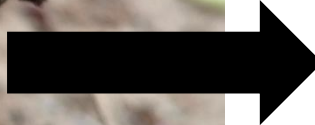
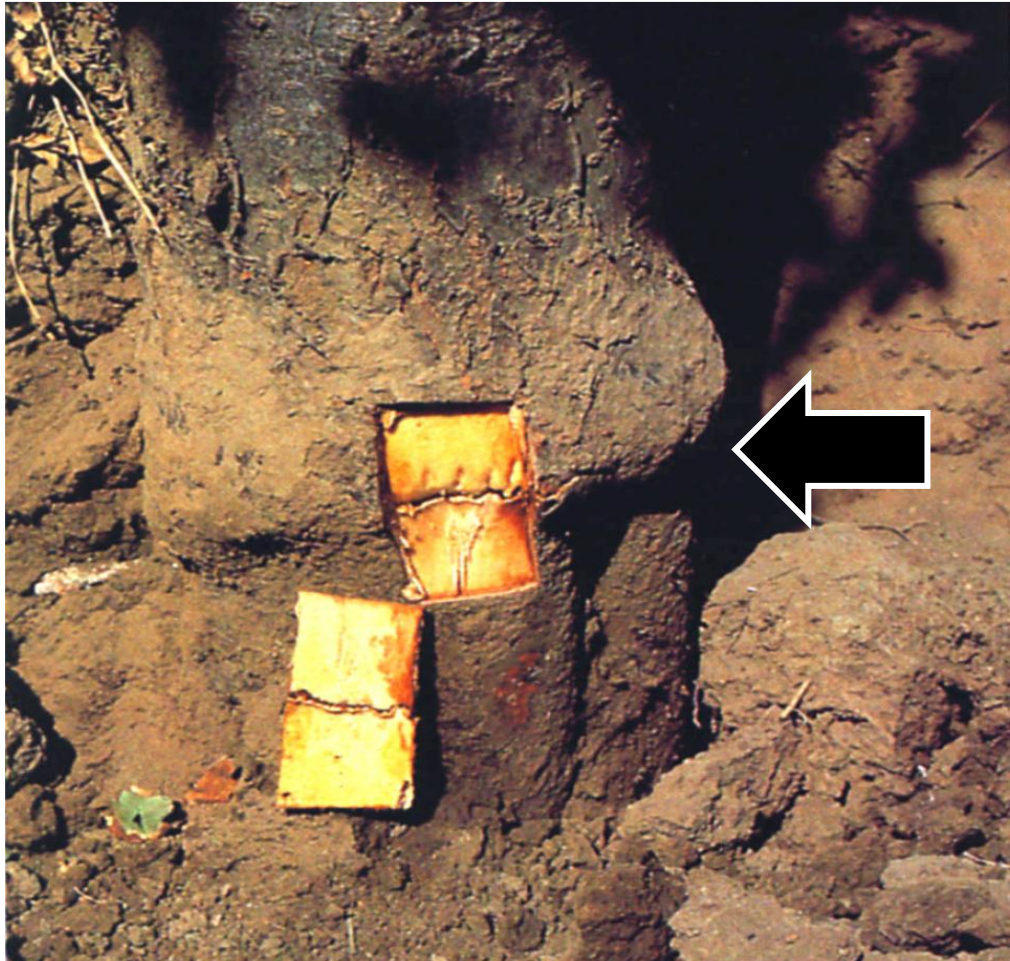


What is Prune Brownline?



This IS diagnostic for Brownline



Browline Management: Rootstock selection

Susceptible rootstocks:

Lovell, Nemaguard, 29C, Myro seedling, Krymsk 86

Resistant rootstock:

Marianna 2624

Unknown:

Viking, M40*, Atlas,...

What is Phytophthora?

