

Macrophomina and **Fusarium**
related plant collapse:

FIELD STUDIES - VENTURA
COUNTY

Steve Koike, Oleg Daugovish, Tom Gordon, Hussein Ajwa, Mark Bolda, Dan Legard

2008-2009 sites with die-back history

Oxnard:

InLine (1,3D/Pic) 67/33,	300lb/a
InLine (1,3D/Pic) 67/33,	400lb/a
Midas Low	200lb/a
Midas High	300 lb/a
1,3D/Pic 37/56	300 lb/a
Pic Low	200 lb/a
Pic High	300 lb/a
MBPic 50/50,	200 lb/a
MBPic 50/50,	300 lb/a
Topsin-M (Thiophanate-methyl) 20oz/a 1x/mo Nov-Feb	
Topsin-M, 10oz/a- 2X/mes Feb-May	
Topsin-M, 20oz/a- 2X/mo, when symptoms occur	

Camarillo: Inline, 200lbs/a

San Andreas

Ventana

Albion

Palomar

BG1975

BG959

Camarosa

Ventura:

Topsin-M 3						
Topsin-M 2						
Topsin-M 1	S	C	A	V	P	M
Check	a	a	l	e	a	o
MBPic High	n	m	b	n	l	n
MBPic Low		a	i	t	o	t
Pic High	A	r	o	a	m	e
Pic Low	n	o	n	n	a	r
InLine Low	d	s		a	r	e
InLine High	r	a				y
Midas High	e					
Midas low	a					
Pic 60 =1,3D/Pic 37/56 High	s					

We buried composite samples with
13 *Macrophomina* isolates in bags
at 6" and retrieved after fumigation



In all fumigation treatments: no
viable sclerotia recovered

Oxnard: Dec.8 die-back - *Fusarium oxysporum* y *Cylindrocarpon* only isolated

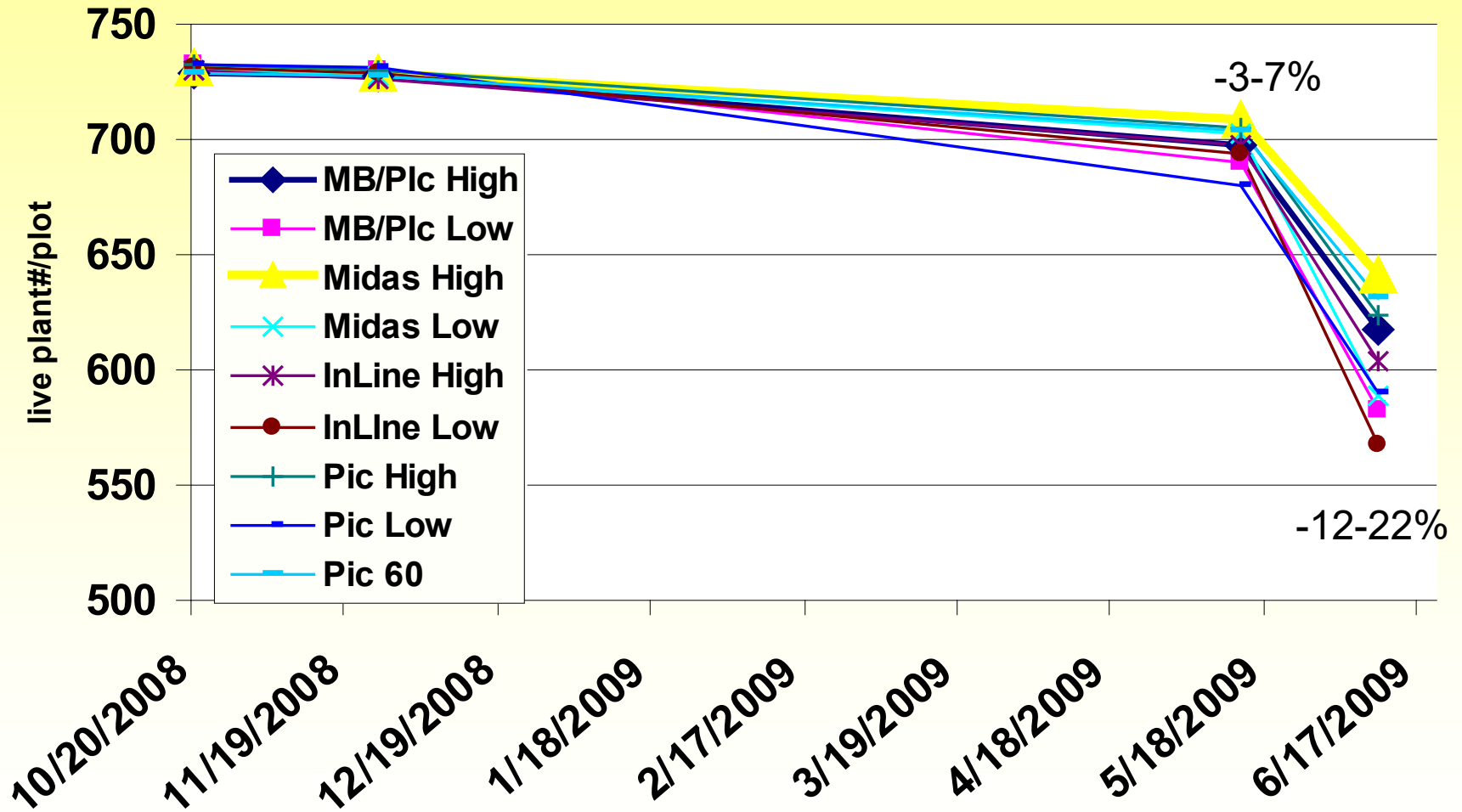


UNTERTAED CHECK

Oxnard: We replanted in controls after dipping in Switch, Quadris or Captan, but all died by 1 April



