

Control of codling moth by postharvest application of Ethephon 2SL and insecticide

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Previous Research

(R. Van Steenwyk et al.)

- Bartlett harvest July thru mid Aug.
- Substantial fruit remains in trees after harvest
- CM larvae that complete development:
 - » End of July: enter pupal stage → adults
 - » End of August: enter overwintering stage
- Postharvest fruit removal reduced overwintering CM 75%
- Larvae that infest ripe pears do not complete development (6.5 kg/cm²)

Applications of Ethephon 2SL

Sacramento and North Coast

- 10-20 acres each:
 1. (2007) 4 pt. Ethephon + 2 pt. Lorsban 4E
(2008) Replaced Lorsban – other insecticides
 2. Untreated

2007

Sacto (4) – Aug. 4-9

NC (1) – Aug. 14

2008

Sacto (5) – Aug. 12-15

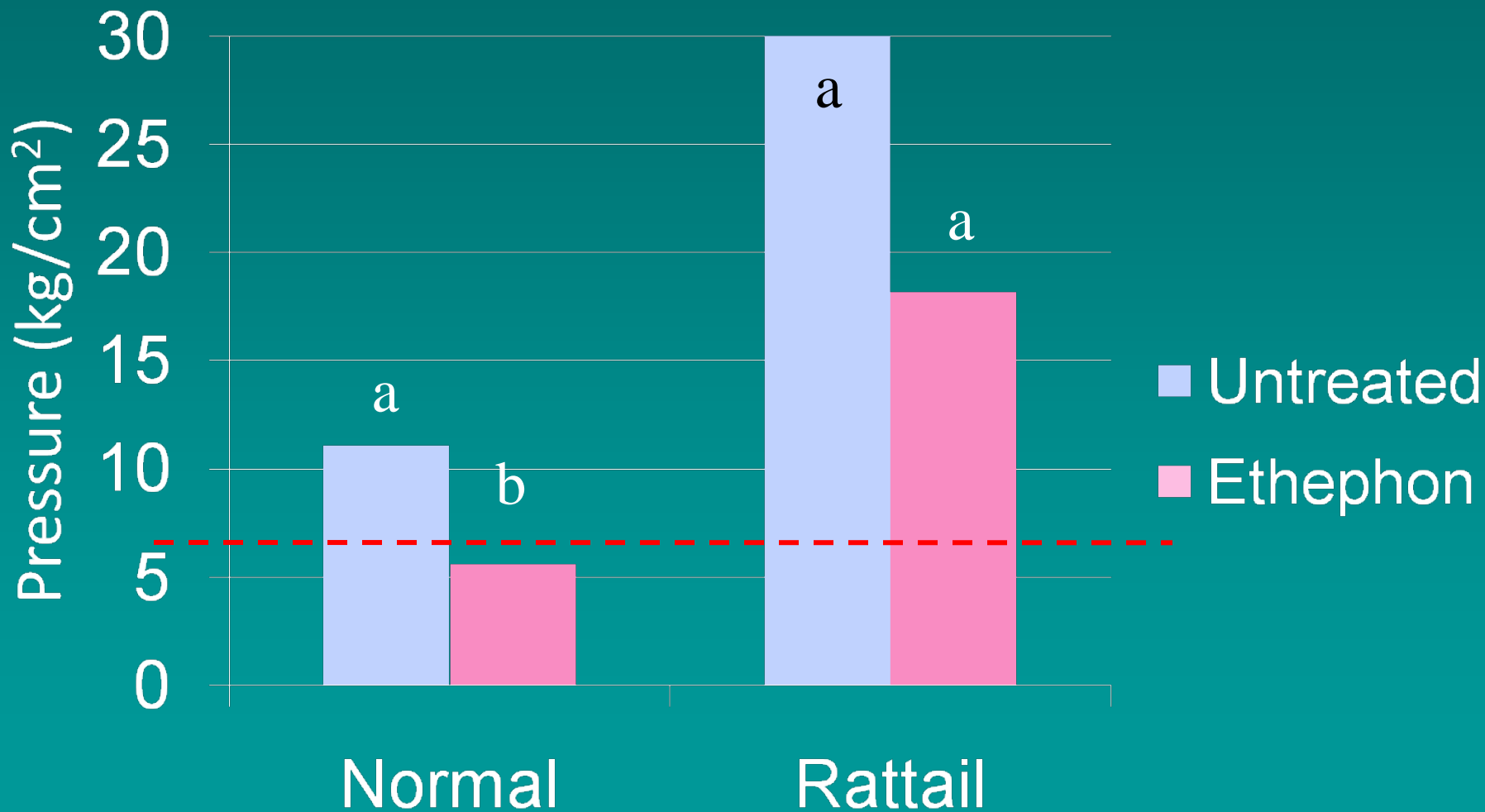
NC (5) – Aug. 22-Sept. 5

Measurements

- Measured fruit firmness weekly after spray
 - » 25 normal fruit and 10 rat tail fruit
- Monitored trap counts in spring (1st gen.)
 - » 5 bait pan traps, 1 in center of block
 - » 1 pheromone trap (10X), in center
- Measured yield and fruit size

