



# Foothill Vineyard News

April 1999

## Powdery Mildew Management

By Donna Hirschfelt U.C.C.E Farm Advisor / County Director

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Let's hope we don't have a repeat of the 1998 disease season. El Nino made powdery mildew a particular challenge; rain washed off fungicides, perfect mildew temperatures for most of May and June, high temperatures in August which made people nervous about sulfur...all in all it was a challenging year for the best of growers.

Fortunately we have many materials that can be used to control powdery mildew. Data shows that they work well. The key is frequent application with good coverage. Sulfur is still the backbone of most powdery mildew programs in the foothills. It is an excellent fungicide. It is safe and efficacious, but must be used properly. It is critical that you cover ALL SUSCEPTIBLE TISSUE on the vine, and keep that tissue covered. Sulfur is easily washed off with rain or sprinkler irrigation. If it is washed off it must be re-applied, soon. It has to cover all green plant tissue, therefore if the vine is growing rapidly, sulfur applications will have to be reapplied frequently. I feel this is particularly critical in the month after bloom when grape berries are expanding rapidly and fruit is very susceptible.

It may also be helpful to incorporate sterol inhibitors such as Rally®, Rubigan®, Procure®, and Bayleton® into your powdery mildew program, since they are locally systemic, absorbed by the vine and don't wash off. These materials are effective, but should not be used exclusively or

disease resistance could develop. Abound® is also an effective material when incorporated into a powdery mildew program. Since it has a different chemistry it provides additional protection against resistance.

We are fortunate that there are a number of effective materials available.

It is unlikely that there is one "program" that is the best. Regardless of fungicide there are several key points for successful powdery mildew management.

- ✓ Thorough coverage is essential. Check your sprayers and make sure nozzles are unplugged, spraying the proper amount, and are pointed and angled to reach all parts of the vine including the interior. Check your calibration.
- ✓ Watch your tractor speed – slow down! If your vineyard is on a slope, you may not be able to properly cover both the uphill and downhill rows. After driving into a row, get off the tractor and check the coverage. Are all the bunches wet? Are the tops and bottoms of leaves wet?
- ✓ Remember to add a good spreader-sticker to the tank mix.



Grapes infested with powdery mildew.

*“Even though you may not see the fungus until summer, the disease often gets started much earlier”.*

## Powdery Mildew cont.

✓ Early season control is critical. Even though you may not see the fungus until summer, the disease often gets started much earlier. Wettable or flowable sulfur should be applied shortly after bud break, and then reapplied 10 to 14 days later. Then you should begin regular treatments.

✓ Follow the label instructions on the different fungicides. Use the recommended treatment intervals. This will vary for different materials and may be as short as 7 days for sulfur and as long as 21 days for Rally®. No fungicides will protect for a month. If you stretch the intervals past the maximum, you will leave the fruit unprotected.

✓ Watch the weather carefully and monitor the temperatures. Powdery mildew develops quickly when the temperature is between 70 and 85°F. When we have 6 hours in this range (during the day or night) we have optimal powdery mildew weather and fungicide interval should be at the short end of the range. When temperatures are colder or when they go over 95°F, you can use the longer end of the interval range.

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## Overcropping Young Vines Results in Serious Consequences

By Donna Hirschfelt U.C.C.E. Farm Advisor / County Director

We have many new acres of young vines in foothill counties. Far too often I have seen problems with overcropping in these three to five year old vines. This is not a problem to be taken lightly...in fact, it is probably far more important than hot topics like powdery mildew or rootstocks. A few mistakes (or a little greed) in the early years can cause short term, acute problems and create small weak vines for the long term.

### Why is there such potential for overcropping in the third year?

At this point in vine training, all the wood is one year old with viable buds. The buds have had excellent light exposure which makes them especially fruitful. These vines have the potential of producing one to three clusters at every internode, depending on the variety.

In year three, you should be concentrating on developing the spur positions on the cordons, or the arms on head trained vines. It is important to leave positions at the proper spacing, so you

may not want to remove whole shoots when you thin (also called crown suckering). You should however, go back and remove clusters from many of these shoots.

### How can you tell how much crop to remove?

You really need to use the vine as a guide and cluster thin based on individual vine vigor. There are some general rules though. Never leave more than one cluster per shoot on a three year old vine. You will probably remove 50 percent more, but this is a good place to start.

