Fruitfed Supplies

DISEASE IDENTIFICATION & LIFE CYCLES

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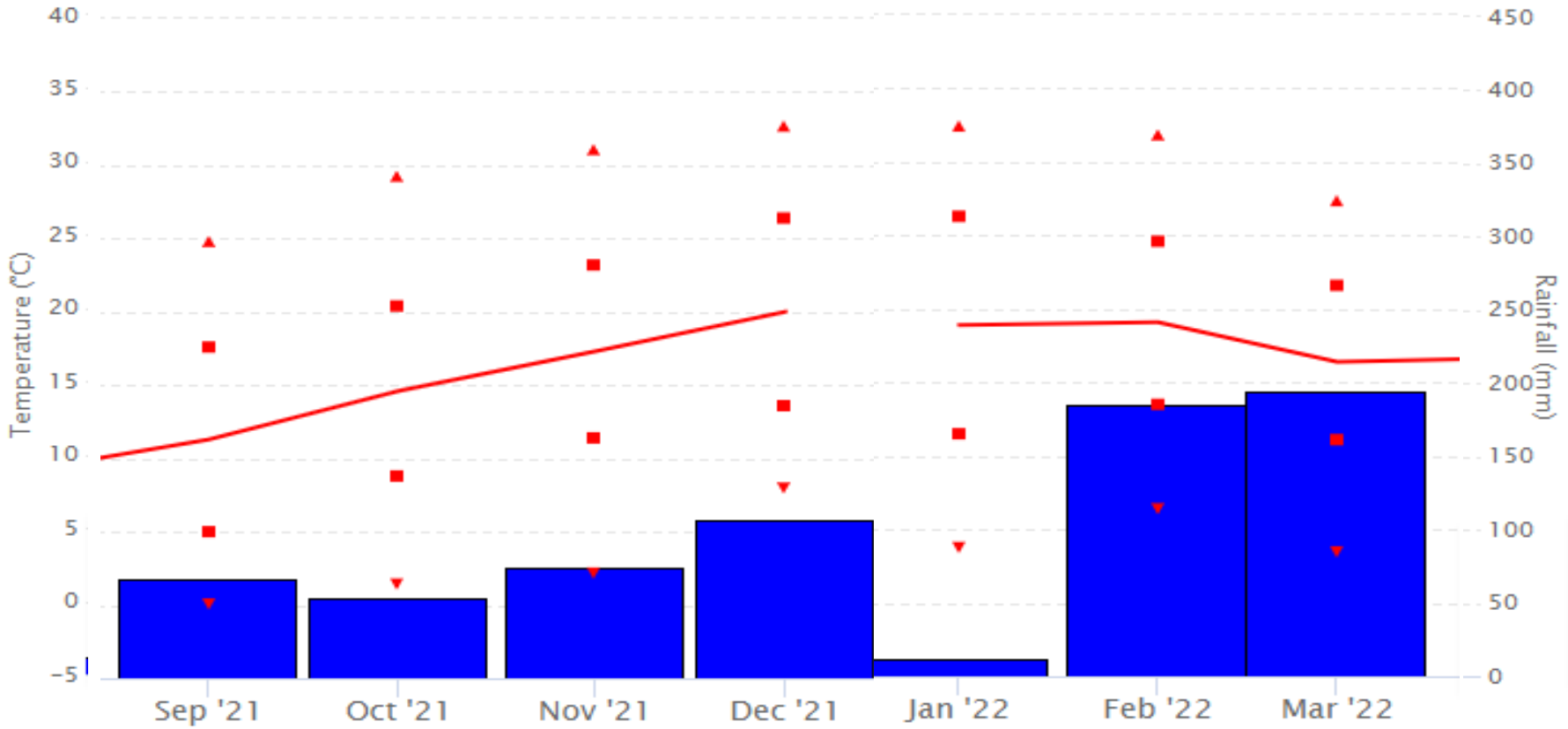
VITICULTURE