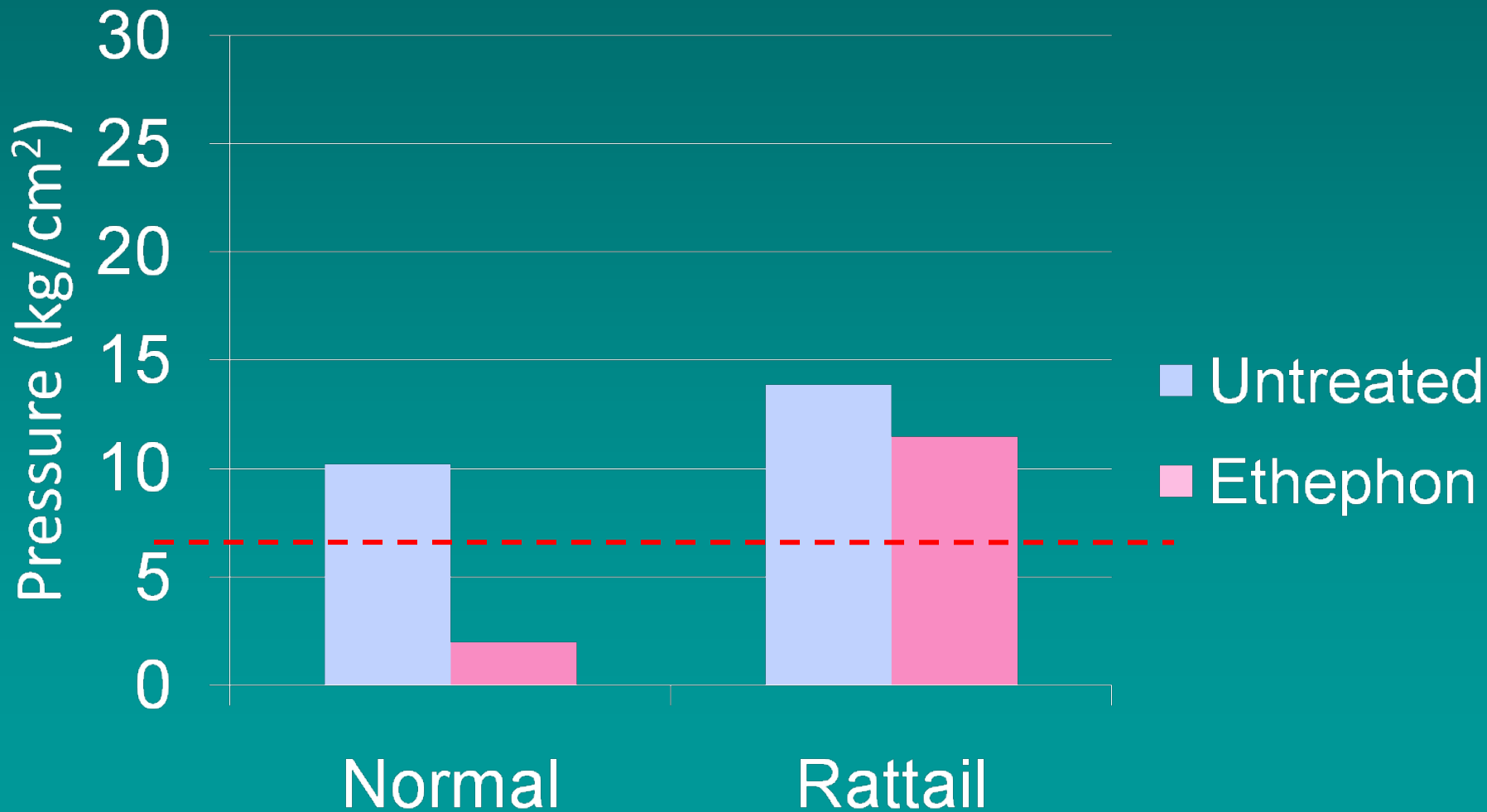
Fruit Pressures - 2007

Sacramento, 2 wks. after Aug. 4-9 spray



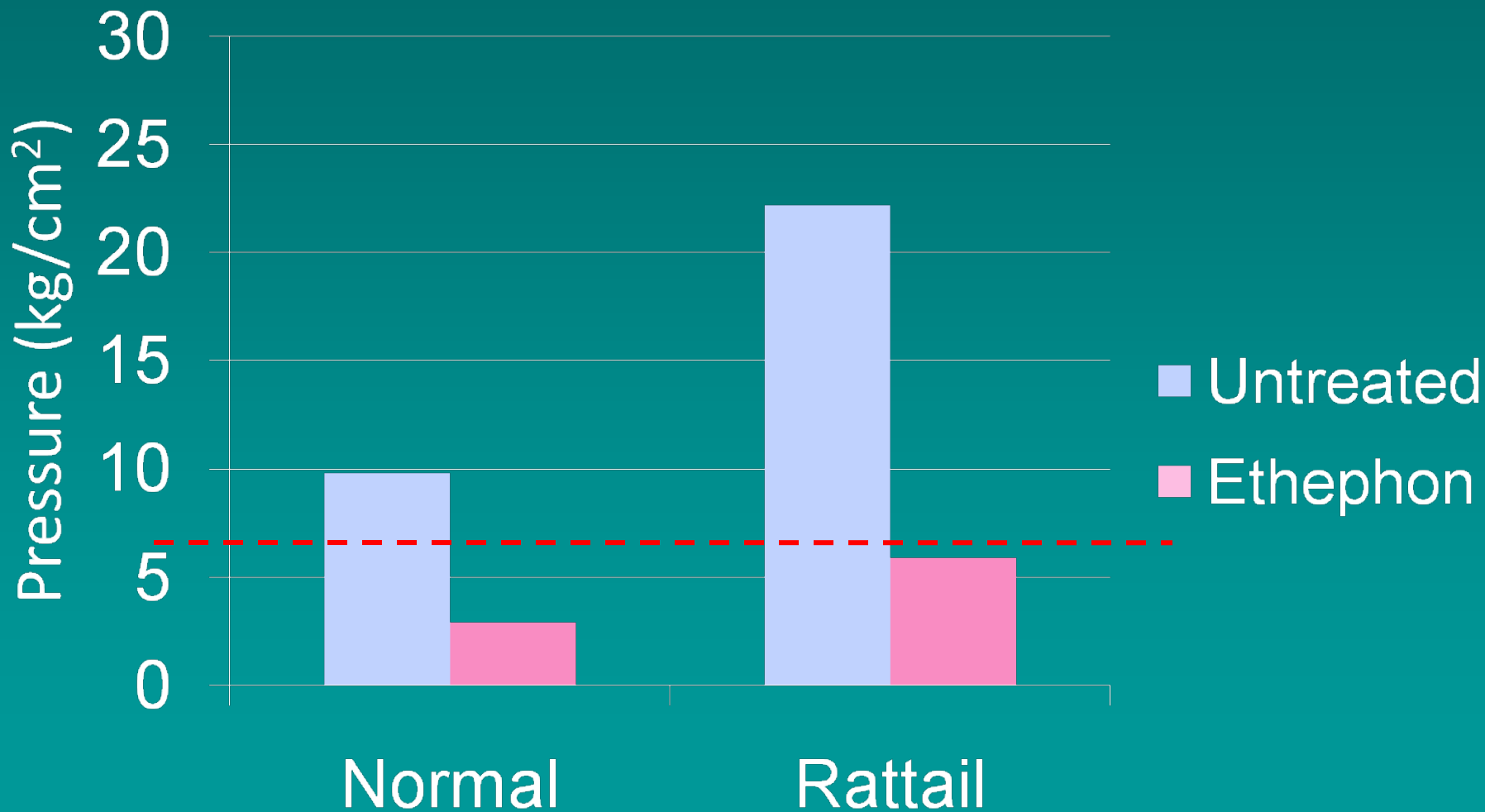
Fruit Pressures - 2007

Mendocino, 2 wks. after Aug. 14 spray