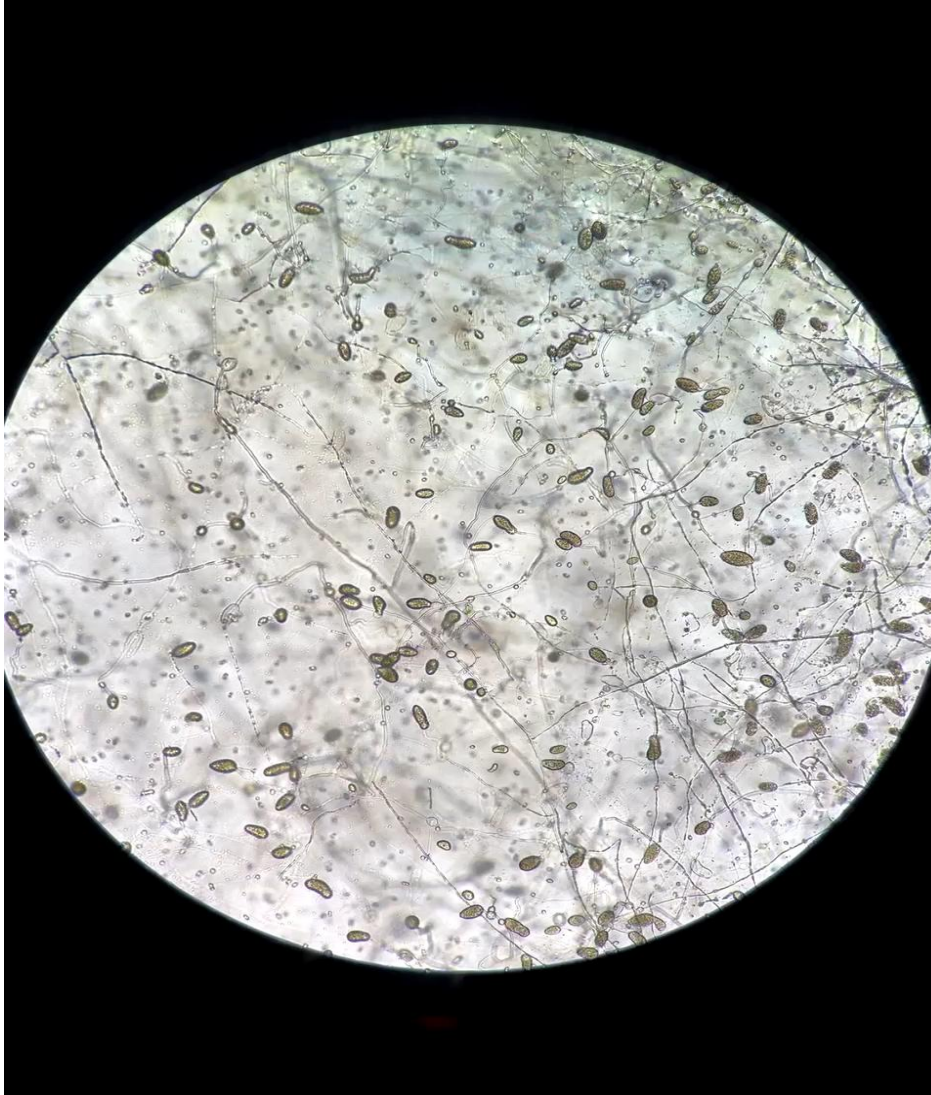
Root and crown rot caused by various *Phytophthora* species

Infects with standing water, saturated soil

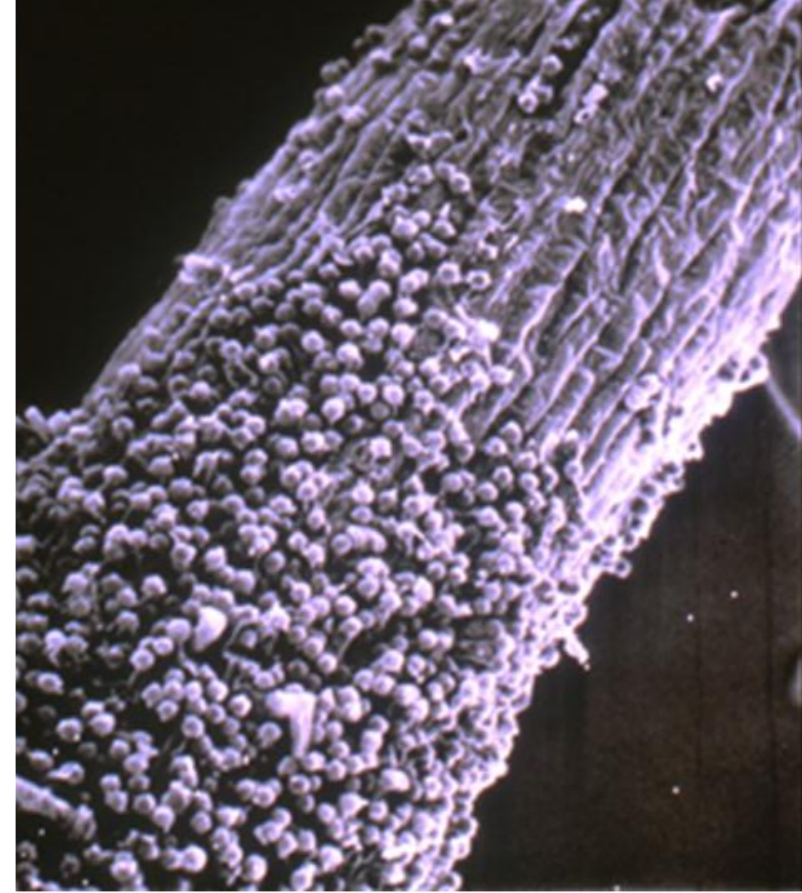
Generally originates belowground



Water triggers spore production and infection



Needs saturated soil for 12-48 hours
(depends on species)



