

## 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-to-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





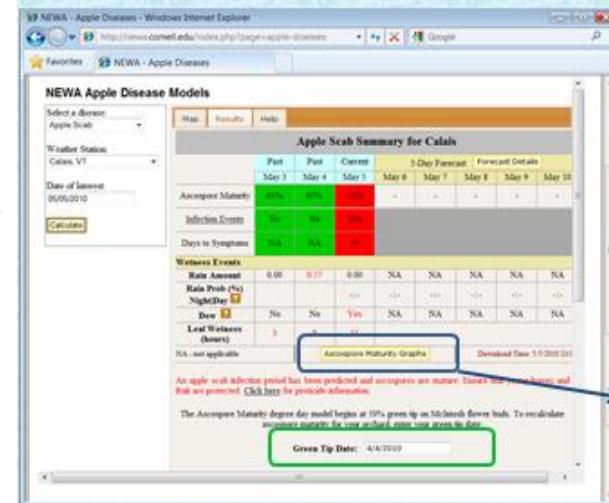
## Current Pest Forecasts

### 3. Interactive Apple Disease Models

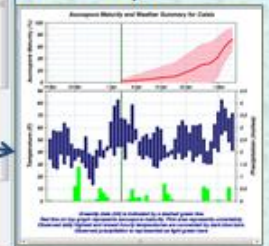
- Apple scab
  - Ascospore maturity
  - Infection events
  - Leaf wetness events
- Fire blight
  - Cougar blight
  - Shoot blight symptoms
- Sooty blotch flyspeck



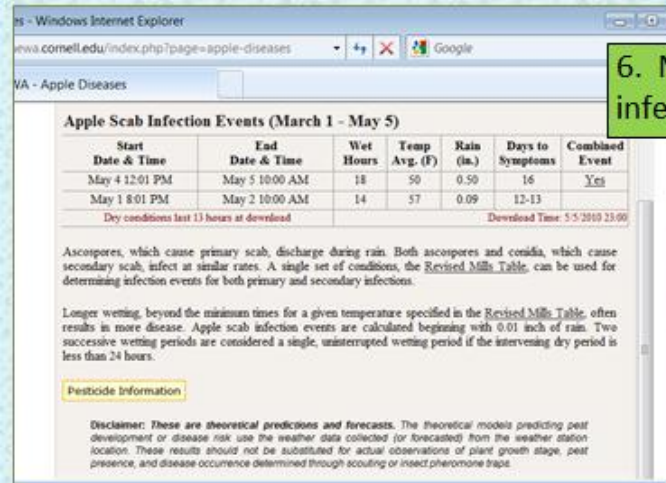
## Apple Scab Model



4. Enter the date your trees hit green tip
5. Check out the ascospore maturity levels

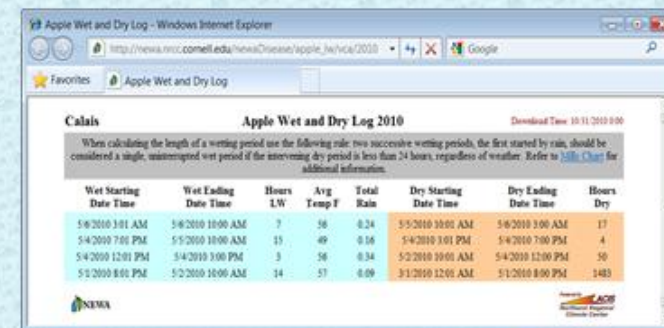


## Apple Scab Model



### 6. Monitor your infection periods

## Apple Scab Model



Logged from March 1 to October 30 each year.

### 7. Monitor your leaf wetness events



## Fire Blight Model

NEWA Apple Disease Models

Select a disease: Fire Blight

Weather Station: Putney, VT

Date of Interest: 05/30/2010

Calculate

**Fire Blight Risk Predictions for Putney**

Blossom blight predictions using the Cougarblight model begin at first blossom open.