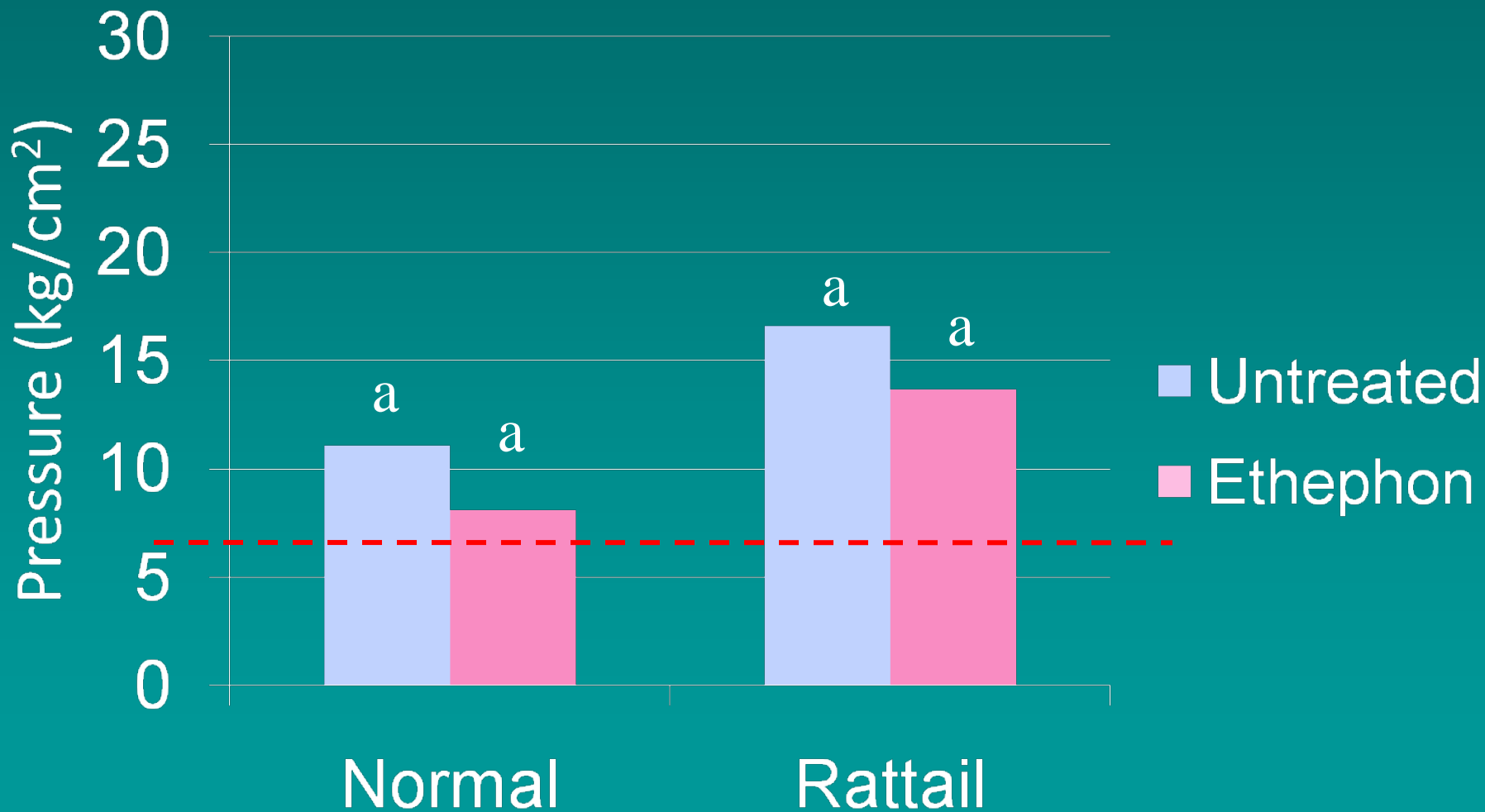
Fruit Pressures - 2007

Mendocino, 3 wks. after Aug. 14 spray



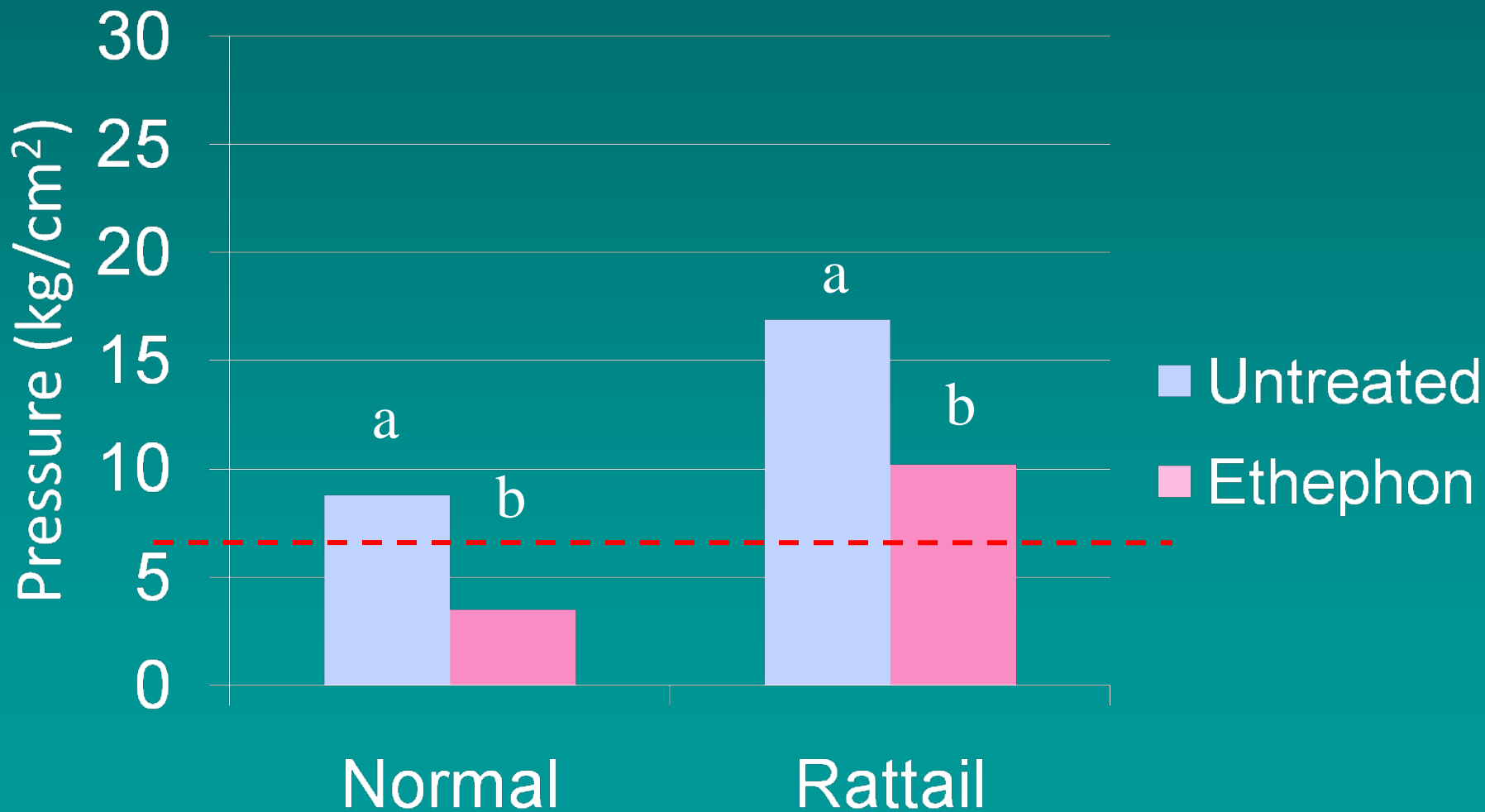
Fruit Pressures - 2008

Sacramento, 1 wk. after Aug. 12-15 spray



