Managing Burrowing Rodents in Specialty Crops—What's New?

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Carbon Monoxide Machines

- Legalized in CA since January 1, 2012.

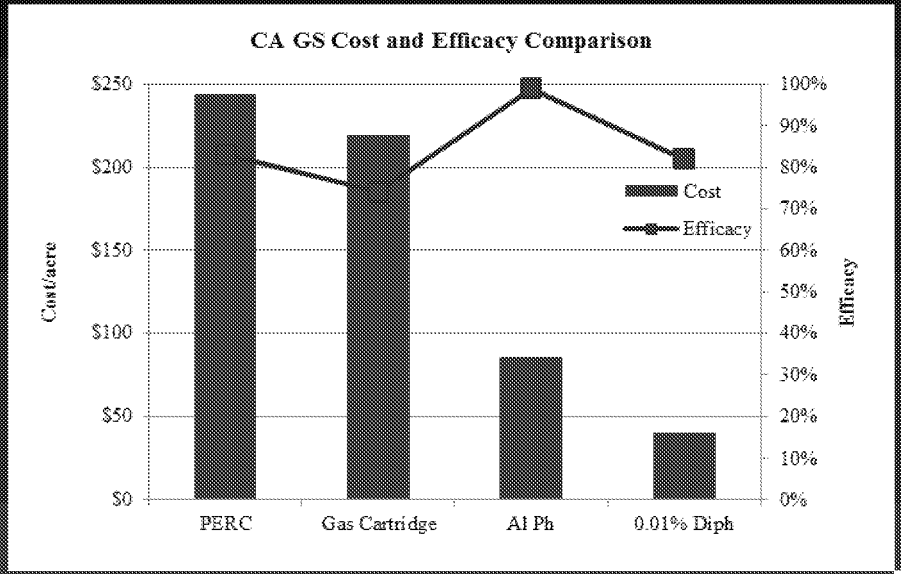
- Potential advantages for CO:
  - Safer for use
  - Multiple applications

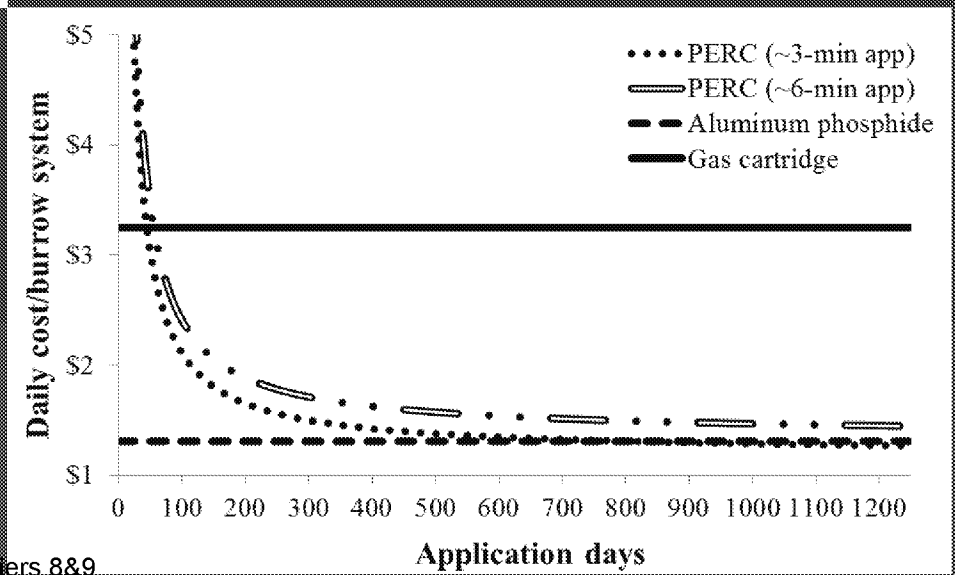
- Will now be regulated by CDPR.