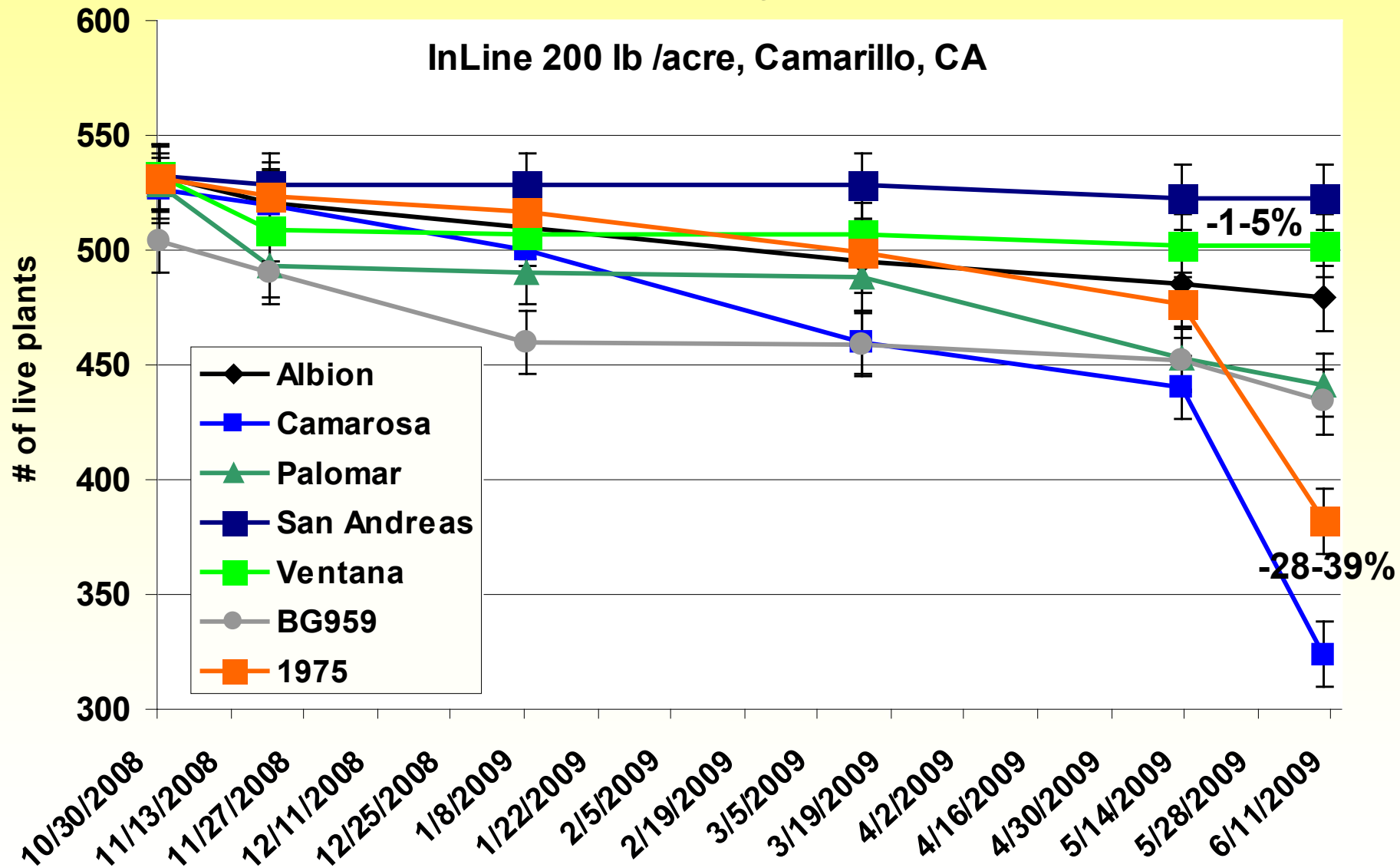
Oxnard: mortality



Oxnard:

- **Final mortality counts:**
 - similar for low and high rates of MBPic, Inline, Midas and Pic
 - Overall, mortality tended to be greater (~5%) at lower fumigant rates
- **Disease severity 1(healthy) – 4 (dead):**
Similar among fumigant treatments in Feb. (1.15) and May (1.25)

Camarillo: mortality



Camarillo: mortality

- *Fusarium oxysporum* – only pathogen isolated

8 May

'1975'



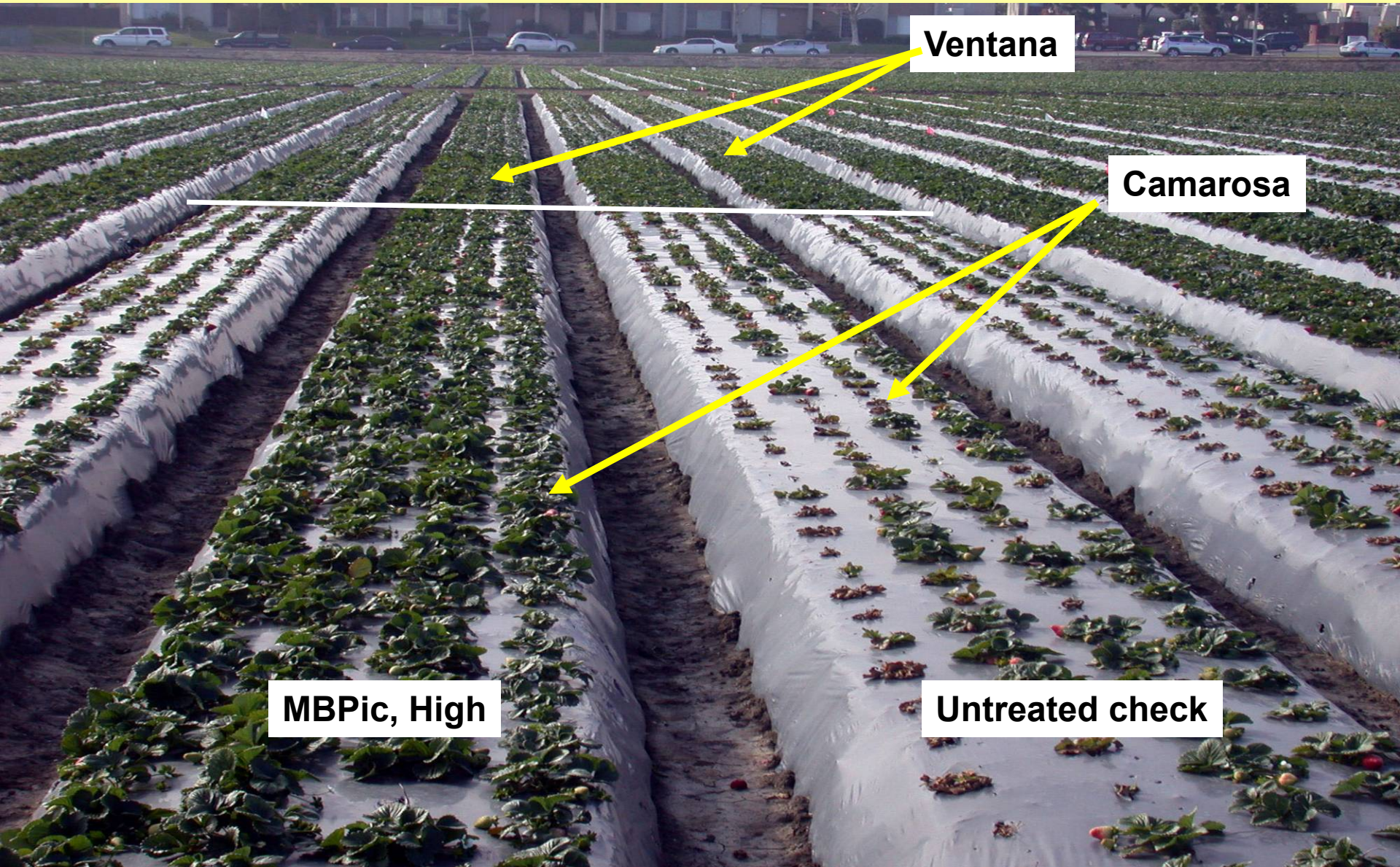
'Camarosa'



Camarillo: disease severity (1-4), May 14

Cultivar	Mean disease severity*
San Andreas	1.06 a
Ventana	1.13 ab
1975	1.31 abc
Albion	1.32 abc
BG 959	1.42 bc
Camarosa	1.53 c
Palomar	1.53 c
LSD (P=0.05)	0.35

Ventura: early (Jan 5) variety specific die-back – only *Fusarium oxysporum* isolated



