



Managing Trunk Diseases of Grapevine

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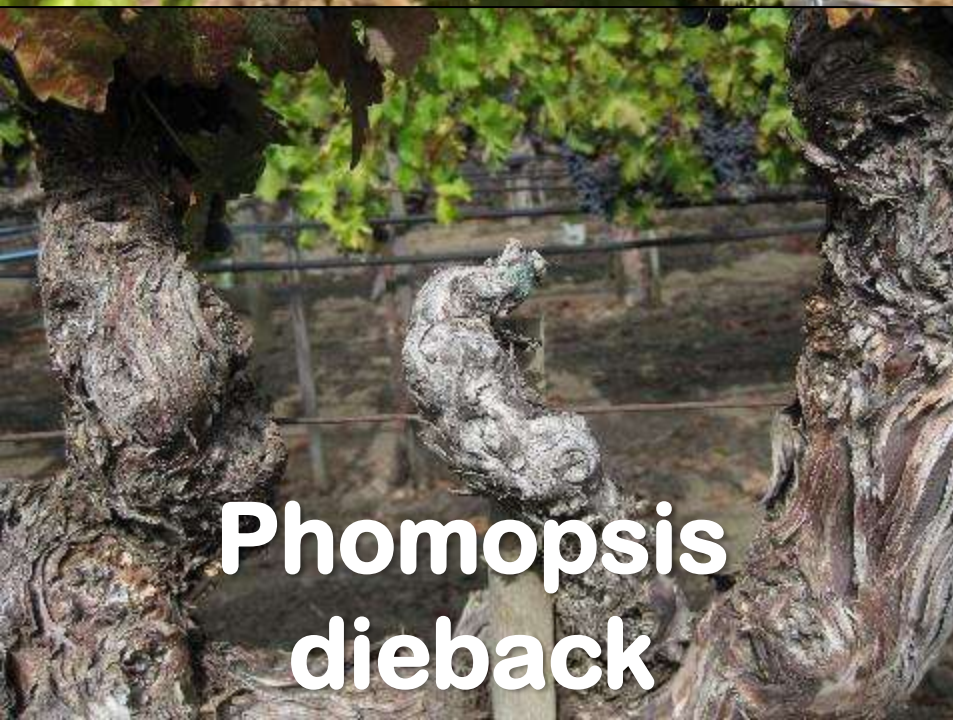
GRAPEVINE TRUNK DISEASES



**Eutypa
dieback**



Esca



**Phomopsis
dieback**



**Botryosphaeria
dieback**

GRAPEVINE TRUNK DISEASES





Rain induces spore release and dispersal.

Cold temperatures delay wound healing.

