

# **New Tools for an Old Foe: I. Powdery Mildew Life Cycle**

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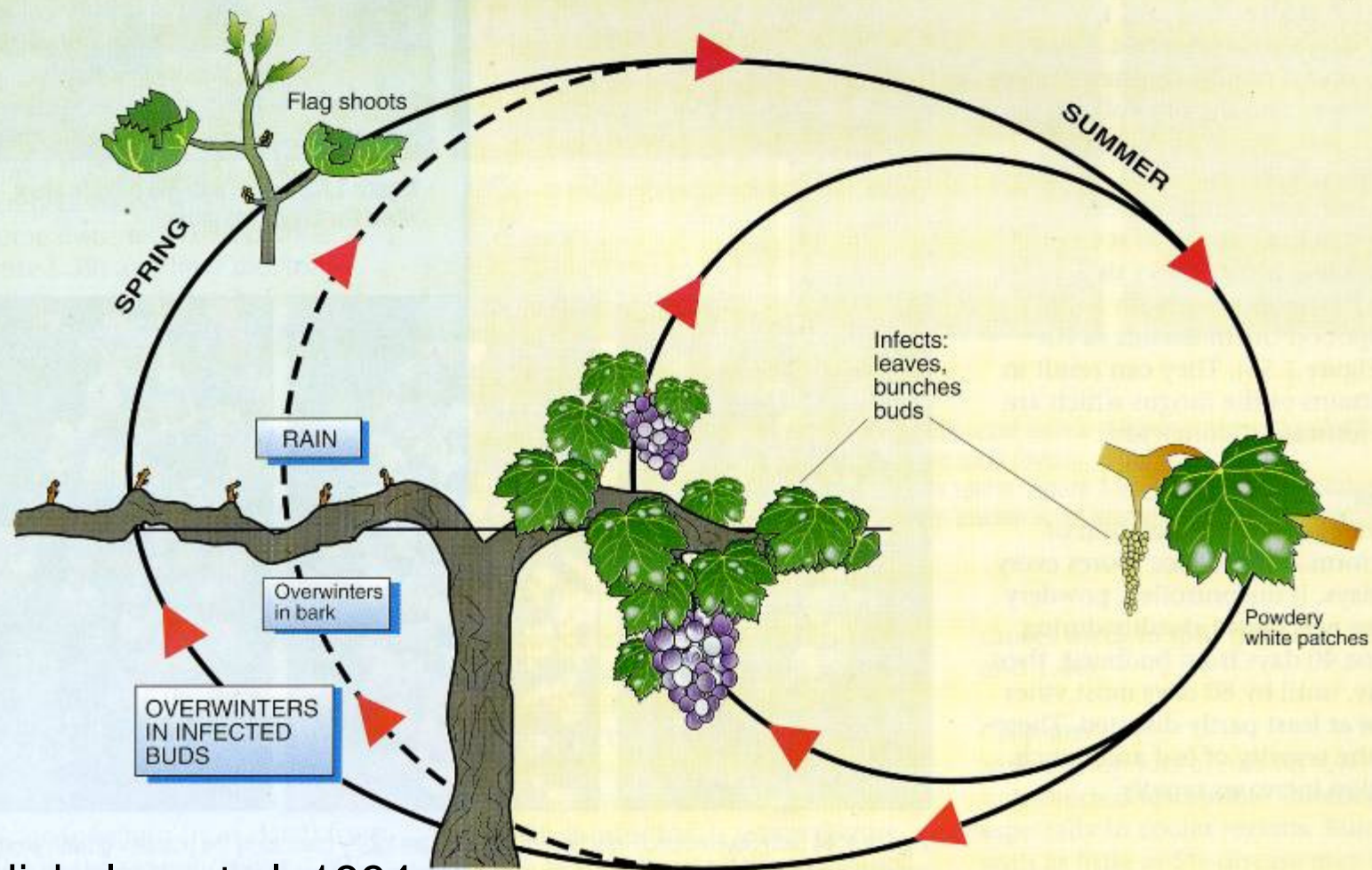
# Grape Powdery Mildew





