How to use NEWA

http://newa.cornell.edu

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Network for Environment & Weather Applications

- Web-based data from local weather stations
- Weather data & IPM disease and insect forecast models
- Automatically calculated, up-top-date degree day accumulations and infection events

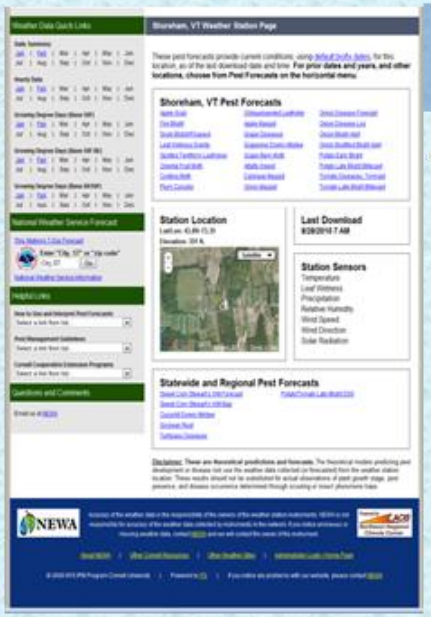
NEWA's Homepage

1. http://newa.cornell.edu
2. Chose a weather station close to your location

Stations in Vermont

Six on apple farms
Calais
East Dorset
Putney
Shoreham
South Burlington
South Hero

Five on airports (NWS)
Bennington
Burlington
Montpelier
Morrisville
Rutland



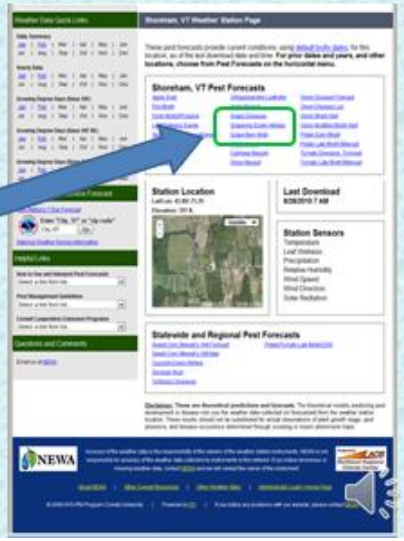
NEWA's Station Pages

- Location-specific information
  - Current pest forecasts
  - Daily weather summaries
  - Hourly weather data
  - Growing degree day accumulations
  - Weather forecast

Current Pest Forecasts

3. Interactive Grape Disease Models

- Grape Diseases
  - Phomopsis
  - Powdery mildew
  - Black rot
- Grapevine Downy Mildew



Grape Disease Model

Map | Results | Help

Grape Disease Infection Events for South Burlington

	Past	Past	Current	Grape Disease 5-Day Forecast (Forecast Details)				
	Jul 9	Jul 10	Jul 11	Jul 12	Jul 13	Jul 14	Jul 15	Jul 16
Phomopsis	No	No	Yes	-	-	-	-	-
Black Rot	No	No	Yes	-	-	-	-	-

Phomopsis - calculates when weather conditions may allow spores to infect susceptible tissue.
Powdery Mildew - runs from bud break until early bloom; calculates when weather conditions may allow overwintered, primary spores (ascospores) to infect susceptible tissue.
Black Rot - calculates when weather conditions may allow spores to infect susceptible tissue.

Phenological stage: 2nd postbloom

Choose the phenology stage for the grape variety of interest to display management messages. Concord grape phenology is estimated by the model from historical records for this variety.

Disease	Disease Management
Phomopsis	If the post bloom through pea-sized berry period is wet, you are growing susceptible varieties, in hedged vineyards, or locations with a history of Phomopsis, and fungicidal protection is absent, then a final spray for Phomopsis may be needed. The risk of infection is low once berries become about pea-sized (~1/4 inch diam), since inoculum becomes scarce, unless the weather has been very dry for several weeks beforehand. Thus, Phomopsis sprays from this point forward probably are unnecessary in most vineyards.

4. Enter the phenological stage of your vines to see the risk of infection

Grape Disease Model

Hide grape infection events log | Show leaf wetness events log

Grape Infection Events Log

When calculating combined wetting periods we use the following rules: 1) an infection event must start with precipitation, 2) successive wetting periods are combined into a single infection event until a dry period of over 24 hours or a wetting period with no precipitation is encountered.