Eutypa dieback



Esca



Phomopsis dieback



Botryosphaeria dieback



EUTYPA DIEBACK



EUTYPA DIEBACK



Cabernet
Sauvignon



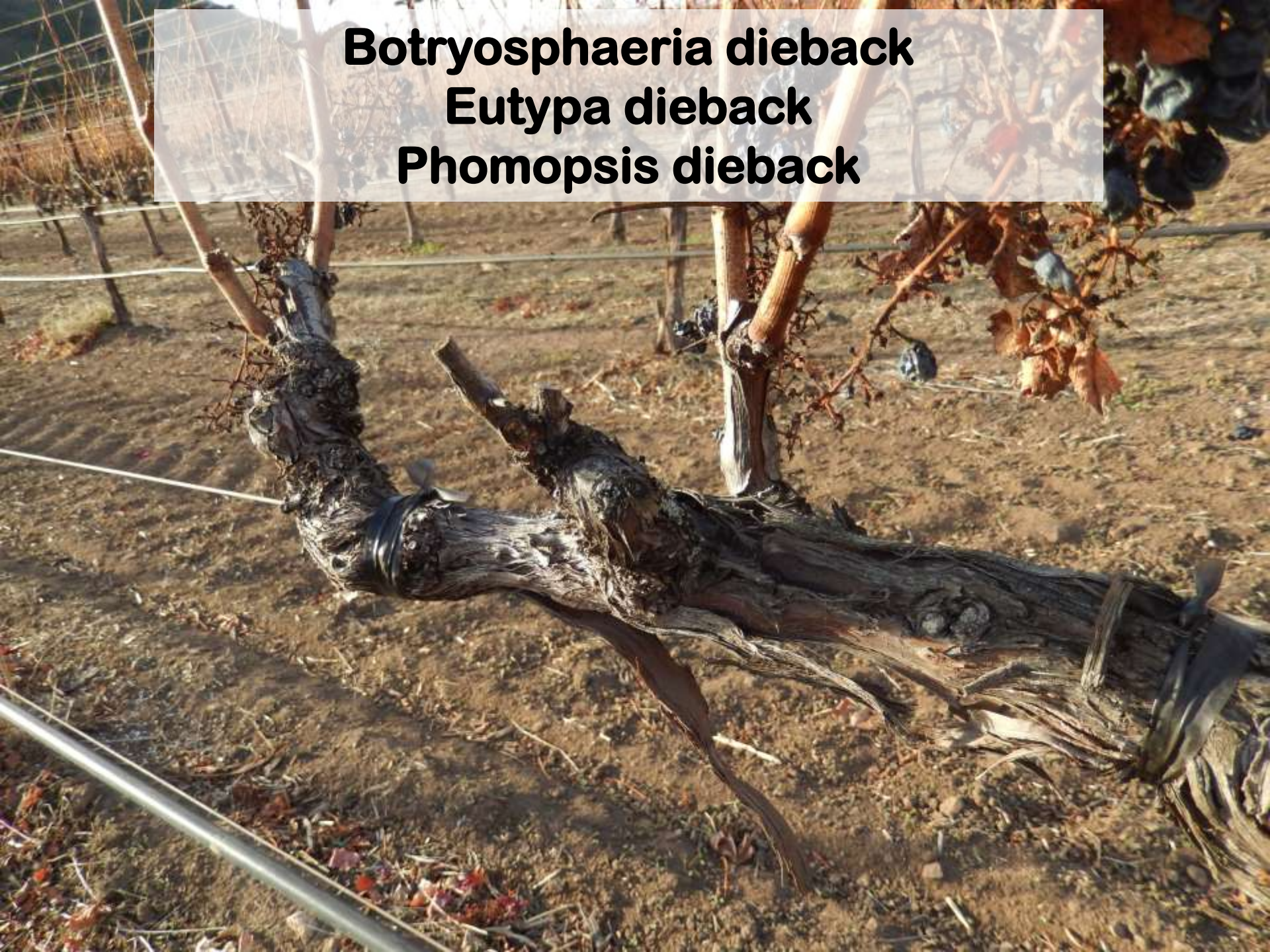
ESCA (AKA MEASLES)





