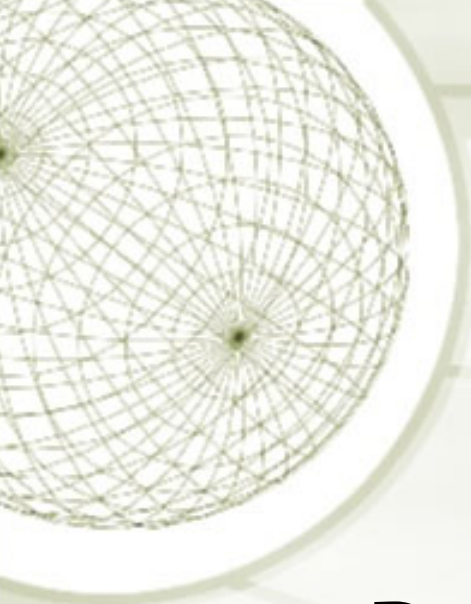


Epidemiology and Management of Botrytis Bunch Rot of Grapes



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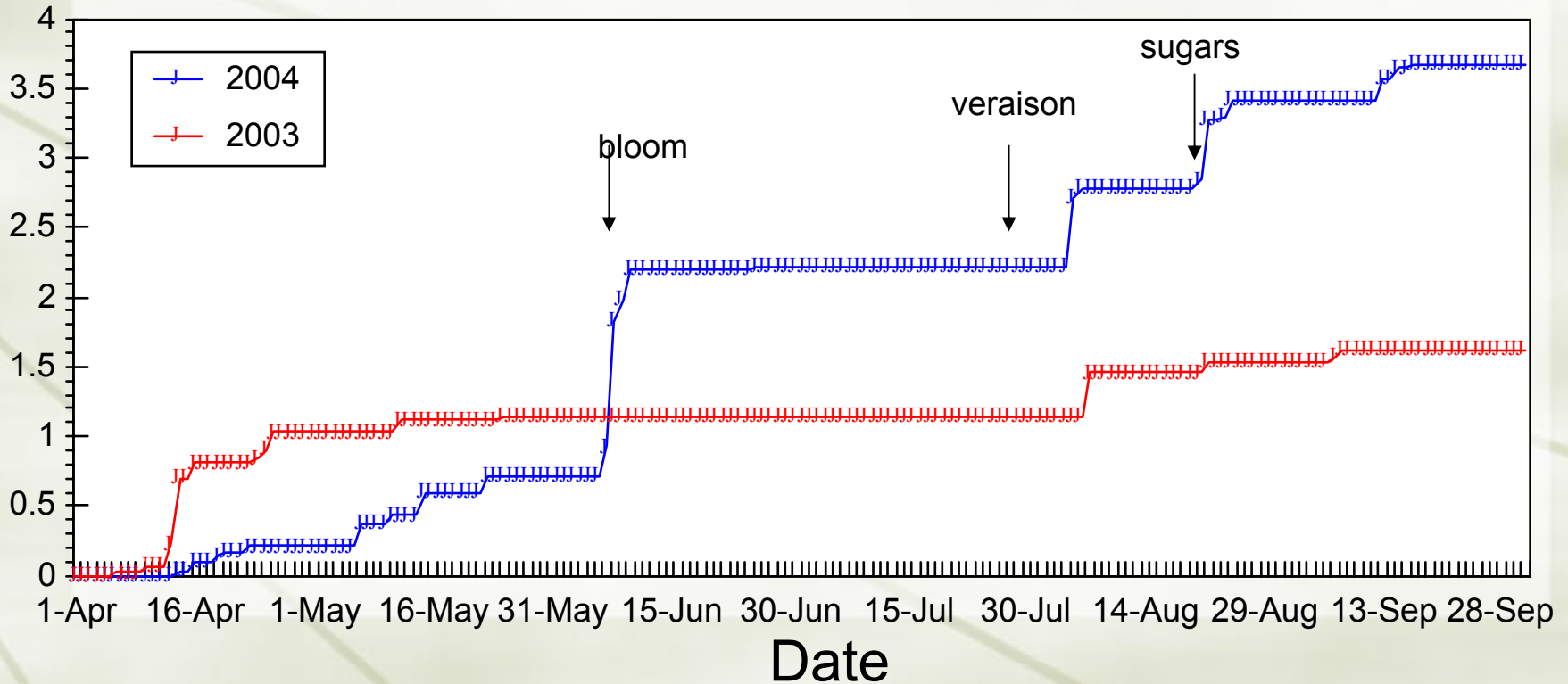


Why the increase?