Carbon Monoxide Machines

Species	Device	Authors	# of fields	Efficacy
Pocket gopher	PERC	Orloff	3	56%
Pocket gopher	PERC	Baldwin & Orloff	3	62%
Pocket gopher	PERC	Baldwin & Orloff	2	68%
Belding's GS	PERC	Orloff	2	76%
California GS	PERC	Baldwin	2	66%
California GS	PERC	Baldwin	2	100%
California GS	Cheetah	Baldwin	3	-7%

Control Technique Comparison-CA GS



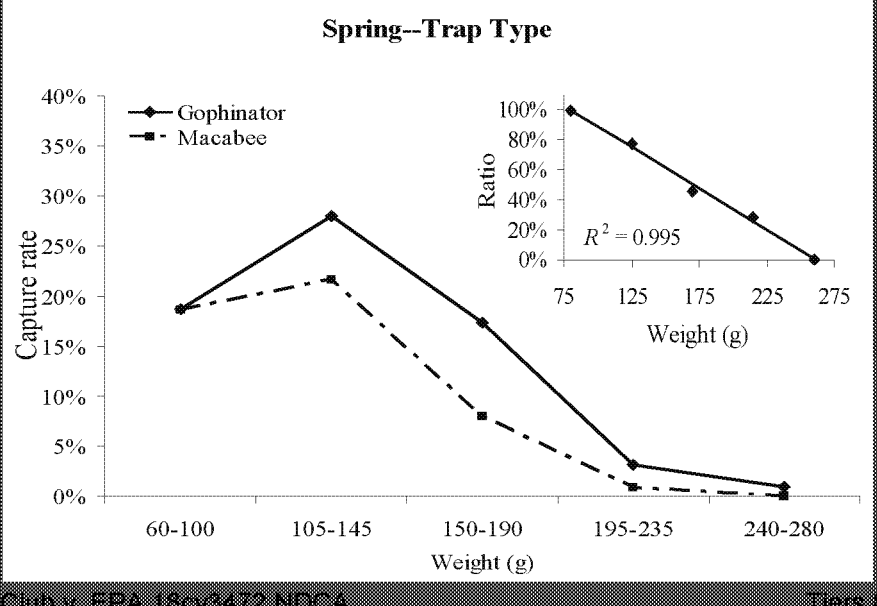


Trapping—

Pocket gophers

- Gophinator trap was more effective than Macabee trap.

- Captured heavier gophers at a greater rate.



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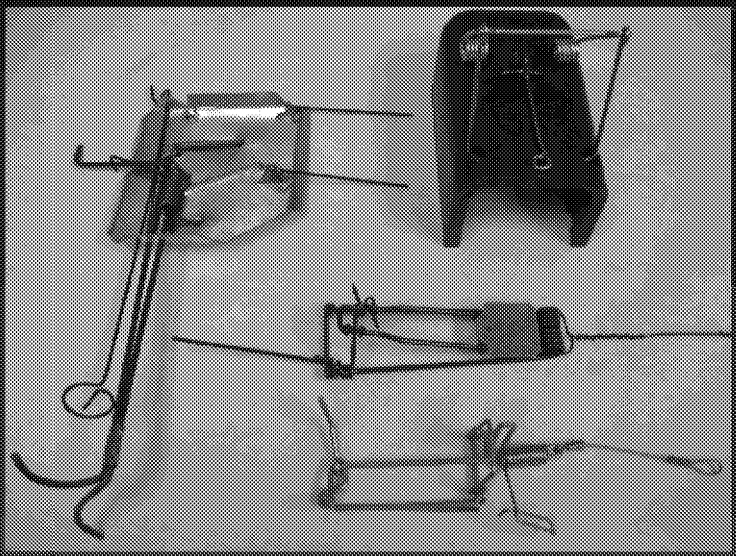
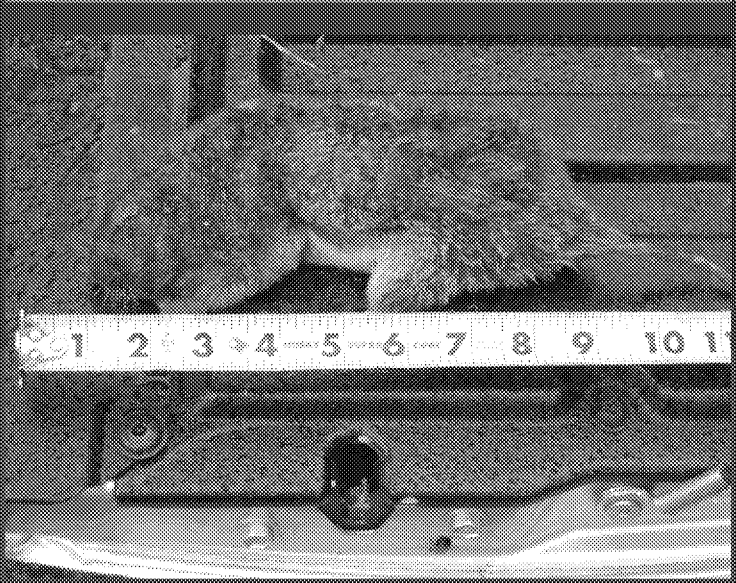
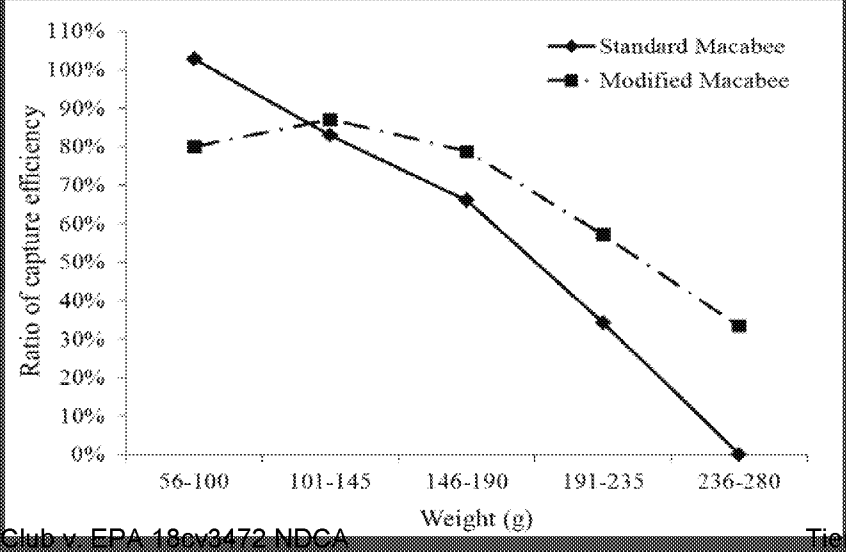