THE CHALLENGE

2021-22 season Rainfall and Temperature Data

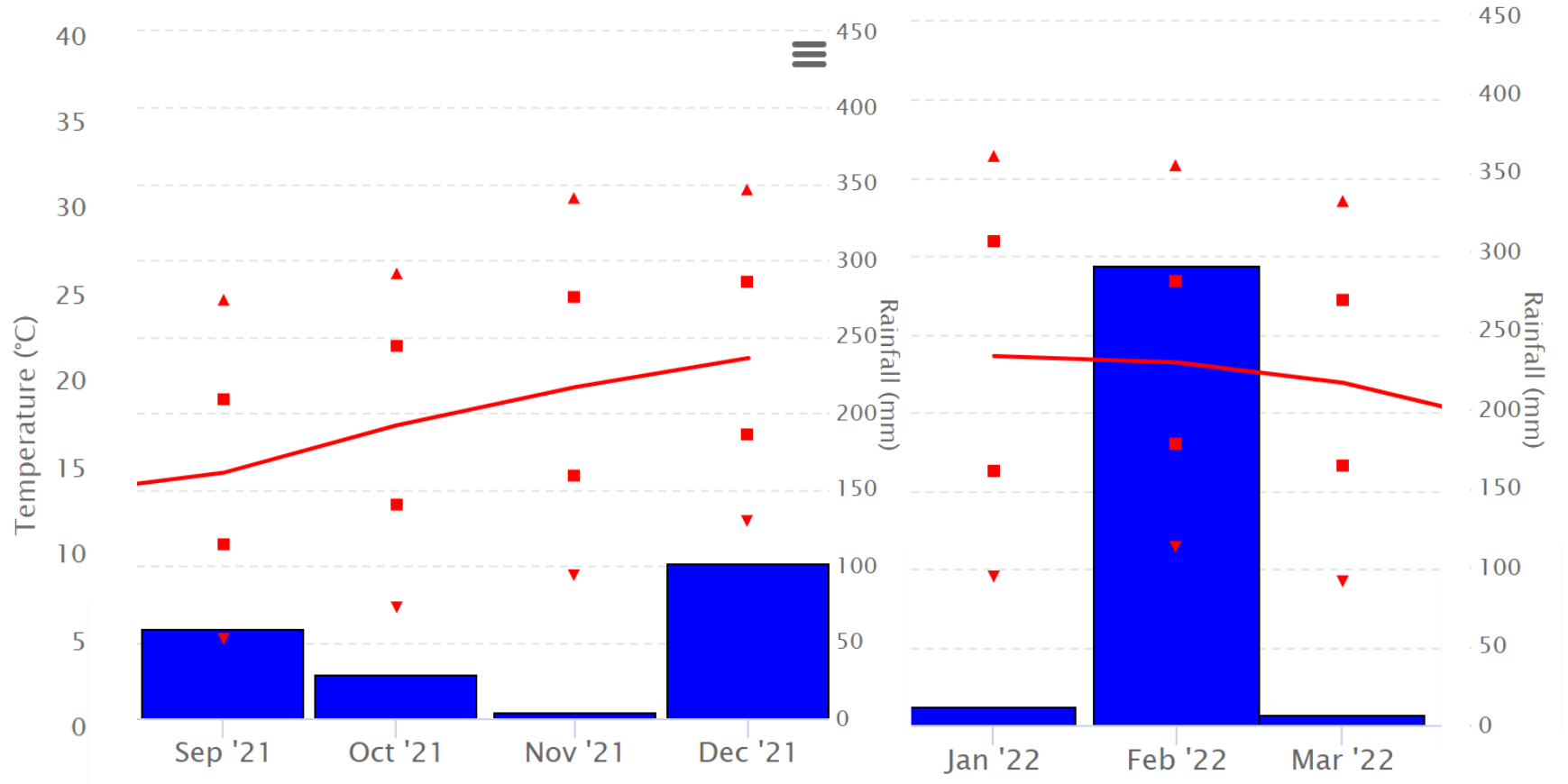
Oct 55.0, Nov 75.1, Dec 108.2, Jan 11.7, Feb 184.2, Mar 193.5