Starting Date/Time	Ending Date/Time	Hours LW	Avg Temp	Total Rain	Phomopsis	Black Rot	Combined Event
Download Time: 7/11/2010 23:00							
Jul 8 19:01	Jul 11 9:00	24	70.3	0.85	Infection	Infection	Yes
Jun 28 0:01	Jun 28 11:00	11	70.2	0.75	Infection	Infection	No
Jun 22 21:01	Jun 24 18:00	24	68.1	1.46	Infection	Infection	Yes
Jun 16 13:01	Jun 17 13:00	18	60.7	0.28	Infection	Infection	Yes
Jun 9 20:01	Jun 10 14:00	15	54.3	0.28	Infection	Infection	Yes
Jun 3 3:01	Jun 6 22:00	45	59.4	2.32	Infection	Infection	Yes
Jun 1 5:01	Jun 2 9:00	21	63.2	0.57	Infection	Infection	Yes
May 19 9:01	May 20 9:00	12	53.8	0.09	Infection	Infection	Yes
May 7 7:01	May 9 14:00	22	47.0	0.02	Infection	No infect; temp<50	Yes

Disclaimer: ***These are theoretical predictions and forecasts.*** *The theoretical models predicting pest development or disease risk use the weather data collected (or forecasted) from the weather station location. These results should not be substituted for actual observations of plant growth stage, pest presence, and disease occurrence determined through scouting or insect pheromone traps.*

NEWA

5. Monitor your infection periods

Grape Disease Model

Show grape infection events log | Hide leaf wetness events log

Leaf Wetness Events Log

Starting Date/Time	Ending Date/Time	Hours LW	Avg Temp	Total Rain	Phomopsis	Black Rot
Download Time: 7/11/2010 23:00						
Jul 11 2:01	Jul 11 9:00	7	66.3	0.00	No infection	No infection
Jul 9 21:01	Jul 10 10:00	13	70.6	0.74	Infection	Infection
Jul 9 0:01	Jul 9 3:00	3	75.3	0.10	No infection	No infection
Jul 8 19:01	Jul 8 20:00	1	80.0	0.01	No infection	No infection
Jul 8 1:01	Jul 8 5:00	4	72.2	0.00	No infection	No infection
Jul 7 23:01	Jul 8 0:00	1	76.0	0.00	No infection	No infection
Jul 7 4:01	Jul 7 6:00	2	70.0	0.00	No infection	No infection
Jul 6 21:01	Jul 7 3:00	6	72.8	0.00	No infection	No infection
Jul 6 2:01	Jul 6 6:00	4	72.8	0.00	No infection	No infection
Jul 4 7:01	Jul 4 8:00	1	73.0	0.00	No infection	No infection
Jul 1 14:01	Jul 1 18:00	4	61.5	0.17	No infection	No infection
Jun 29 14:01	Jun 29 15:00	1	65.0	0.01	No infection	No infection
Jun 27 23:01	Jun 28 11:00	12	69.9	0.75	Infection	Infection
Jun 26 18:01	Jun 26 19:00	1	64.0	0.00	No infection	No infection
Jun 26 11:01	Jun 26 16:00	5	63.0	0.07	No infection	No infection
Jun 24 13:01	Jun 24 18:00	5	71.2	0.74	Infection	No infection
Jun 24 8:01	Jun 24 11:00	3	69.3	0.36	No infection	No infection
Jun 24 1:01	Jun 24 5:00	4	69.8	0.16	No infection	No infection

6. Monitor your leaf wetness events

Logged from March 1 to October 30 each year.

Downy Mildew Model

DMCast Results for South Burlington, VT
Final Date of the Forecast: 11 Apr 2011

Dates of ELS 12 Growth Stage and Primary Infection by the DMCast Model

- **Eichhorn and Lorenz Stage (ELS) 12 for Concord** was **NOT** reached by 11 Apr 2011
  - *ELS12: Five to six leaves unfolded, inflorescences clearly visible*
- **Primary infection** has **NOT** occurred by 11 Apr 2011

Downy Mildew Infection Risk Warnings (▬) during the Last 2 Weeks (03/28 - 04/11)

▬ Blue bar with green shade indicates minimum conditions for infection were exceeded.
P indicates precipitation - rain or snow was observed at that hour.

