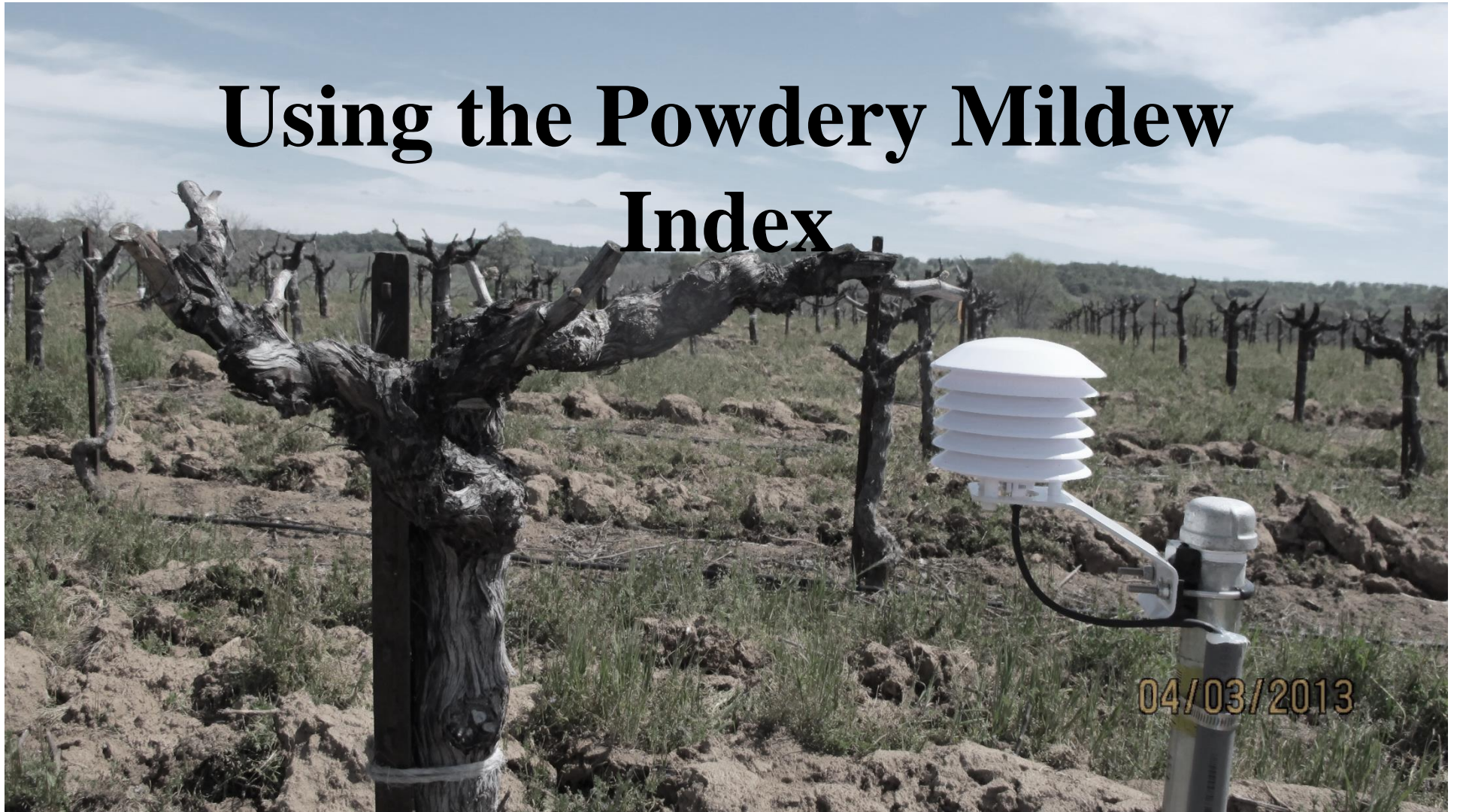


# Using the Powdery Mildew Index



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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 <sup>1</sup> and SARs <sup>2</sup>	Sulfur	Sterol-inhibitors <sup>3</sup>	Strobilurins <sup>4</sup>
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

<sup>1</sup> *Bacillus pumilis* (Sonata) and *Bacillus subtilis* (Serenade)

<sup>2</sup> SAR = Systemic acquired resistance products (AuxiGro, Messenger)

<sup>3</sup> tebuconazole (Elite), triflumizole (Procure), myclobutanil (Rally), fenarimol (Rubigan), and triadimefon (Bayleton)

