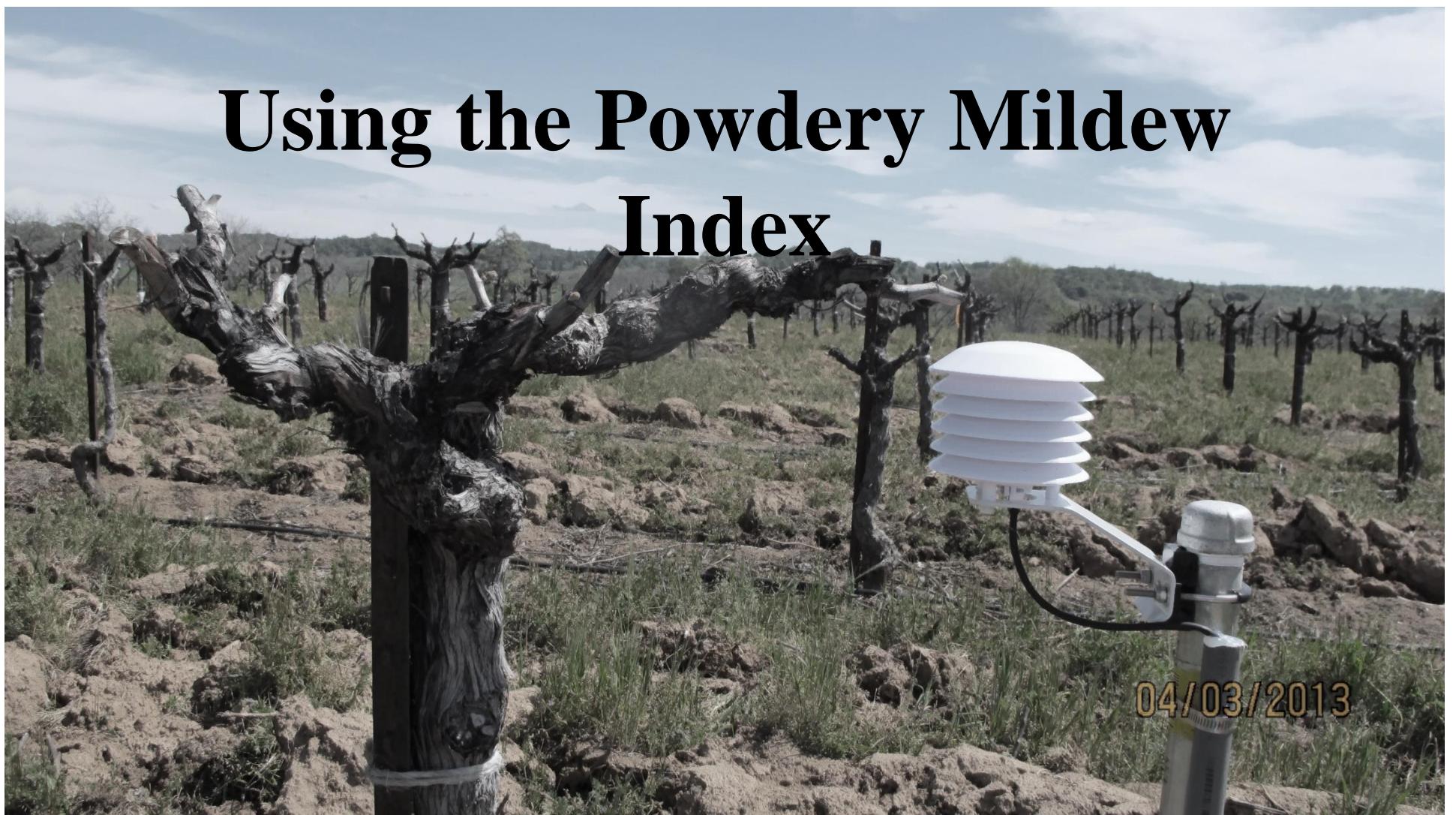


Using the Powdery Mildew Index



Lynn Wunderlich
UC Cooperative Extension Farm Advisor-Central Sierra
4/11/13
Amador Winegrape Grower Association Meeting



How the index works

Powdery mildew is a fungus: growth is temperature dependent

Optimal powdery mildew growth is between 70-85°F (*canopy temperatures can be different than ambient*). Too cold or too hot and growth is slowed.