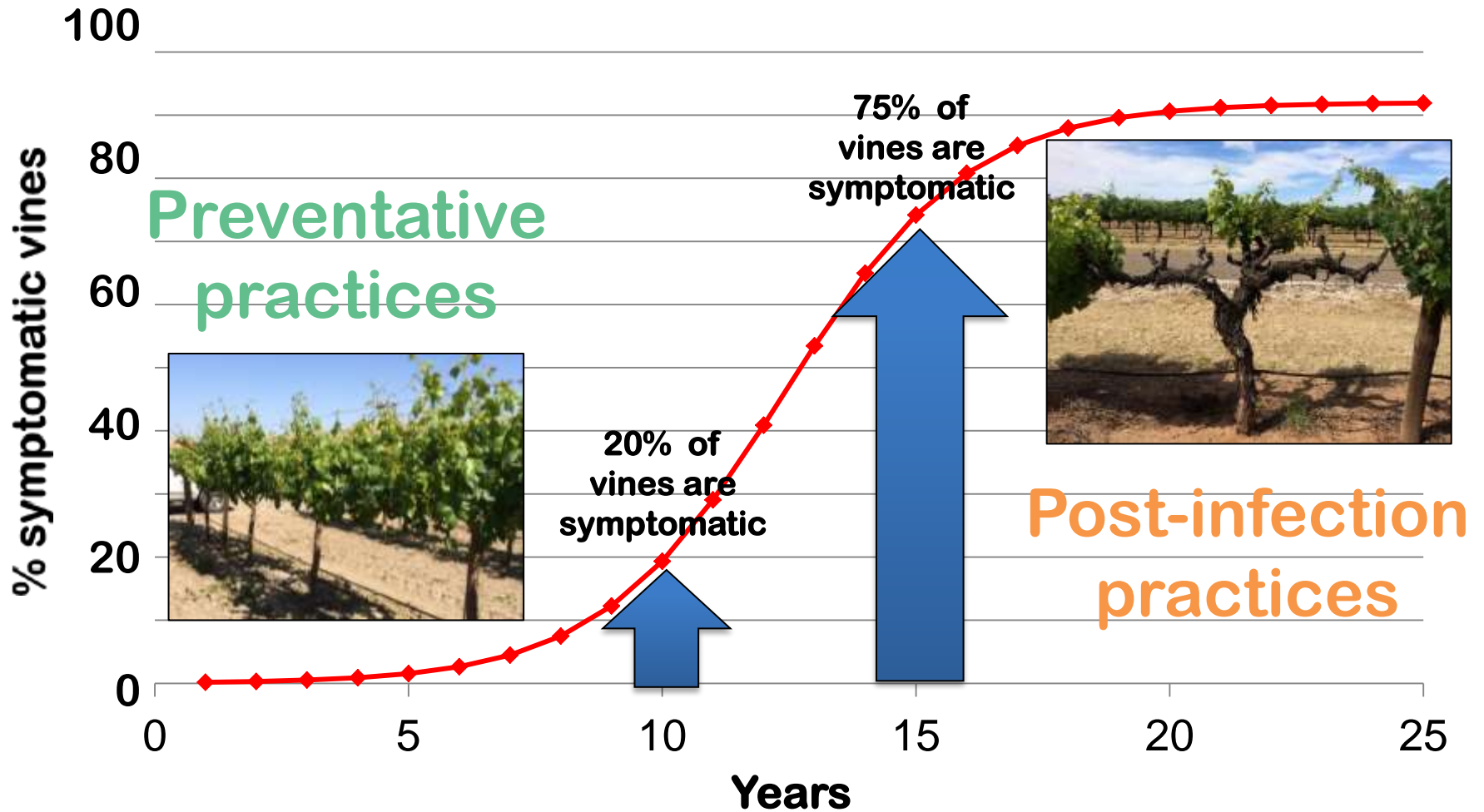


Botryosphaeria dieback
Eutypa dieback
Phomopsis dieback





DISEASE INCIDENCE INCREASES WITH VINEYARD AGE