Date	Hourly Indication of DMCast Warning (0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23)	Weather during 24-hour Period: Leaf Wetness (hr.)	Average Temp (F) During Wetting	Daily Total Rainfall (in.)
03/28		0.0	-	0.00
03/29		0.3	29.0	0.00
03/30		0.0	-	0.00
03/31		0.1	44.0	0.00
04/01	P P P P P P P P P P P	13.8	33.6	0.19

Downy Mildew Warning History

Shades indicate incomplete primary infection at the warning events.

#	Started on	Ended on	Duration (hr)	Leaf Wetness (hr)	Average Temp During Wetting (°C)	(°F)

7. The model will show you precipitation and green shading when infection conditions have occurred

8. Chart of all past downy mildew warnings up to the current date

Current Pest Forecasts

9. Interactive Apple Insect Models

- Grape berry moth

Grape Berry Moth Model

Grape Berry Moth Results for South Burlington

Wild Grape Bloom: 5/29/2010

Wild Grape Bloom date above is estimated based on degree day accumulations or user input. Enter the actual date for blocks of interest and the model will calculate the results more accurately.

Accumulated degree days (base 47.14°F) wild grape bloom through 6/16/2010: 280 (0 days missing)

Daily Degree Days for South Burlington

Base Temp	Past Jun 14	Past Jun 15	Current Jun 16	5-Day Forecast Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
47.14F - GBM	13	11	10	NA	NA	NA	NA	NA
Accumulation	258	269	280	NA	NA	NA	NA	NA

Forecast Details

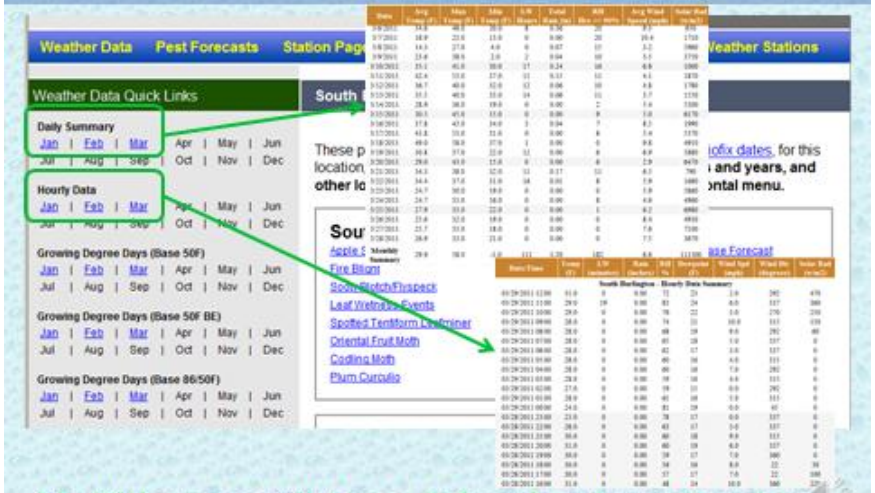
NA - not available

Download Time: 6/16/2010 23:00

Pest Status	Pest Management
First generation of grape berry moth larvae are hatching and beginning feeding. Grape berry moth will not be at significant population levels in vineyards classified as being at low, intermediate, or high risk using the Risk Assessment protocol	Research has shown that this insecticide timing for the first generation provides little, if any, additional control of grape berry moth in vineyards classified as being at low, intermediate or high risk for grape berry moth damage. However, an insecticide timed with the immediate postbloom fungicide application can be used in vineyards experiencing significant crop loss from grape berry moth on a yearly basis.