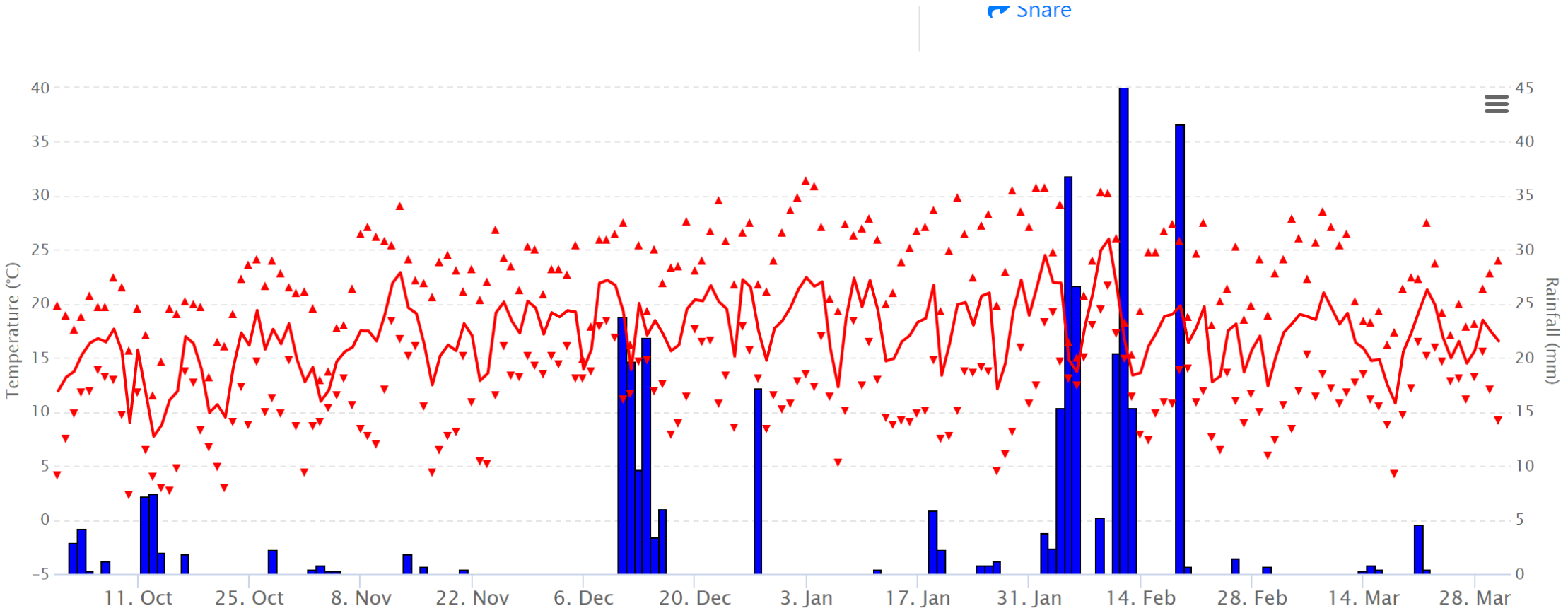
THE CHALLENGE

2021-22 season Rainfall and Temperature Data

Dec 100, Jan 11, Feb 300, Mar 7



THE CHALLENGE



KNOWLEDGE IS KEY

1. Why do we need to understand how disease develops?
2. What makes each disease unique?

Any fool can know

—

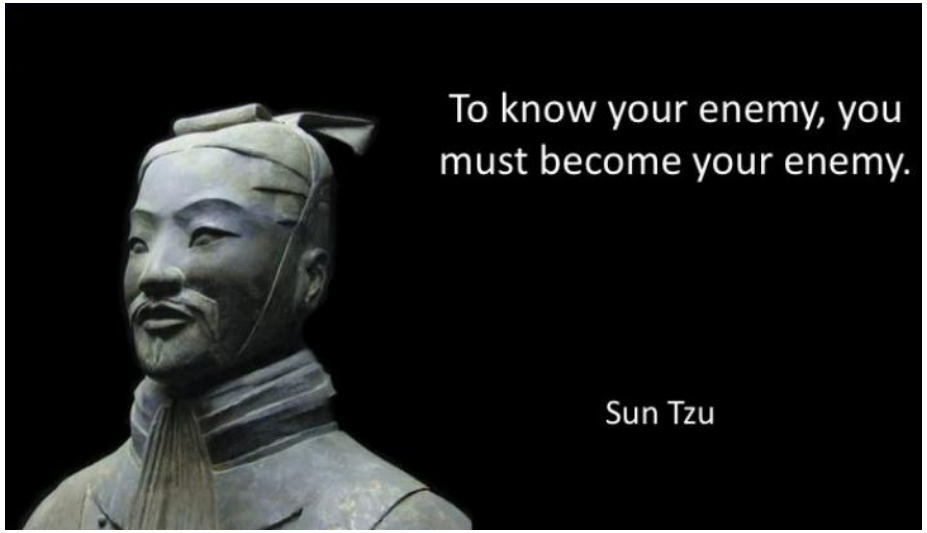
the point is to understand!