From Duthie et al. 1991 (Colombard vineyards ranging from 5 to 34 years)







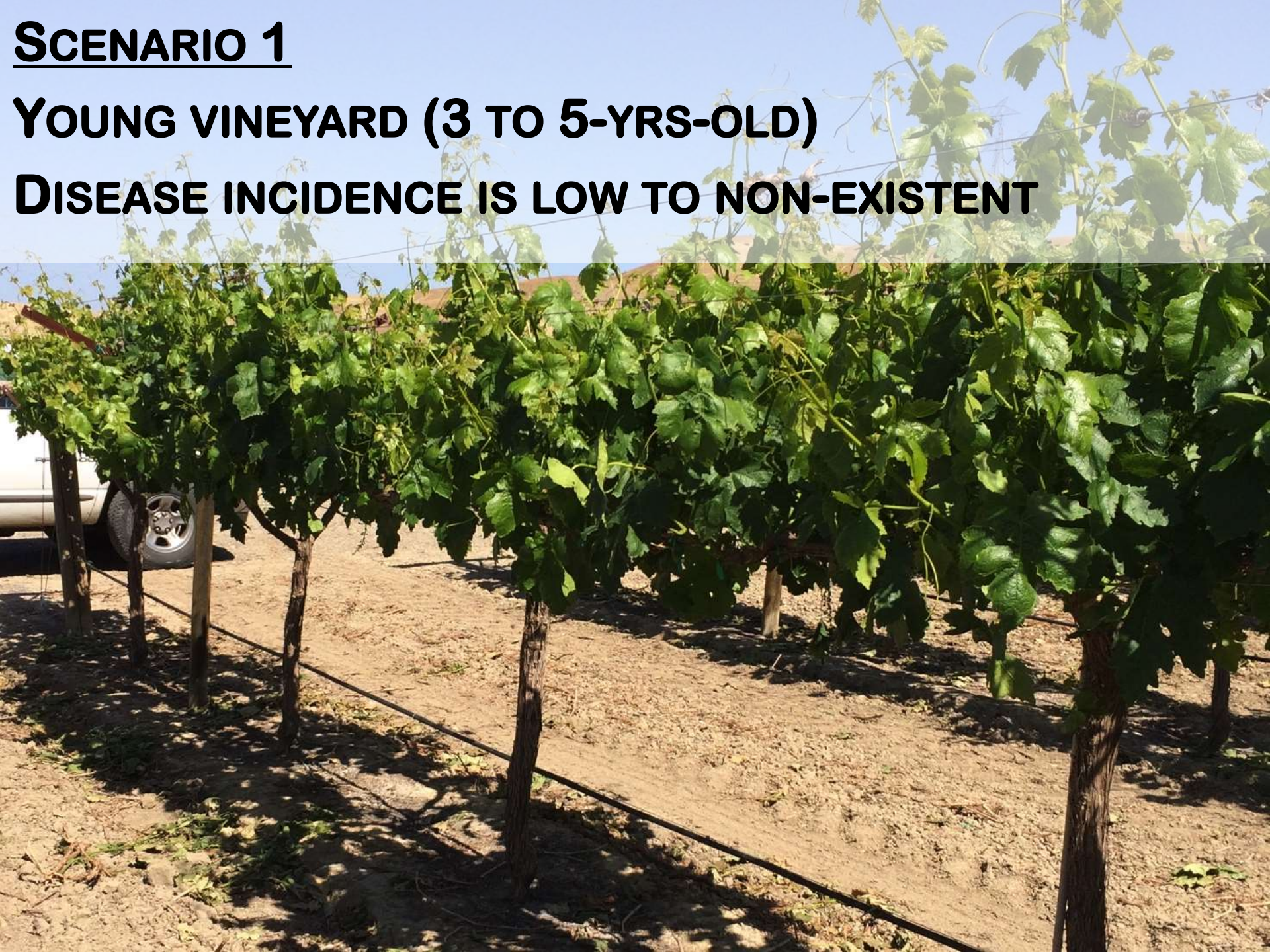




SCENARIO 1

YOUNG VINEYARD (3 TO 5-YRS-OLD)