# Powdery Mildew

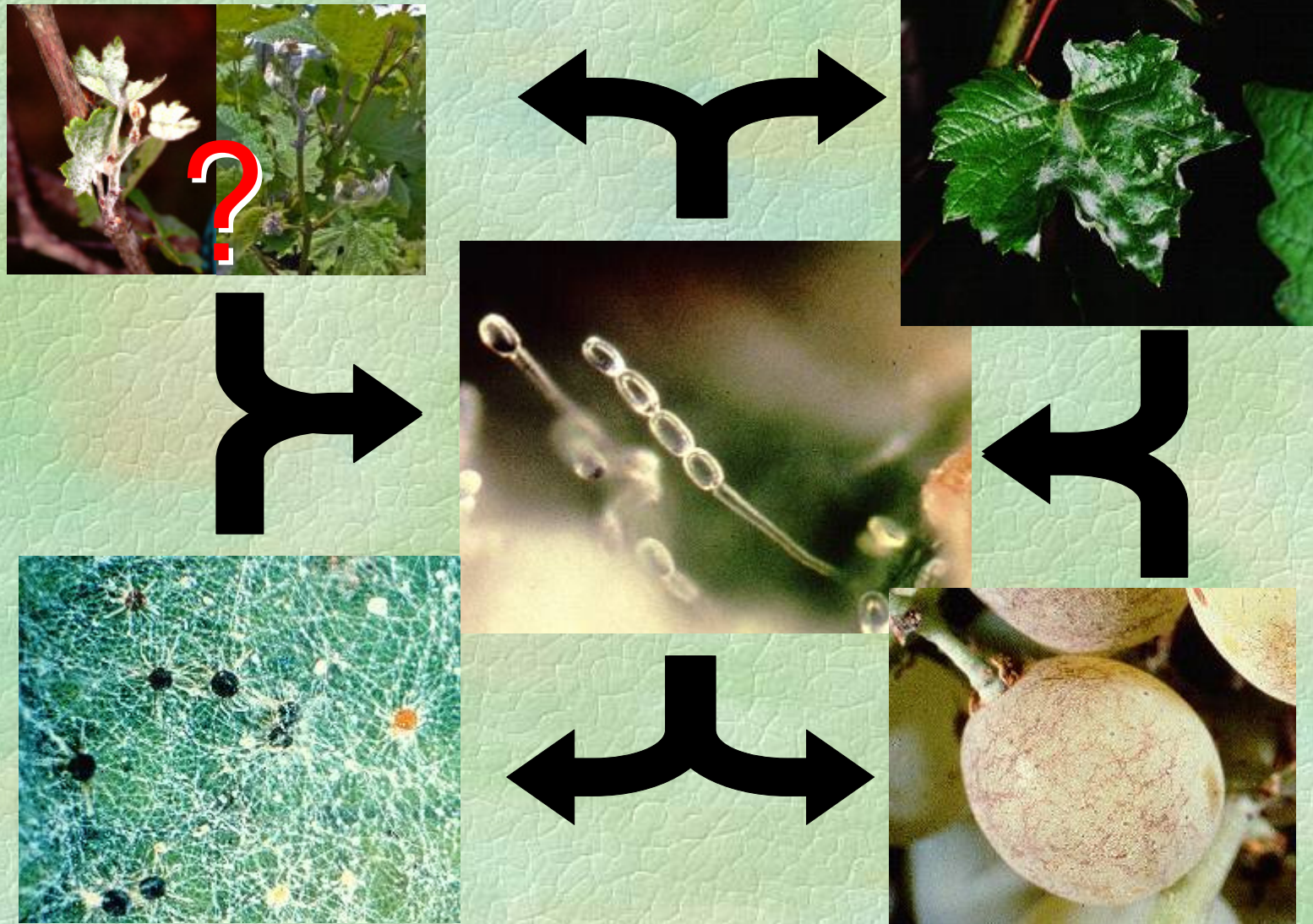
## *Erysiphe necator*



Nicholas, et al. 1994

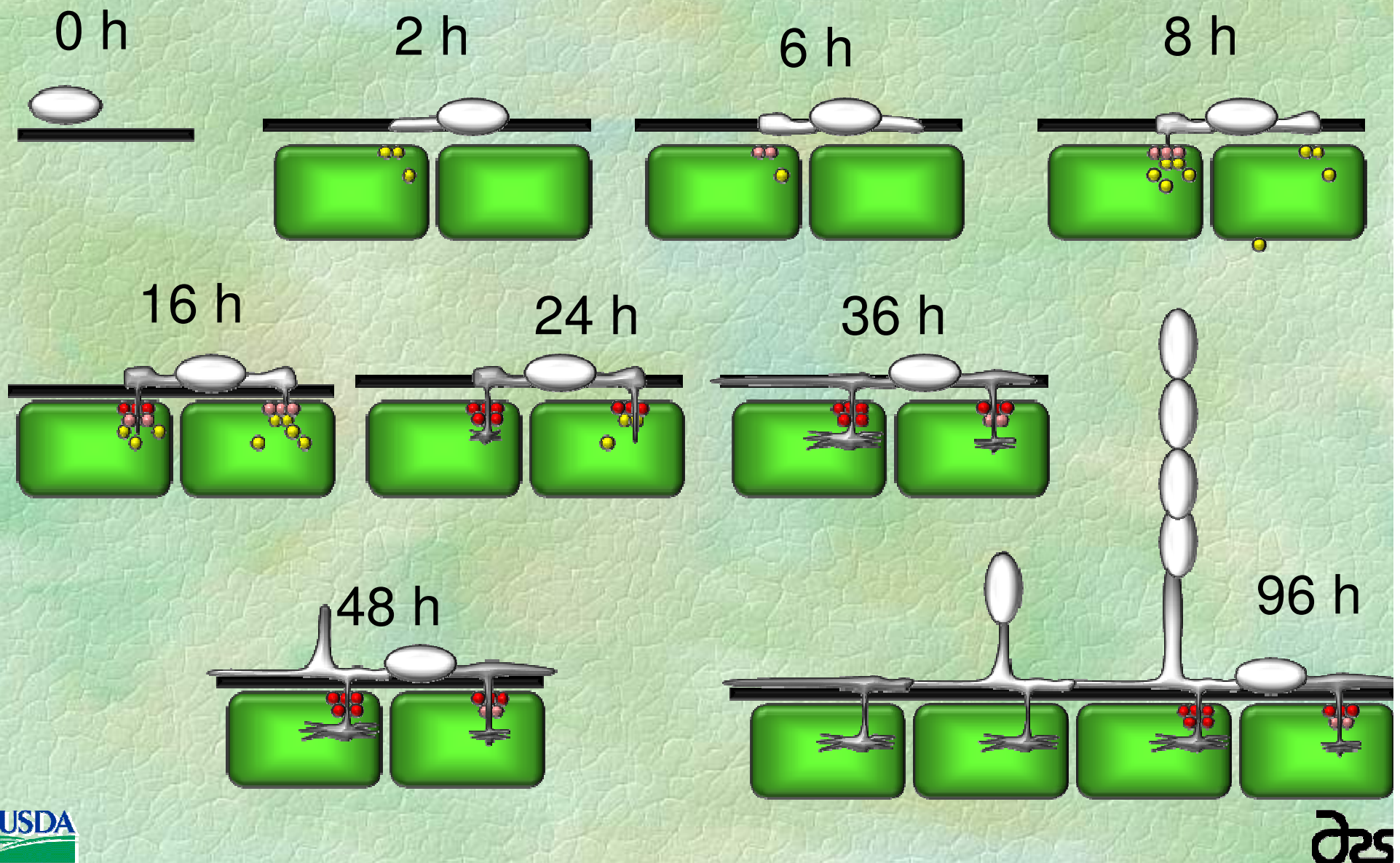


# Grape Powdery Mildew Disease Cycle





# Rapid Reproduction





# Powdery Mildew

## Cleistothecia

### ■ Favorable Conditions

- Rain and Wind Dispersed
- Adhere to Bark
- Low Survival During Dormancy