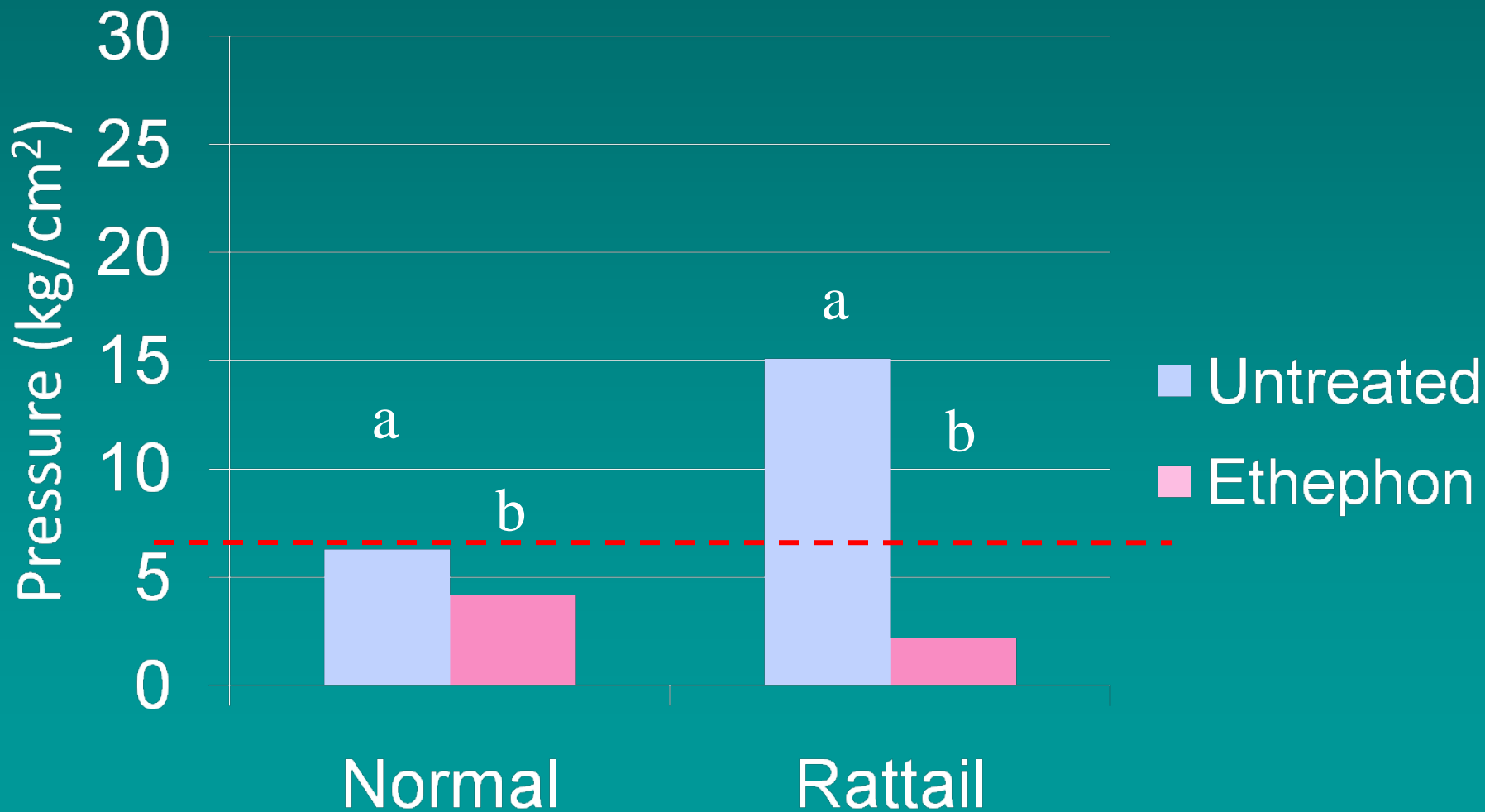
Fruit Pressures - 2008

Sacramento, 2 wks. after Aug. 12-15 spray



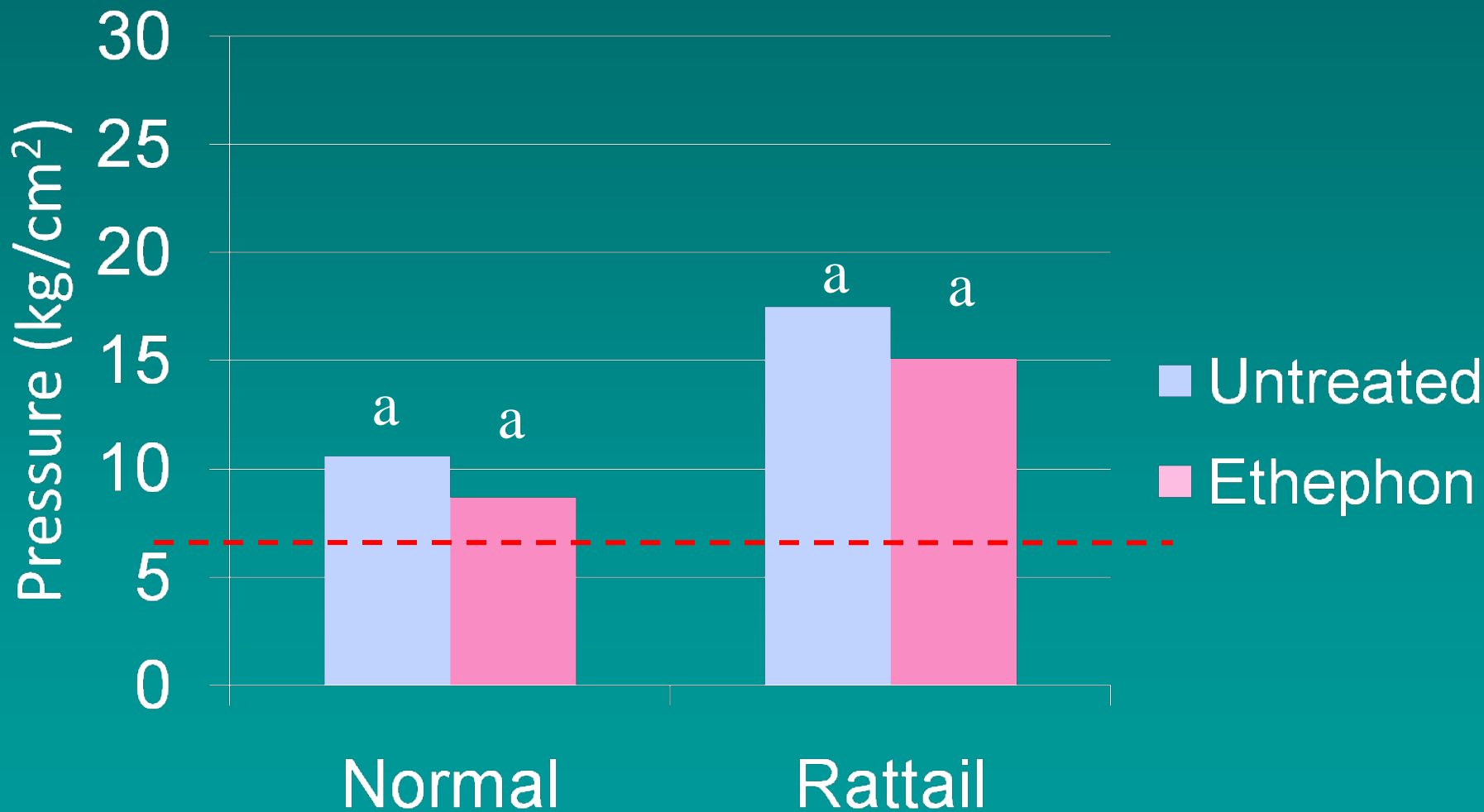
Fruit Pressures - 2008