DISEASE INCIDENCE IS LOW TO NON-EXISTENT



PREVENTATIVE PRACTICES

Delayed Pruning



~~December~~ ✘
~~January~~ ✘
~~February~~ ✘
March ✓

Double Pruning



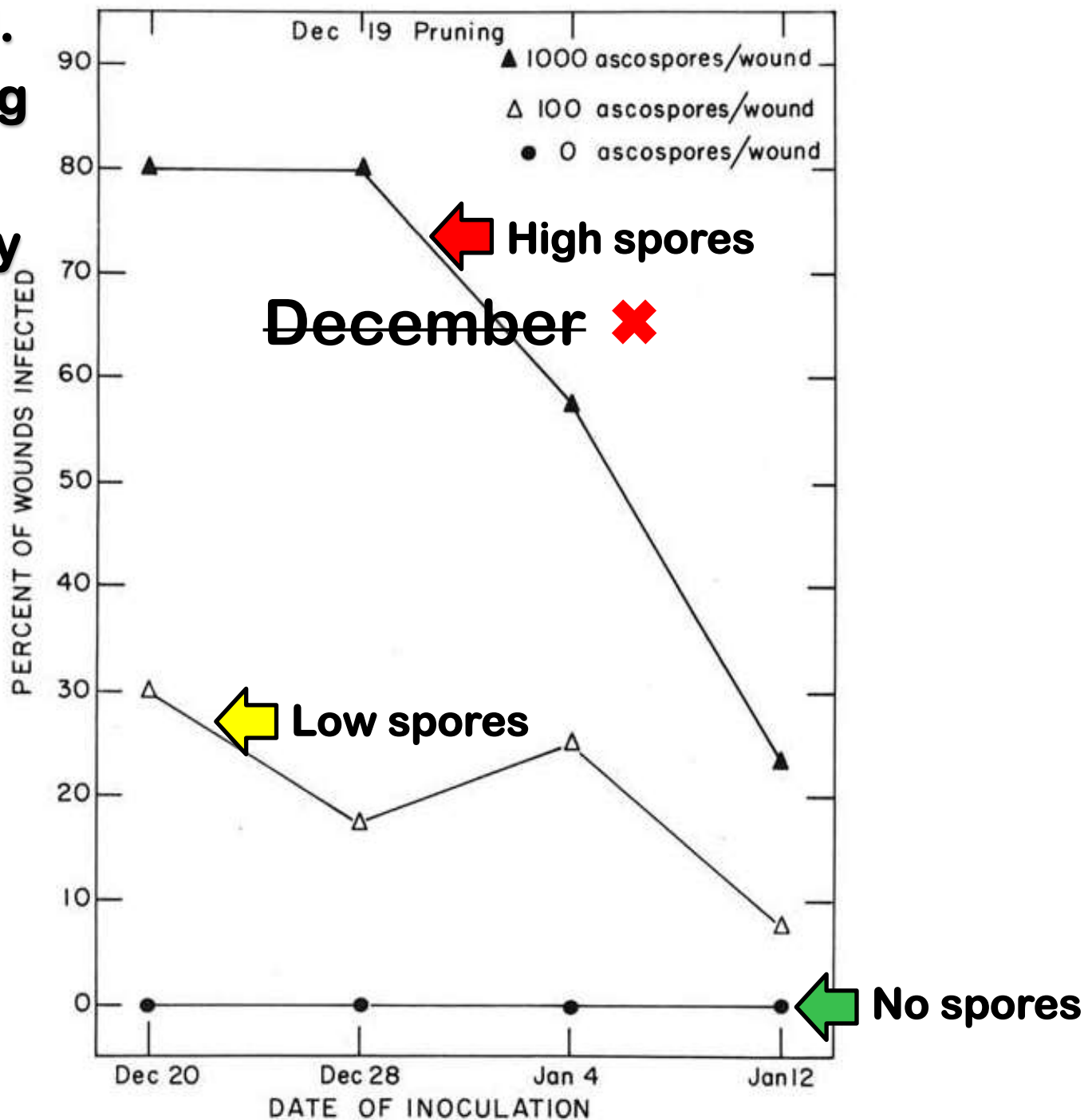
1st pass in
December,
2nd pass in
March