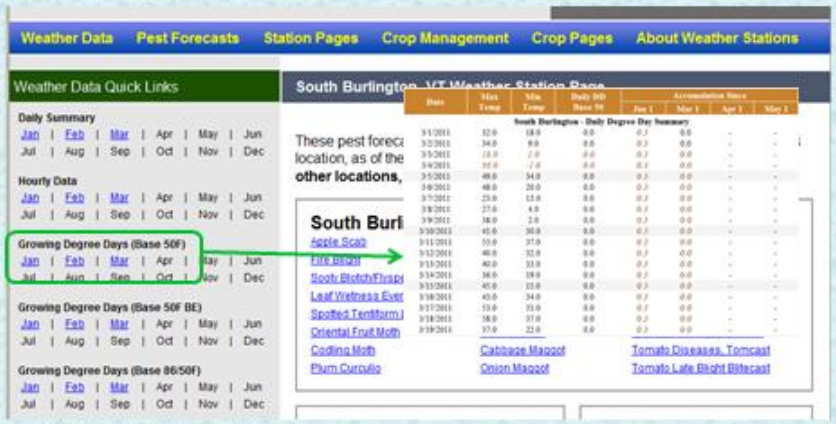
10. Enter the date wild grapes are in bloom and see degree day accumulations, pest status, and management options

Daily and Hourly Weather Data Summaries



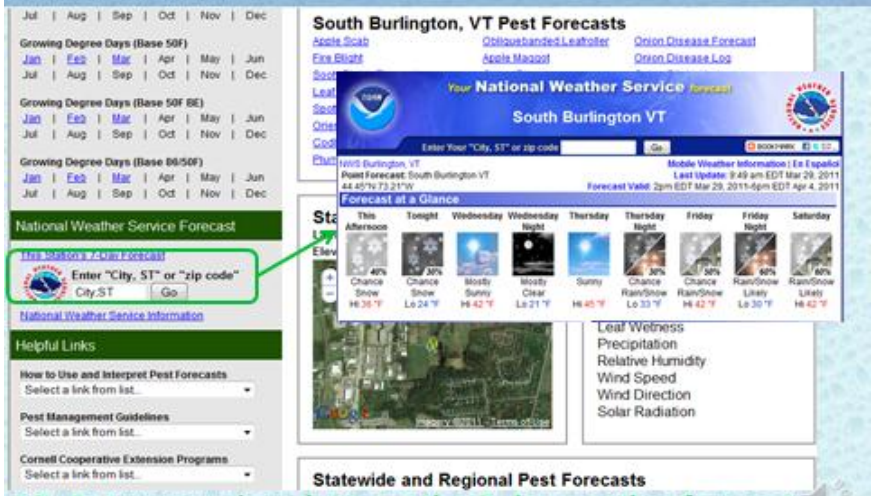
11. Click on a month to see daily or hourly weather data

Growing Degree Day Accumulations



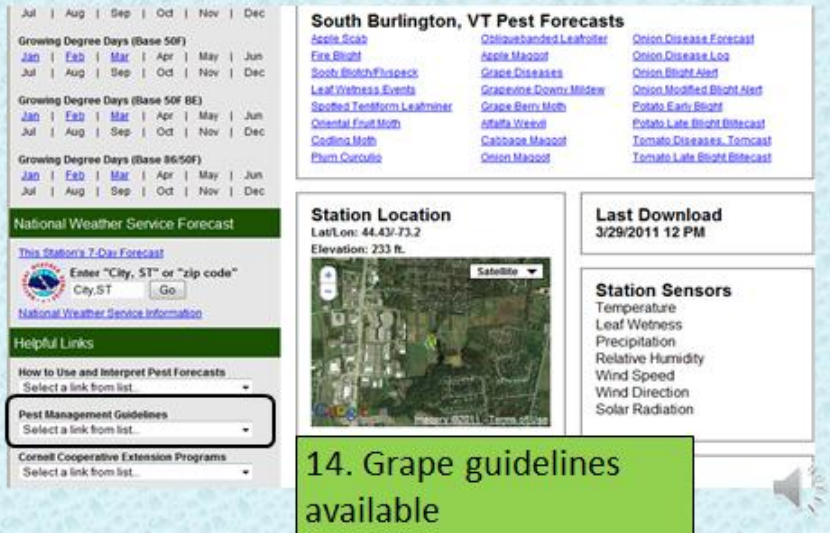
12. Click on a month to see degree day (base 50) accumulations

Weather Forecast



13. Enter your zipcode to get the 7-day weather forecast

Management Guidelines



14. Grape guidelines available

Learn More!

http://newa.cornell.edu

Explore on your own

Acknowledgements and Graphics Source

NEWA - Tools for IPM by Dr. Juliet Carroll, Cornell University, VTFGA/UVM Apple Workshop Presentation, Feb. 8, 2011