Trapping–

Pocket gophers

- Modified Macabee increased capture success when compared to standard Macabee, but still underperformed when compared to the Gophinator.



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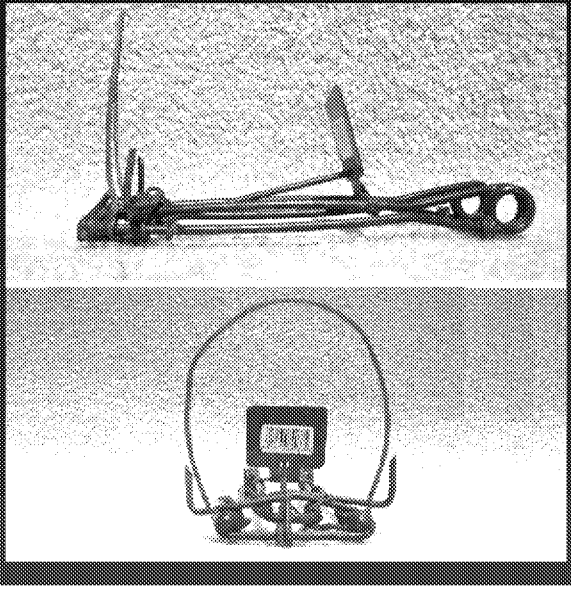
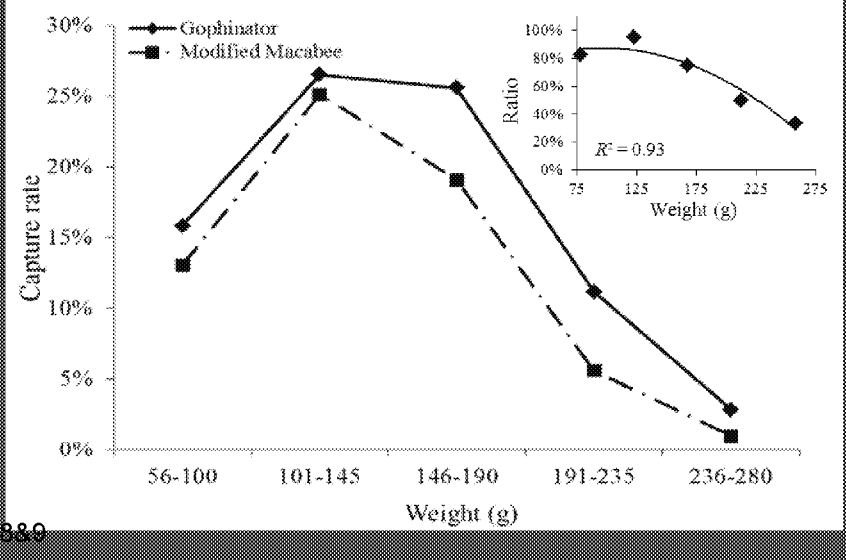




