Wood-decay in the Central Valley Forest

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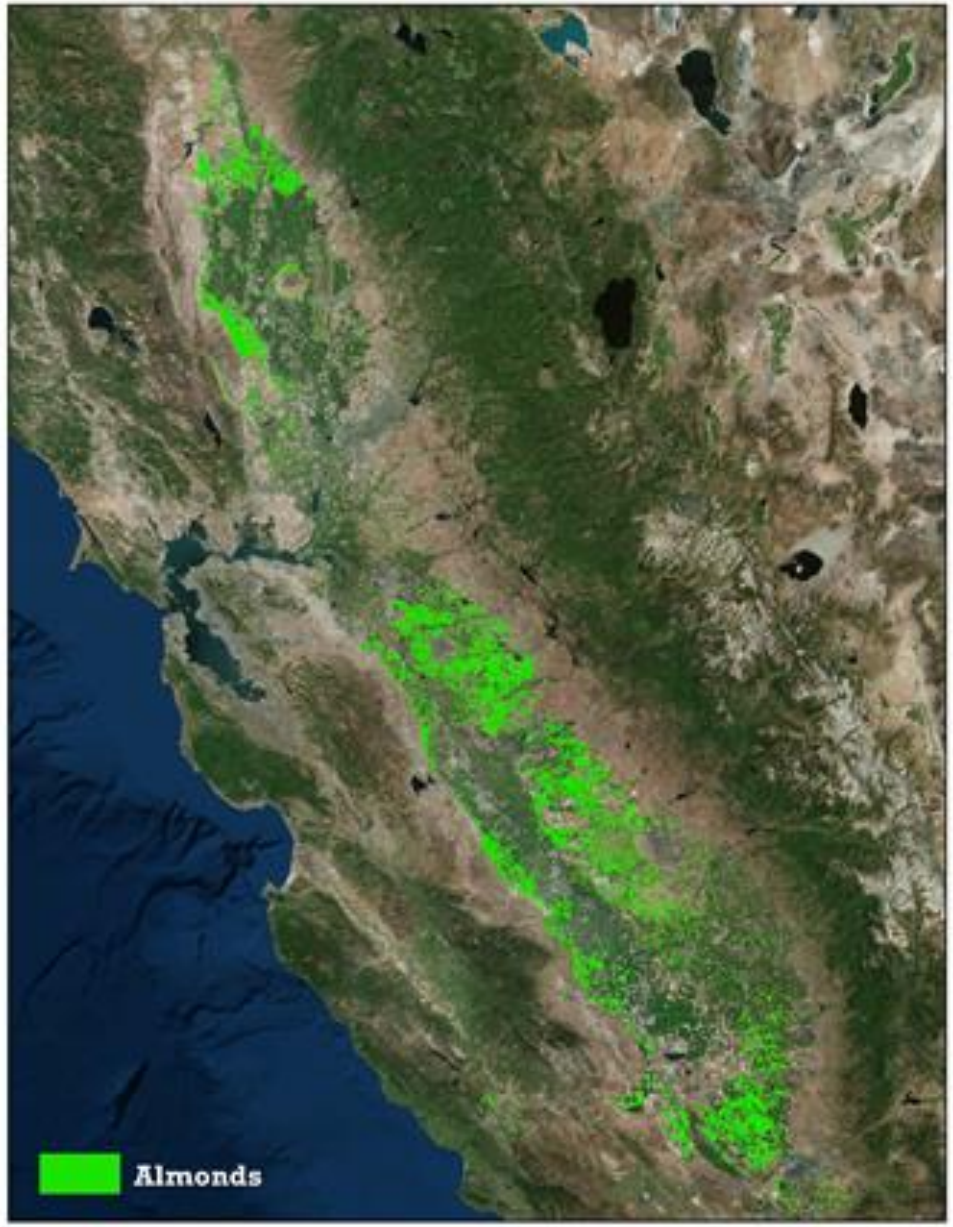
Wood decay

- Forest disease
- Most are saprophytic
- Less are pathogenic
- Most research has focused on taxonomy
- Epidemiology and biology not well studied
- Especially true in orchards