Due to increased rainfall
and when
rainfall was received

Why the increase?

Precipitation (inches)



Bunch Rot Susceptibility

Very Susceptible	Susceptible	Moderately Resistant	Highly Resistant
Chardonnay	Barbera	Semillon	Cabernet Sauvignon
Chenin blanc	Grenache	Sangiovese	Merlot
Petite Syrah	Pinot noir		Cabernet franc
Pinot gris	Sauvignon blanc		
White Riesling			
Zinfandel			

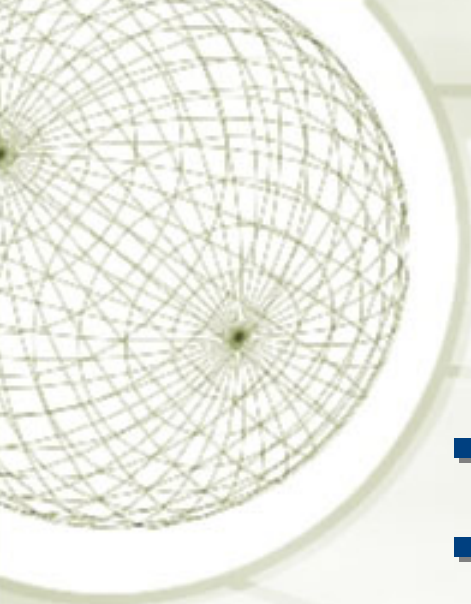


Basic Epidemiology

- ★ 53-86 F
- ★ Survives on old clusters
- ★ Requires at least 4 hours of wetness
- ★ Severity increases with increasing wetness
- ★ Weak pathogen; attacks succulent, injured, senescent, or dead tissues
- ★ Injury: hail, abrasion, insects, other diseases

Management of Bunch Rot





Cultural Practices (Air Circulation)

- Shoot positioning
- Shoot thinning
- Hedging
- Leaf removal
- Water management
- Nitrogen
- Fungicides LESS effective in a jungle

Relative Importance of Fungicide Applications



- ◆ Varietal susceptibility
- ◆ Environmental conditions
 - ◆ Weather
 - ◆ canopy

Primary Control Products



- Vangard
- Elevate
- Rovral



Fungicide Behavior

- Vangard: locally systemic, absorbed by grape flowers and fruit, rainfast
- Elevate: not systemic, rainfast
- Rovral: improvement improved by addition of Latron B1956 (6 oz/100g)



Critical Times for Fungicides



Bloom
Pre-closure
Veraison
Preharvest

Fungicides for Grape Production

Fungicide	Trade	Bunch Rot	Powdery Mildew
Azoxystrobin	Abound	1	4
Captan	Captan	1	0
Cyprodinil	Vangard	4	0
Fenarimol	Rubigan	0	+++
Fenhexamid	Elevate	4	0
Iprodione	Rovral	3	0
Kresoxim-methyl	Sovran	2	4
Myclobutanil	Rally	0	3

Key: 4 = excellent, 3 = good, 2 = moderate, 1 = slight, 0 = bogus

Fungicides for Grape Production

Fungicide	Trade	Bunch Rot	Powdery Mildew
Potassium bicarbonate	Armicarb	0	2
HMO	Stylet Oil	1	3
Sulfur		0	3
Tebuconazole	Elite	0	3
Trifloxystrobin	Flint	2	4
Triflumizole	Procure	0	3
Lime sulfur		0	0

Key: 4 = excellent, 3 = good, 2 = moderate, 1 = slight, 0 = bogus

Coverage

- **Type of equipment**
- **Timing**
- **Intervals**
- **Calibration**
- **Nozzle aim**
- **Weather**