Trapping—

Pocket gophers

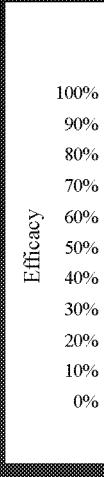
- Covered sets yielded slightly higher capture rates in spring-summer, but not autumn.
- Efficacy was offset by setting time.
- We did not observe a difference in the number of captures across attractants.
- Human scent had no effect.

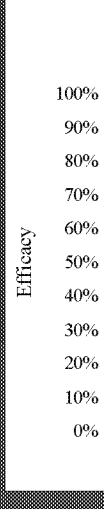
—Options

Trapping—

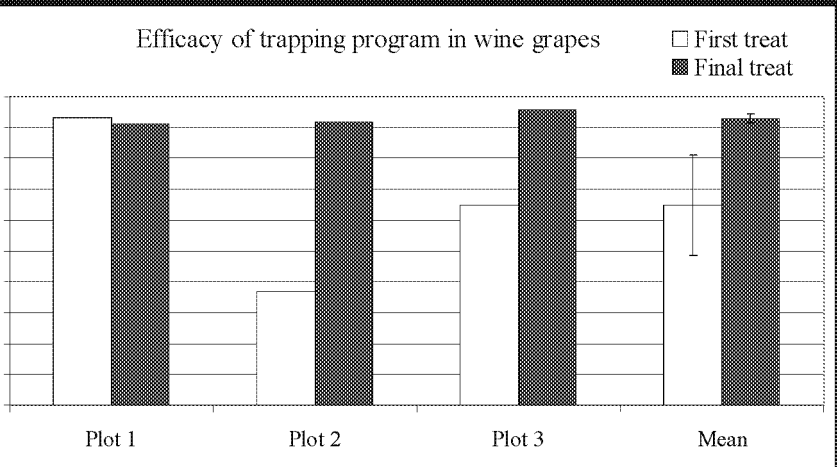
Pocket gophers

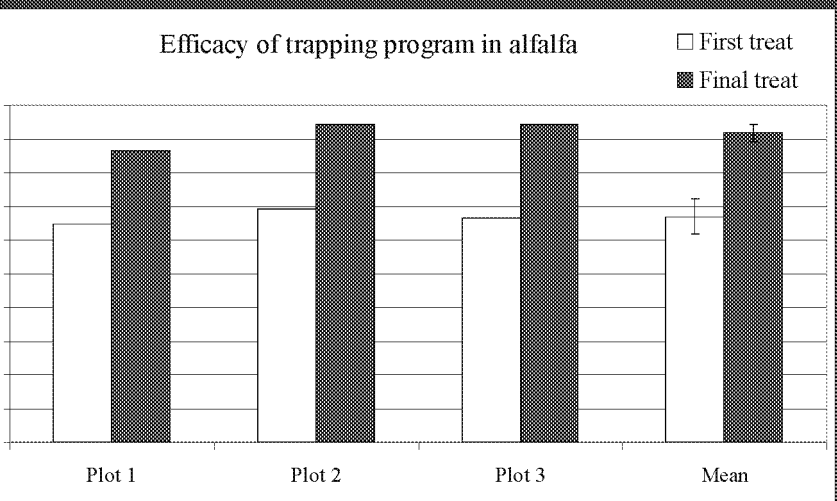
- Exhibited high efficacy in wine grapes after two treatments.
- Exhibited high efficacy in alfalfa after two treatments.