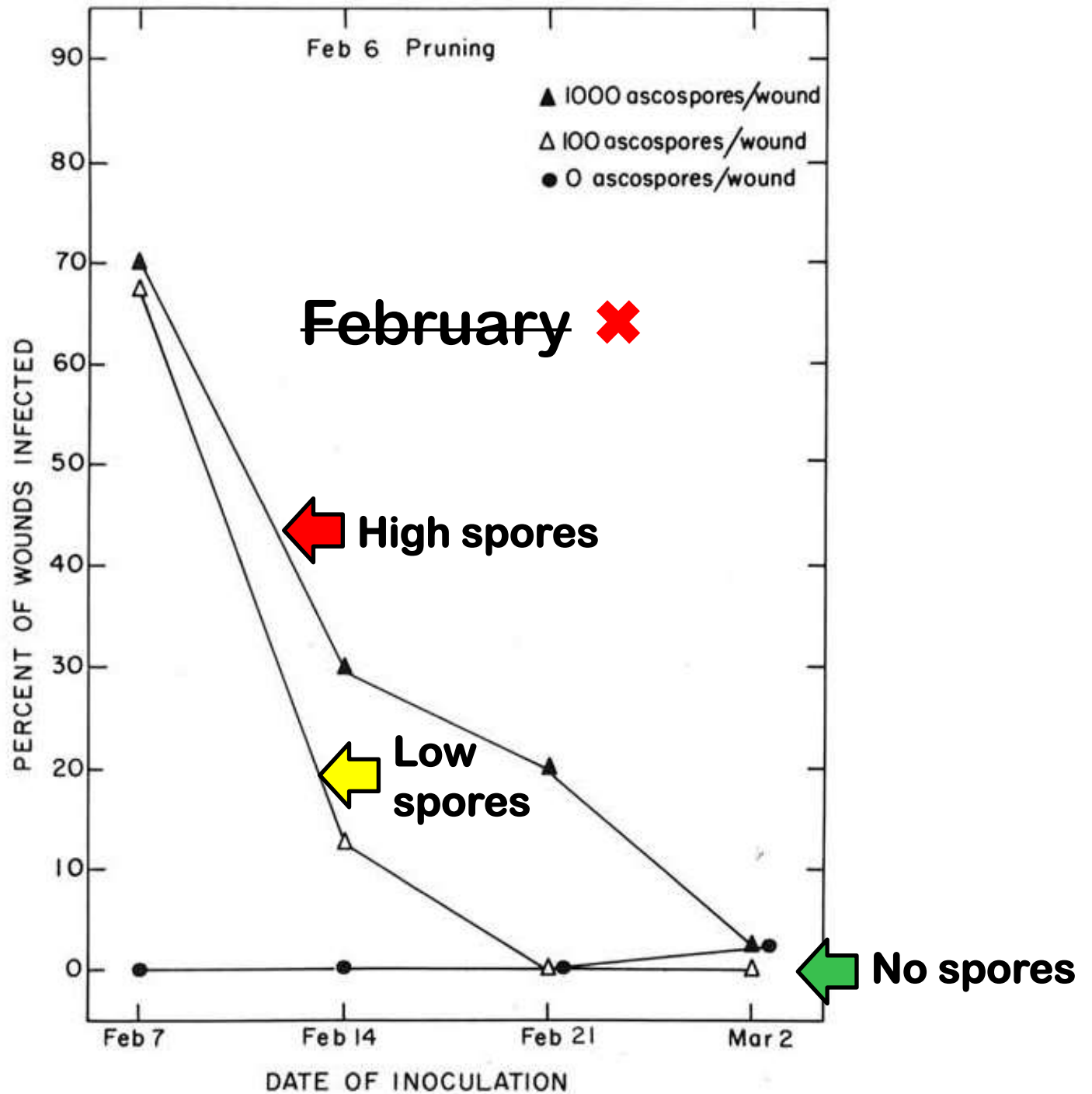
Protectants

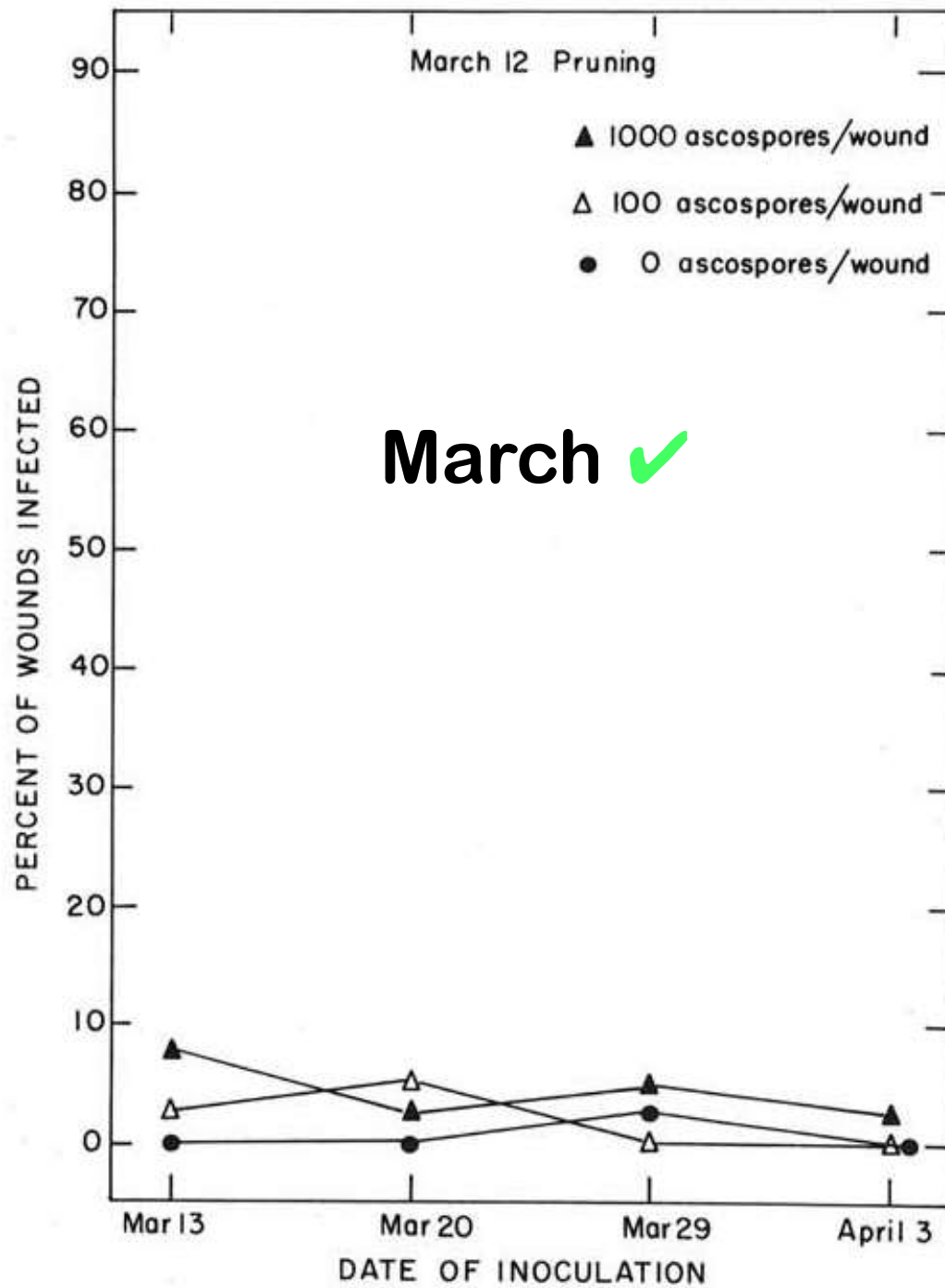


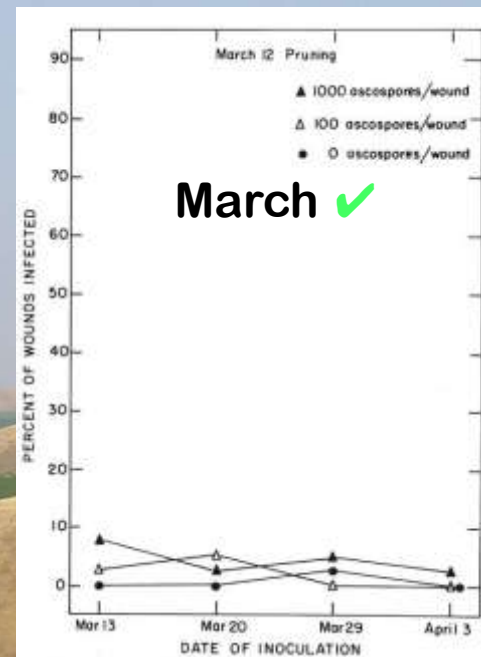
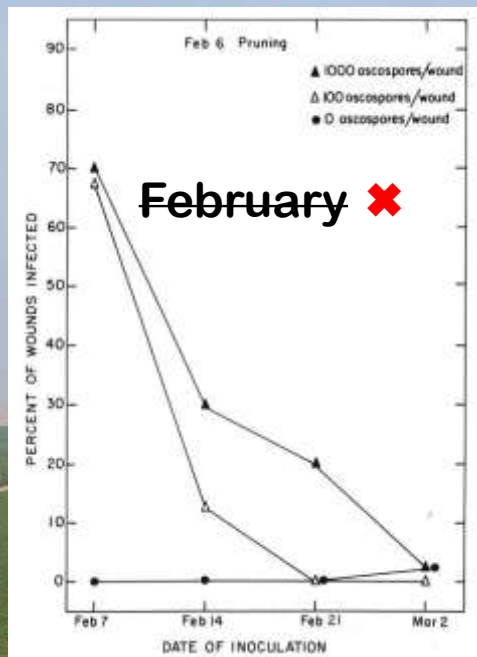
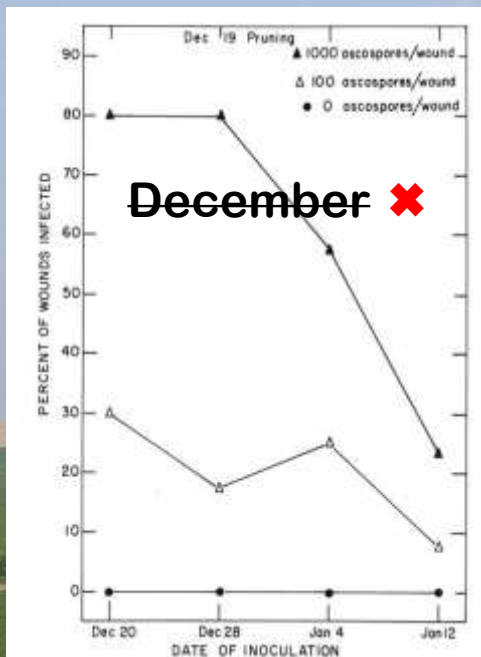
Topsin,
Rally,
B-Lock,
Vitiseal

**Petzold et al.
1981. Pruning
wound
susceptibility
to *Eutypa*
dieback.**









VINEYARD ACREAGE IN CALIFORNIA ~900K ACRES

HIGH COST OF PRUNING

FEWER SKILLED LABORERS IN MARCH

ALTERNATIVES TO DELAYED PRUNING:

