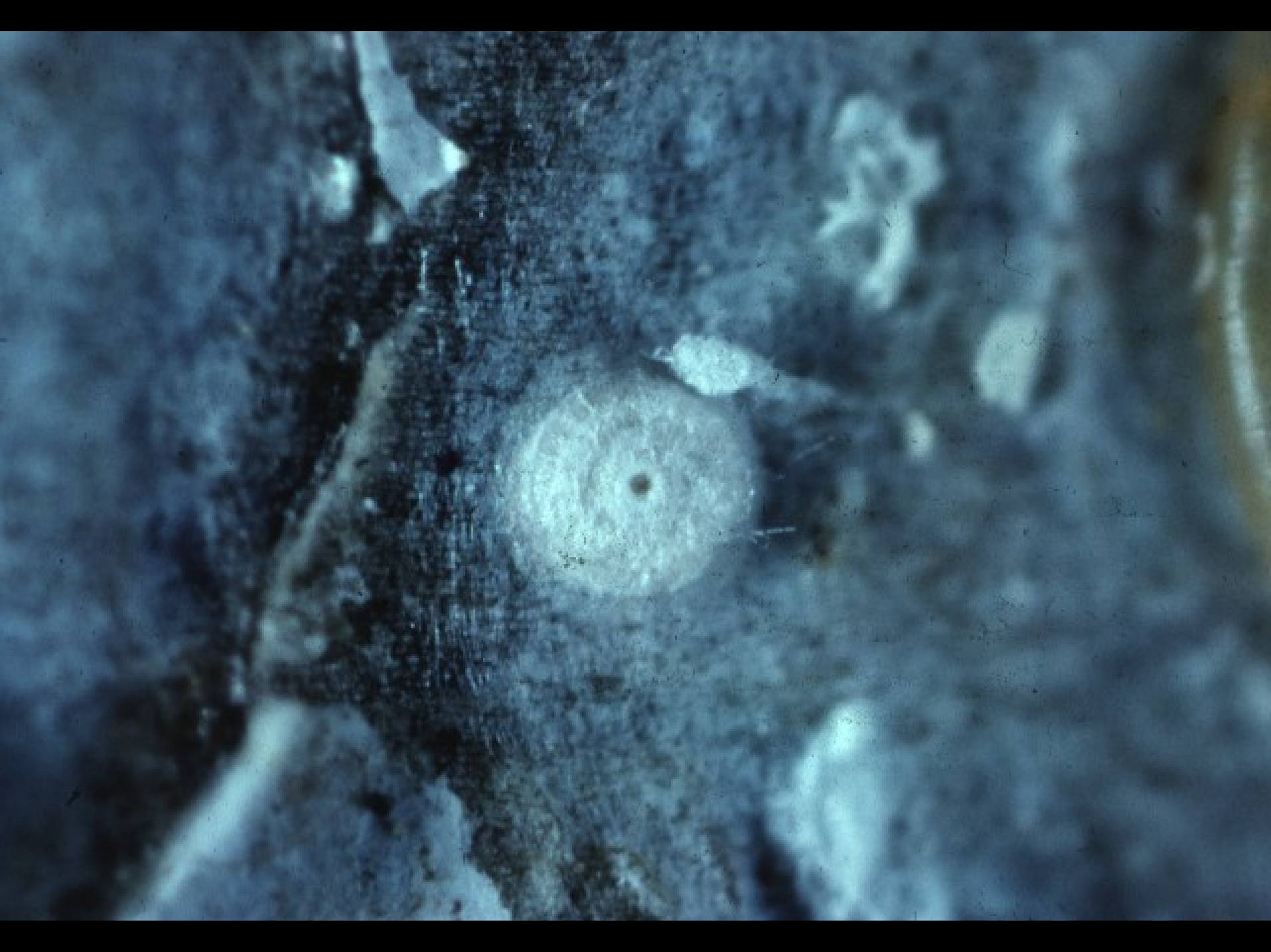
A close-up photograph of a tree trunk showing several large, yellowish, oval-shaped scale insects (Walnut Scale) and numerous smaller, white, circular scale insects. The tree bark is rough and textured, with some areas appearing damaged or discolored. The text "WALNUT SCALE" is overlaid in red, bold, capital letters in the upper center of the image.