### When should I thin?

Thin early. In young vines we take a very different approach to thinning compared to mature vines. In mature wine grapes we recommend late thinning at veraison and later. Our objective in mature vines is to reduce the crop load, hasten maturity, and keep berry size small to improve wine quality and reduce rot. With late thinning, the crop competes with vine vigor during the period of rapid vine growth, and later with rapid berry growth. This causes

## Over Cropping cont.

competition within the vine; in spring it keeps shoot growth in balance and in early summer it keeps berry size small.

In young vines we have a different objective. Vine vigor is critical since you are developing roots, trunk, and arms. This is the permanent structure of the vine that you will be working with for decades. You do not

**Cont. Page 3**

want to sacrifice these things for a few pounds of grapes per vine.

After the berries set and begin to grow, I try to use the individual vine itself as a guide to crop load and thinning. If the shoots look shorter than average (in neighboring vineyards, or other vines in the block) I take off more bunches. If it looks like the shoots haven't grown in a week, I take off more bunches. It would be nice to have a firm recommendation on the exact amount of fruit to retain or remove, but often that is impossible with the degree of variability in our foothill vineyards.

### What problems can you expect if you don't

### thin?

During the season you will see short, stunted shoot growth. Later in the season you can expect to see delayed maturity. In some instances (or many instances last year) you may not obtain full maturity and fruit quality will be reduced. In red varieties, color development is usually poor. In recent years we could get away with producing a few tons of these grapes because demand was so strong, but as the wine grape market tightens, there will be less tolerance for under-ripe fruit.

In several instances I have also seen "crop load induced potassium deficiency" in these overcropped vines. Fruit is a very strong "sink" for potassium in the vine, one of the reasons grapes and raisins are healthy snacks. If vines are overcropped and too much potassium is directed to the fruit, the rest of the vine may show symptoms of deficiency. Late in the season these vines may be stunted and have red or chlorotic (yellow) leaves especially in the mid shoot area.

Things get worse in year four.



## What Happened Last Year with VERY Late Thinning?

The call came in many times last year, "Help, its September and my Zinfandel isn't getting ripe. What should I do? Will thinning help? Should I remove the seconds?" In response, we did a quick experiment in Amador County to test the consequences of very late thinning. The results are shown in the following table, but it is important to note that we have not run statistics on the data. On two dates in September, crop was removed. Vines in the thinning treatments had 30% of the clusters removed. It is interesting to note that we did NOT obtain desirable effects. Brix was not increased, berry size did increase, and total yield was reduced by about 30%. This information is interesting since it was not consistent with previous research, but should not be taken too seriously since 1998 was such an atypical year.

	Berry wt.	Brix	pH	TA	Healthy	Rot	Total	Yield (lbs/vine)
Unthinned	2.13	25.5	3.63	.34	33	10	43	12.0
2 <sup>nds</sup> on Sept 9	2.57	25.1	3.55	.39	21	6	27	8.5
Thinned & 2 <sup>nds</sup> on Sept 9	2.40	25.6	3.59	.38	24	7	31	8.0
Thinned on Sept 22	2.41	25.9	3.62	.35	24	7	31	9.9
2 <sup>nds</sup> on Sept 22	2.30	25.4	3.64	.38	24	5	29	8.4

# Predicting Bloom using CIMIS

By Scott Oneto U.C.C.E. Ag./Livestock Resource Representative

As you all know, this spring has been unseasonably cooler than normal. This cooler weather, as we experienced in 1998 causes a delay in blooming. The reason for the delay is due to the physiological age of the bud. The growth of plants and invertebrates is closely related to temperature; generally the higher the temperature the more rapid the development. Since weather varies from year to year, calendar days are not a good guide for predicting development. Measuring the amount of heat accumulated over time provides a physiological time scale that is biologically more accurate for determining the rate at which organisms mature. The unit used to measure physiological time is the “degree day”. One degree day is defined as one degree above the threshold temperature maintained for a full day. Every organism has an upper and lower threshold in which no development or activity occurs. To calculate degree days on a daily basis, subtract the physiological temperature from the daily average temperature.