Powdery mildew index (PMI or **RAI**, Risk Assessment Index) is calculated based on temperatures. Points are given on scale 0-100.

Index number tells you:

1. How quickly powdery mildew is reproducing
2. When to spray
3. What to spray
4. How long your chosen fungicide will last (spray interval)

Initiating the Index

- Spore trap, use a leaf wetness sensor OR assume spores are present after sufficient moisture (rain and leaf wetness).
- Starting with the index at 0 on the first day, add 20 points for each day with 6 or more continuous hours of temperatures between 70° and 85°F.
- Until the index reaches 60, if a day has fewer than 6 continuous hours of temperatures between 70° and 85°F, reset the index to 0 and continue.
- If the index reaches 60, an epidemic is under way. Begin using the spray-timing phase of the index. (*with appropriate shoot growth*)

SPRAY INTERVALS BASED ON DISEASE PRESSURE USING THE POWDERY MILDEW INDEX

Index	Disease pressure	Pathogen status	Suggested spray schedule			
			Biological s ¹ and SARs ²	Sulfur	Sterol-inhibitors ³	Strobilurins ⁴
0-30	low	present	7- to 14-day interval	14- to 21-day interval	21-day interval or label interval	21-day interval or label interval
30-50	intermediate	reproduces every 15 days	7-day interval	10- to 17-day interval	21-day interval	21-day interval
60 or above	high	reproduces every 5 days	use not recommended	7-day interval	10- to 14-day interval	14-day interval

¹ *Bacillus pumilis* (Sonata) and *Bacillus subtilis* (Serenade)

² SAR = Systemic acquired resistance products (AuxiGro, Messenger)

³ tebuconazole (Elite), triflumizole (Procure), myclobutanil (Rally), fenarimol (Rubigan), and triadimefon (Bayleton)

⁴ methyl (Sovran), and pyraclostrobin/boscalid (Pristine)



We have 2 powdery mildew stations in Shenandoah Valley



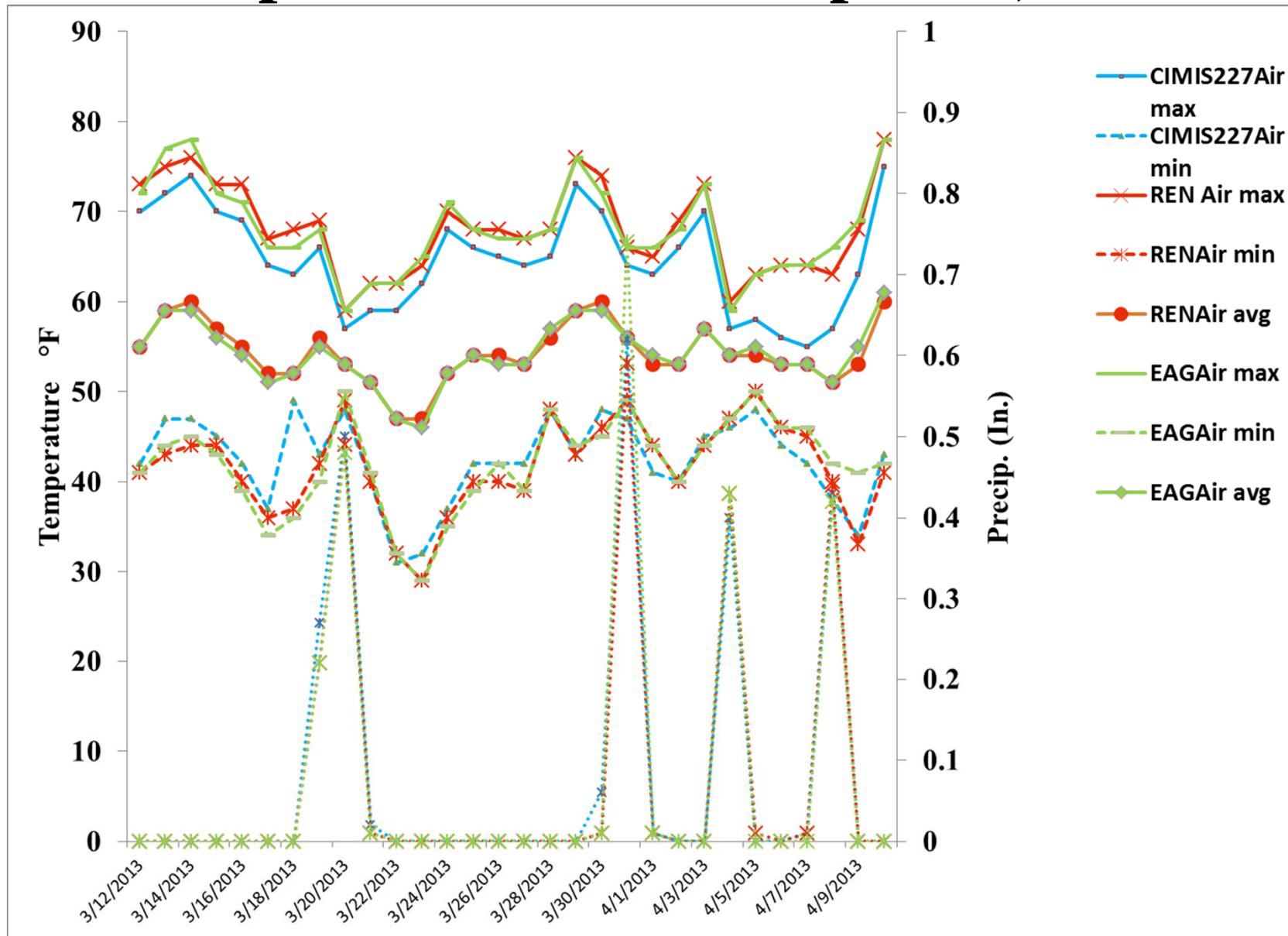
Amador-Eagle
Distacio Ranch, 1470 feet
Head trained zinfandel
Budbreak April 1