Sacramento, 3 wk. after Aug. 12-15 spray



Fruit Pressures - 2008

Lake/Mendo, 1-2 wks. after 8/22 - 9/5 spray



Bait Pan Trapping



X

X

X

X

X

X

X

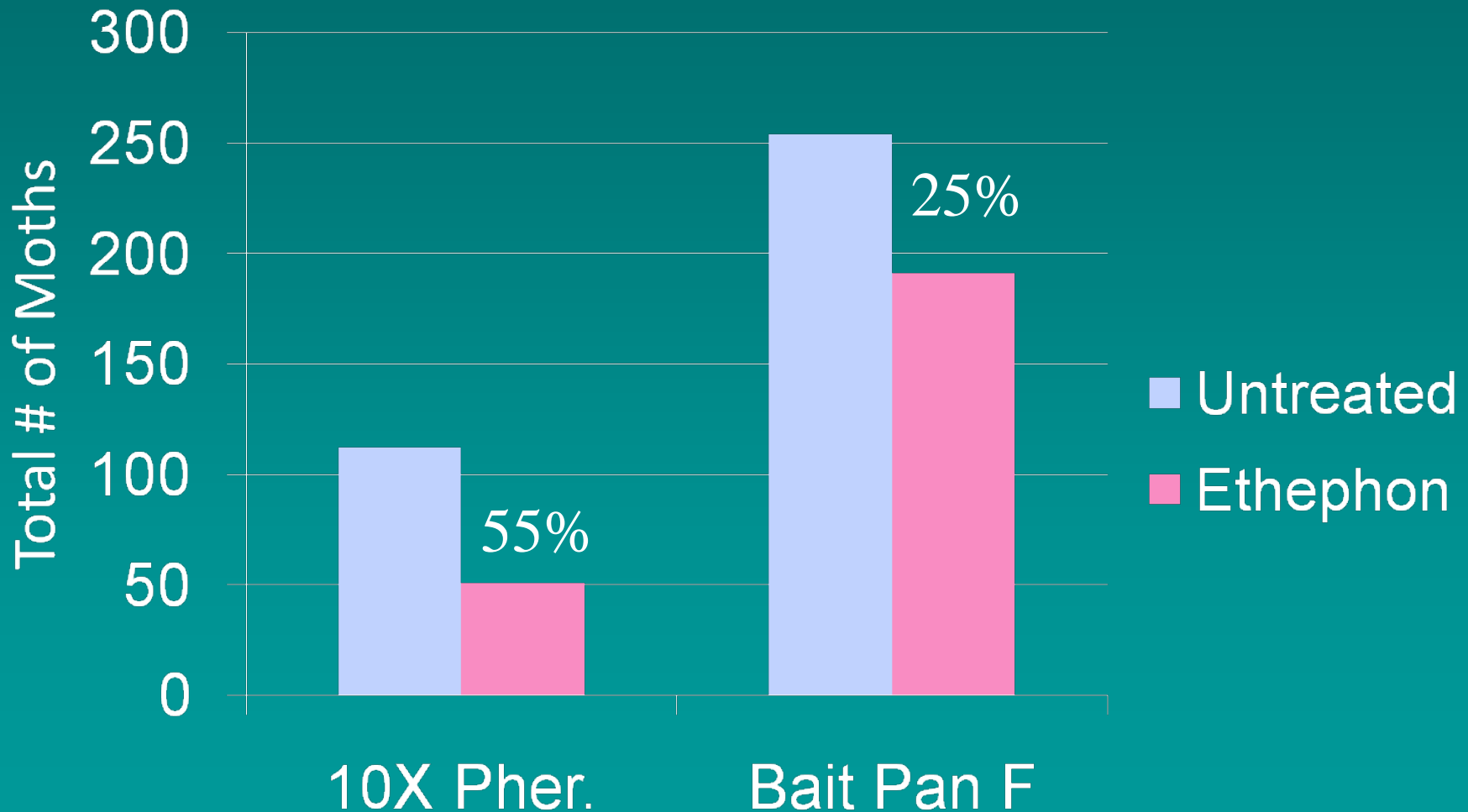
X

X

X