Ventana

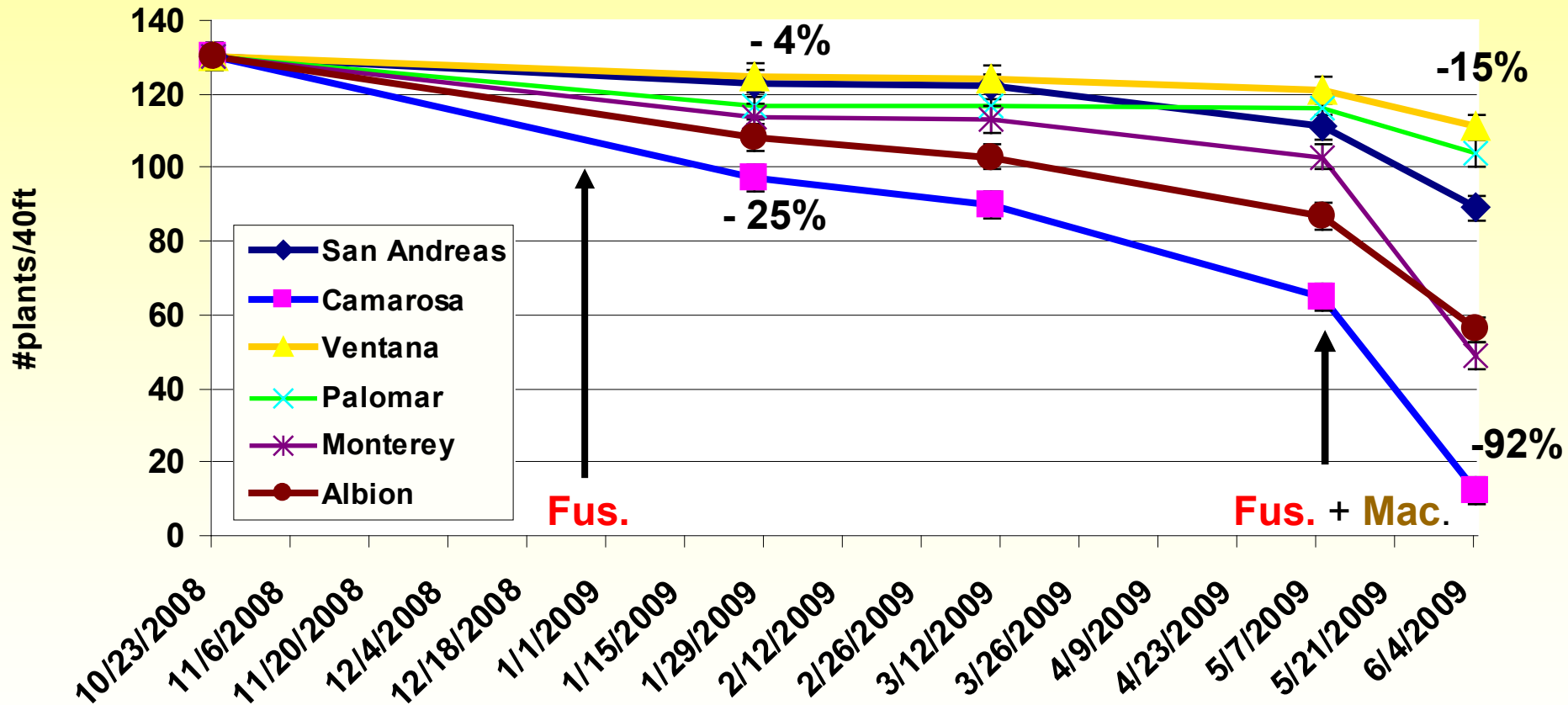
Camarosa

MBPic, High

Untreated check

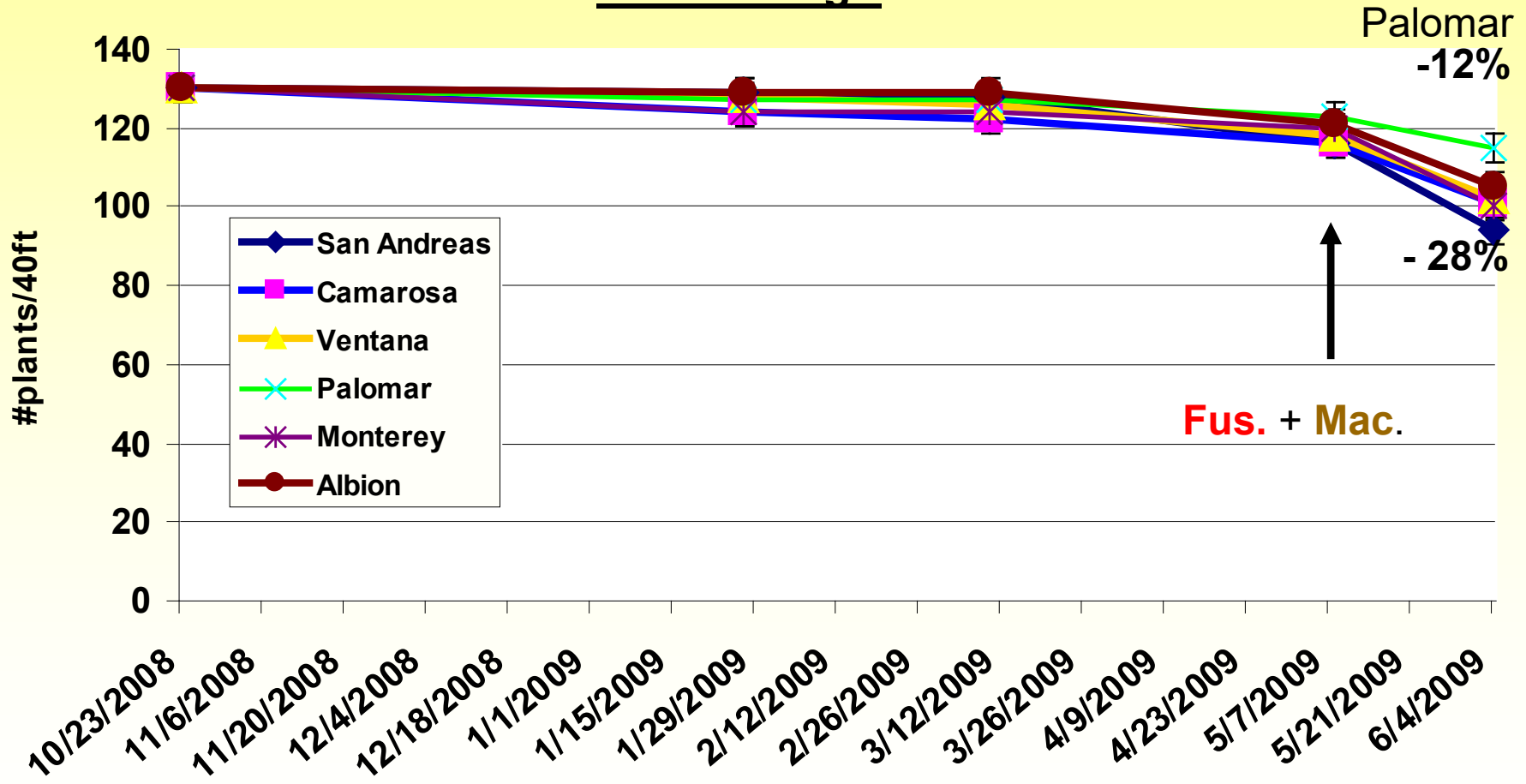
Ventura: Mortality

Non-fumigated check



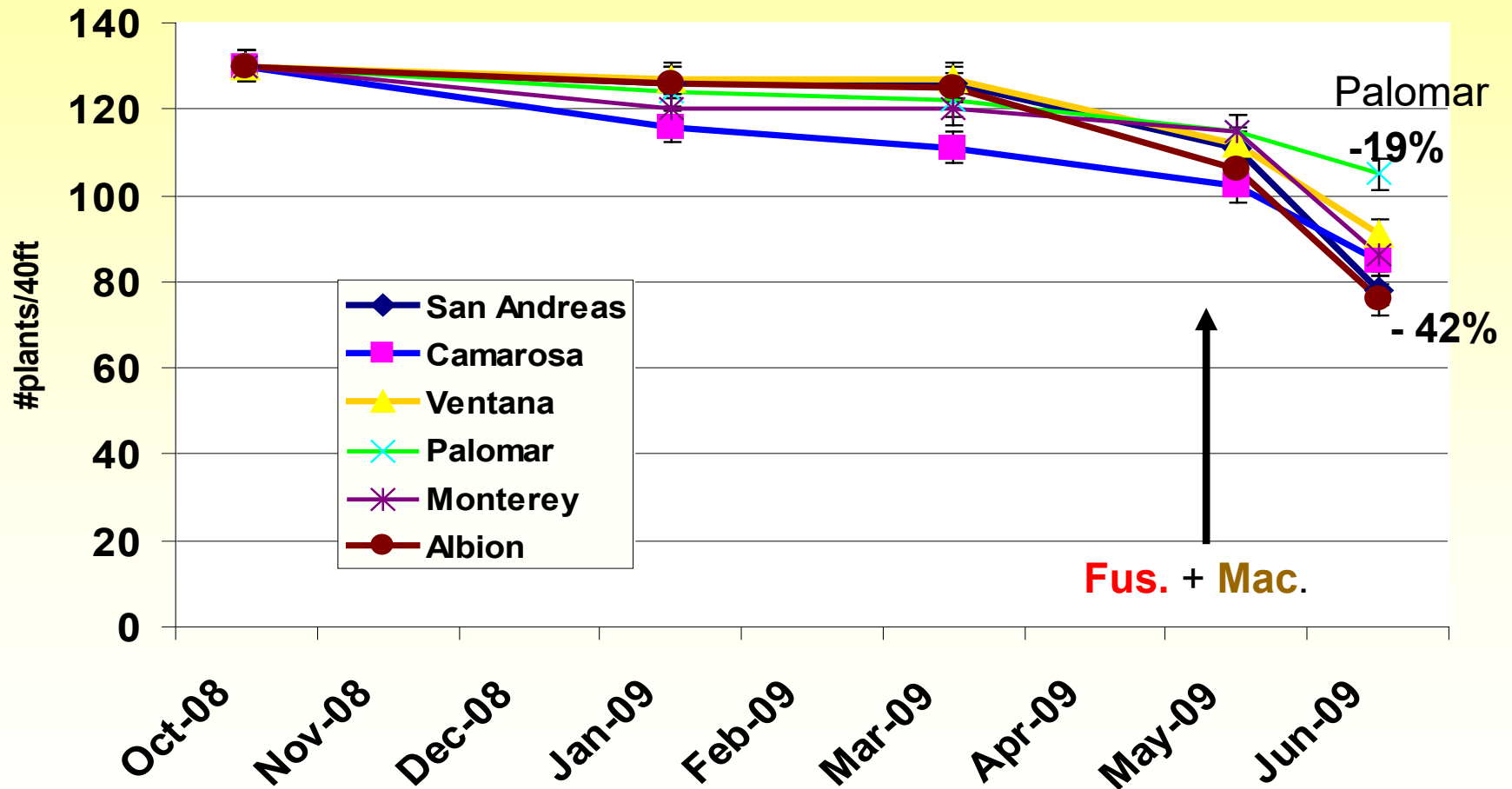
Ventura: Mortality

MB+Pic High



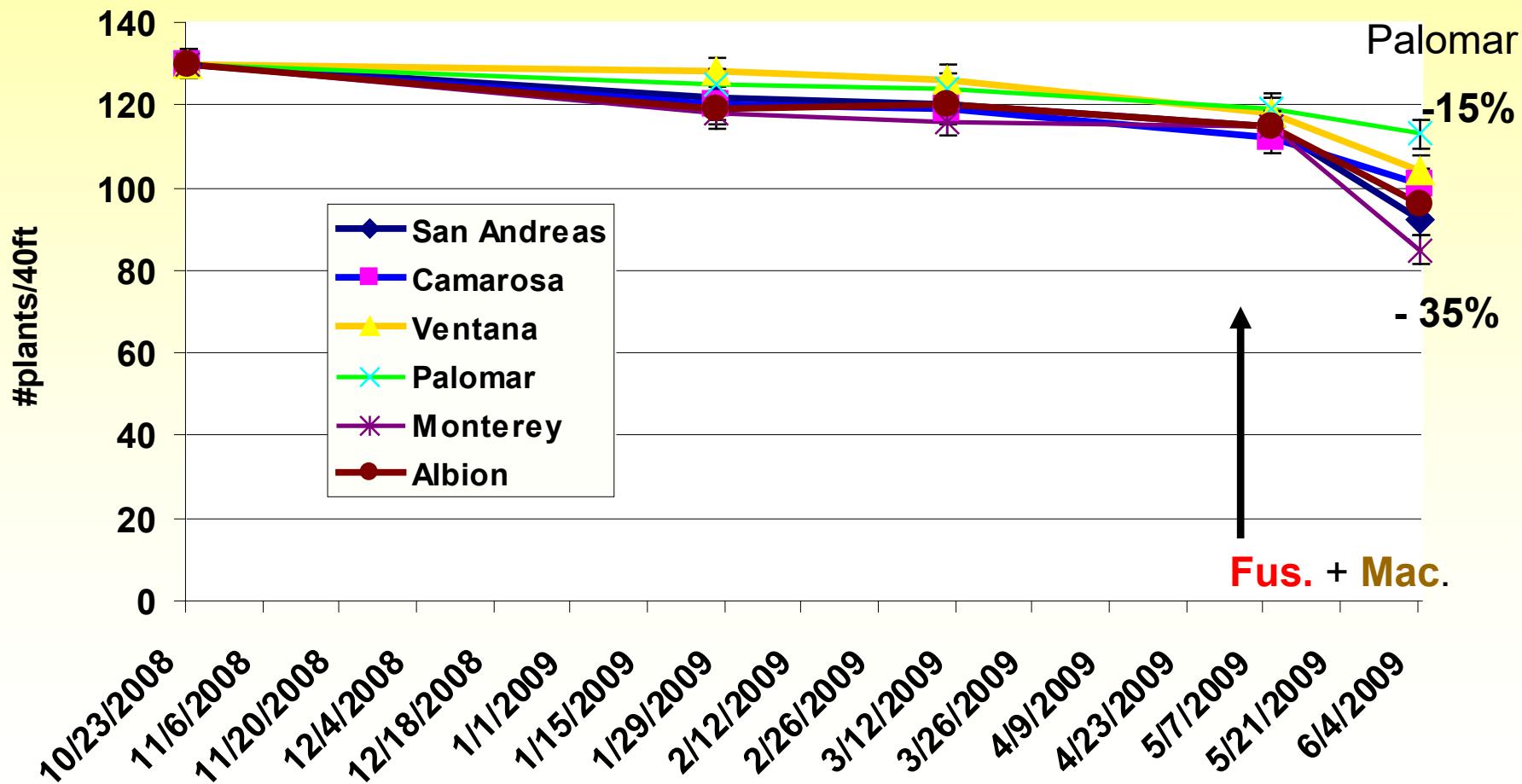
Ventura: Mortality

MB Pic Low



Ventura: Mortality