Albert Einstein

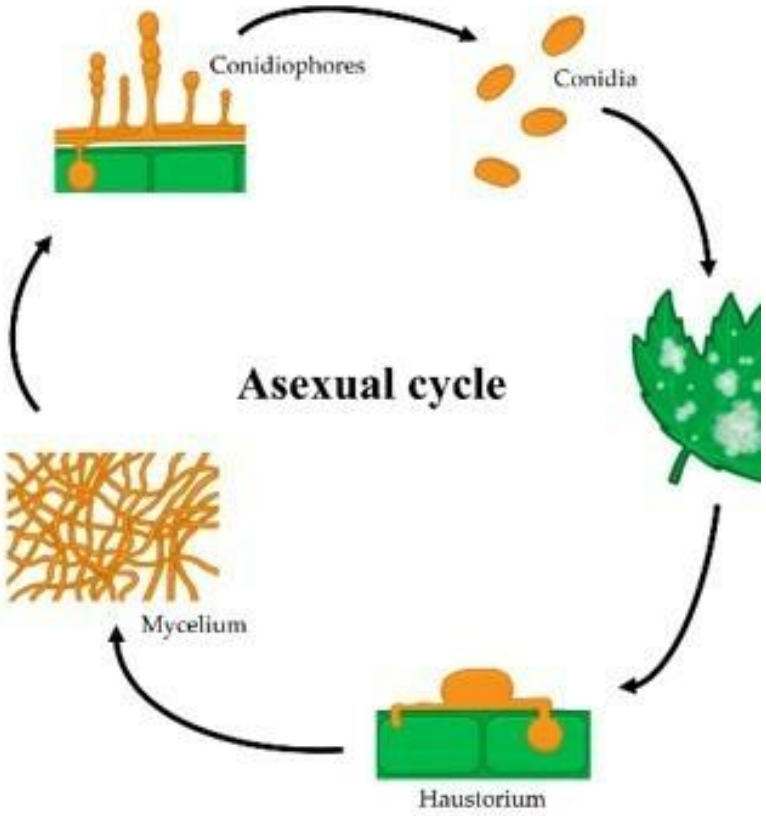
FUNGAL DISEASES

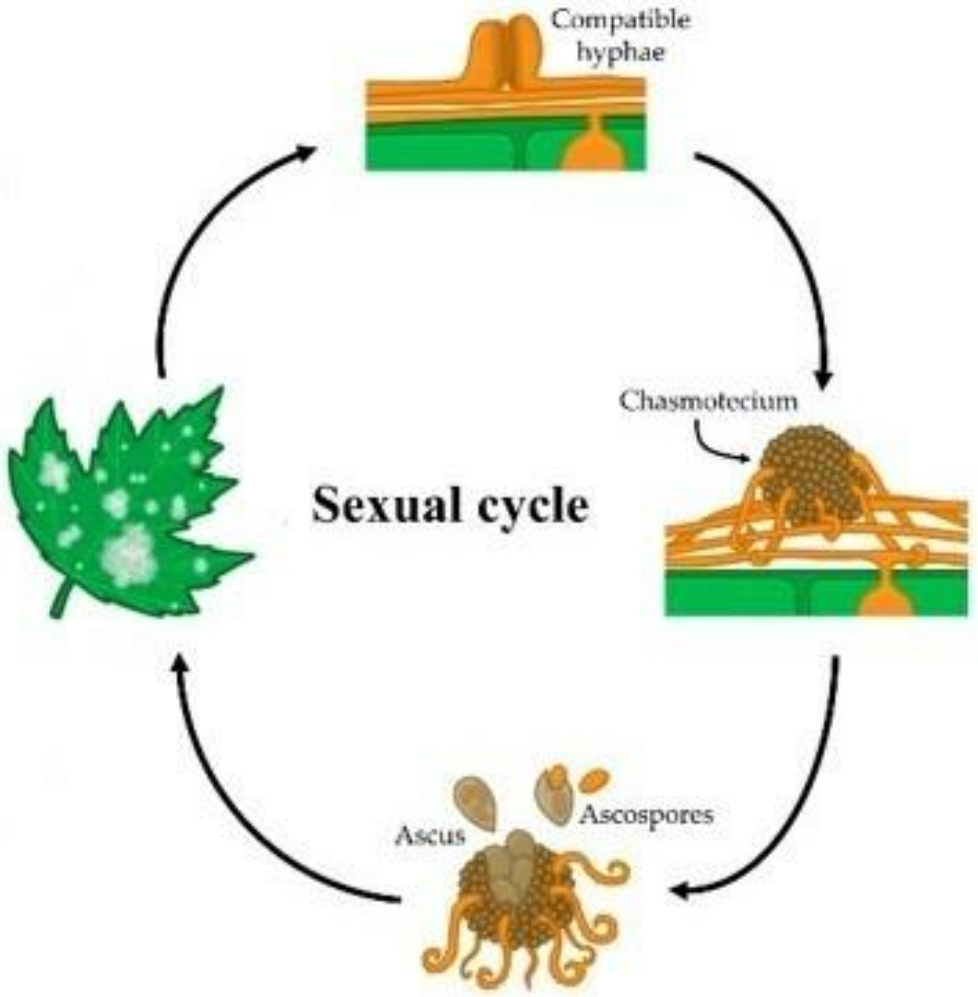
Understanding the biology of a disease – think like the disease!

