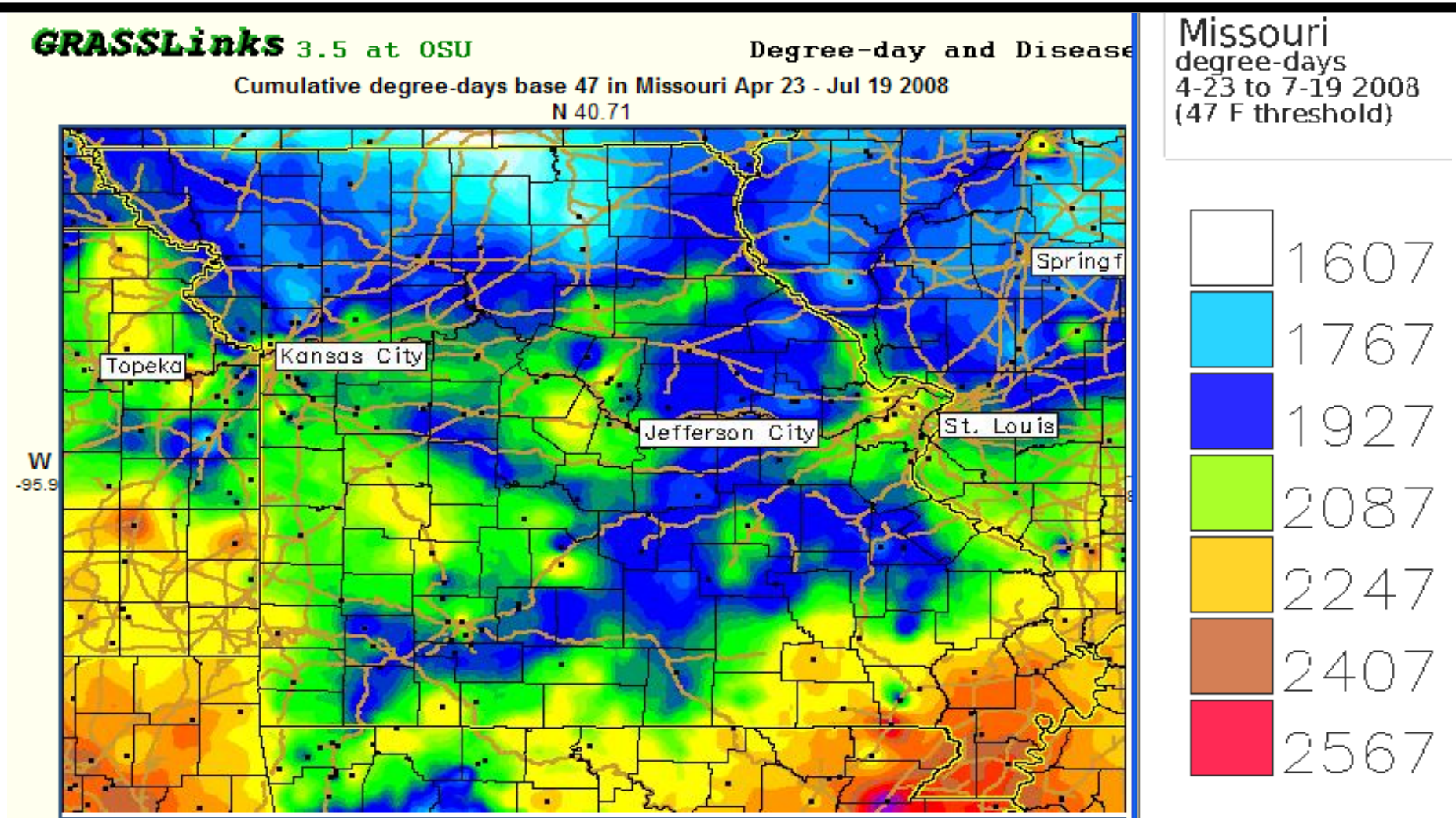
Missouri – After 1300 DD start weekly checking of 300 clusters in perimeter for damage. If > 1% new cluster damage with live larva, spray all vineyard, repeat in 10 days.

"Degree-day maps created from Oregon State University IPPC website at http://pnwpest.org/wea"



2008 Missouri

2008 Grape Berry Moth & Grape Phylloxera Degree-day graphs

** Print Insect Trap Recording Form 2008 (pdf)**

Scroll Down for **PEST ALERT** RECOMMENDATIONS

ALERT: Japanese beetles began causing foliar damage during the week of 23 June with peak catch the week of 13 July in Purdy, MO - spray upper third of canopy of susceptible cultivars in order of damage (very severe to severe): Cabernet Franc, Vidal, Vignoles, Seyval, Norton)
ALERT: 1st green June beetle seen on 27 June in Purdy, MO; Major flight of GJB this past week usually lay eggs for week or two in pastures, then disperse to and feed on early ripening or damaged grapes but most of grape berries are not ripe enough to be attached (Chambourcin, Mars, Reliance, Seyval, Venus, Vignoles)

Grape Berry Moth (Missouri) 1st trap catch on about 22 Apr = predict hatch from 21 May-14 June (400-800 DD);
2nd hatch for your location starts 22 June (Girardeau Co.) to 1 July (Boone Co.) Click to see MO state GBM DD graphs

Grape Phylloxera (Missouri)- predicted crawler period from 1200 DD on (DD accumulated after 21 March) in 4 counties:

- **Cape Girardeau Co. = next crawlers after 1 July Click to see GP graph**
- **Barton Co. = next crawlers after 4 July Click to see GP graph**
- **Boone Co. = next crawlers after 6 July Click to see GP graph**
- **Crawford Co. = next crawlers after 7 July Click to see GP graph**

Grape Disease prediction graphs for Stone Hill (Hermann) and Purdy, MO Click to see MO state Disease graphs