WALNUT SCALE





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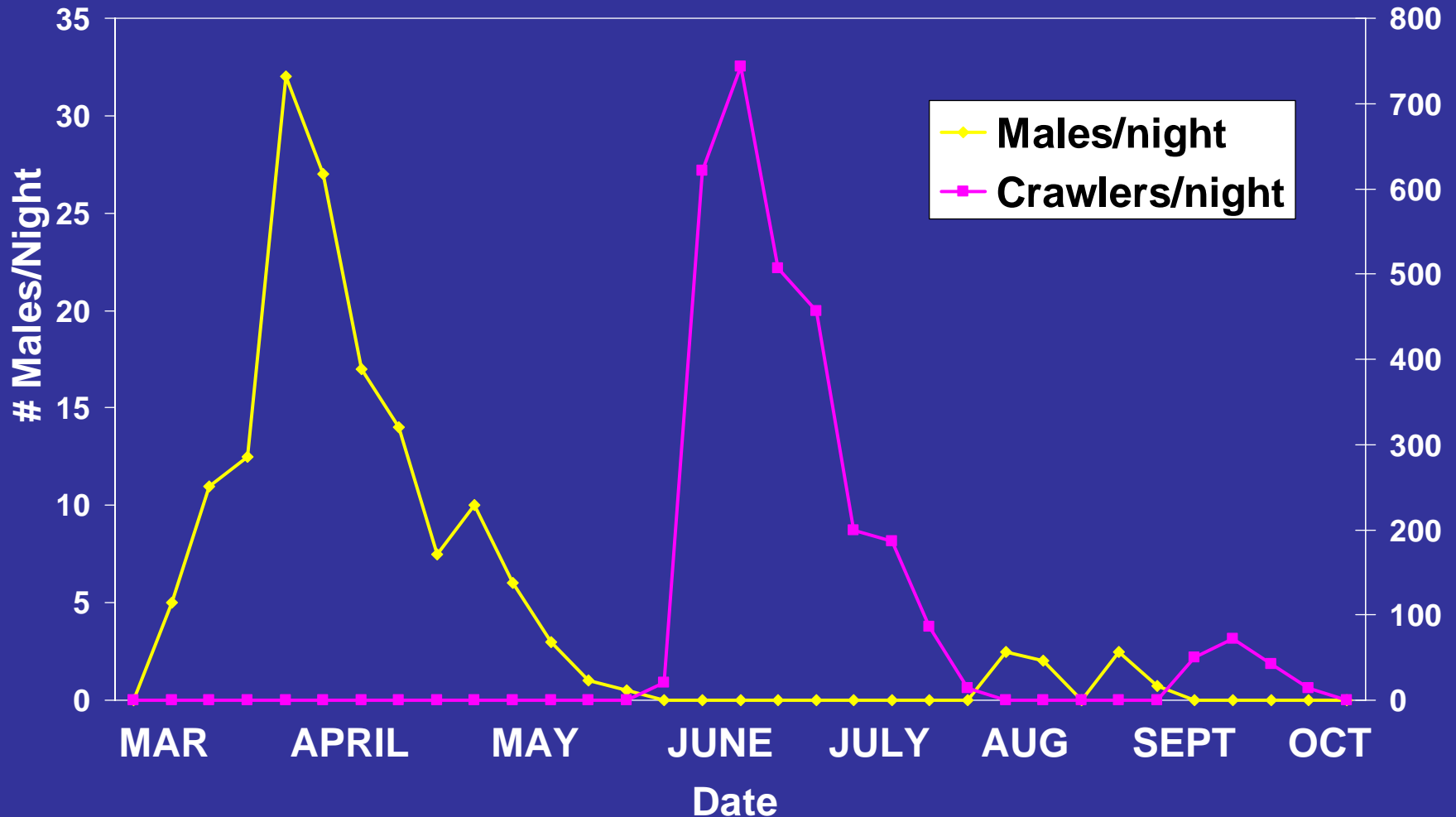




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Walnut Scale Seasonal Activity