- **DOUBLE PRUNING**
- **PRUNING-WOUND PROTECTANTS**



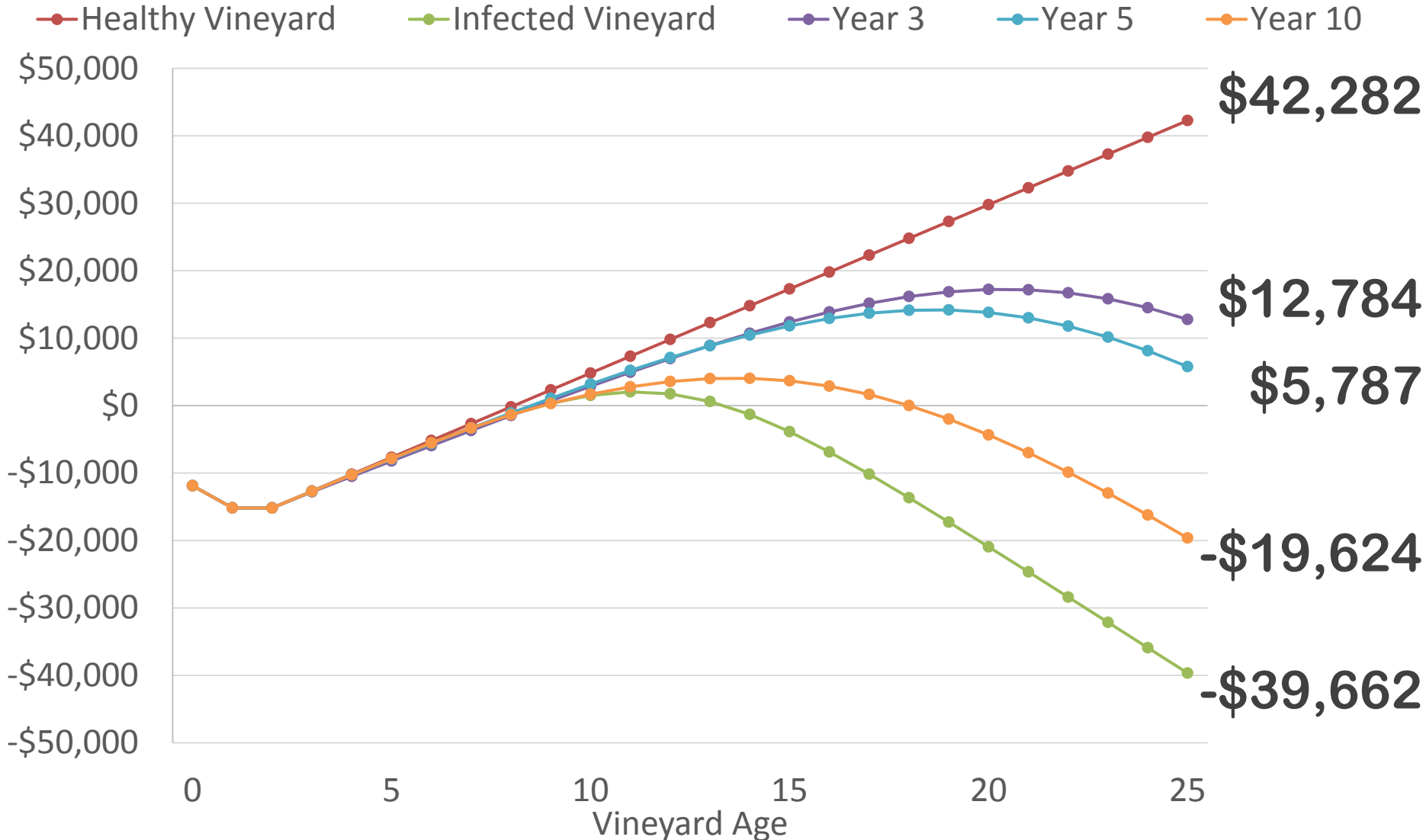
PREVENTATIVE PRACTICES

Pruning-wound protectants

- Topsin M (thiophanate-methyl)
- Rally (myclobutanil)
- B-lock (boron)
- Vitiseal

*Apply before rain, which induces spore production/dispersal.

CUMULATIVE NET RETURNS WITH TOPSIN (50% disease control efficacy)



LAST YEAR THAT ANNUAL NET RETURNS ARE POSITIVE

(out of 25 years total)

	<u>Delayed Pruning</u>	Topsin	Double Pruning
<u>25% effective</u>			
Year 3	19	19	18
Year 5	14	14	13
Year 10	12	12	12
<u>50% effective</u>			
Year 3	25	25	25
Year 5	19	19	18
Year 10	14	14	13
<u>75% effective</u>			
Year 3	25	25	25
Year 5	20	21	19
Year 10	14	14	14



SCENARIO 2

MATURE VINEYARD (10-YRS-OLD)

DISEASE INCIDENCE IS LOW (20%)

SYMPTOMATIC VINES – POST-INFECTION PRACTICES

ENTIRE VINEYARD – PREVENTATIVE PRACTICES

POST-INFECTION PRACTICES

Vine surgery

Sanitation

Replanting

Retrain cordon



Retrain trunk



**Cut out
infected
spurs and
cordons**

**Replant rows
or
Sections of
vineyard**





1. Basal buds push into new shoots at base of trunk

2. Trunk sucker is trained up trellis system

3. Old vine kept in place for 1-2 yrs.

OR

1. Old vine cut at base

2. Basal buds push into new shoots at base of trunk

3. Trunk sucker is trained up trellis system

















SCENARIO 3

MATURE VINEYARD (15-YRS-OLD)

DISEASE INCIDENCE IS HIGH (75%)

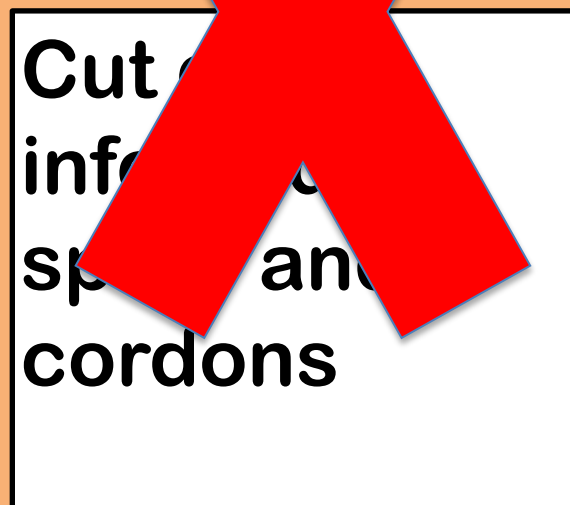
ALL VINES – RETRAIN TRUNK AND/OR REPLANT ROWS

POST-INFECTION PRACTICES

Vine surgery

Sanitation

Replanting



PREVENTATIVE PRACTICES

Delayed Pruning



~~December~~ ✘
~~January~~ ✘
~~February~~ ✘
March ✓

Double Pruning



1st pass in
December,
2nd pass in
March

Protectants



Topsin,
Rally,
B-Lock,
Vitiseal

**Specialty Crop Research Initiative
USDA, National Institute of Food & Agriculture**

American Vineyard Foundation

California Table Grape Commission

treeandvinetrunkdiseases.org



United States Department of Agriculture
National Institute of Food and Agriculture