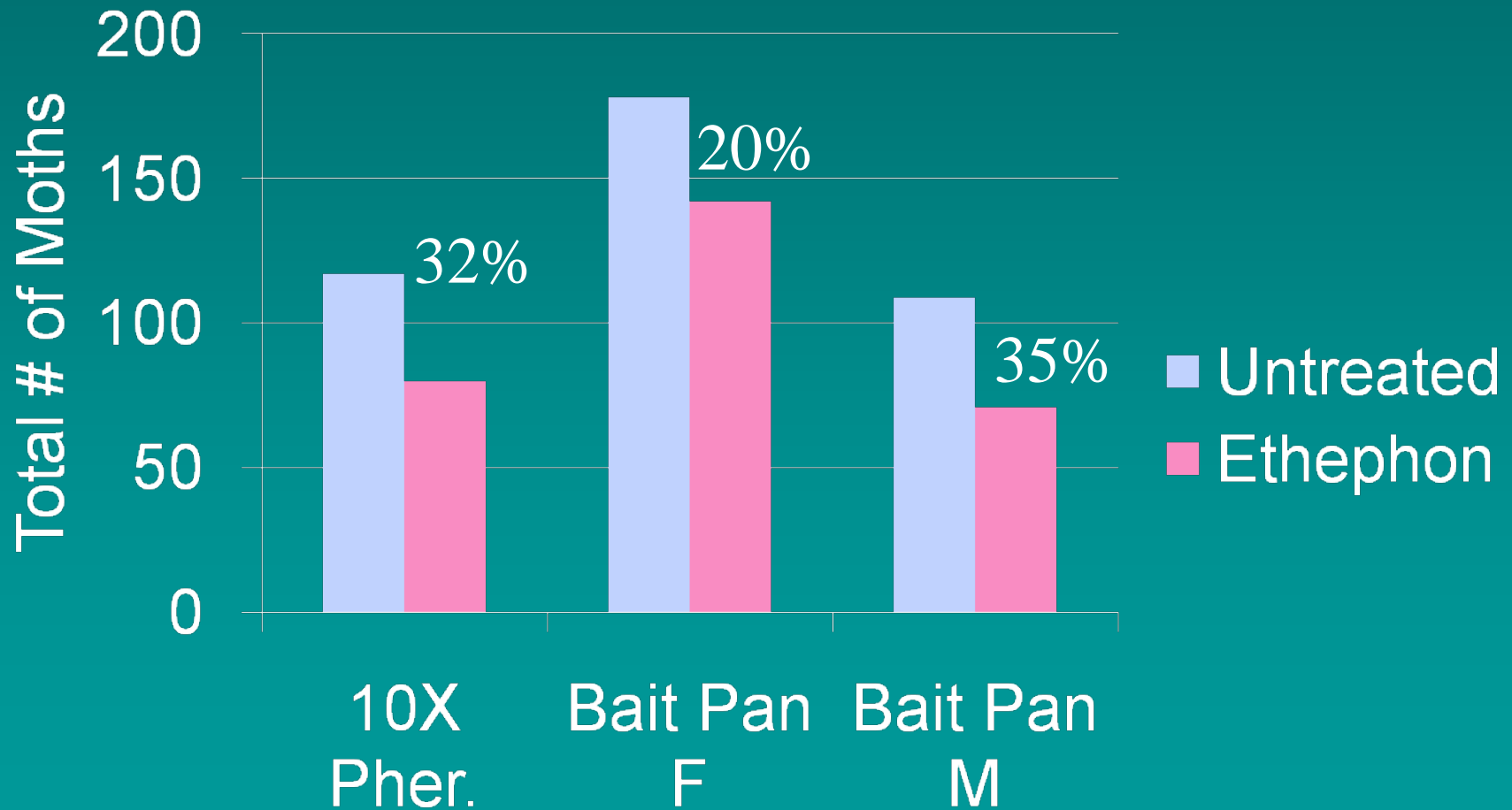
2008 Trap Catches – 1st Generation (Sacto.)

% Reduction with Ethephon (4 orchards)



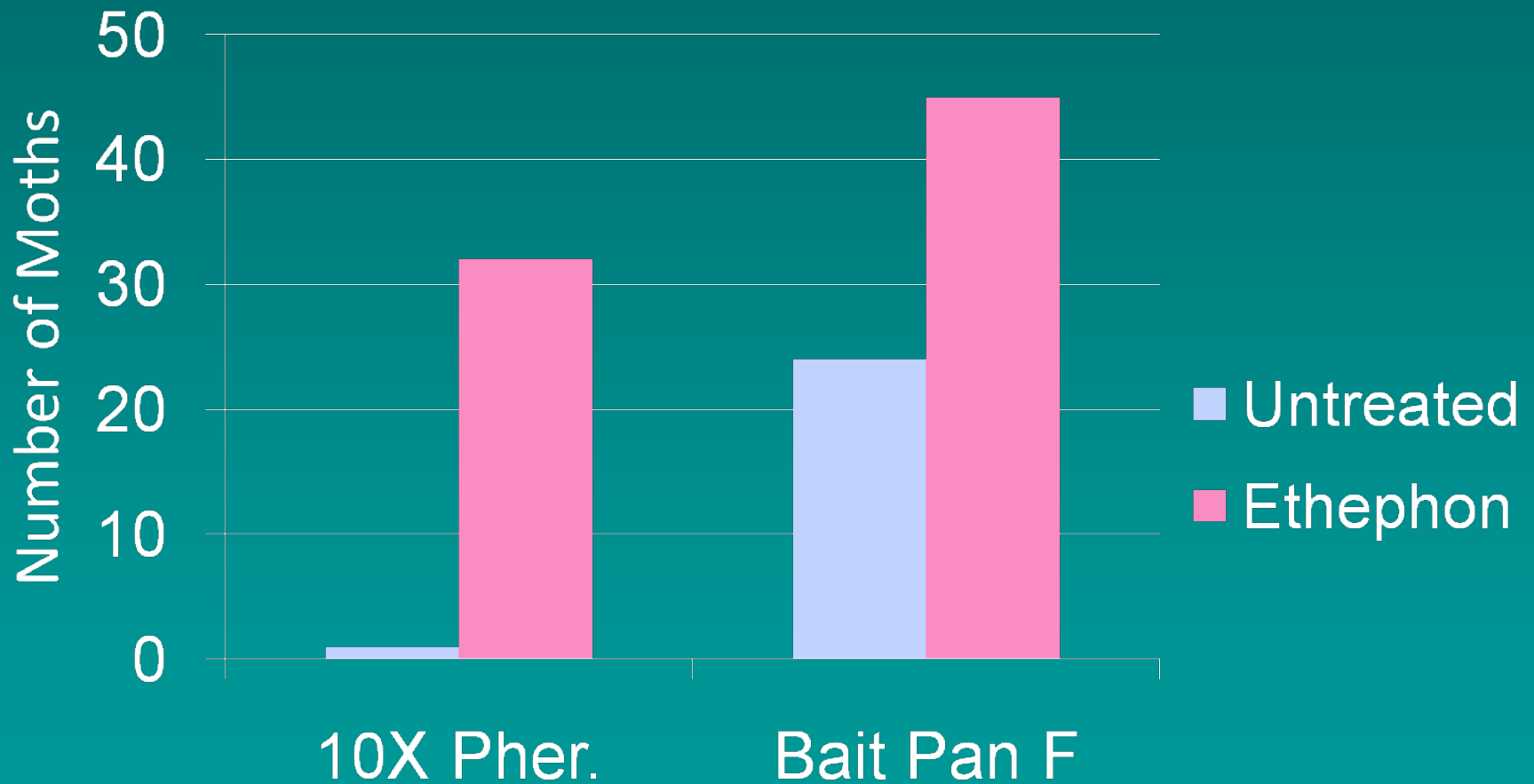
2009 Trap Catches – 1st Generation (Sacto.)