Video credit:
Alejandro Hernandez, Trouillas Lab

Phytophthora Symptoms

Canopy decline or collapse

Gumming canker on trunk coming up from the soil

Loss of fine roots

****None of these symptoms are exclusive to Phytophthora****



Phytophthora Management

M2624, 29C are resistant

Krymsk 86 is somewhat resistant

Peach (Lovell, Viking, Nemaguard)
are highly susceptible



Irrigation management is Phytophthora management: keep water away from the crown

Plant on a berm

Avoid long irrigation sets

Avoid ponding

Avoid saturation at the trunk
move drip emitters away
use sprinkler splitters



The Mother of *Phellinus*



Signs and symptoms of *Phellinus*

- *Phellinus pomaceus* (syn. *P. tuberculosus*)
- Broken scaffolds
- Shelf-like brackets (conks) near old pruning wounds
- 'Heart rot' (not living wood)
- Soft, decayed wood inside tree





Phellinus Heart Rot



- Photos: Lauren Hoffman, CPB Annual Report 2024

Risk factors for *Phellinus*

- 4,880 trees in 35 orchards, 13-30 years old
- North Sac Valley
 - 34% of surveyed trees show signs of infection
 - 0.01% in San Joaquin Valley
- 93% of infections traced to pruning wound
- Stressed trees (drought, sunburn, nutrition, other disease) more susceptible
- No trend in tree age except not young (13-30 years)



Sept	Oct	Nov	Dec	January	February	March	April	May	June	July	August
					North Sacramento Valley (Tehama Co)						
						Sutter Co.					
							Yolo Co.				



- Photos and table: Laurel Hoffman, CPB Annual Report 2024

Management of *Phellinus*

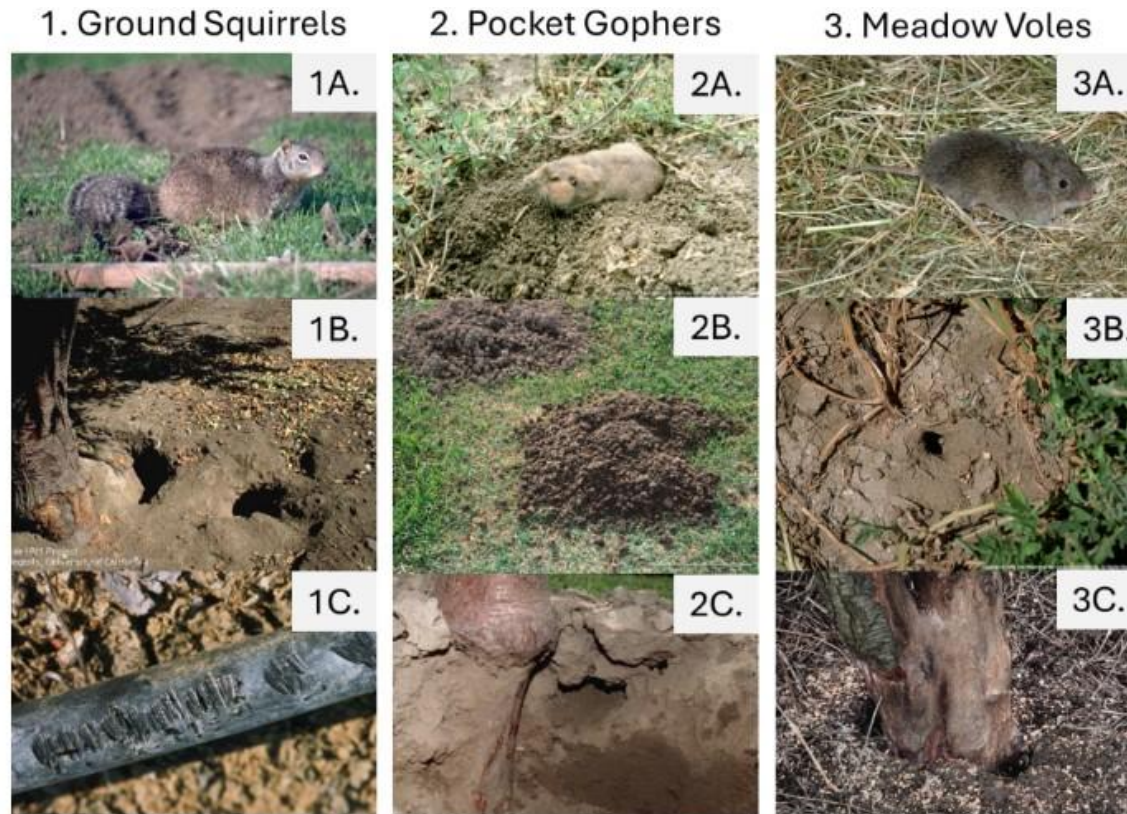
- PREVENTION
- Avoid pruning during sporulation (and rain!)
- Make good, clean cuts
- Ongoing trials of post-pruning chemical/biocontrol application efficacy



The Father of Vertebrates

Identify your vermin!