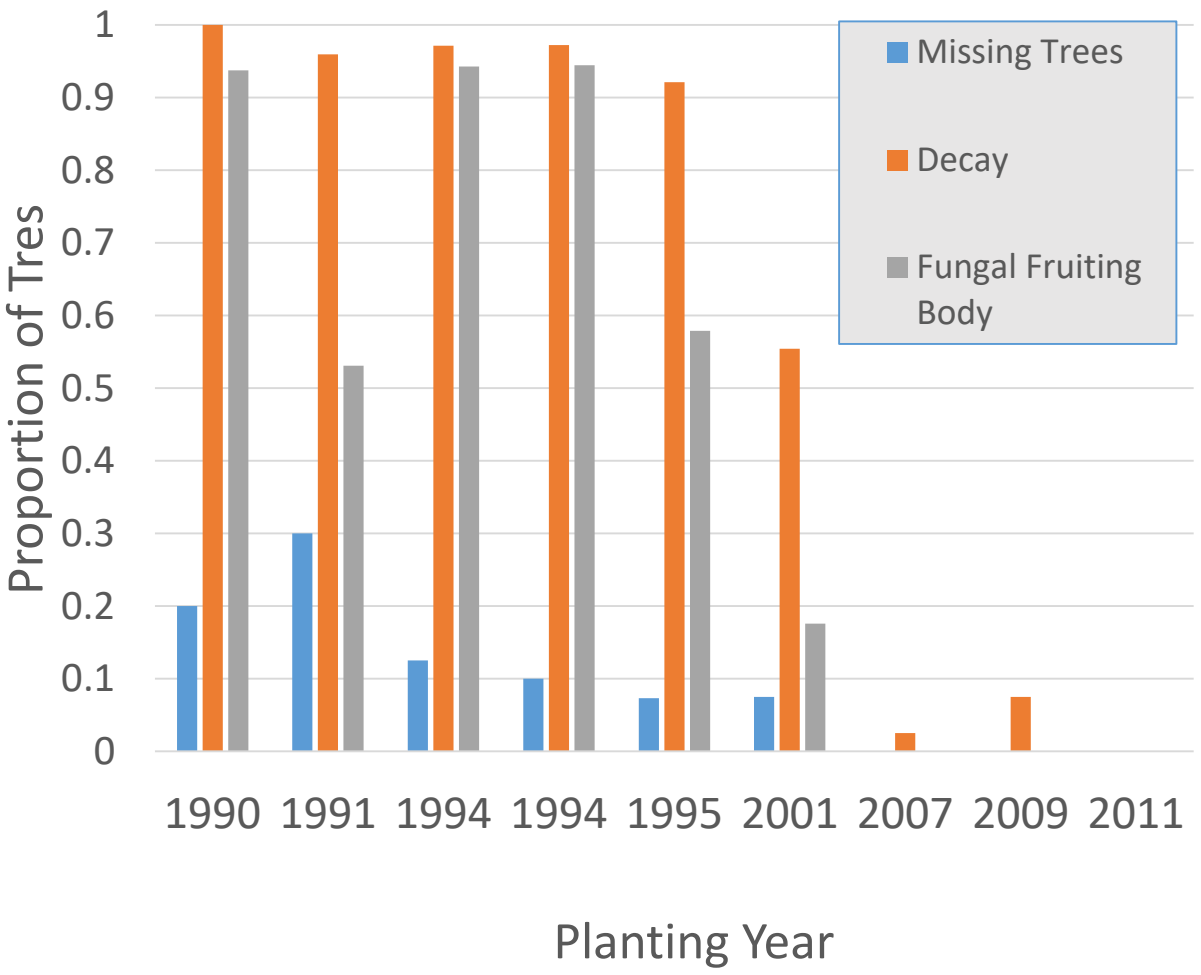
Orchard system

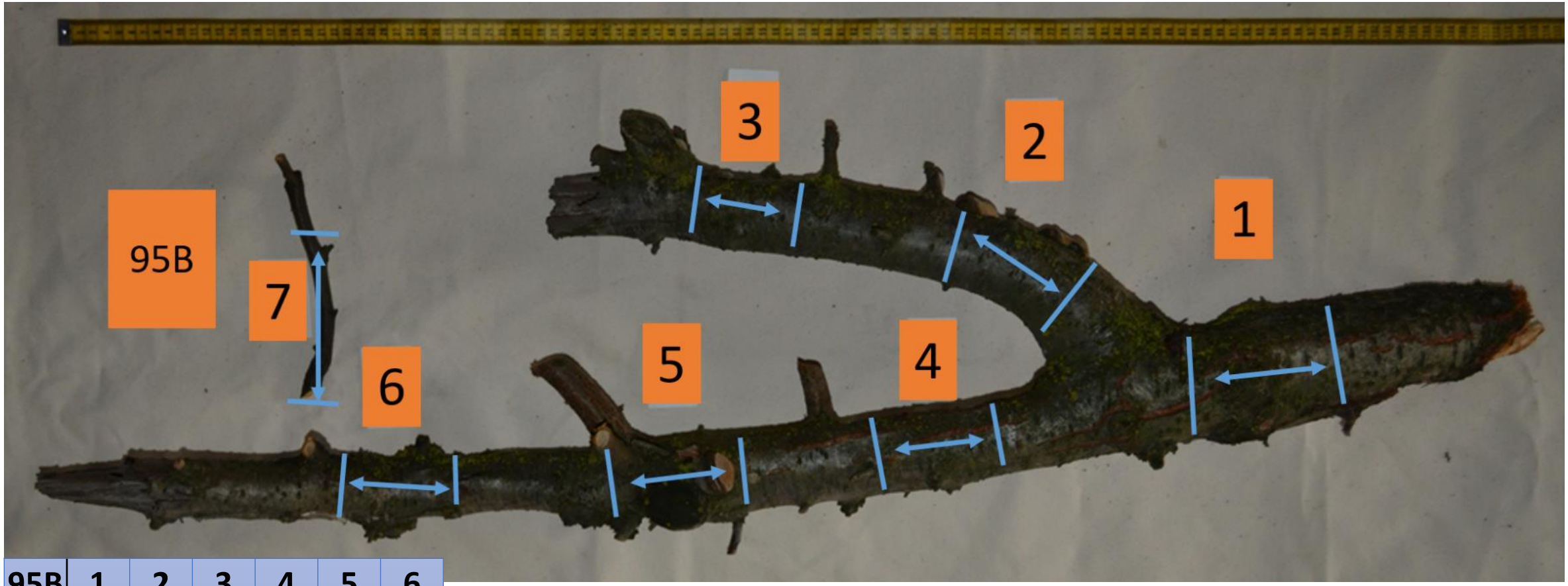
- Low species diversity
- Low genetic diversity
- One age
- Reduced environmental variability
- Simultaneous wounding events

Forest

- High species diversity
- High genetic diversity
- Many ages
- Environmental variability