- What factors encourage the disease?
- How does it get started each season?
- When is it most active?
- When is the vine most susceptible? (E-L Stage?)
- What can we do to minimise disease development?



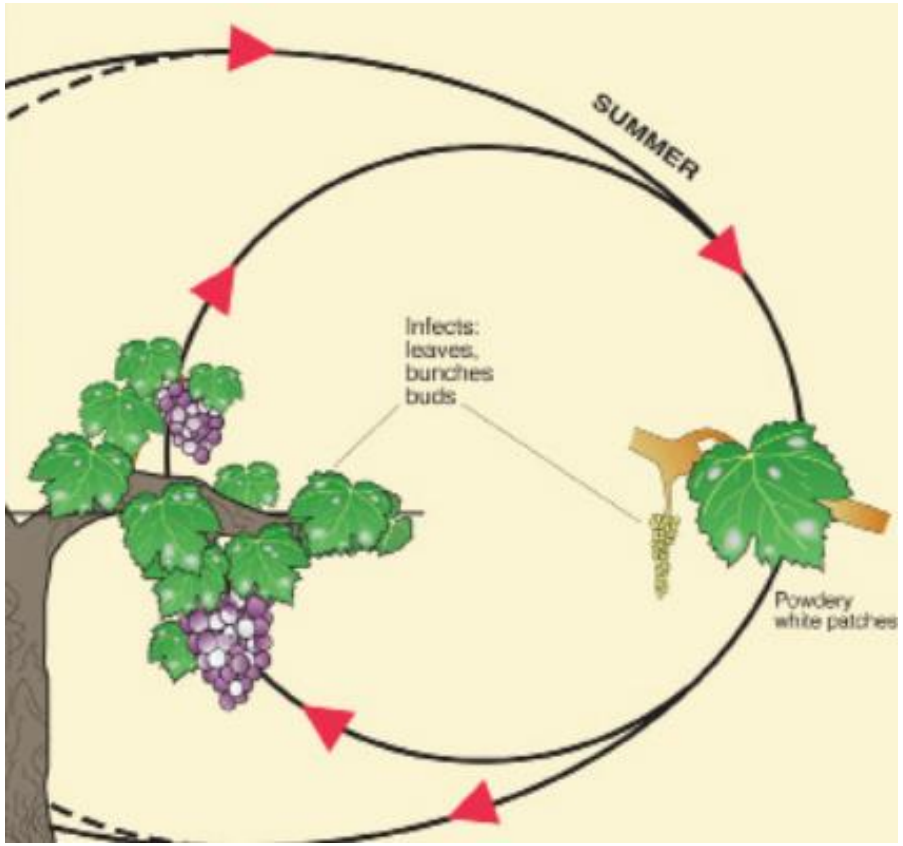
POWDERY MILDEW





WHAT MAKES A BAD PM SEASON?