<sup>4</sup> 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

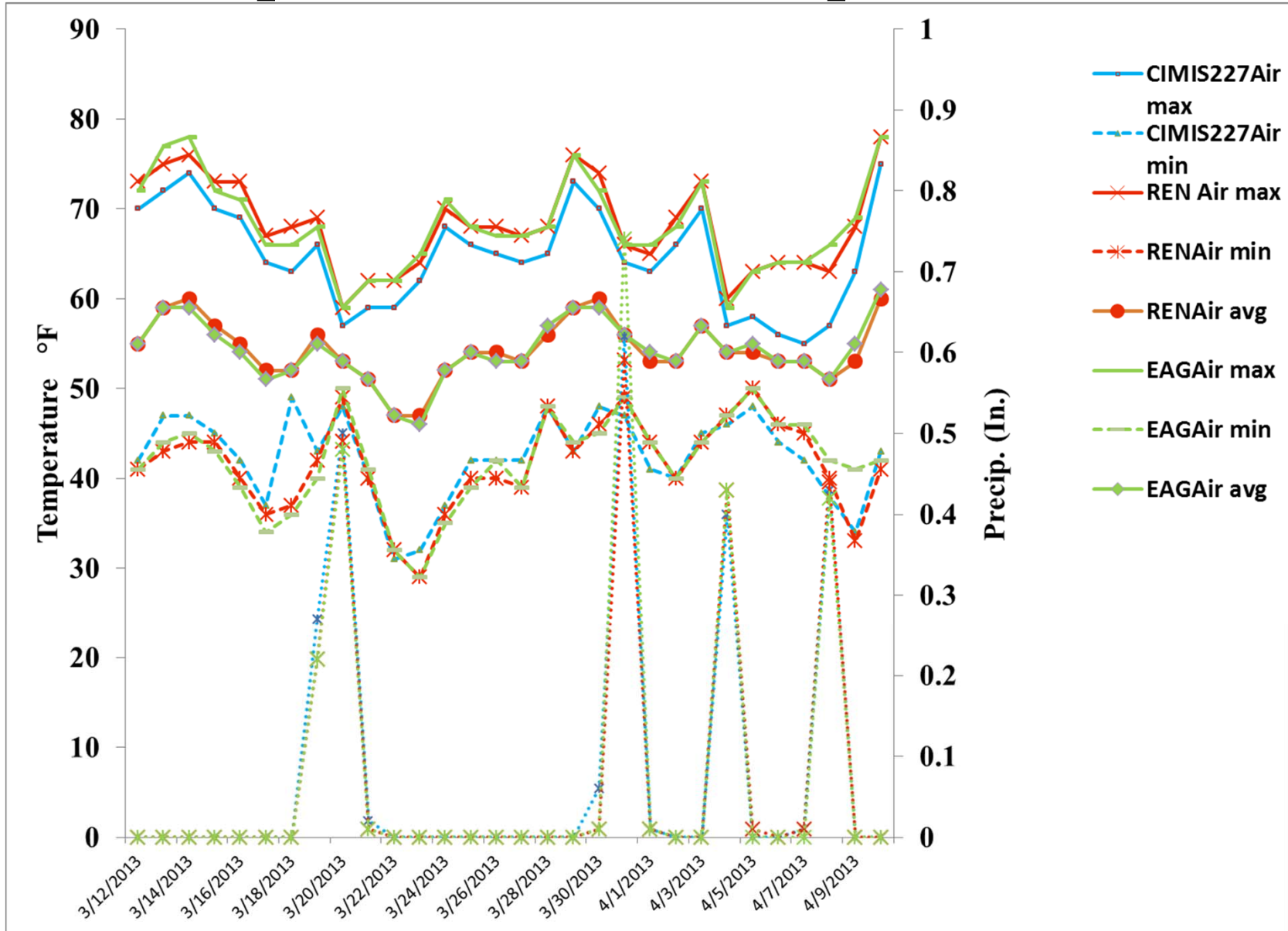


Amador-Renwood  
Renwood, 1580 feet  
Bilateral trained zinfandel  
Budbreak April 10

# **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”

The screenshot shows the UCIPM Online website interface. The header includes the University of California Agriculture & Natural Resources logo and the text "UC IPM Online Statewide Integrated Pest Management Program". A navigation menu contains links for "What is IPM?", "Identify & Manage Pests", "Research", "Publications", "Training & Events", "Links", "About Us", "Contact Us", and "Subscribe".

On the left side, there are sections for "Announcements" and "What's New". Below these is the "QUICK LINKS" section, which includes the following items:

- Newsletters
- Recursos en español
- Online training
- Weather, models, & degree days** (circled in red)
- Subscribe (RSS)

The main content area features four large tiles with images and titles: "Home, Garden, Turf & Landscape Pests", "Agricultural Pests", "Natural Environment Pests", and "Exotic & Invasive Pests".

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 the UC IPM Online website. The header includes the logo and navigation links. The main content area is titled "Weather, models, & degree-days" and contains a search bar, a "California weather data" section with a form to select stations, and a "Pest and plant models" section. The "Pest and plant models" section lists various pests and diseases, with "Grape powdery mildew index" highlighted by a red circle. A "Video" section is also visible on the right side of the page.

UC IPM Online  
Statewide Integrated Pest Management Program

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)
- Conspire stink bug (TABLE)
- Cotton (TABLE)
- Elm leaf beetle (TABLE)
- Fire blight risk for apple and pear
- Grape powdery mildew index
- 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

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.

The screenshot shows the UC IPM Online website interface. The main content area is titled "Grape Powdery Mildew Risk Assessment Index". It includes a search bar, a "Choose year" dropdown set to 2013, and a table of stations. The table has columns for County, Active weather stations, RAI\* for 04/10/2013, Disease pressure, and Pathogen status. Two stations in Amador county are circled in red.

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)	Amador_Eagle-01.P, EAG1, Screaming Eagle	20	n/a	no infection
	Amador_Renwood-01.P, REN1, Renwood Winery	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	0	low	is present
	Del_Rey/Fowler-01.P, DELF	80 (E)	high	reproduces every 5 days
	EASTON-01.P, EAS	60 (E)	high	reproduces every 5 days
	KERMAN-01.P, KER	20	low	is present
	KINGSBURG-01.P, KING	20 (E)	low	is present
	Kearney_Ag_Ctr-01.P, KAC	0 (S1)	low	is present
	Laton_North-01.P, LATN	0 (S1)	low	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	70 (S2)	high	reproduces every 5 days
	Madera_North-01.P, MADN	70	high	reproduces every 5 days
Madera (map)	Madera_South-01.P, MADS	20	low	is present
	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	0	n/a	no infection
San Joaquin (map)	LIVE_OAK-01.P, LIV	0	n/a	no infection