2017 Prune Orchard Surveys for *Phellinus*

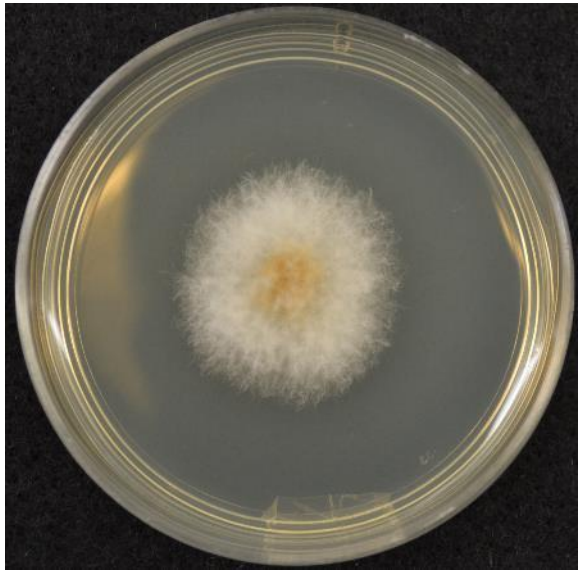




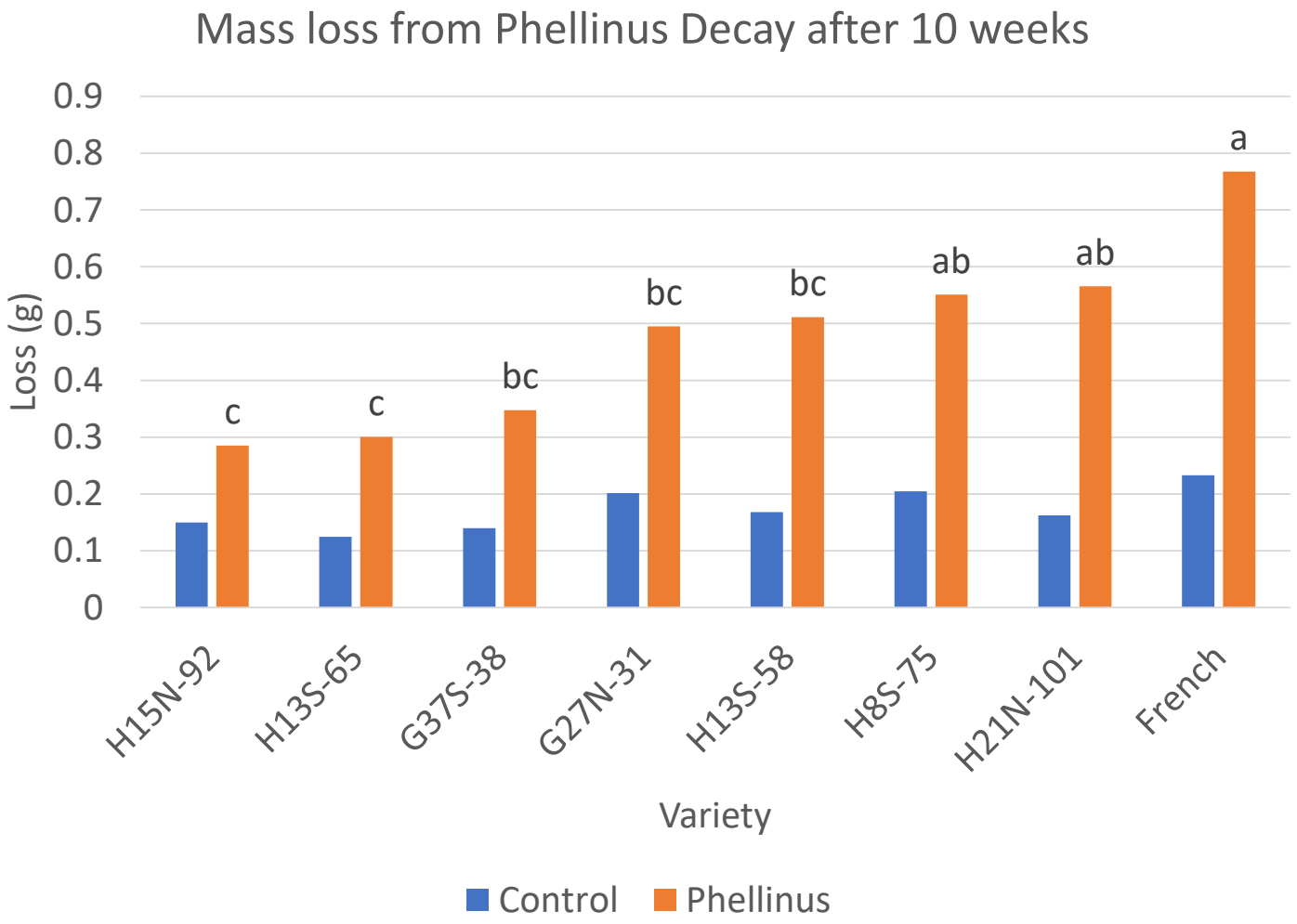
95B	1	2	3	4	5	6
1	+					
2	-	+				
3		-	+			
4	-	-	-	+		
5				+	+	
6	-			+	+	+