- 6-8in, brown, pocket cheeks, not cute
- Plugged C-shape mounds
- Root damage, below-ground girdling



Identification of vertebrate pests (top), their mound type (middle), and examples of damage (bottom). Photos by Jack Kelly Clark (UC IPM).

Gopher biology

200-2000ft tunnel system

Mostly stay below ground

Work day and night

No hibernation

Live alone

Up to 3 litters of 5-6 young per year

Find food by smell

Trapping

- ID burrows (probe)
 - Open burrow, place trap
 - Cover or not?
 - Bait behind trap?
 - Human scent?
 - NONE OF IT MATTERS
 - Check often and re-set
-
- Photo: UC IPM PestNotes

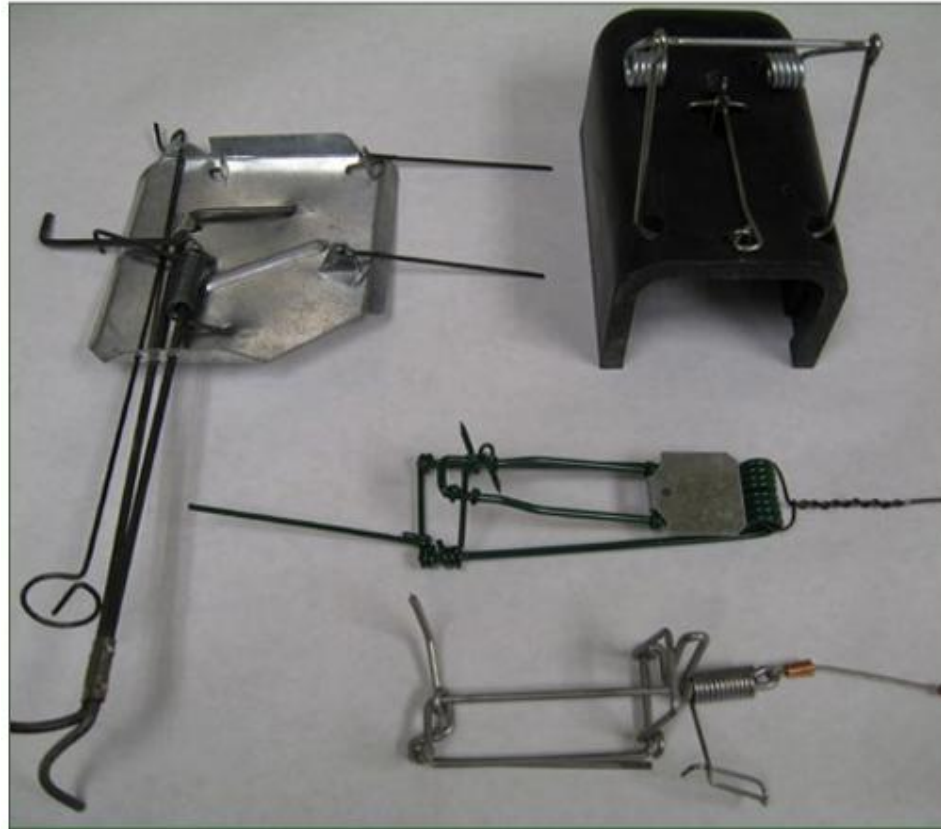


Figure 6. Types and brands of gopher traps include (clockwise from upper right) Victor Black Box, Macabee, Gophinator, and Cinch.



- Spoon and funnel or probe or burrow dispenser
- Anticoagulants – multiple feeds; no pilest; check and rebait often

Bait (restricted use materials)

- Zinc phosphide – single dose effective; (not near buildings); strong odor
- Strychnine – very effective; initial knockdown; resistance is possible
- Photo – UC IPM



Fumigation –

- Most smoke/gas doesn't work for gophers
- Aluminum phosphide works well – new regs this year!
- Pressurized exhaust machines – carbon monoxide – expensive but good for large efforts
- Photo – UC IPM

Other options

- Birds of prey – barn owls
- Flood (shovel, dogs or other predators should lie in wait!)
- Explosive devices – be careful!

- Not generally effective:
- Deterrents
- Gum
- Soap
- Vibrations or soundwaves







GrowingTheValleyPodcast.com

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