-Efficacy

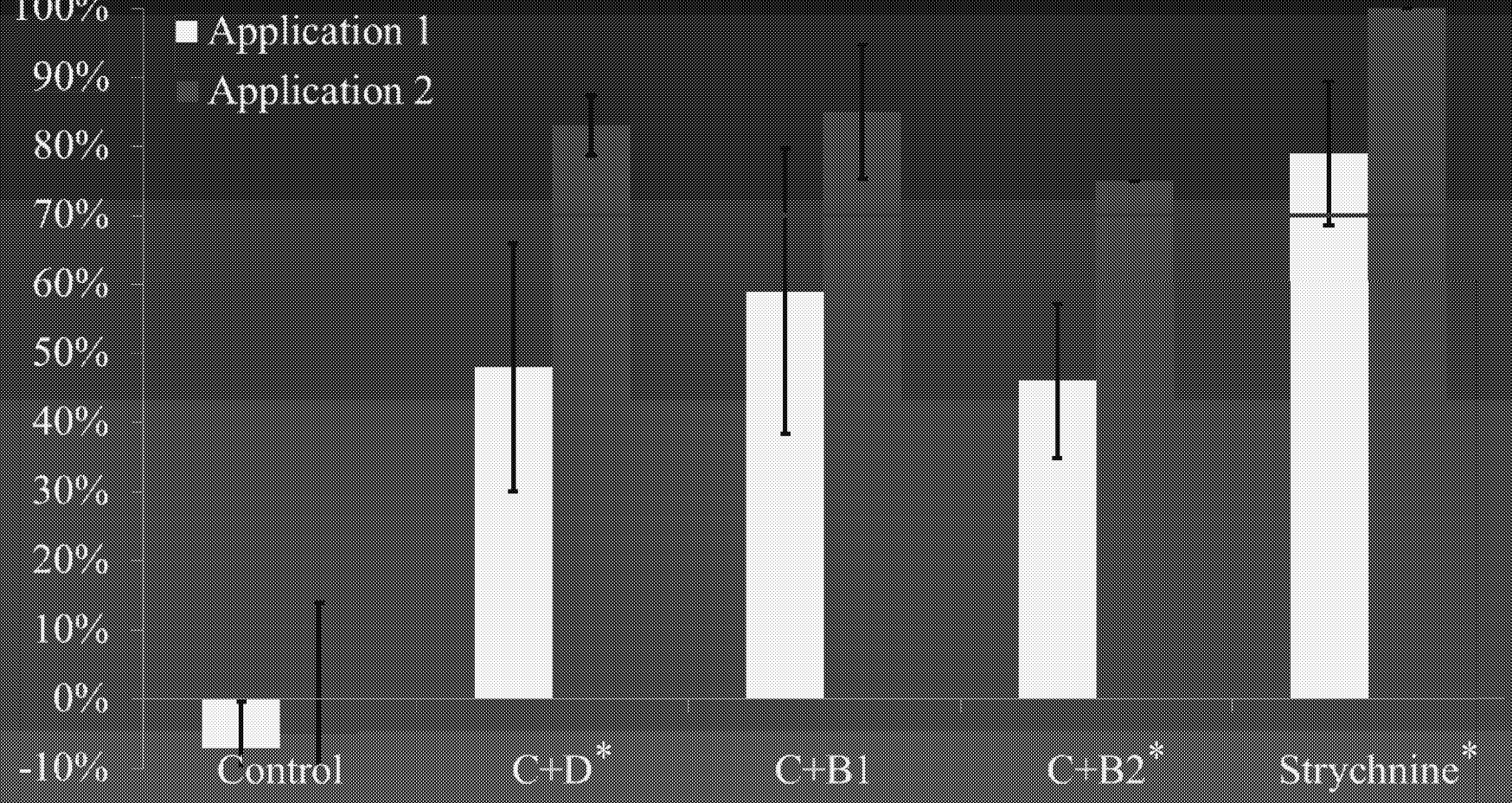

Efficacy of trapping program in wine grapes
First treat
Final treat
Plot 1
Plot 2
Plot 3
Mean


Efficacy of trapping program in alfalfa
First treat
Final treat
Plot 1
Plot 2
Plot 3
Mean