2009 Orchard Sutter County

Total Samples	Decay	*Phellinus tuberculosus*	*Trichoderma sp.*
10	8	5	3



Phellinus decay on different prune varieties



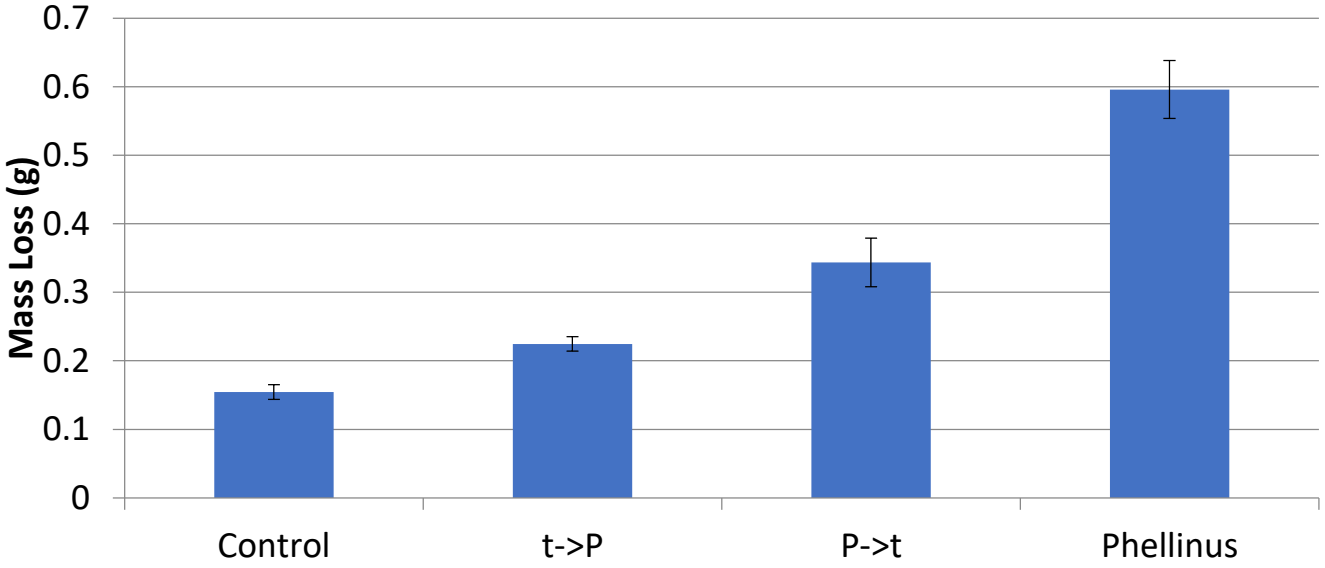
Trichoderma vs. Phellinus on prune wood

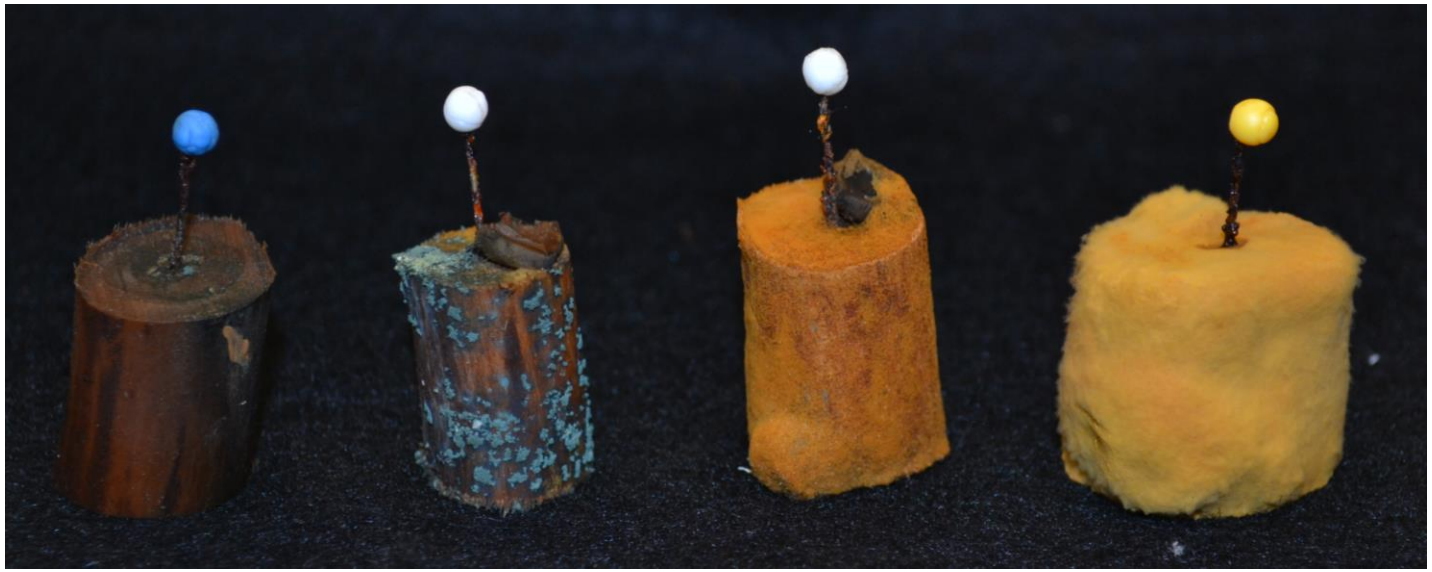
4 treatments

- Control
- Vintec -> Phellinus