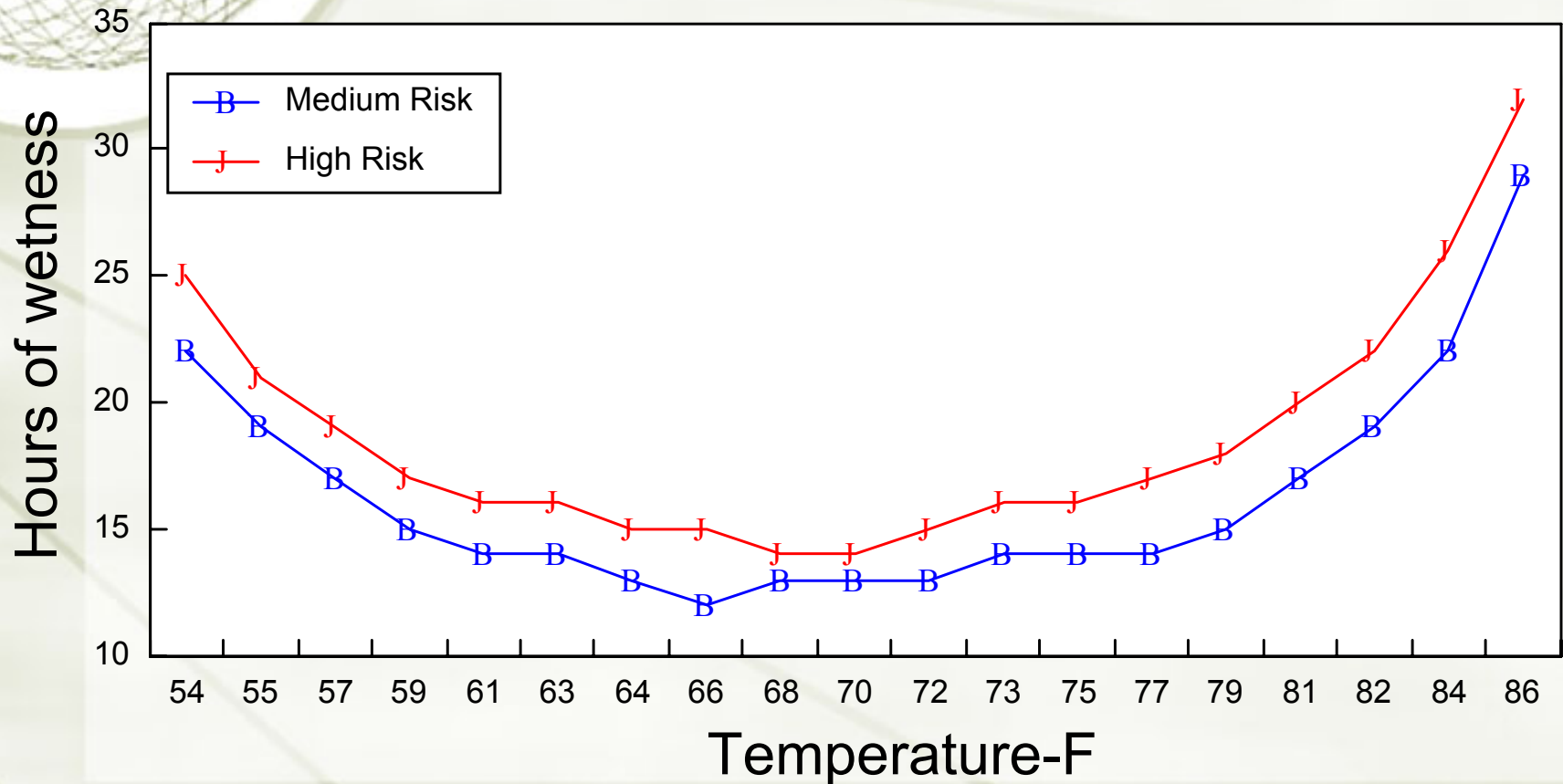




Broome Model

- Developed at UCD
- Validated in Chile
- Can reduce fungicide usage by 50%

Broome Model Disease Risk



2001 Bunch Rot Modeling Trial

Approach	Incidence- Riesling	Incidence- Chenin	Total Sprays
Untreated	0.0001	0	0
Bunch closure, veraison	0	0	2
Veraison	0	0	1
Bloom, bunch closure, veraison	0.001	0	3
Broome Model	0	0	0

On site weather station identified 0 in-canopy infection periods

2001 Bunch Rot Results

Phenology Program: 1-3 sprays

Modeling Program: no infection periods; no fungicides applied despite high inoculum levels

No disease: wasted chemical, wasted time, and unnecessary selection pressure!



Association with Powdery Mildew

- **Diffuse mildew infections on berries increase bunch rot severity at harvest**
- **If mildewed berries do not get Botrytis, they support higher level of spoilage microbes**



Sour Rot

- Wet rot
- Spreads rapidly through cluster
- Smells like vinegar
- Usually lacks fungal sporulation
- Berries must be predisposed (mildew, fruit flies, grape berry moth)
- Favored by high humidity and precipitation
- Spread by insects





Sour Rot Management

- **Canopy Management**
- **Chemicals generally ineffective**
- **Basal leaf removal at or after berry set**
- **Control insects that feed on berries**
- **Practices that prevent wounding**