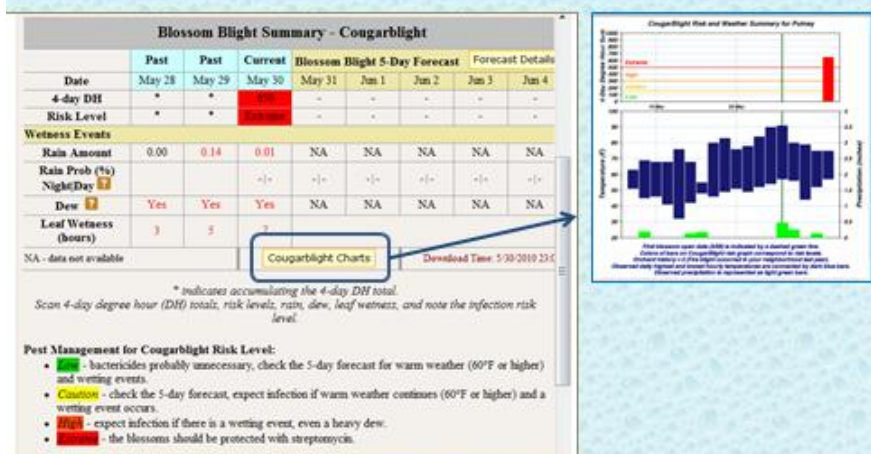
First blossom open date: 5/26/2010

First blossom open 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 protection period during bloom more accurately.

**Orchard Blight History:** Fire blight occurred in your neighborhood last year. No fire blight in your neighborhood last year. Fire blight occurred in your neighborhood last year and now fire blight is now active in your neighborhood.

8. Enter the date of first blossom open
9. Chose your orchards fire blight history

## Fire Blight Model



10. See the blossom infection risk results

## Fire Blight Model

NEWA Apple Disease Models

Select a disease: Fire Blight

Weather Station: Putney, VT

Date of Interest: 05/30/2010

Calculate

**Fire Blight Risk Predictions for Putney**

Blossom blight predictions using the Cougarblight model begin at first blossom open.

First blossom open date: 5/26/2010

First blossom open 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 protection period during bloom more accurately.

**Orchard Blight History:** Fire blight occurred in your neighborhood last year. No fire blight in your neighborhood last year. Fire blight occurred in your neighborhood last year and now fire blight is now active in your neighborhood.

**Streptomycin Spray Date:** Click to enter date

**Blossom Blight Summary - Cougarblight**

| Date                 | Past   | Past   | Current | Blossom Blight 5-Day Forecast |       |       |       | Forecast Details |  |  |  |  |
|----------------------|--------|--------|---------|-------------------------------|-------|-------|-------|------------------|--|--|--|--|
| 4-day DH             | May 28 | May 29 | May 30  | May 31                        | Jun 1 | Jun 2 | Jun 3 | Jun 4            |  |  |  |  |
| Risk Level           | *      | *      | High    | -                             | -     | -     | -     | -                |  |  |  |  |
| Wetness Events       |        |        |         |                               |       |       |       |                  |  |  |  |  |
| Rain Amount          | NA     | NA     | 0.00    | NA                            | NA    | NA    | NA    | NA               |  |  |  |  |
| Rain Prob (%)        |        |        |         | NA                            | NA    | NA    | NA    | NA               |  |  |  |  |
| Night/Dew            |        |        |         | NA                            | NA    | NA    | NA    | NA               |  |  |  |  |
| Dew (h)              | NA     | NA     | NA      | NA                            | NA    | NA    | NA    | NA               |  |  |  |  |
| Leaf Wetness (hours) | NA     | NA     | 0       | NA                            | NA    | NA    | NA    | NA               |  |  |  |  |

NA - data not available

**Cougarblight Charts** Download Time: 5/30/2010 2:34

\* indicates accumulating the 4-day DH total.

Scan 4-day degree hour (DH) totals, risk levels, rain, dew, leaf wetness, and note the infection risk level.

**Pest Management for Cougarblight Risk Level:**

- Low** - bactericides probably unnecessary, check the 5-day forecast for warm weather (60°F or higher) and wetting events.
- Caution** - check the 5-day forecast, expect infection if warm weather continues (60°F or higher) and a wetting event occurs.
- High** - expect infection if there is a wetting event, even a heavy dew.
- Very High** - the blossoms should be protected with streptomycin.