- Phellinus -> Vintec
- Phellinus

10 replications

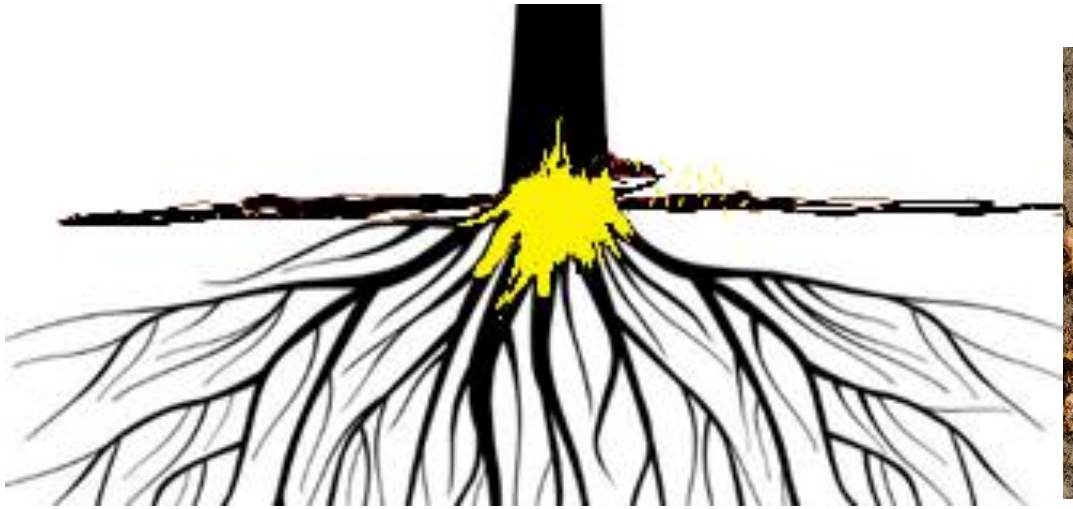
Incubated 10 weeks





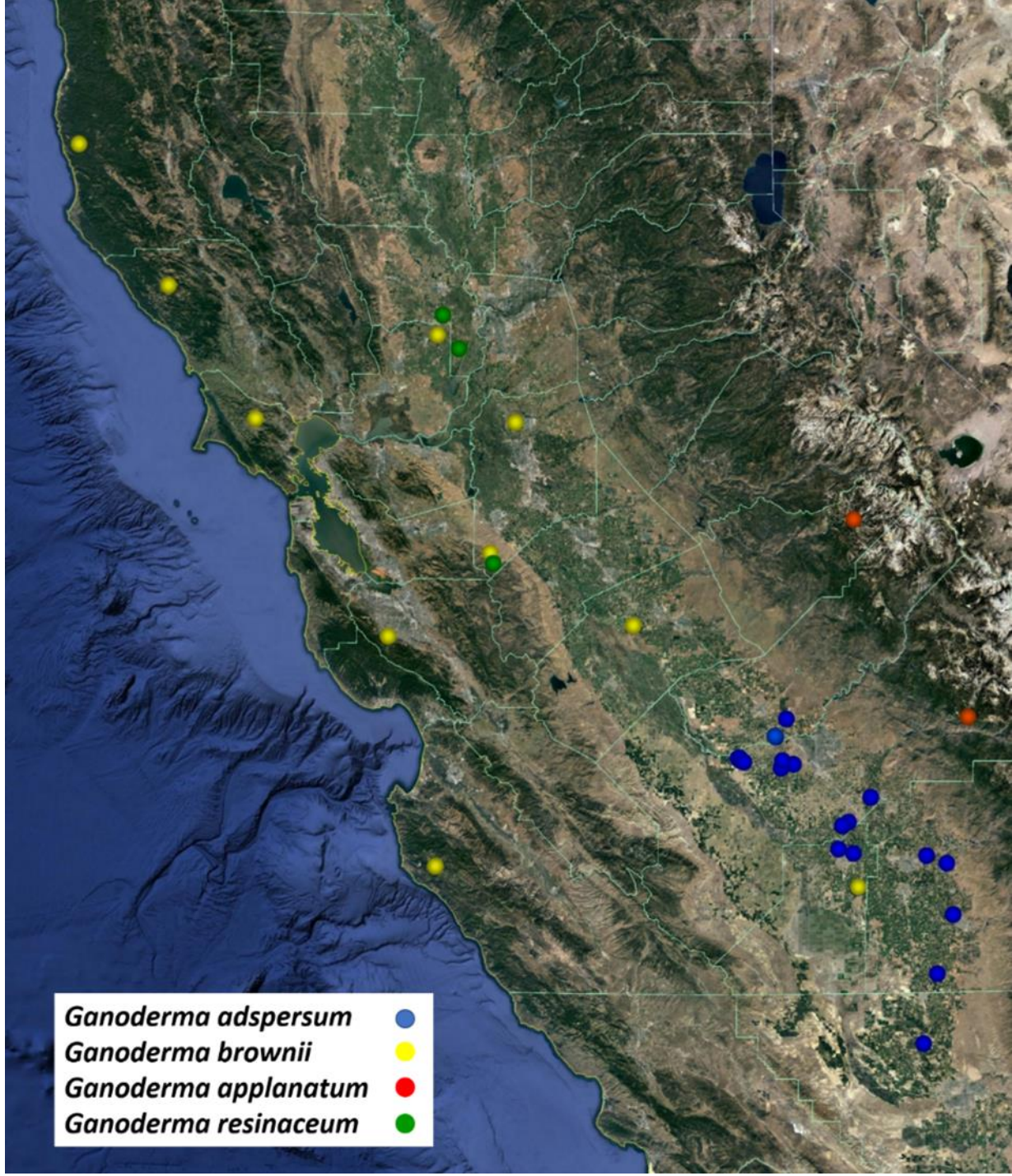
Ganoderma butt rot

- Decays heartwood and sapwood reducing structural stability
- Tree killed at windfall
- Spread via airborne spores
- Requires wounding



Ganoderma adspersum

- It has been found in orchards as young as 7 years old.
- Incidence of infection tends to be high.
- At least 5 orchards removed younger than 12 years.
- Found only on Nemaguard rootstock…so far.
- No relationship with irrigation found.
- Decay primarily limited to rootstock
- Able to overcome the reaction zone.