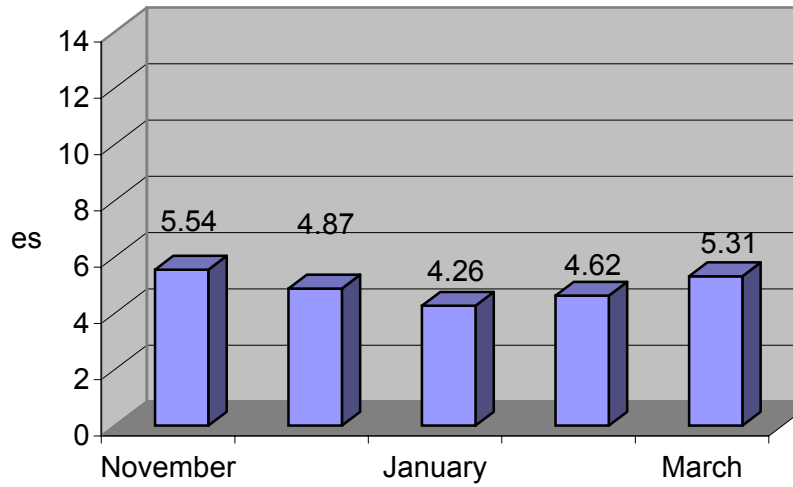
According to researchers, grapes tend to flower about 700 degree days above 50°F accumulated from bud break. Since bud break is not uniform and doesn't occur all at once, start counting degree days after 50% of the buds show green. Take into account that all your buds won't break.

In conjunction with your local CIMIS station, the Statewide IPM Project has made obtaining degree days as well as other data extremely accessible via the world wide web at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)

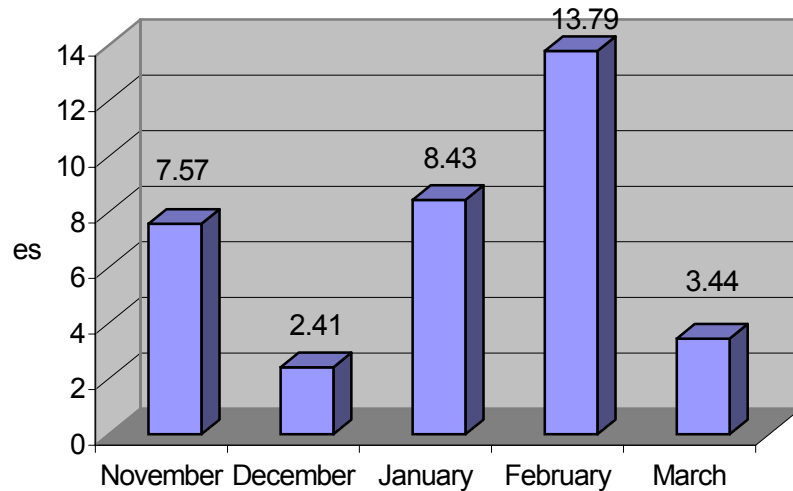
This data combined with your current practices should make for an integrated plan that makes it easier to predict biological events. The following charts show some of the latest data via your local CIMIS station.



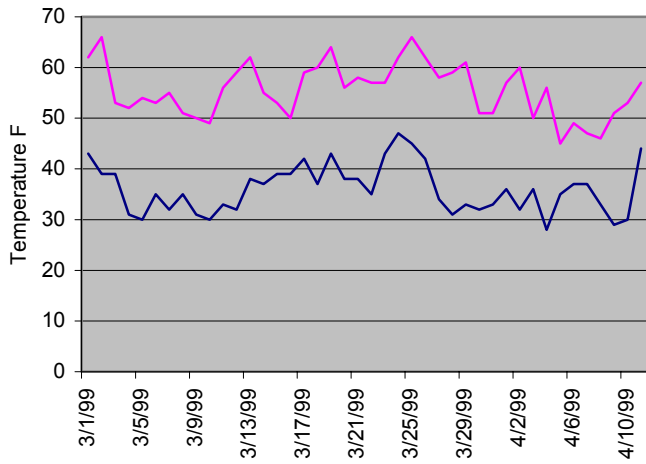
**Total Precipitation in Shenandoah Valley (CIMIS #81)**