Pic High



May 8, die-back:
Fusarium oxysporum and
Macrophomina phaseolina isolated

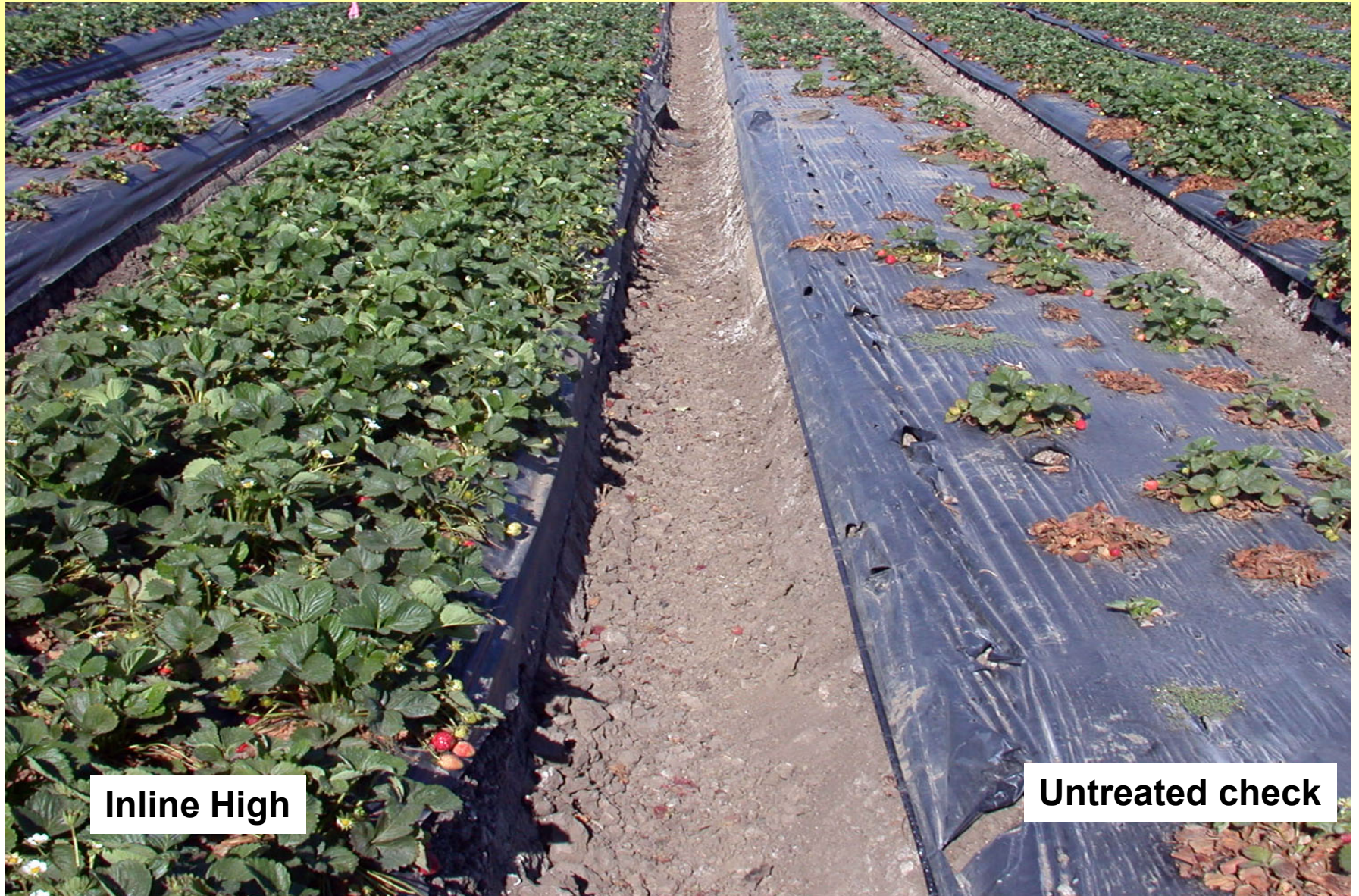
MeBr Low



Midas High



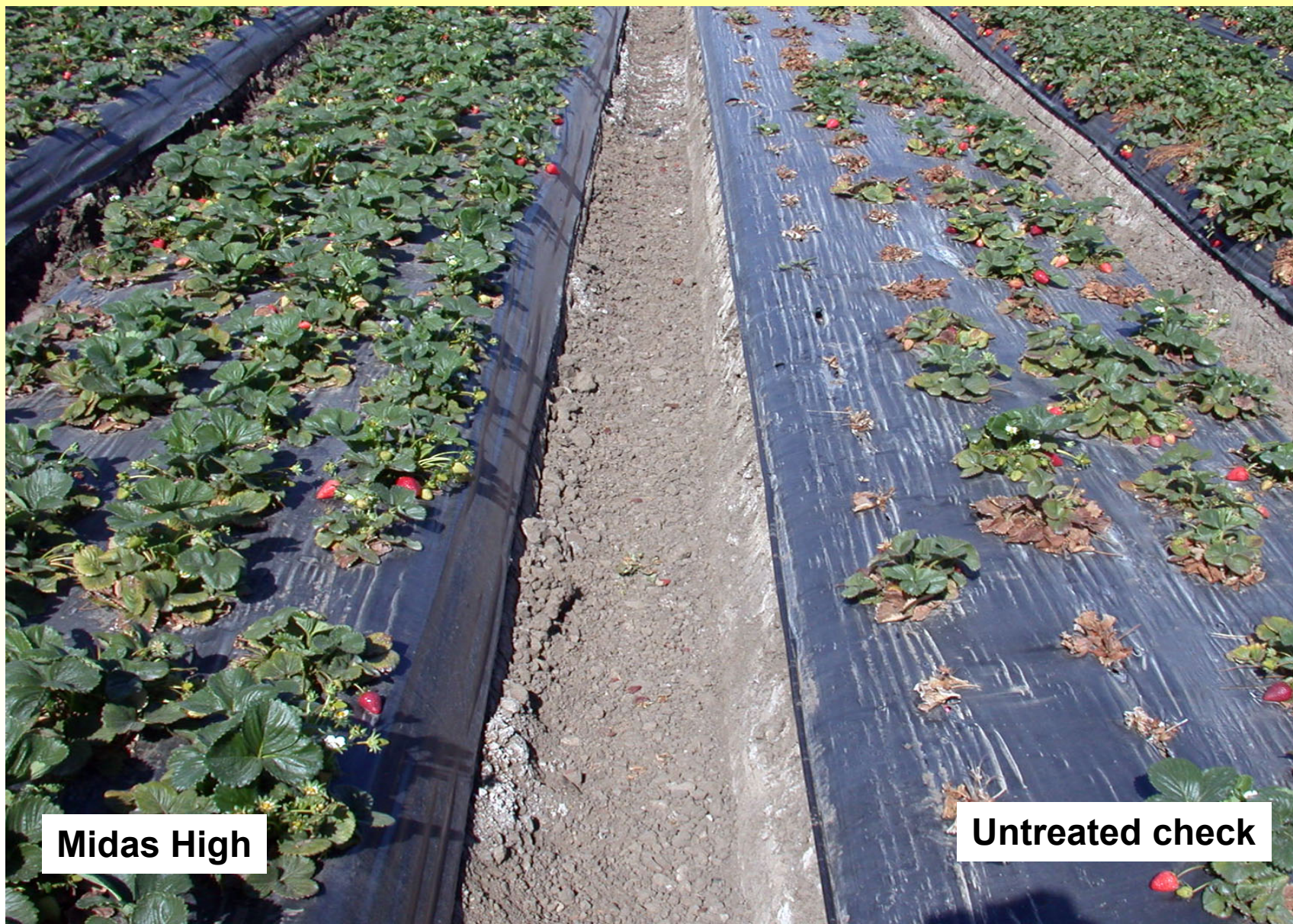
May 8, die-back: Camarosa



Inline High

Untreated check

May 8, die-back: Albion



Midas High

Untreated check

Ventura: May 9 disease ratings (1-4):

MB Pic High	1.291	a
Pic 60	1.335	ab
Pic Low	1.424	ab
InLine Low	1.453	ab
InLine High	1.455	ab
Midas High	1.467	ab
Pic High	1.528	ab
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MB pic Low	1.546	bc
Midas Low	1.552	bc
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Fungicide 3	1.795	cd
Fungicide 1	1.861	d
Fungicide 2	1.905	d
Untreated	1.962	d