Amador-Renwood
Renwood, 1580 feet
Bilateral trained zinfandel
Budbreak April 10

CIMIS 227 is at Montevina (no mildew index)



Shenandoah Valley Weather Station Comparison March 12-April 10, 2013



4 steps to get online to access data

1. Got to UCIPM at <http://www.ipm.ucdavis.edu/>



2. On UCIPM home page, scroll to bottom left “quick links” section and click on “Weather, models and degree days”



3. On the weather, models and degree days page, scroll down to

Pest and Plant Models (including UC-recommended degree day models) list

click on “Grape powdery mildew index”

The screenshot shows a Mozilla Firefox browser window displaying the UC IPM Online website. The URL in the address bar is www.ipm.ucdavis.edu/WEATHER/index.html. The main content area is titled "Weather, models, & degree-days". Below this, under "California weather data", there is a section for "Select from:" which includes options for stations in County, Networks, or a specific station name, along with a map button and a "Submit" button. To the right of this is a "Video" section titled "Using degree-days to time insecticide applications". The "Pest and plant models" section lists various pests with their corresponding tables, including "Grape powdery mildew index", which is circled in red.

Models, degree-days, and weather - UC Statewide IPM Program - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Models, degree-days, and weather - UC ... +
www.ipm.ucdavis.edu/WEATHER/index.html
Most Visited Getting Started ANR Portal UC Welcome to UCCE Ce... WxCoder Home Page - UC State... National Weather Servi... Crop Data Manageme... MyPest Page
Enter Search Terms
UNIVERSITY OF CALIFORNIA AGRICULTURE & NATURAL RESOURCES
UC IPM Online
Statewide Integrated Pest Management Program
PRINT
HOME
ON THIS PAGE
California weather data
Pest and plant models
Degree-day calculator
MORE TOOLS
Cotton planting forecast
(March and April)
Chilling accumulations
(November through March)
Sunset temperatures
(February through May 15)
Descriptions of available models
More interactive tools
and calculators
ON THIS SITE
What is IPM?
Home & landscape pests
Agricultural pests
Natural environment pests
Exotic & invasive pests
Weed gallery
Natural enemies gallery
Weather, models, & degree-days
UC IPM offers interactive tools and models that can help you make pest management decisions based on conditions at your site.
California weather data
Current daily and hourly data from stations throughout California, plus long-term data for climate stations. PestCast research networks provide hourly and daily values from selected locations.
Station news | About the database | Western Regional Climate Center | CIMIS
Select from:
 stations in (County) County Active stations only
 stations in (Networks) Networks
 station: Enter all or part of a name.
Pest and plant models (*including UC-recommended degree-day models*)