Pocket Gopher Rodenticides

Product	AI	Carrier	S. Rosa	Pala	Total
Control	Maintenance diet	Rat chow	1/10	0/10	5%
CDFA	Chlorophacinone (0.01%)	Oat grain	3/5	2/5	50%
Rozol	Chlorophacinone (0.005%)	Wheat grain	3/5	2/5	50%
Wilco D	Diphacinone (0.005%)	Milo grain	-----	0/5	0%
RCO Patrol	Diphacinone (0.005%)	Pellet	1/5	2/5	30%
Wilco ZP	Zinc Phosphide (2.0%)	Wheat grain	2/5	3/5	50%
Bell ZP	Zinc Phosphide (2.0%)	Pellet	4/5	0/5	40%
Omega	Strychnine (0.5%)	Oat grain	5/5	0/5	50%
Avalon	Strychnine (0.5%)	Mixed grain	5/5	1/5	60%
Bromethalin	Bromethalin (0.01%)	Milo grain	-----	0/10	0%
Terad$_3$	Cholecalciferol (0.075%)	Pellet	------	2/5	40%
C+D	Chole (0.03%) – Diph (0.005%)	Pellet	5/5	3/5	80%
C+D 2	Chole (0.03%) – Diph (0.005%)	Pellet	5/5	5/5	100%
C+D 3	Chole (0.03%) – Diph (0.005%)	Pellet	5/5	5/5	100%