Mean Trap Counts in Missouri

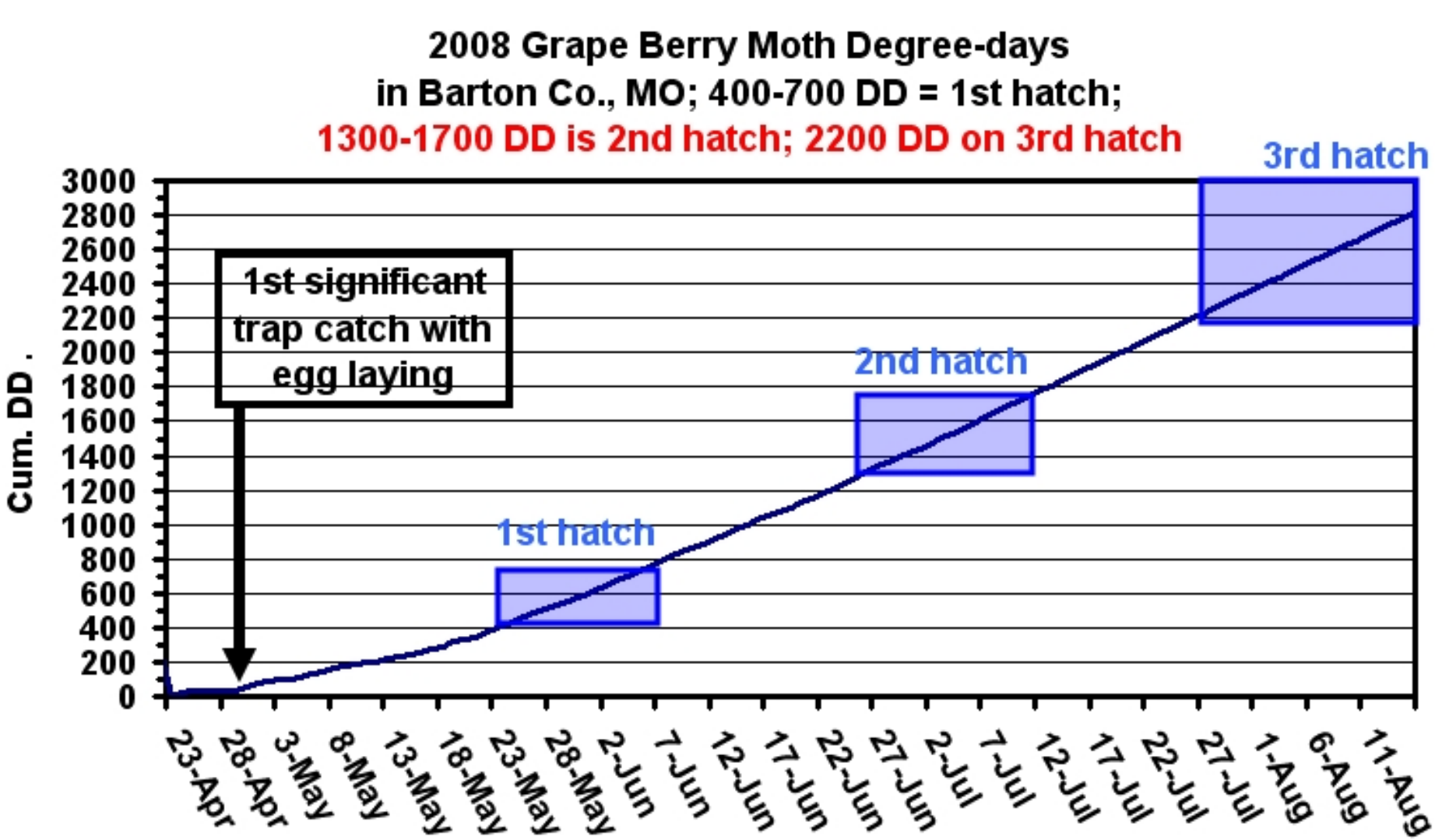
	Purdy			Ste. Genevieve			Hermann			St. James			Rocheport			Waverly		
Date	GBM	JB	GJB	GBM	JB	GRB	GBM	JB	GRB	GBM	JB	GRB	GBM	JB	GRB	GBM	JB	GRB
April 14				0			0			0			0			0		
April 21-25	0						0			0.7			0.5			1.3		
April 26-30	-			18			0.3			2						2.3		
May 3-8	7						7			5.7			2.8			7.3		
May 9-14	11.3			3.7			0.7			1.2			2.8			7.7		
May 19-23				1			6.7			2			2.3			9		
May 27-28							3.3									2		
June 1							0.7											
June 10-13	1.3	set		0.3	set					0	0		18			0	set	
June 16-20	1	29		0.3	48		0	0		0.2	0							
June 23-27		4190		0.3	700		0	0		0	0					0.3	0	
June 30							0	0										
July 3-10		10582	861	0.3	1204		0	0		0.3	0		2			0	0	
July 11-15				0	1510	1	0.7	1	set	0	3	12						
July 17	0	277200	3628															