- Release Between 45-88 °F with free water
- Optimal Infection at 68 °F





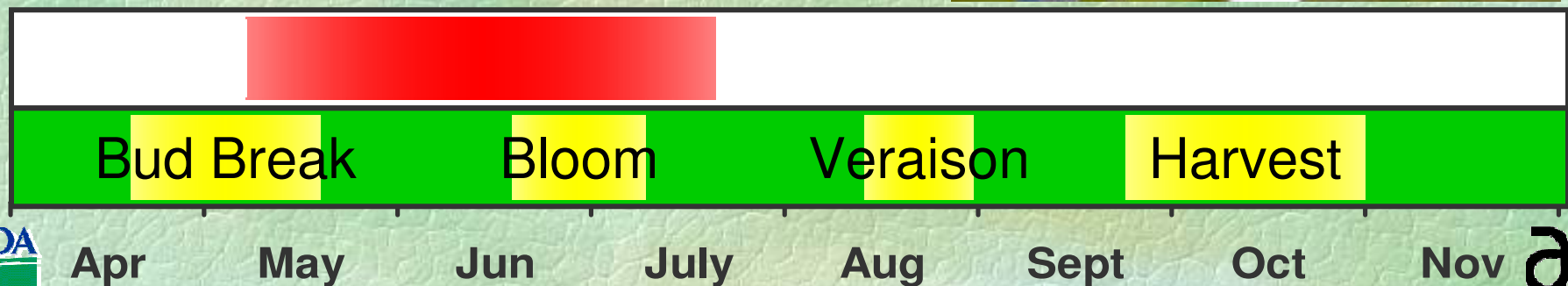
# Powdery Mildew

## ■ Favorable Conditions

- between 50 °F and 90 °F
- Optimum 77 °F
- No rain
- High vigor/fertility
- Shading

## ■ Unfavorable Conditions

- < 50 °F and > 92 °F
- Free water



# Uncontrolled Disease Epidemics