Pocket Gopher Rodenticides

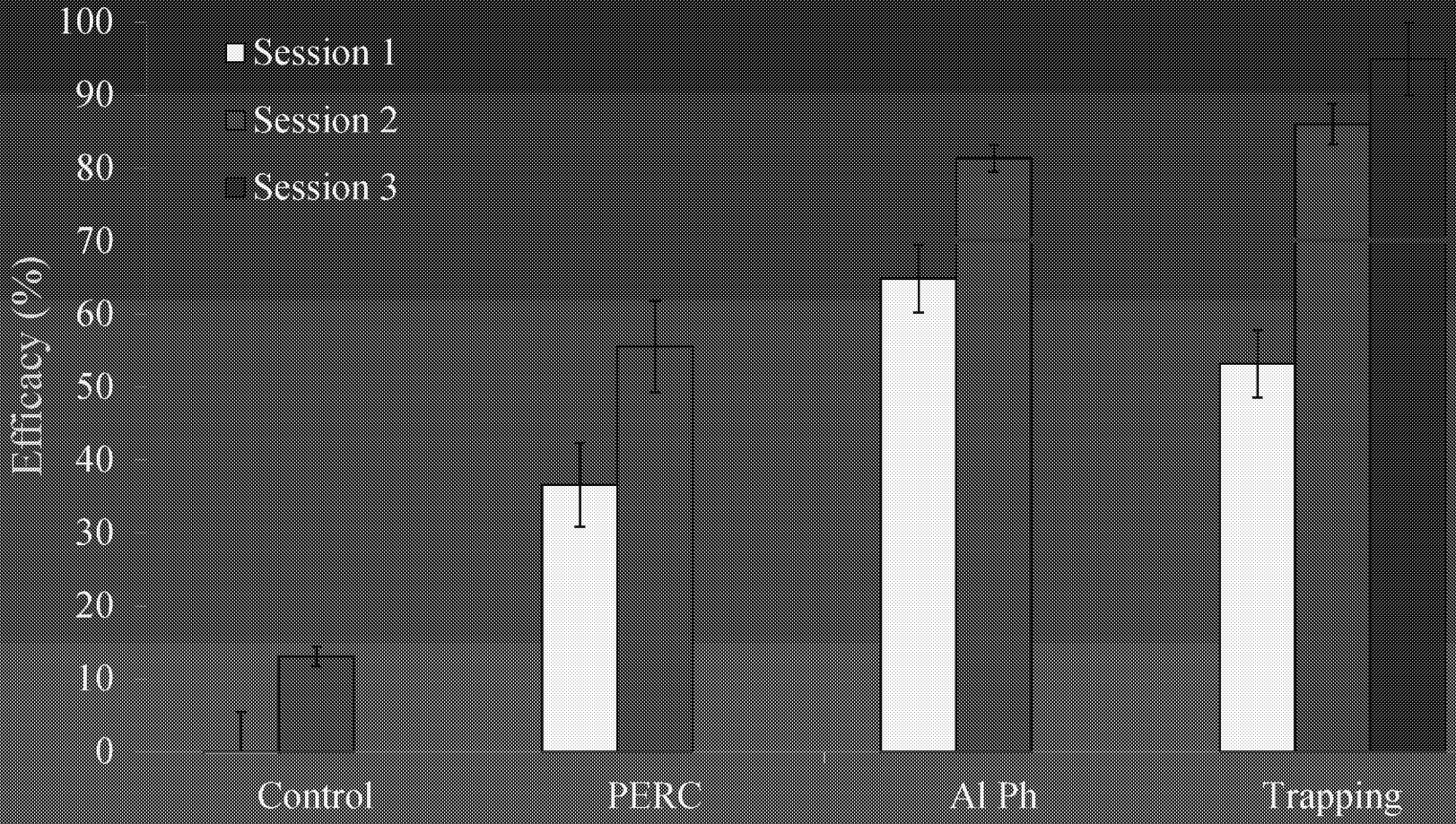


* Significantly > 70%; $P < 0.10$.

- C+B1 may still be worth pursuing.

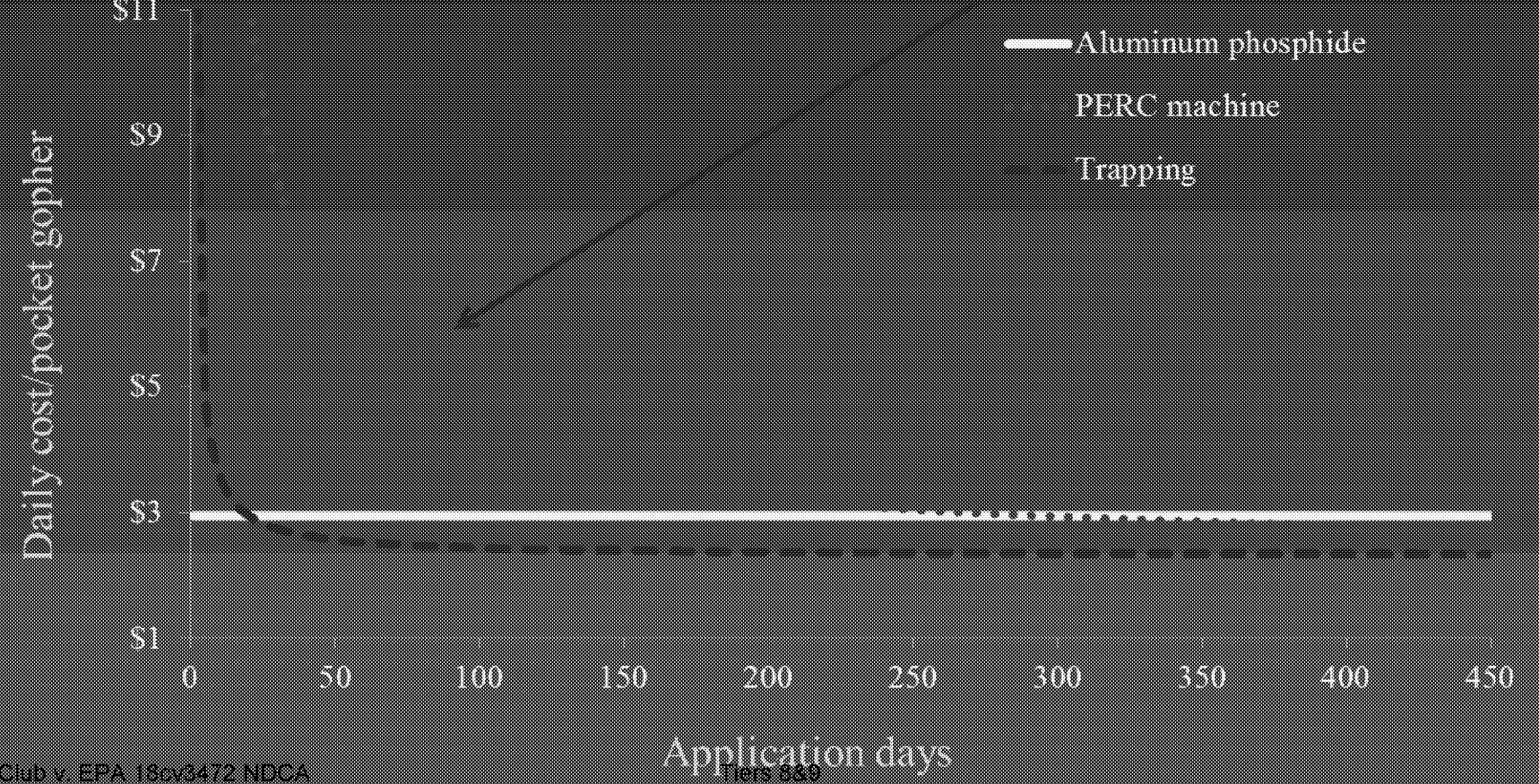
Control Options—Comparisons

- Trapping and aluminum phosphide were most effective for gophers.