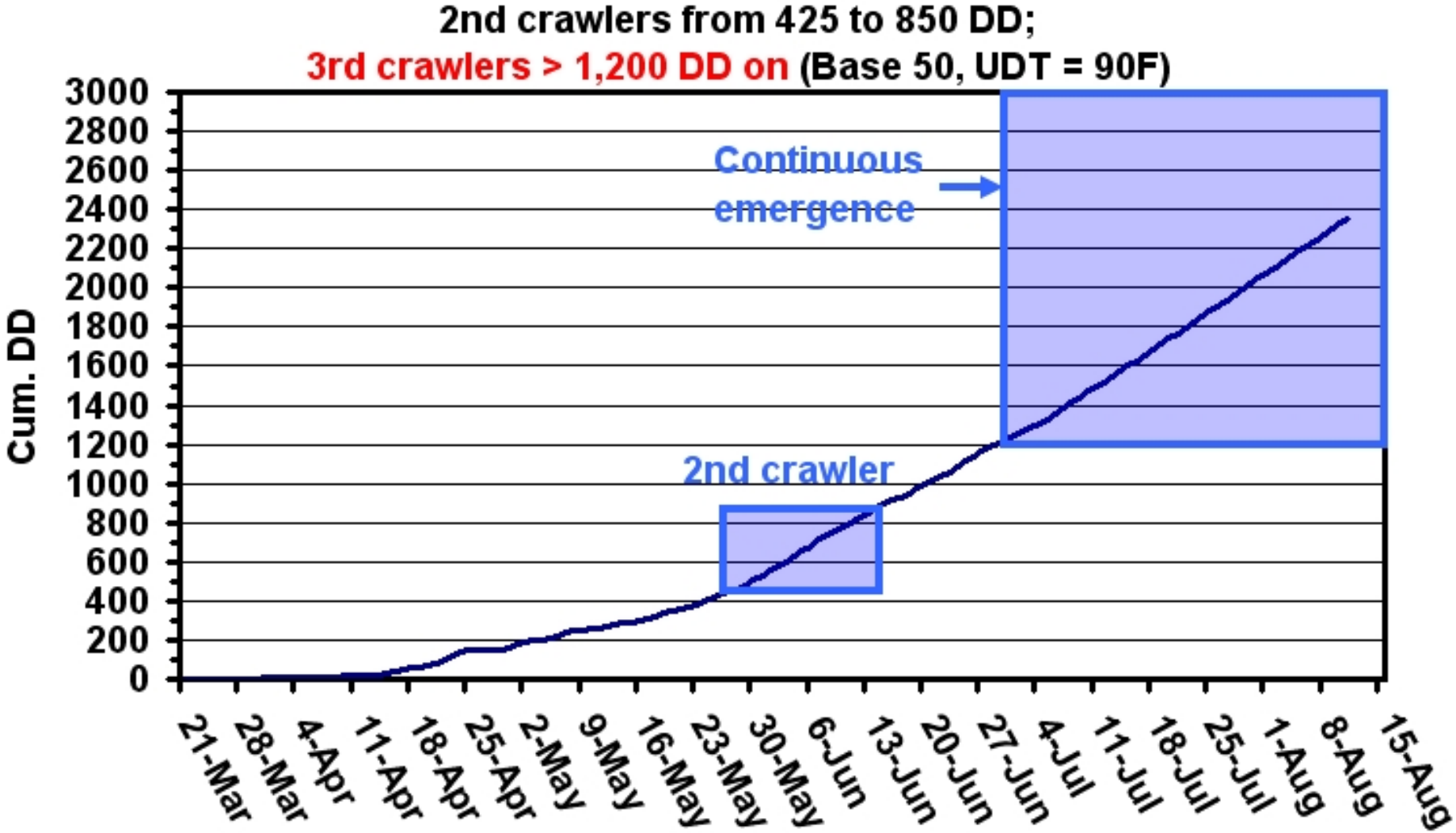
GBM = grape berry moth; JB = Japanese beetle; GJB = green June beetle; GRB = grape root borer

Note: only one location has damaging numbers of Japanese beetles, and green June beetles, see yellow box versus light blue boxes and numbers above.

Go to web for Missouri grape recommendations:

http://comp.uark.edu/~dtjohnso/MO Recom 2008.htm


2008 Grape Berry Moth Degree-days
in Barton Co., MO; 400-700 DD = 1st hatch;
1300-1700 DD is 2nd hatch; 2200 DD on 3rd hatch
3rd hatch
2nd hatch
1st hatch
1st significant trap catch with egg laying
Cum. DD .
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
23-Apr
28-Apr
3-May
8-May
13-May
18-May
23-May
28-May
2-Jun
7-Jun
12-Jun
17-Jun
22-Jun
27-Jun
2-Jul
7-Jul
12-Jul
17-Jul
22-Jul
27-Jul
1-Aug
6-Aug
11-Aug



Best time to have applied insecticide would have been in late May to early June against 2nd generation crawlers.

Later generations of crawlers are present from late June to harvest.

Powdery Mildew Conidial Index and Spray Intervals

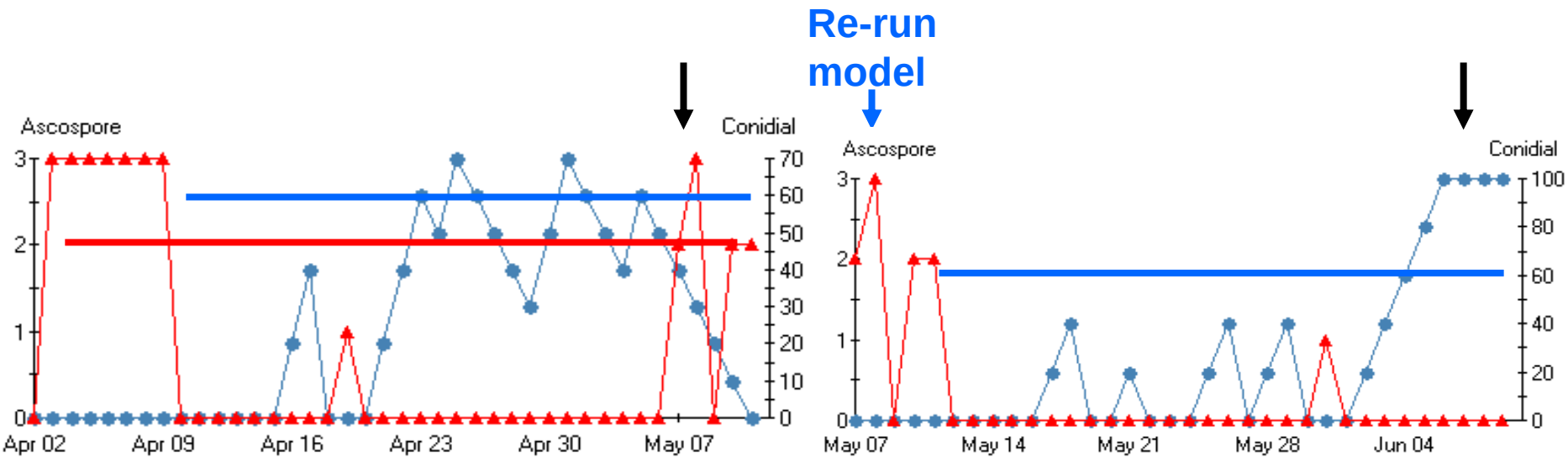
Table 2. Treatment timing guidelines based on risk index and spray material.

Powdery Mildew Risk Index	Spray Material	Spray Interval
0 to 30	sulfur dust	14 days**
	micronized sulfur	18 days**
	DMI fungicides*	21 days**
40 to 50	sulfur dust	10 days
	micronized sulfur	14 days
	DMI fungicides*	17 days
60 to 100	sulfur dust	7 days
	micronized sulfur	10 days
	DMI fungicides*	14 days
* Demethylation inhibitors such as Bayleton, Rally, Rubigan.		
** Or label maximum.		