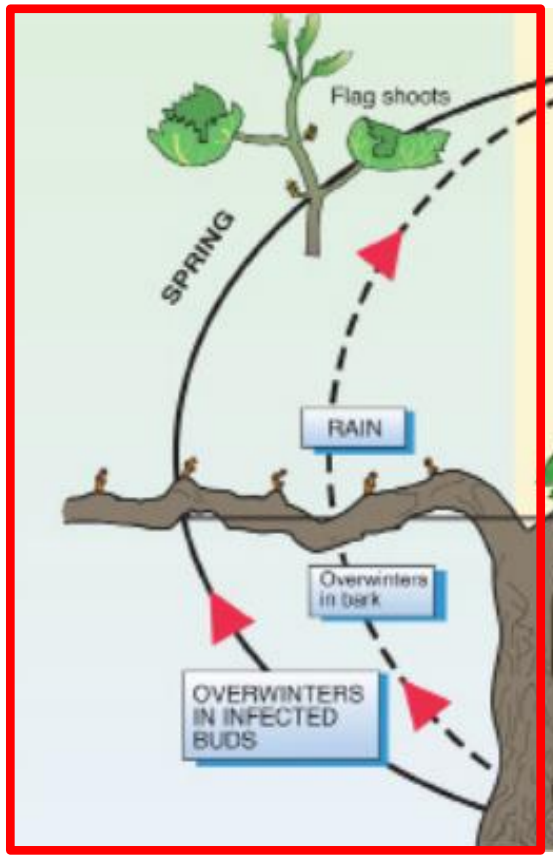
Previous season disease levels



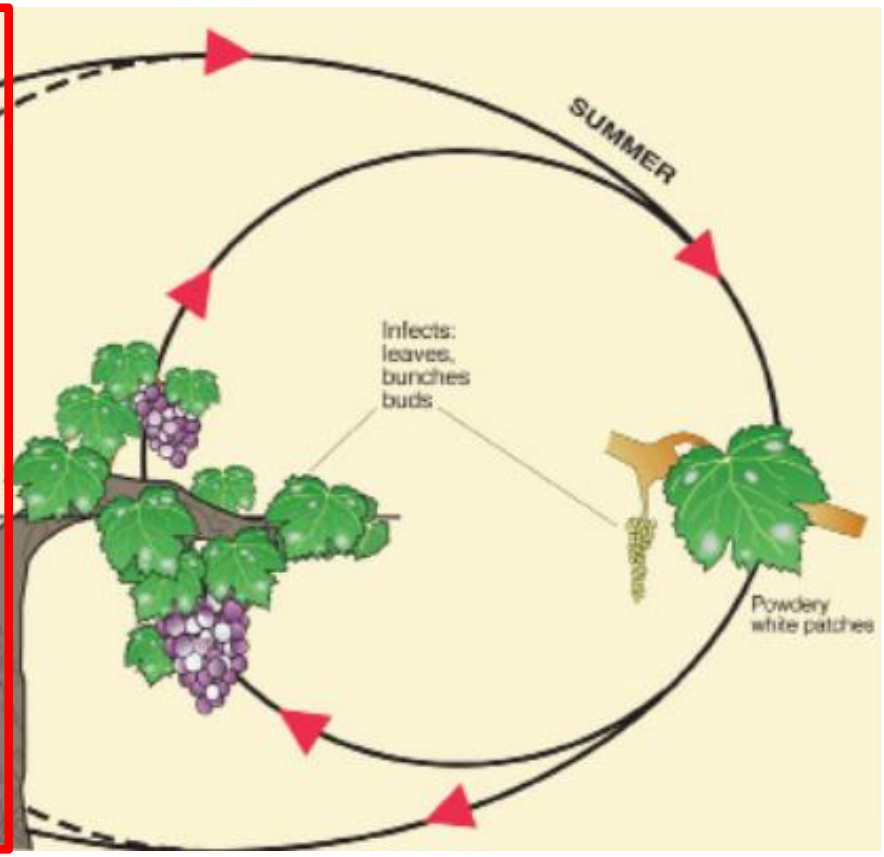
Inoculum levels/kg of bark:
- 1,000? - 5,000? - 30,000?