% Reduction with Ethephon (5 orchards)



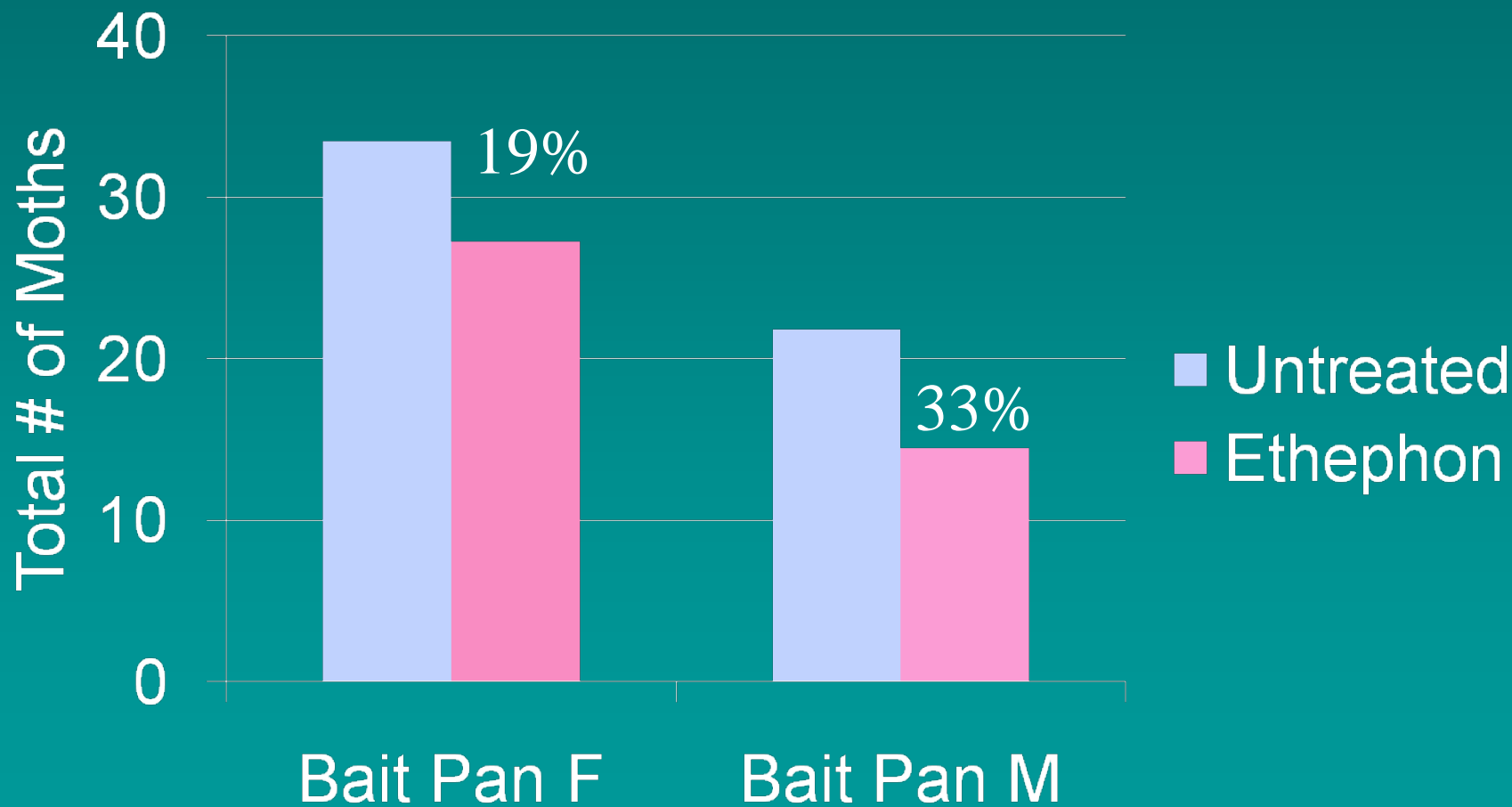
2008 Trap Catches – 1st Generation (Mendo.)

% Reduction with Ethephon (1 orchard)



2009 Trap Catches – 1st Generation (Mendo.)

% Reduction with Ethephon (4 orchards)