Source: Models: Diseases - Powdery mildew of grape by UC IPM at:
http://www.ipm.ucdavis.edu/DISEASE/DATABASE/grapepowderymildew.html

Hermann, MO

Powdery Mildew Severe Ascospore Infection If ≥ 2, then Infection after Conidia Index > 60

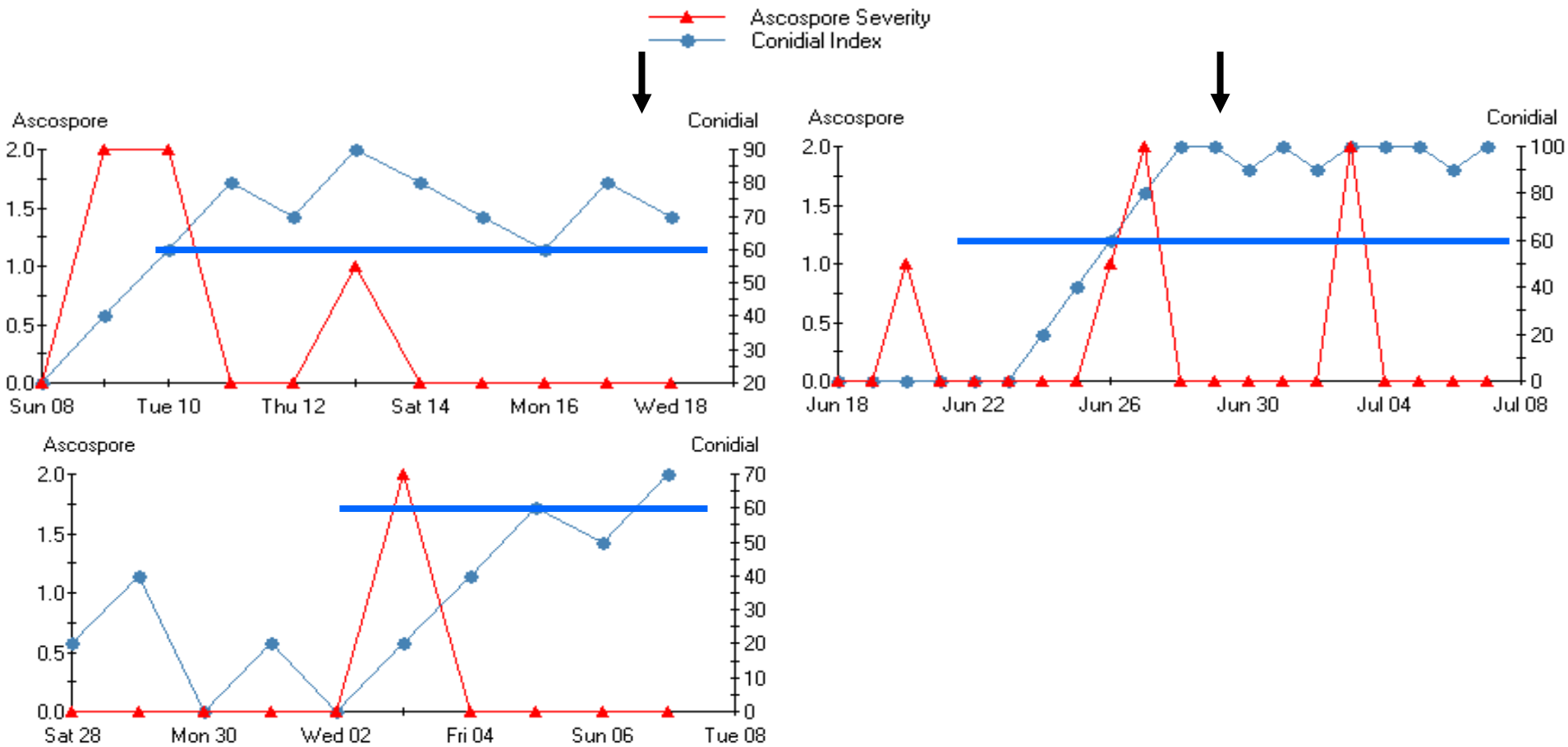


Most important sprays – a week or 2 before bloom to about 1 month after bloom. Ascospore Infection > 2 = 'Heavy' risk of Infection from 2 to 9 April and 7-11 May **(arrow).**

Re-ran model from 8 May, 8, 18, 28 June on after each spray (**4 arrows**) to start conidia index at zero.

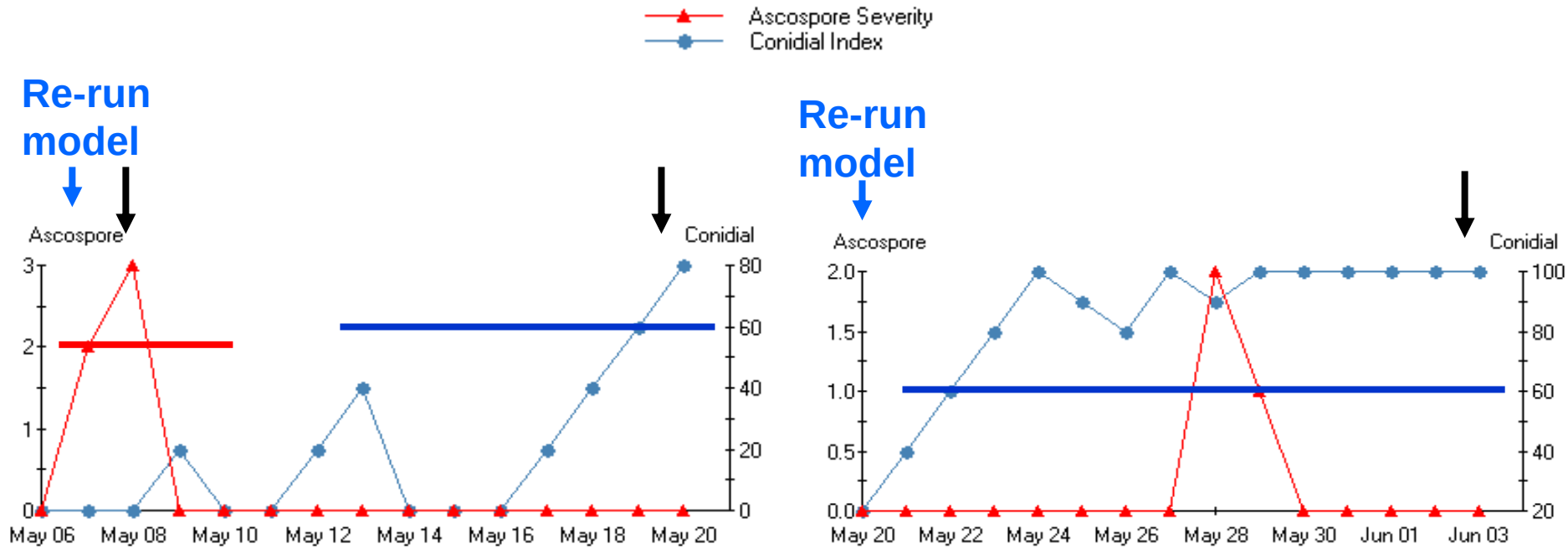
Hermann, MO continued

Powdery Mildew Severe Ascospore Infection If ≥ 2, then Infection after Conidia Index > 60