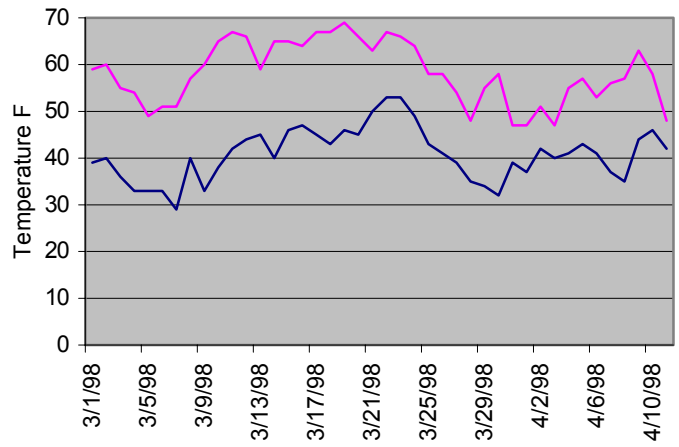
**Total Precipitation in Coloma (CIMIS #13)**



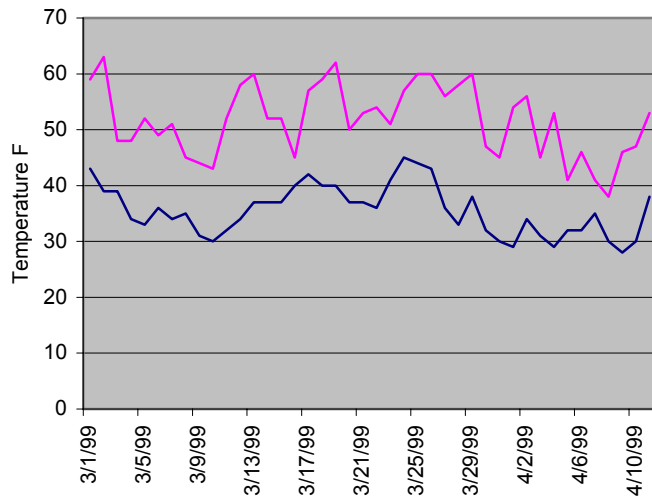
1999 Weather Data in Shenandoah Valley  
(CIMIS #81)



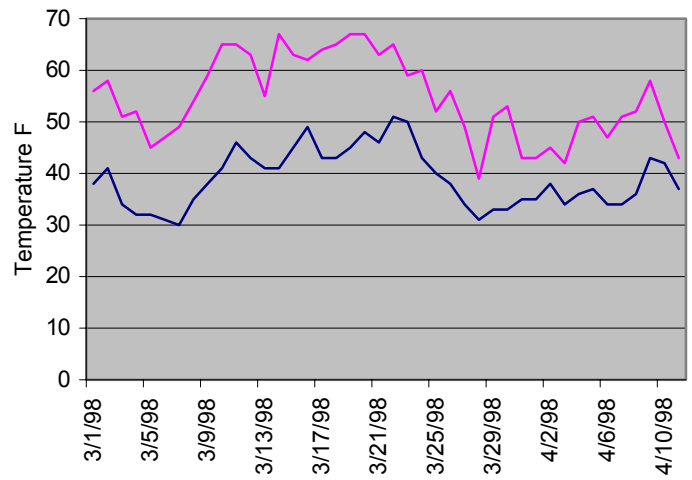
1998 Weather Data in Shenandoah Valley  
(CIMIS #81)



1999 Weather Data in Coloma  
(CIMIS #13)



1998 Weather Data in Coloma  
(CIMIS #13)



# UPCOMING EVENTS: MARK YOUR CALENDAR

**April 21, 1999**

## **Grape Growers IPM Breakfast**

Gold Country Café, Plymouth.

7:00 a.m. – 9:00 a.m.

For more information call: (209) 223-6482



## **Pest Management Breakfast in El Dorado County??**

Is there interest in starting a Grape IPM breakfast in El Dorado County? If so, contact Donna Hirschfelt with your ideas on time and location. There will also be updates at the Grape Growers Meetings and you are welcome to attend the meetings in Plymouth.

Donna

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Amador County  
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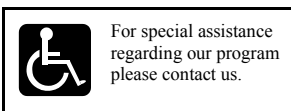
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**Amador – 03**

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