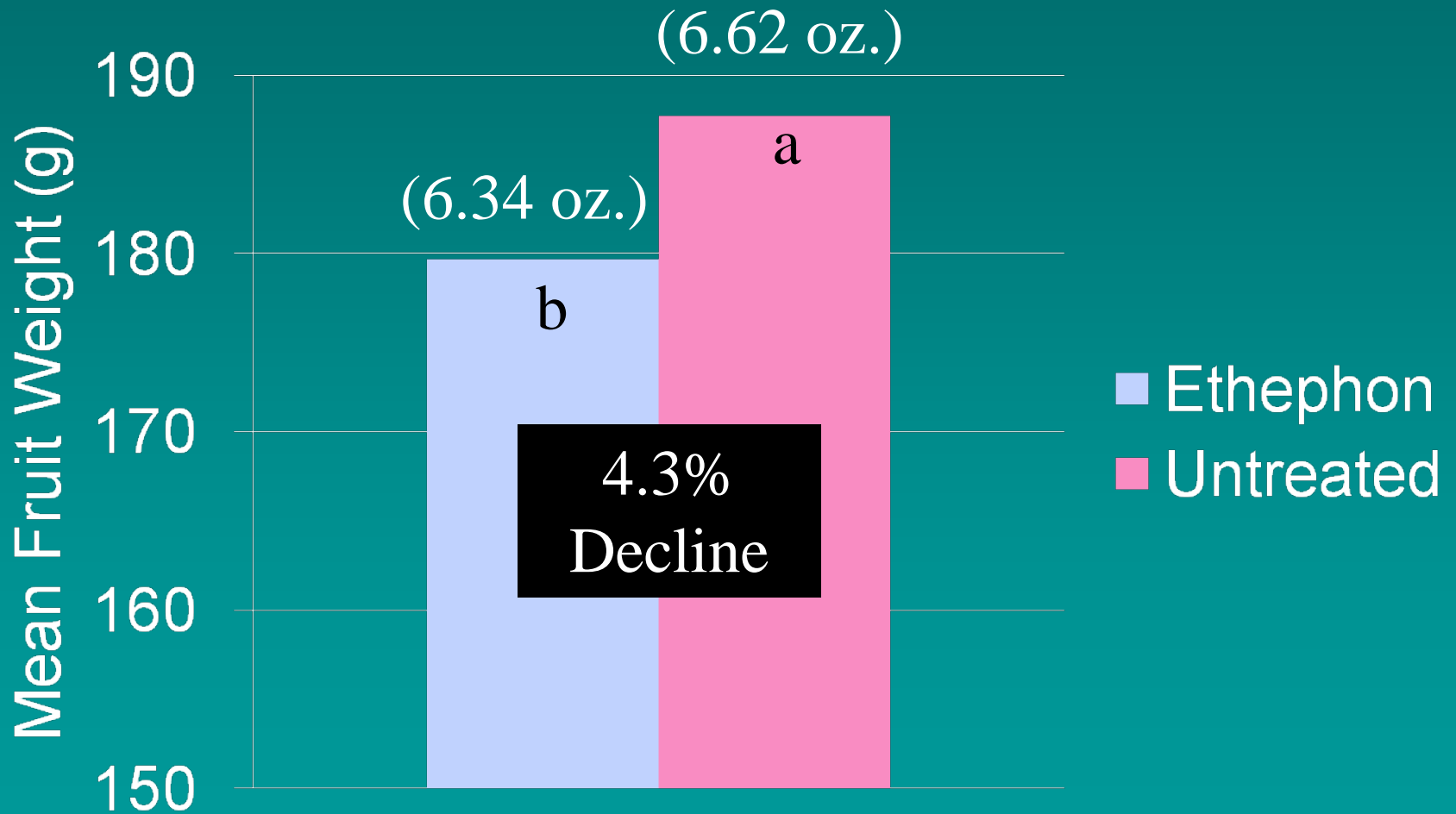


CM Damage – End of 1st Gen. (Sacto.)

No. of Strikes/1,000 fruit

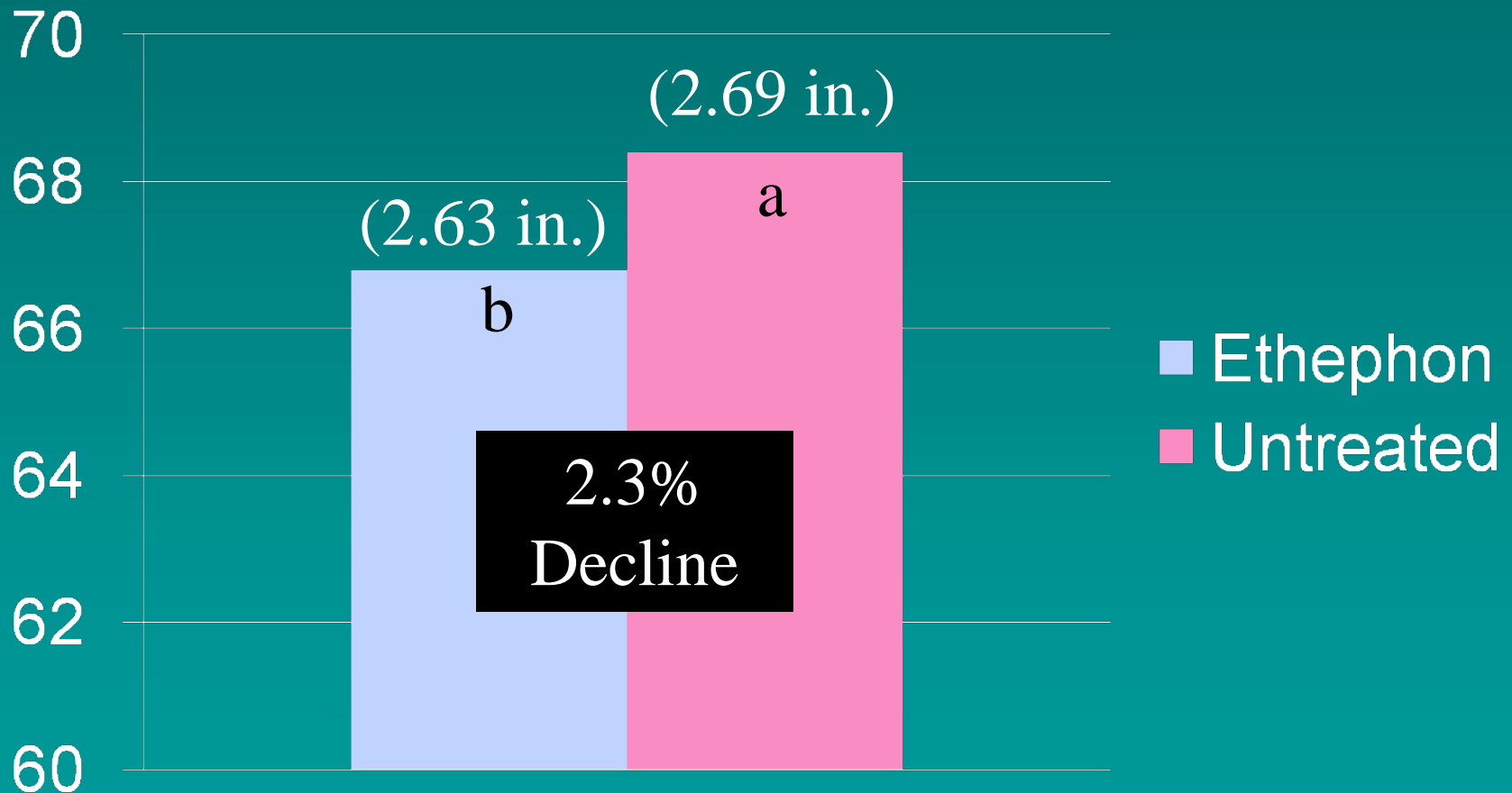
ORCHARD	Ethephon	Untreated
H	0	0
M	0	0
T	2	14
G	22	17
L	0	0

Effects on Fruit Weight All Orchards, Both Districts



Effects on Fruit Size

All Orchards, Both Districts



Conclusions

- Decline of fruit pressure to 6.5 kg/cm²:
 - » Normal: 1-2 wks., rattails: 2-3 weeks
- Avg. 20% reduction in CM female moths, 30-50% reduction in males
- No clear reduction in fruit damage
- Fruit weight & size – slight reduction
- Use ethephon early – by early Aug.