Purdy, MO

Powdery Mildew Severe Ascospore Infection If ≥ 2, then Infection after Conidia Index > 60

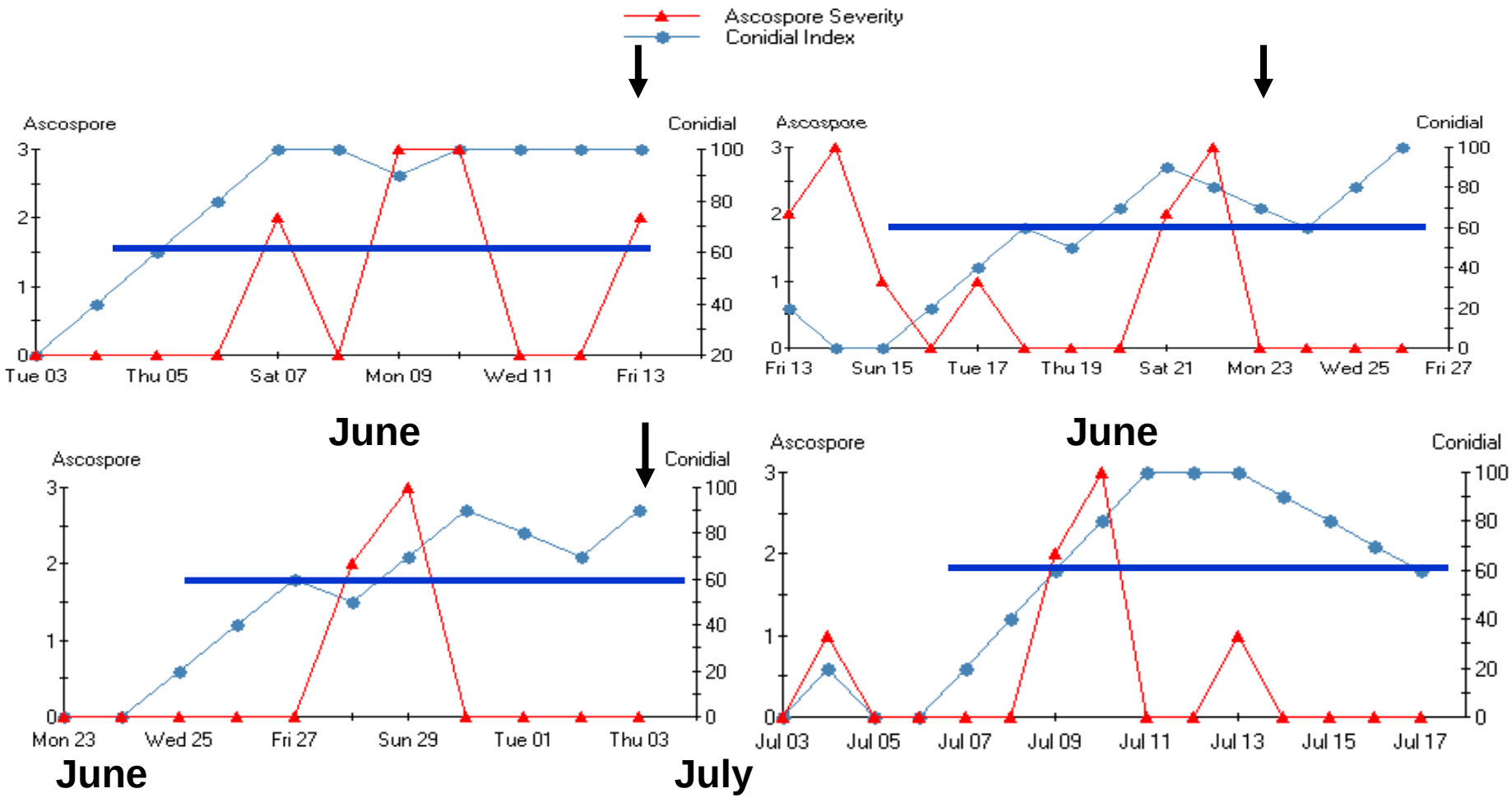


Most important sprays - a week or 2 before bloom to about 1 month after bloom. Ascospore Infection > 2 = 'Heavy' risk of Infection from 7-8 May.

After each predicted spray (6 arrows – includes next slide), model was re-run to start conidia index at zero. Conidial Index ≥ 60 reached from 24 May to 17 July = **see Table on slide 6 for specifics.**