Harvest probably drives infection and spread

Shaking

- Wounds to lower trunk and roots at or below soil line

Sweeping

Pickup

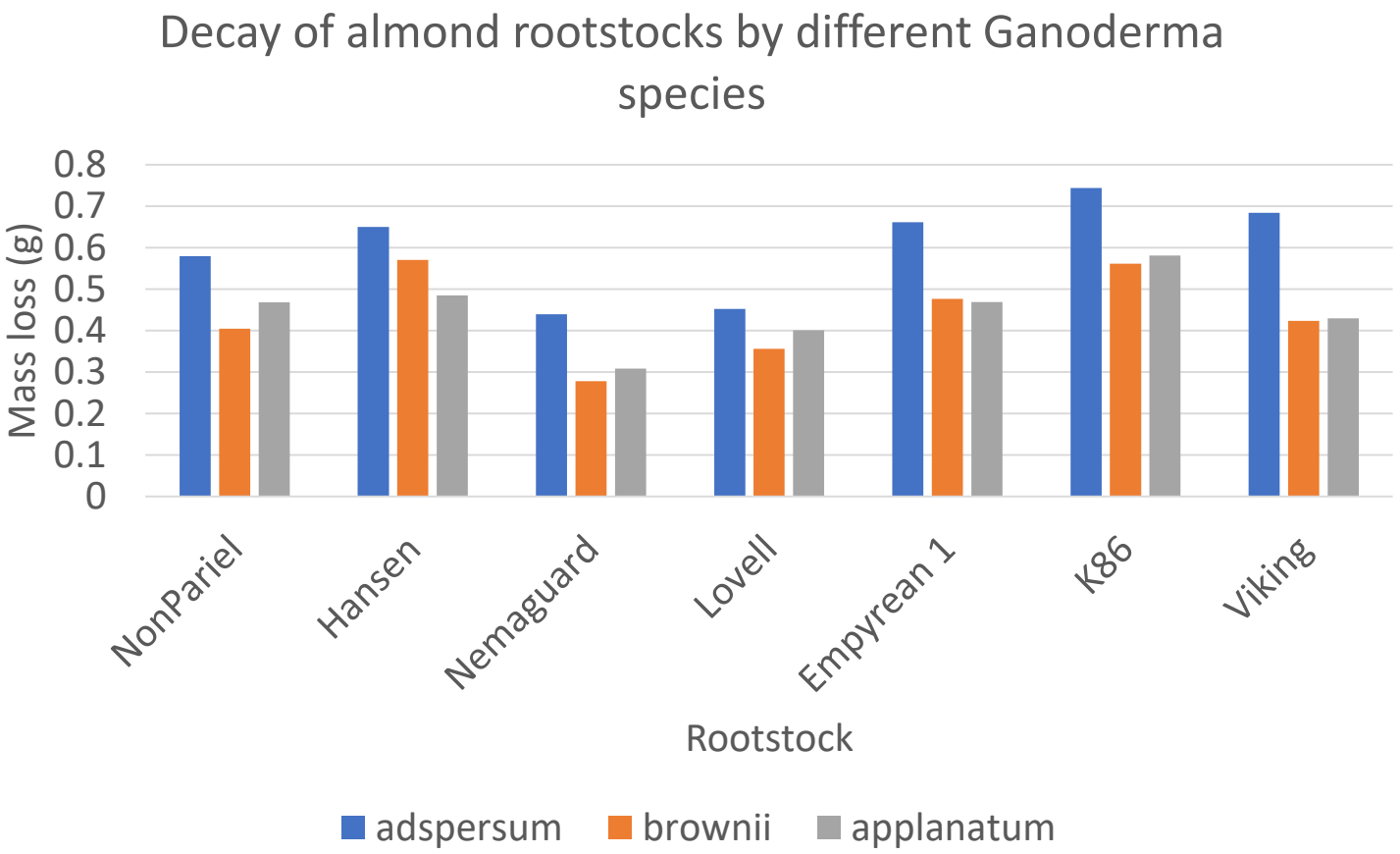
- Spore dispersal

Irrigation

- Spore percolation into soil
- Spore germination

Continued Research

- Rootstocks
- Spore monitoring
- Biological control



Thanks

- Rizzo lab
- Almond Board of California
- California dried plum board
- Cooperating Growers