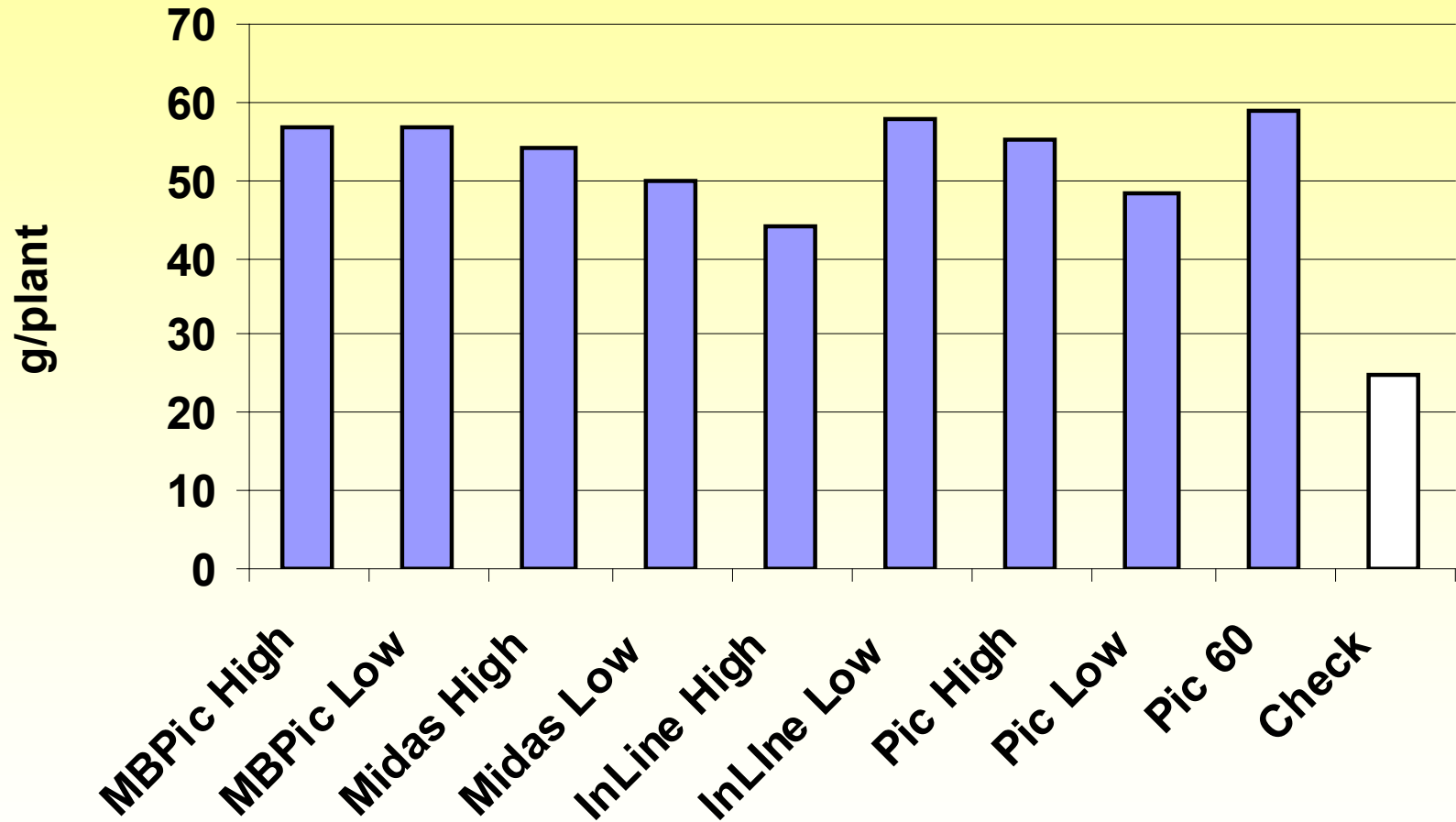
Ventura: May 9 disease ratings (1-4):

San Andreas	1.423	a
Palomar	1.432	a
Ventana	1.475	a
Monterey	1.563	ab
Albion	1.693	b
Camarosa	1.911	c

How did the plants that did not die or show infection symptoms perform?

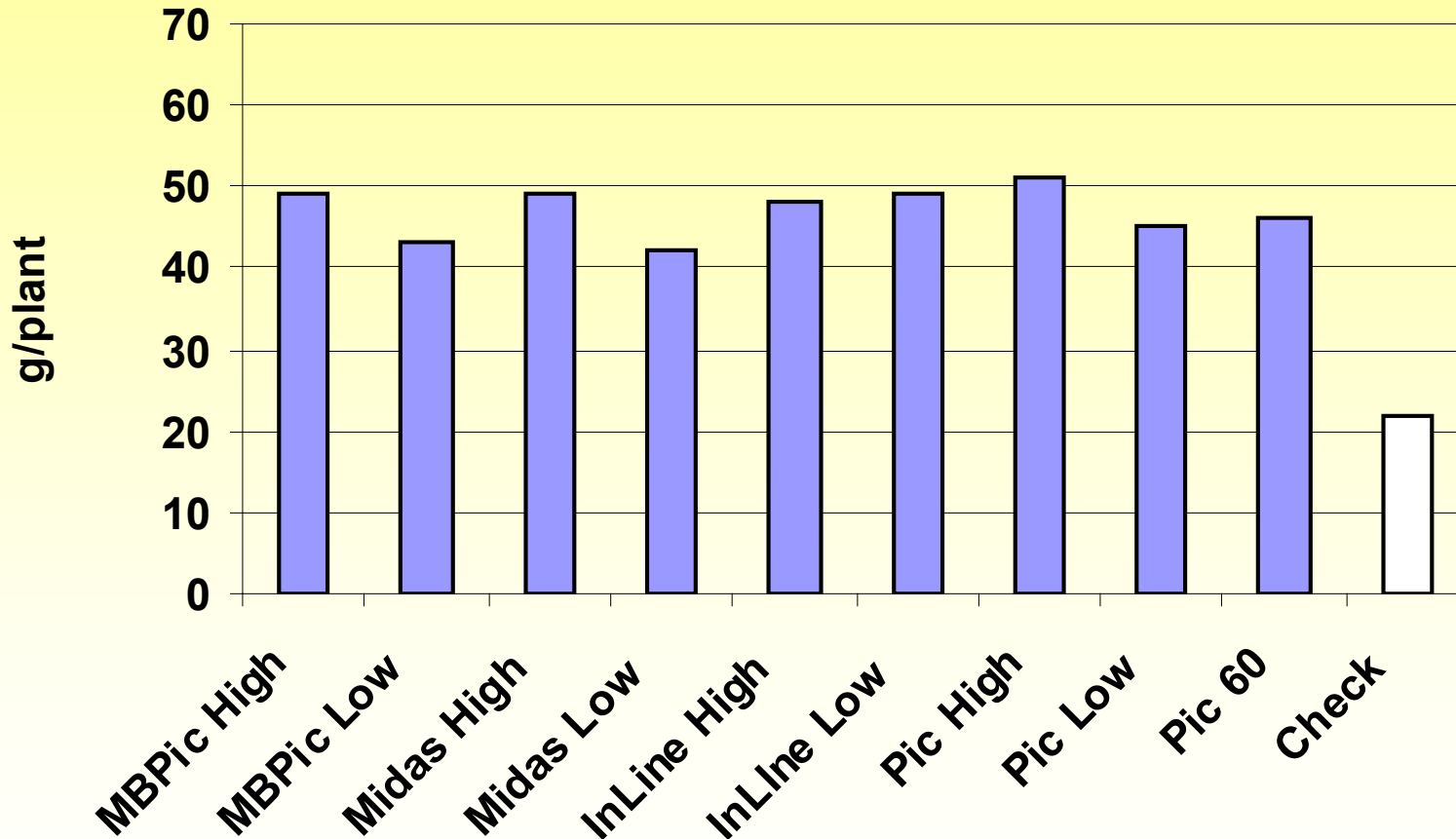
We took above-ground biomass samples of live plants remaining at the end of the season