- [Beet armyworm](#) (TABLE)
- [California red scale](#) (TABLE)
- [Coding moth](#) (TABLE)
- [Conspicuous stink bug](#) (TABLE)
- [Cotton](#) (TABLE)
- [Elm leaf beetle](#) (TABLE)
- [Fire blight risk for apple and pear](#) (TABLE)
- [Fruit tree root borer](#) (TABLE)
- [Grape powdery mildew index](#) (TABLE)
- [Obliquebanded leafroller](#) (TABLE)
- [Omnivorous leafroller](#) (TABLE)
- [Orange tortrix](#) (TABLE)
- [Oriental fruit moth](#) (TABLE)
- [Peach twig borer](#) (TABLE)
- [Pink bollworm](#) (TABLE)
- [San Jose scale](#) (TABLE)
- [Tomato fruitworm](#) (TABLE)
- [Tomato powdery mildew](#) (TABLE)

Video
 Using degree-days to time insecticide applications

4. The 2 Amador powdery mildew stations show up in the top box labeled Amador county. Click on either station to see the details and graph of the powdery mildew index.

Grape Powdery Mildew Risk Assessment Index - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Grape Powdery Mildew Risk Assessment ... +

www.ipm.ucdavis.edu/caludt.cgi/GRAPEPMVIEW1

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UC IPM Online Statewide Integrated Pest Management Program

How to Manage Pests

Interactive Tools and Models:

Grape Powdery Mildew Risk Assessment Index

The grape powdery mildew risk assessment index (RAI) is useful for determining disease pressure and how often you need to spray to protect the vines. For information on how to use the RAI, see the [pest management guideline](#).

Powdery mildew risk for stations in counties:

| Fresno | Madera | Amador | San Joaquin |

Choose year 2013 Go

RAIs are based on actual weather data for stations that take appropriate readings.

County	Active weather stations (Click on station for year-to-date graph/daily data)	RAI* for 04/10/2013	Disease pressure	Pathogen status
Amador (map)	Based on bud break, March 29, in , you may need to adjust for other cultivars that emerge earlier than the indicated date. Amador_Eagle-01.P, EAG1, Screaming Eagle Amador_Renwood-01.P, REN1, Renwood Wine	20	n/a	no infection
Fresno (map)	Based on bud break, March 14, in Thompson Seedless, you may need to adjust for other cultivars that emerge earlier than the indicated date. CARUTHERS-01.P, CAR Del_Rey/Fowler-01.P, DELF EASTON-01.P, EAS KERMAN-01.P, KER KINGSBURG-01.P, KNG Kearney_Ag_Ctr-01.P, KAC Laton_North-01.P, LATN	0 80 (E) 60 (E) 20 20 (E) 0 (S1) 0 (S1)	low high high low low low low	is present reproduces every 5 days reproduces every 5 days is present is present is present is present
Madera (map)	Based on bud break, March 14, in Thompson Seedless, you may need to adjust for other cultivars that emerge earlier than the indicated date. FIREBAUGH/ALISO-01.P, FRBA Madera_North-01.P, MADN Madera_South-01.P, MADS	70 (S2) 70 20	high high low	reproduces every 5 days reproduces every 5 days is present
San Joaquin (map)	Based on bud break, March 18, in Chardonnay, you may need to adjust for other cultivars that emerge earlier than the indicated date. FARMINGTON-01.P, FGN LIVE_OAK-01.P, LIV	0 0	n/a n/a	no infection no infection

Windows Internet Explorer Microsoft Word Microsoft Excel Microsoft PowerPoint Microsoft Project Microsoft Access Microsoft Word Microsoft Word Microsoft Photoshop Mozilla Firefox Adobe Reader Adobe Photoshop 4:27 PM 4/11/2013