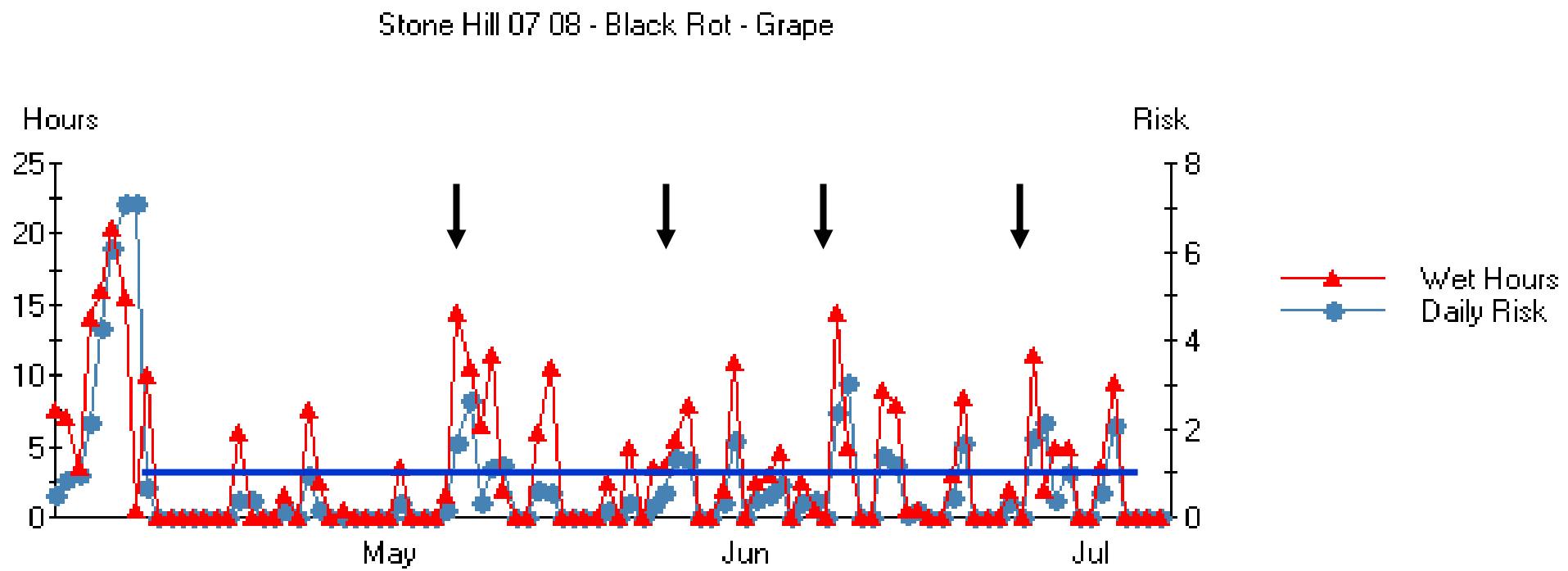
Purdy, MO continued

Powdery Mildew Severe Ascospore Infection If ≥ 2, then Infection after Conidia Index > 60



Hermann, MO - Stone Hill Winery

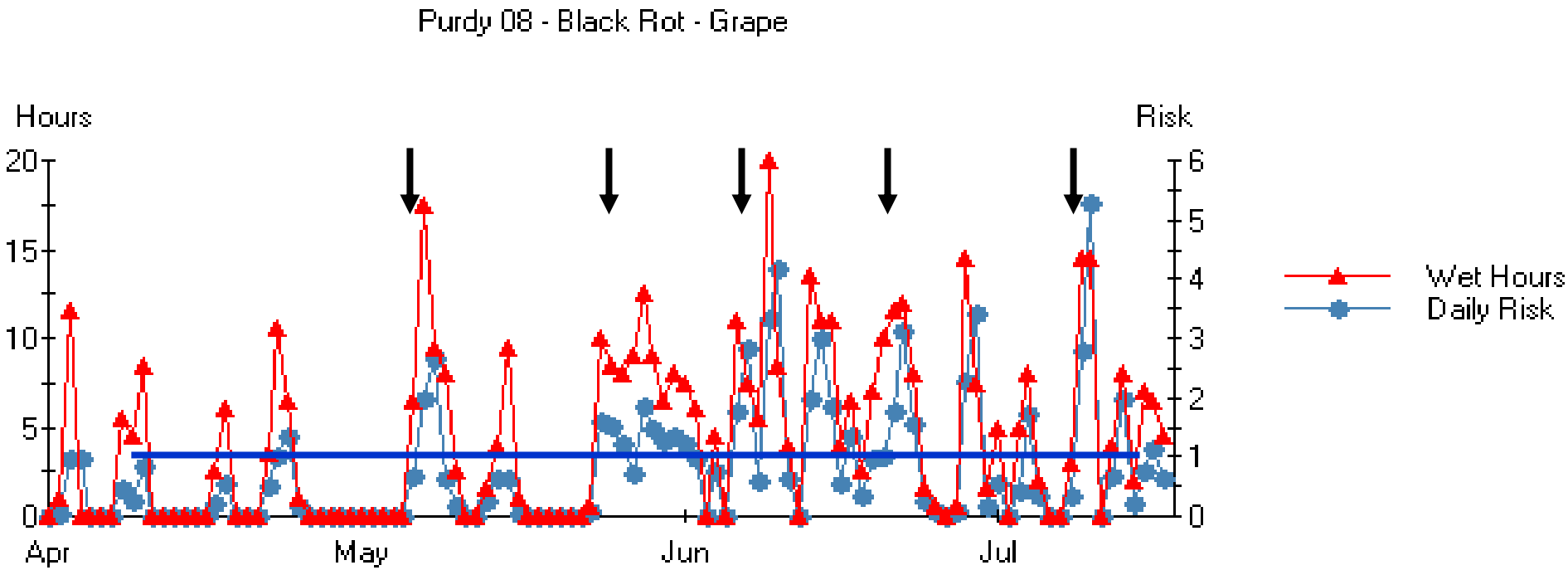
Black Rot Infection Dates > 1 Risk



Greatest risk for fruit infection is just before bloom until about 6 weeks after bloom **when risk is >1 occurred on 7-8, 10-11, 26-29, 31 May, 9, 19, 26-27, 29 June and 3 July (*4 arrows indicate times for sprays just before rain*)**