Control Options—Comparisons

- Trapping = 44 gophers removed per day
- Aluminum phosphide = 44 gophers removed per day
- PERC = 47 gophers removed per day



Options—Repellents

Repellents

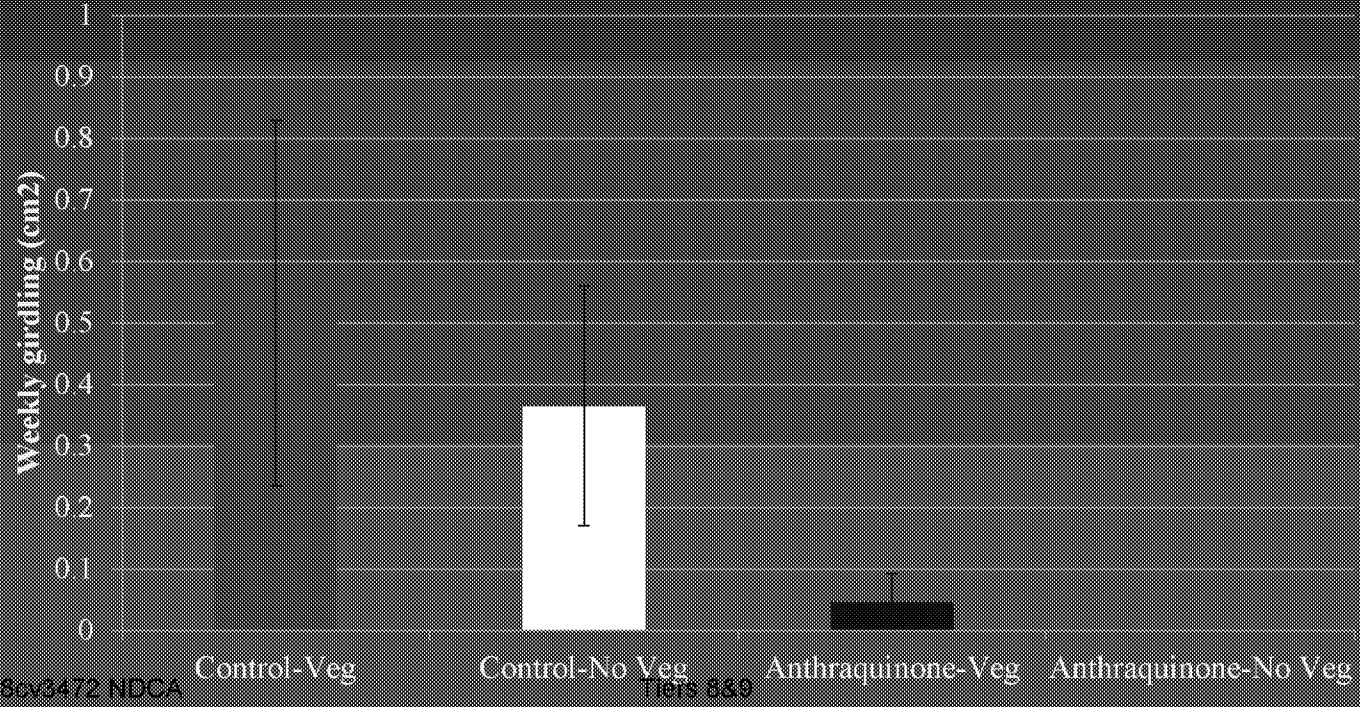
- rely on objectionable odors or unpleasant tastes/responses.

- commonly available but none proven effective.

- anthraquinone may show some promise.

Options—Repellents

- Vegetation removal + anthraquinone reduced damage
  - vegetation: 0.05 cm^2, no vegetation: 0 cm^2; $P = 0.059$
- Removal of vegetation by itself did not reduce damage
  - vegetation: 0.53 cm^2, no vegetation: 0.37 cm^2; $P = 0.143$




Questions?