10%
survival

Current season



E-L 4 to E-L 17/18



Major outbreak

EARLY DETECTION

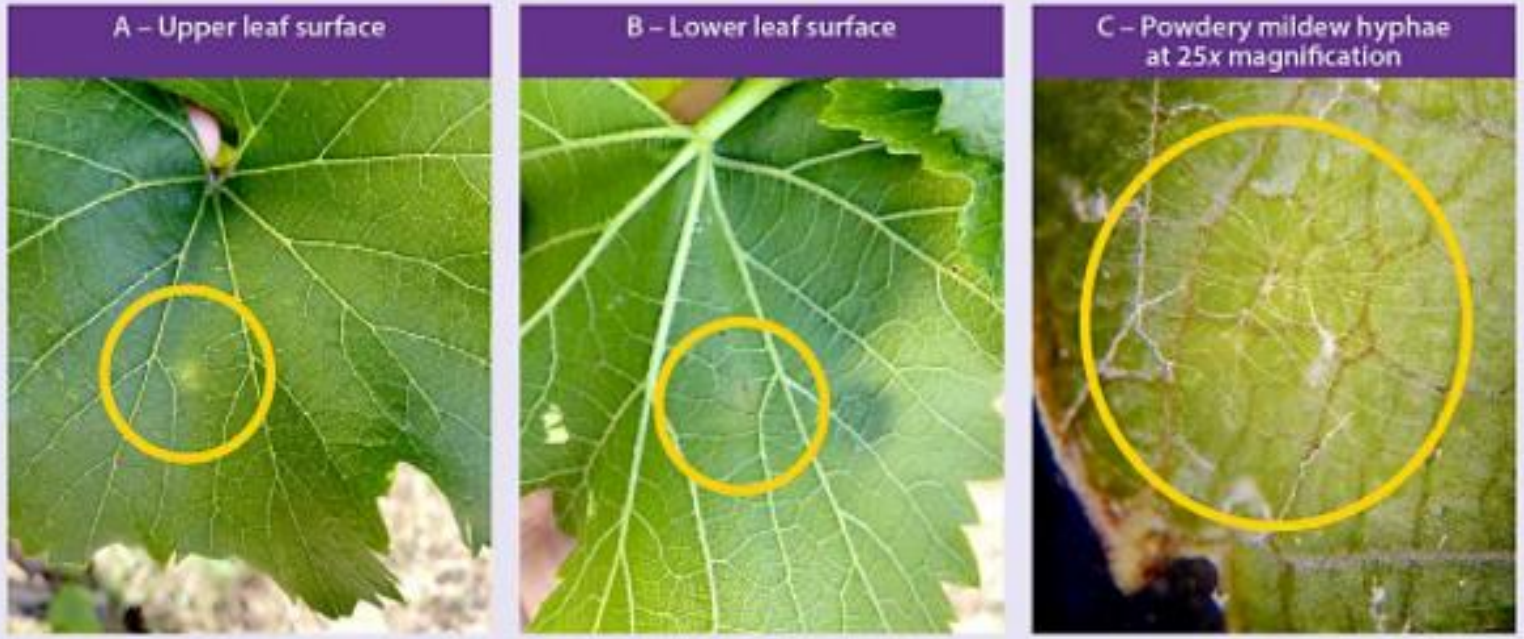
Monitoring is essential!

Q - What makes PM unique?

- Grows externally on tissue
- Early colonies struggle to survive & often go unnoticed
- Produces a chlorotic spot on upper surface
- Often lower leaf infected first - why?
- Often confused with Downy Mildew.

Figure 1

Visual symptoms of grape powdery mildew in the early season



Early season powdery mildew often struggles to grow. As a result, these early colonies often appear as small glossy patches on the matte leaf surface (A) to small yellow spots (B) where the underside exhibits light fungal growth and brown necrosis of the leaf tissue. If you magnify these areas (C) you will see classic powdery mildew hyphal growth, which often has strands running outward from a center area and branches at approximately 45 degrees. Fungal hyphae are generally much finer than leaf hairs.

Photos courtesy of Michelle Moyer, Washington State University; Sarah Lowder, Oregon State University; Walt Mahaffee, USDA Agricultural Research Service; and Phil Brannen, University of Georgia.)