Purdy, MO

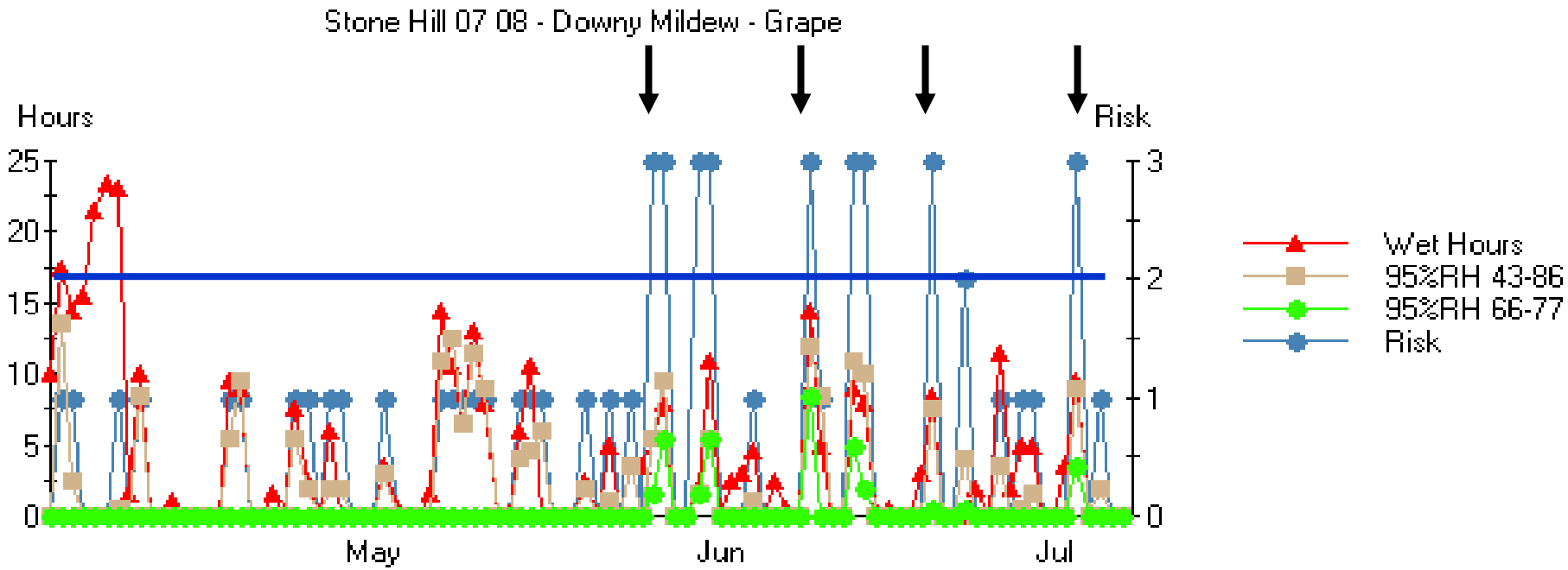
Black Rot Infection Dates > 1 Risk



Greatest risk for fruit infection is just before bloom until about 6 weeks after bloom **(should be nearing end of susceptibility) when risk is > 1 occurred on 7-8, 24-26, 28-31 May, 13-17, 20-23, 28-29 June, 4, 9-10, 13 and 16 July (*5 arrows indicate times for sprays just before rain*)**

Hermann, MO - Stone Hill Winery

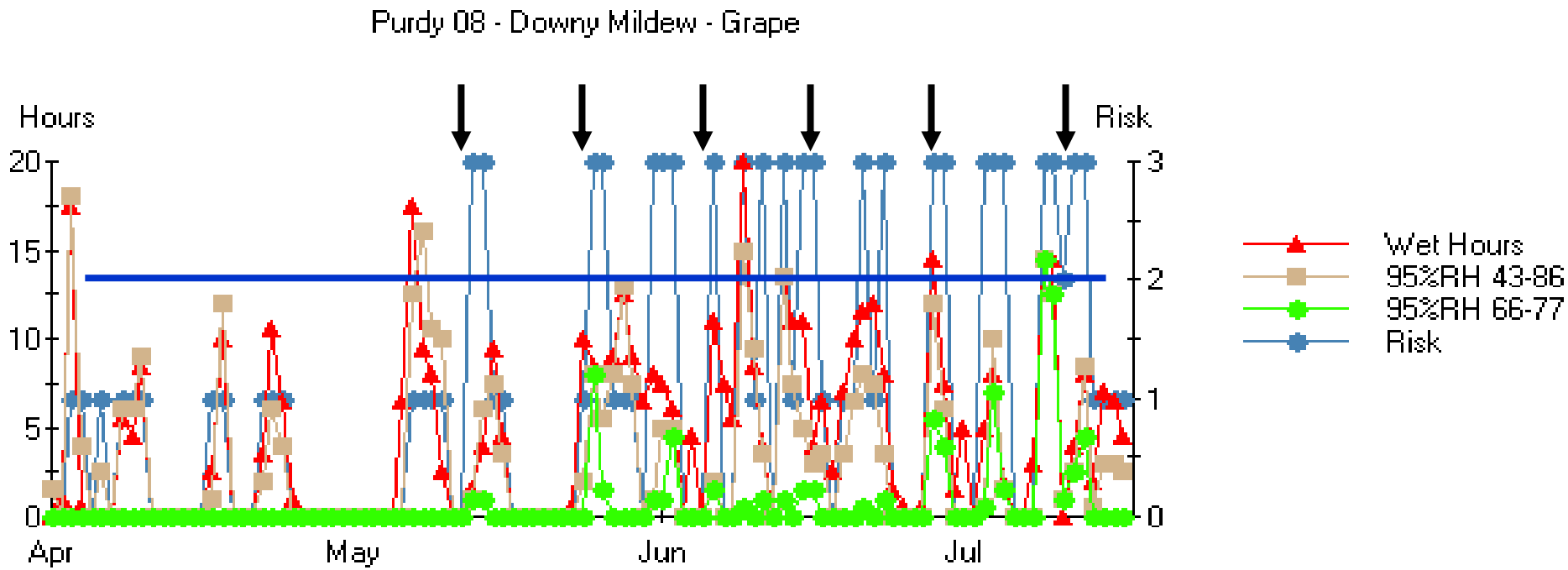
Downy Mildew Infection Events > 2 Risk



Fruit are most susceptible from about 2 weeks before bloom until 4 weeks after bloom. **So far Risk > 2 on 26-27, 30-31 May, 9, 13-14, 20 June, 3 July (4 *arrows indicate times for sprays*)**