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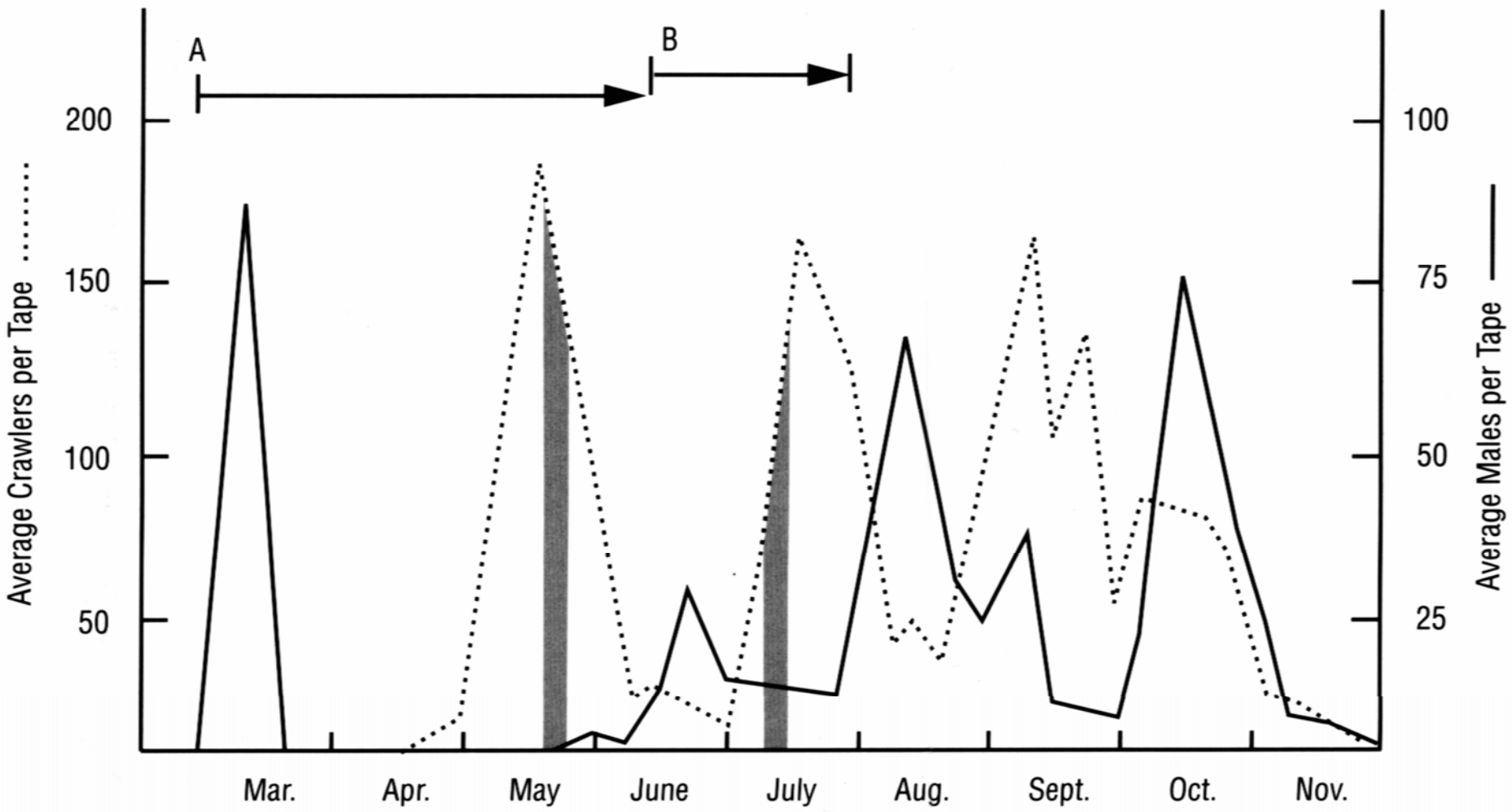


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San Jose Scale

1. Not common in Walnut.
2. On the increase, possibly due to reduced in-season use of organo-phosphate insecticides.
3. Research documents loss of vigor, fruiting wood, large limbs.
4. Requires close monitoring and treatment of increasing populations.
5. Four generations per year.
6. Parasitism and predation may not be sufficient.

Suggested Materials for **Walnut** and **San Jose Scale**

1. Seize (Esteem) 35WP as a dormant application.
2. Supracide 2E as either a dormant or in-season treatment.
3. Pennncap-M as either a dormant or in-season treatment.
4. Lorsban 4E as an in-season maintenance spray. Easier on predator mites (Coviello).

How About Oil?

- Dormant: NO!!!
- In-season: Labeled rates will provide suppression









UCCE: THE WRIGHT STUFF!



***Thank
you***