INFECTED VEINS

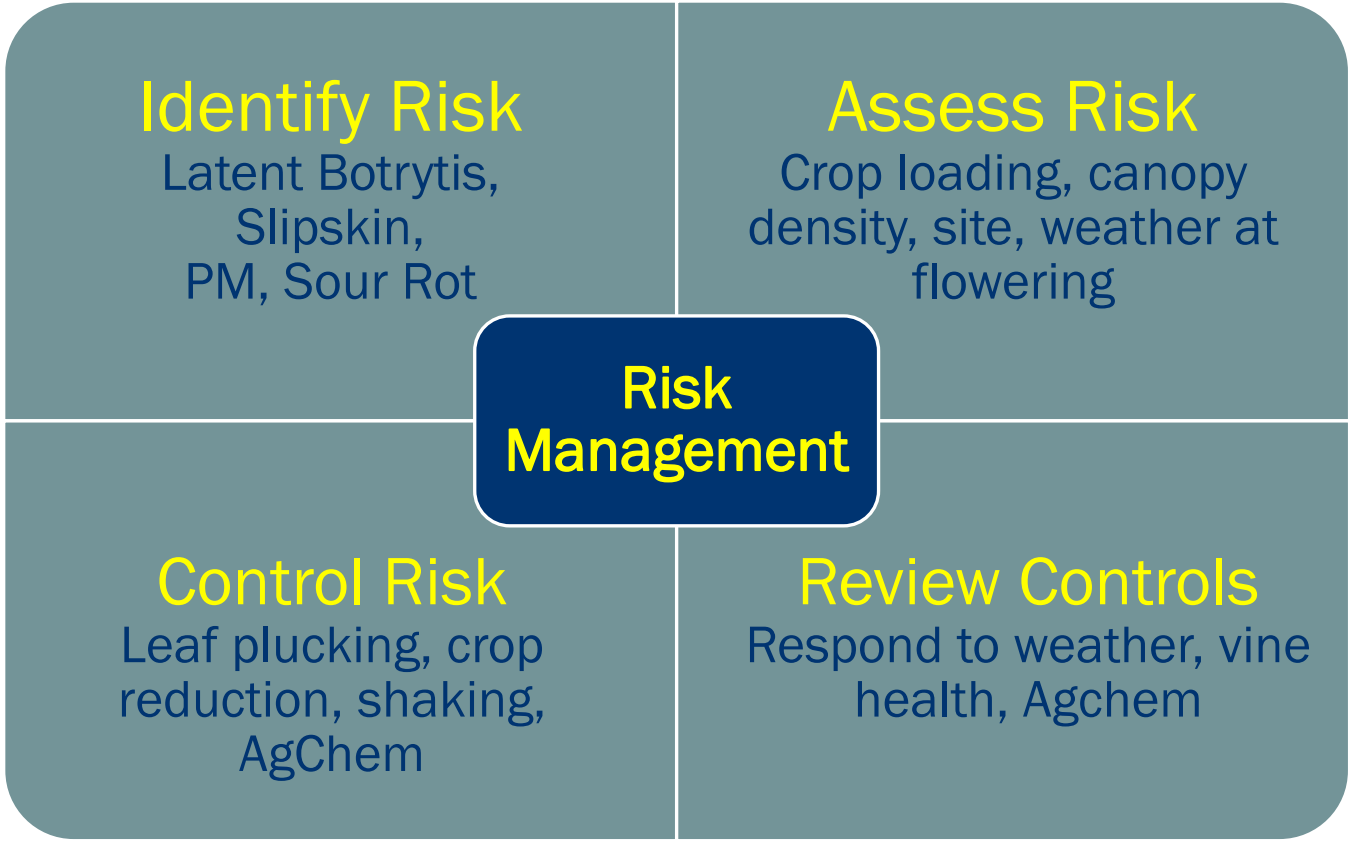
BOTRYTIS

Q - What makes Botrytis unique?

Remember:

Botrytis is not a disease you can just “spray your way out of”.

Wayne Wilcox - Professor, Cornell University (retired)



POWDERY MILDEW SCARRING

VINE SHAKING

The most successful control programs integrate cultural methods.

DOWNY MILDEW (*Plasmopara viticola*)

Monitoring is essential!

Q - What makes it unique?

- Not a true fungi - Oomycete
- Infects stomata - grows internally
- Establishes infection
- Only small number of leaves

- Primary infection - 10:10:24

DOWNY MILDEW (*Plasmopara viticola*)

- What's required for a Secondary infection ?
  - 4h darkness
  - >12.5ºC
  - 95 - 100% R.H.
- Sporangia develop
- Warm, humid nights followed by cloudy days & rain
- Incubation 4-5 days
- Equals explosive & erratic spread

Monitoring is essential!

DOWNY MILDEW (*Plasmopara viticola*)

2 - 3 weeks

TAKE HOME MESSAGES

- Understanding is key
- Early season detection essential
- Start control early
- You can't spray your way out of Botrytis
- Change the plan to suit the conditions
- Do not stop managing!

Remember

A Viticulturist steers the ship from point A to point B

but

the course is never the same!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