Purdy, MO

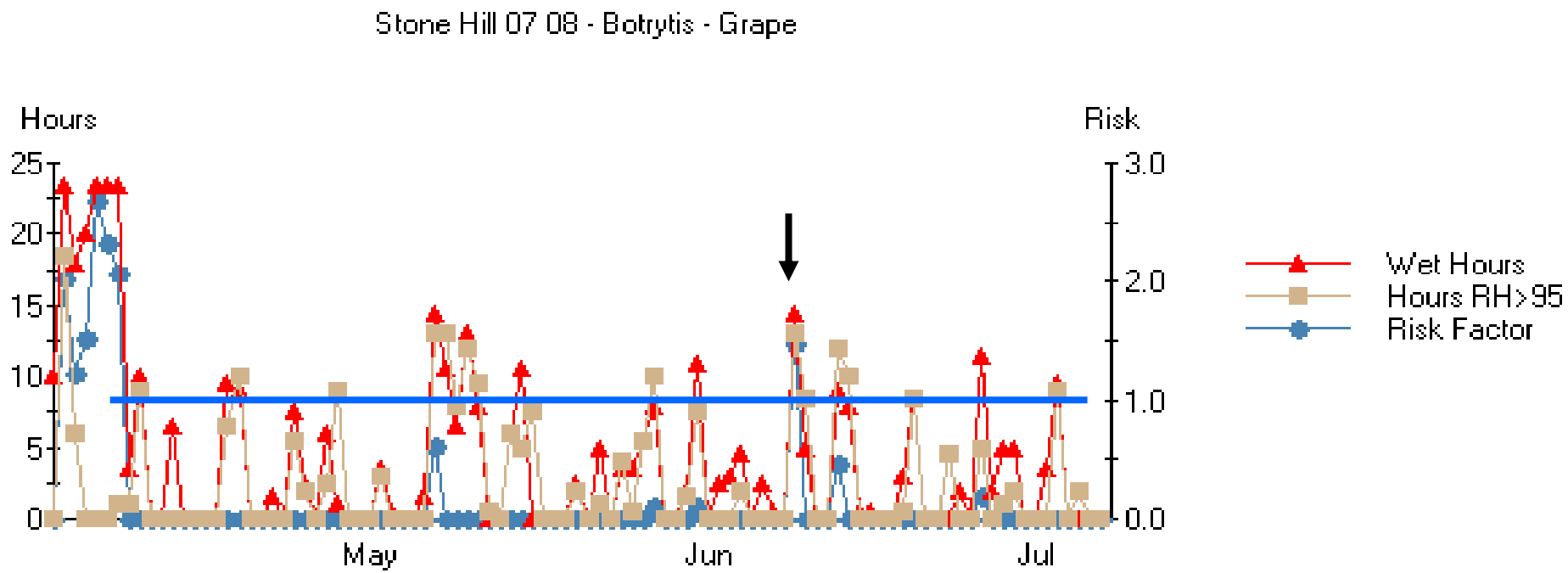
Downy Mildew Infection Events > 2 Risk



Fruit are most susceptible from about 2 weeks before bloom until 4 weeks after bloom. **Risk > 2, indicates high risk of infection on 13-14, 25-26, 31 May to 2 June, 6, 9, 11, 13, 15-16, 21, 23, 28-29 June, 3-5, 9-10, 12-13 July (*6 arrows indicate times for sprays - every 10 days*)**

Hermann, MO - Stone Hill Winery

Botrytis Events > 1 Risk

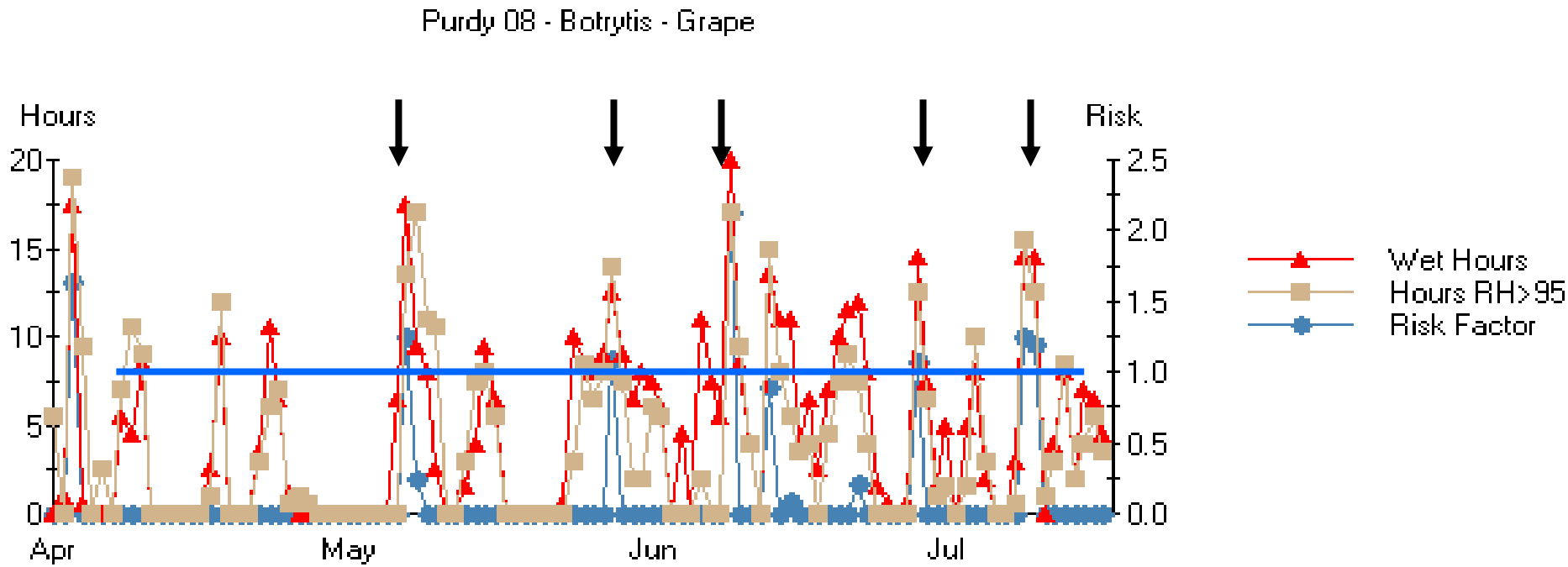


Spray about bloom, closing, veraison and preharvest protect fruit. If conditions aren't favorable then you could probably safely omit the spray.

Risk > 1 indicating Botrytis infection on 9 June when it was cool enough (< 85°F) and > 95% RH humid for > 12 hrs (*arrow indicates time for spray*).

Purdy, MO

Botrytis Events > 1 Risk



Spray about bloom, closing, veraison and preharvest protect fruit. If conditions aren't favorable then you could probably safely omit the spray.

Risk > 1 so Botrytis infection on 7-8, 28 May, 9, 28 June when it was cool enough (< 85°F) and > 95% RH humid for > 12 hrs (4 *arrows indicate times for sprays*).