Camarosa



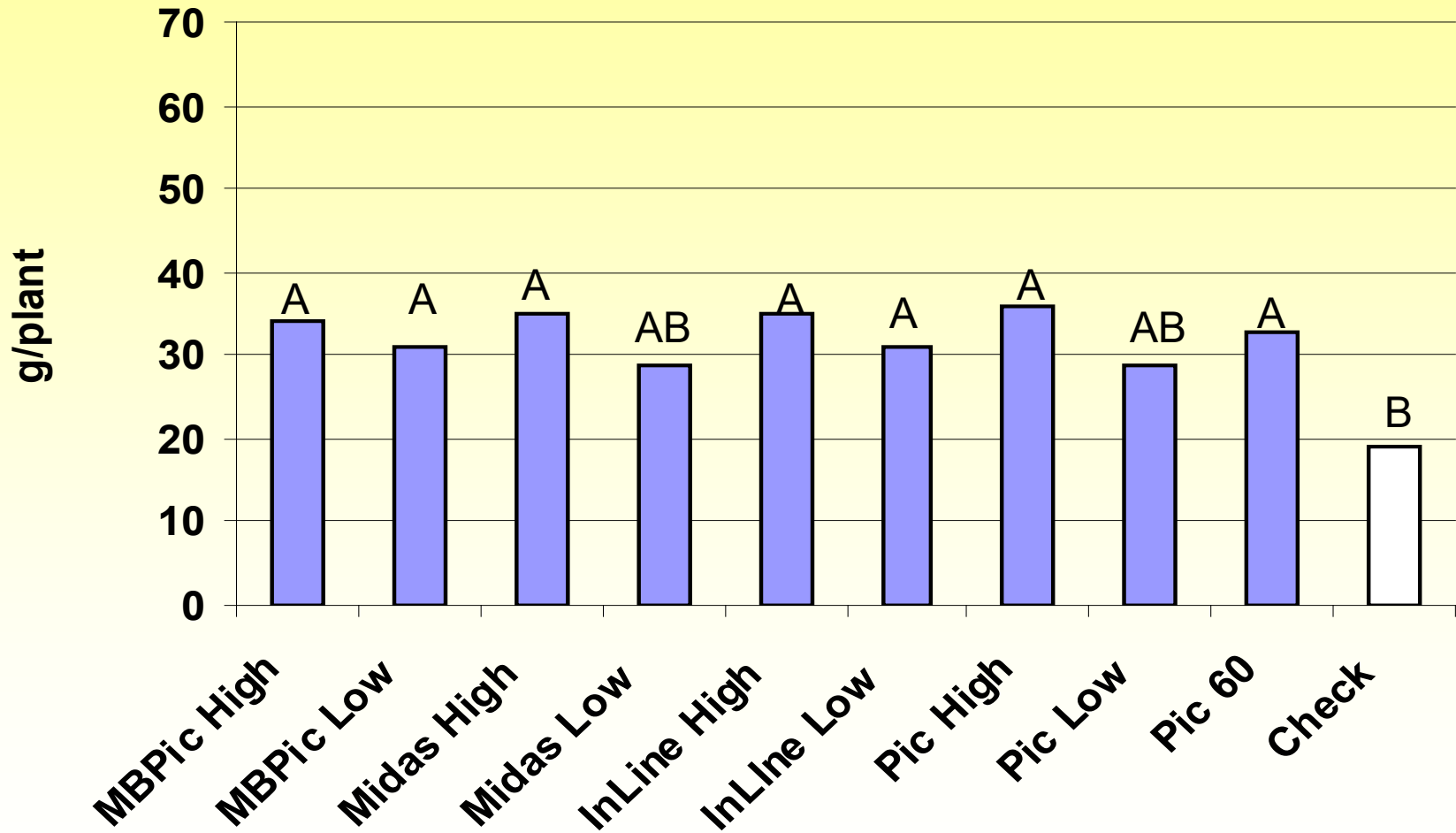
Check << fumigants

Monterey

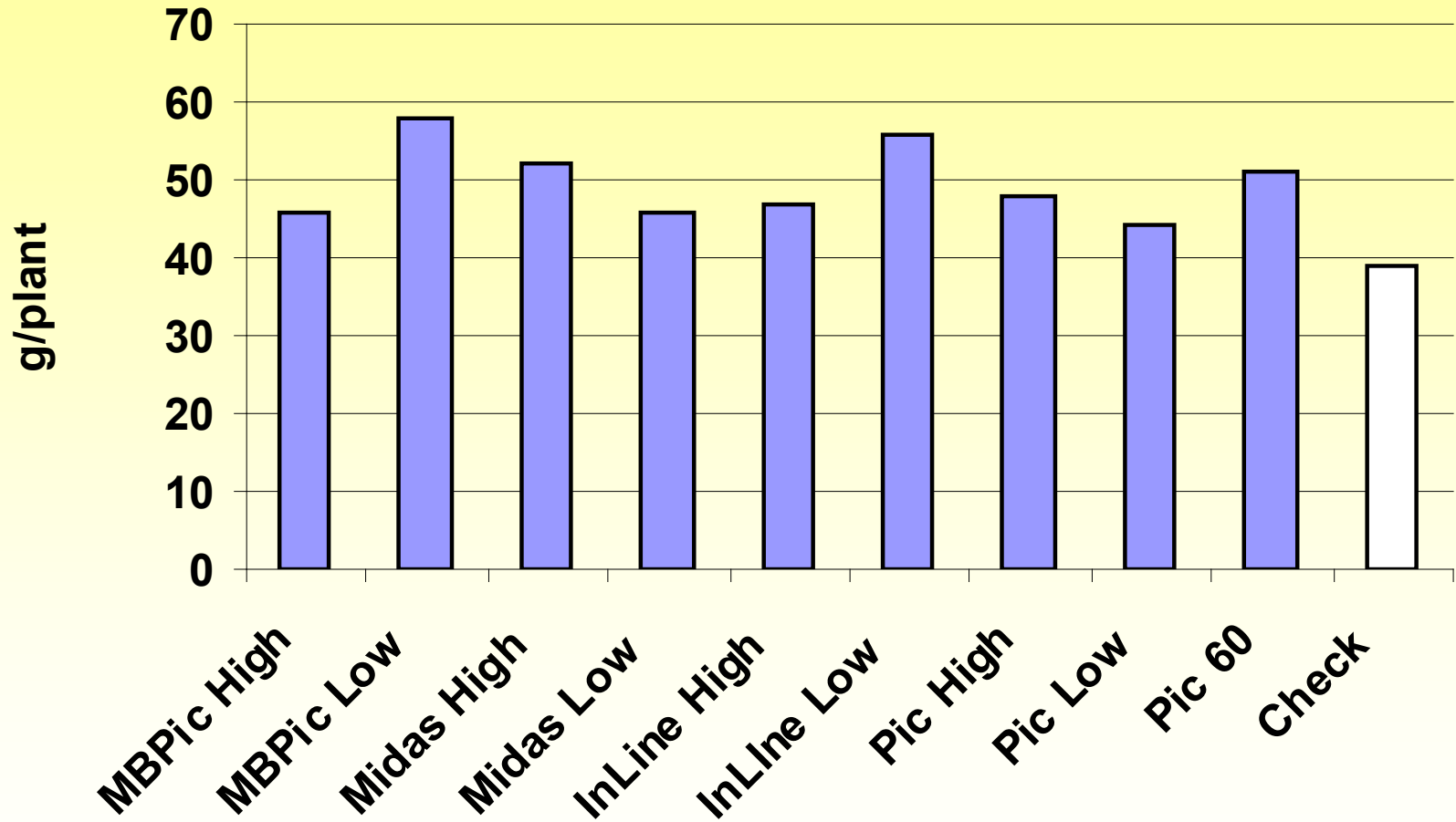


Check << fumigants

Albion

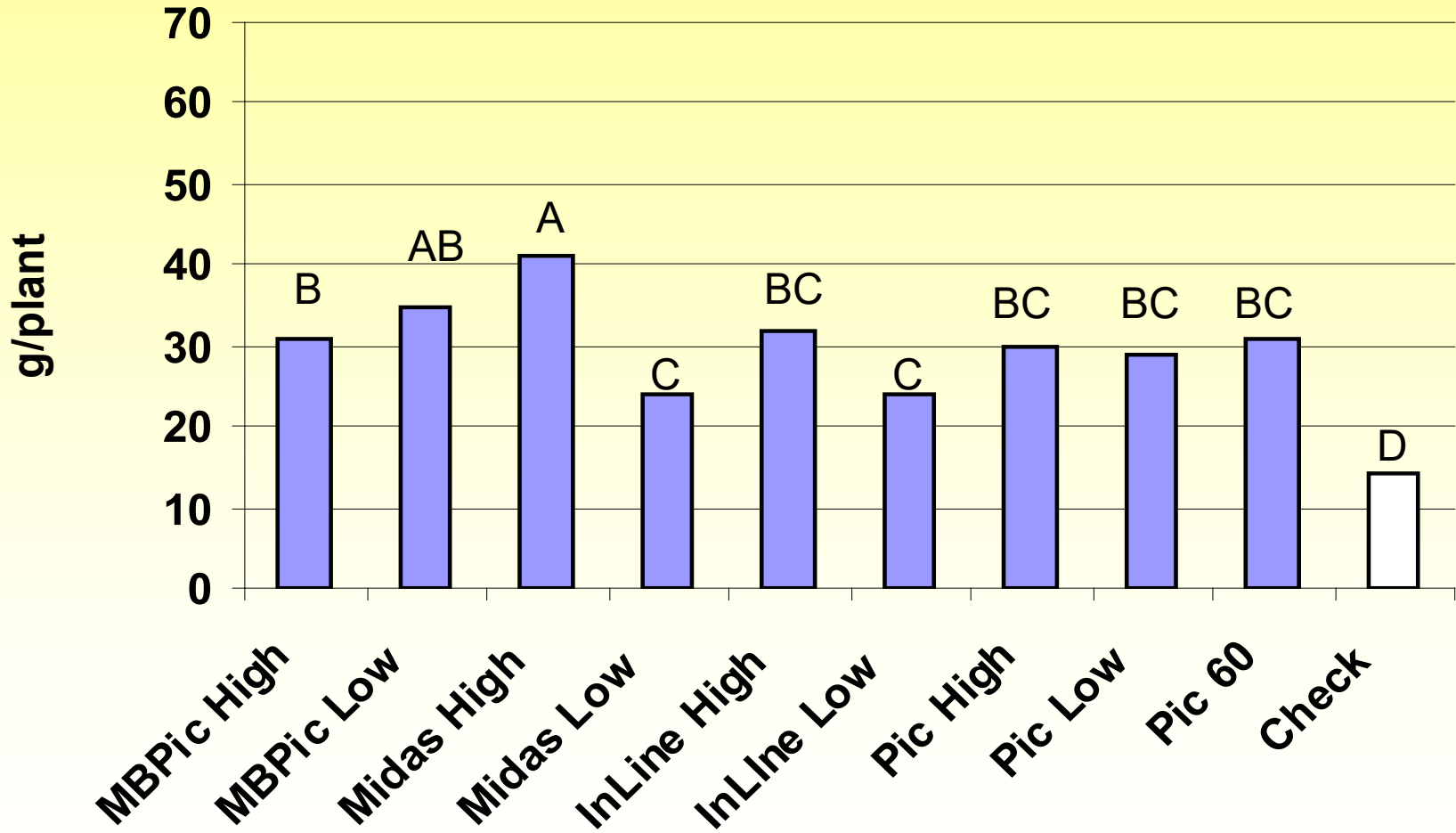


Ventana

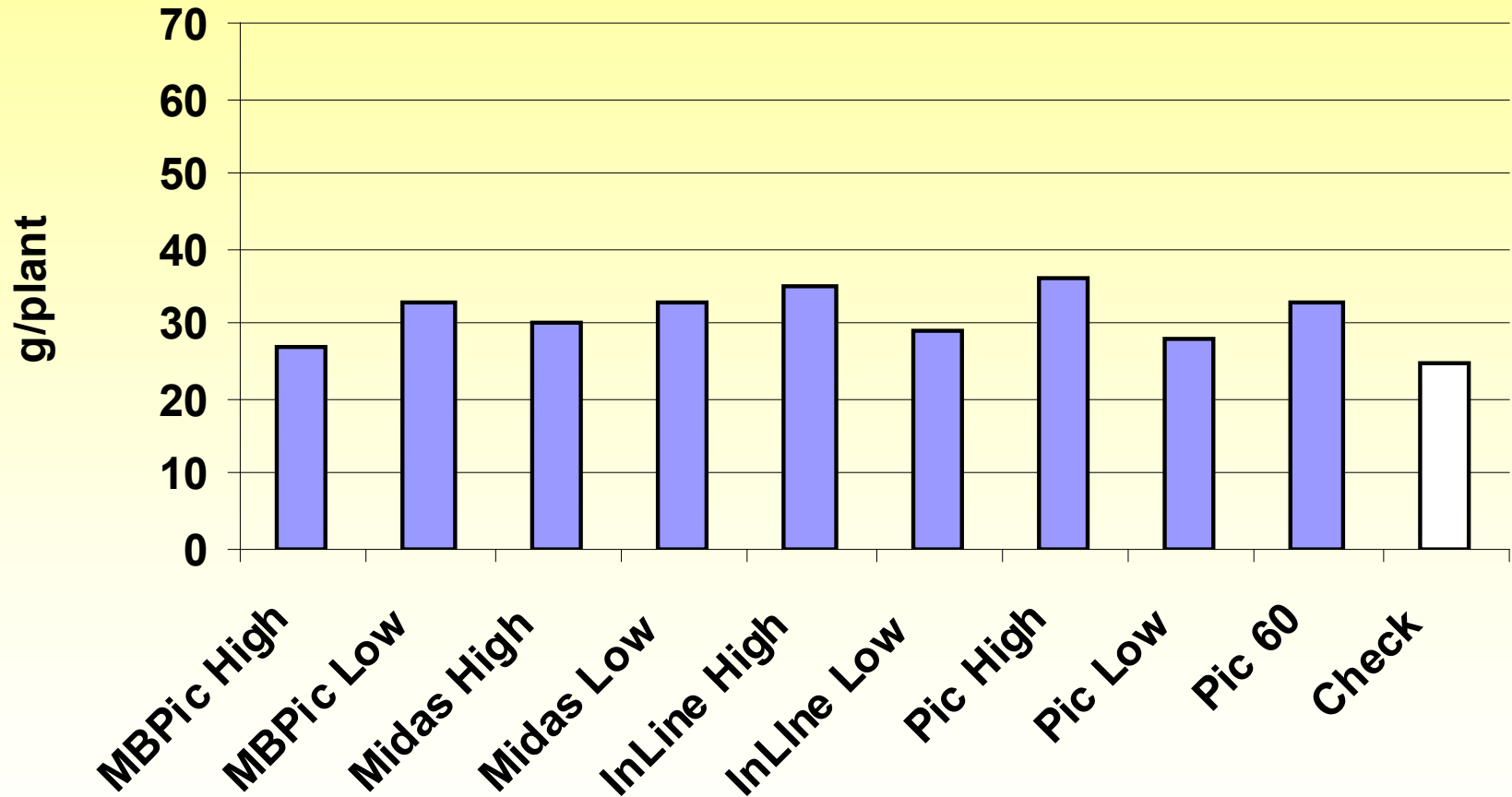


No significant differences

Palomar



San Andreas



No significant differences

Current Summary

- **Both pathogens can have dramatic impact on production: Fusarium - early and late and Macrophomina - late in the season.**
- **Disease impact is variety specific (Ventana and San Andreas, so far showing most tolerance)**
- **Fumigants, especially at high rates are effective early and mid-season**
- * **Summaries from the 2 Macrophomina sites at Santa Maria are pending**

Acknowledgments

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