11. Enter your Streptomycin sprays to recalculate your risk predictions

## Fire Blight Model

**Monitoring for Shoot Blight Symptoms:** To effectively limit shoot blight damage, entries should be granted throughout the normal growth period. If you have a warm event such as a whole-bloomer during bloom or a summer halter, begin checking for symptoms 90-100 degree day base 10°F after the event. Enter the date of the infection event.

**Infection Event Date:** Click to enter date

**Symptom Occurrence Date:** Click to enter date

**Shoot Blight Infection for Calais**

Fire blight symptoms on infected shoots show up when about 90 to 100 degree days base 10°F have accumulated after an infection event.

**Infection Event:** June 21

**Degree Days (base 55 RE):** 625 through 750

**Check for symptoms starting on July 5**

**Shoot Blight Infection for Calais**

Fire blight symptoms on infected shoots show up when about 90 to 100 degree days base 10°F have accumulated after an infection event.

**Symptom Occurrence Date:** July 5

**Approximate Infection Date:** June 27

**Degree Days (base 55 RE):** 627 through 750

**Disclaimer:** These are theoretical predictions and forecasts. The theoretical model predicting pest development or disease risk uses 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.

12. Enter the date you saw symptoms and get the date the infection occurred
13. Enter the dates of an infection and get the date you should look for symptoms



# Sooty Blotch & Flyspeck Model

**Sooty Blotch and Flyspeck Risk Predictions for South Burlington**

Petal fall date for McIntosh: 3/23/2011

Enter the actual date for blocks of interest and the model will calculate the accumulated leaf wetness hours since petal fall more accurately.

Most recent fungicide application date: Click to enter

If no fungicide applications have been made, do not enter a date.

In the Risk Summary table, note the accumulated leaf wetness hours since petal fall (Leaf Wetness Hours) and the Risk Level. Leaf wetness hours, rain events, and the last fungicide application date are taken into consideration in assessing risk level. To estimate risk in the near future, look at the probability of rain.

Consult the Risk Level IPM Guidelines below the Risk Summary table.

| Sooty Blotch and Flyspeck Risk Summary - Northeastern US Model |         |         |         |                |        |                  |       |       |
|----------------------------------------------------------------|---------|---------|---------|----------------|--------|------------------|-------|-------|
|                                                                | Past    | Past    | Current | 5-Day Forecast |        | Forecast Details |       |       |
| Date                                                           | Mar 27  | Mar 28  | Mar 29  | Mar 30         | Mar 31 | Apr 1            | Apr 2 | Apr 3 |
| Days since petal fall                                          | 4       | 5       | 6       | 7              | 8      | 9                | 10    | 11    |
| Accumulated Leaf Wetness Hours - ALWH                          | 0       | 0       | NA      | NA             | NA     | NA               | NA    | NA    |
| Risk Level                                                     | No Risk | No Risk | NA      | NA             | NA     | NA               | NA    | NA    |
| Rain Events                                                    |         |         |         |                |        |                  |       |       |
| Daily rain amount (inches)                                     | 0.00    | 0.00    | Trace   | 0.00           | 0.00   | NA               | NA    | NA    |

14. Enter the date of petal fall for McIntosh at your site

15. Enter the date of your last fungicide application

16. See the accumulated leaf wetness hours and risk for SBFS

# Codling Moth Model

NEWA - Apple Insects - Windows Internet Explorer

http://news.cornell.edu/index.php?page=apple-insects

NEWA Apple Insect Models

Select a pest: Codling Moth

Weather Station: East Dorset, VT

Accumulation End Date: 06/17/2010

Calculate

**Codling Moth Results for East Dorset**

First Trap Catch: 6/14/2010

Degree day accumulations estimate that first trap catch may not have occurred yet. If it has, enter the actual date for blocks of interest and the model will calculate the protection period after first trap catch more accurately.

Accumulated degree days (base 59°F) first trap catch through 6/17/2010: 41 (3 days missing)

Pest status: Moths flying & first eggs laid

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations.

| Pest Status                                                                             | Pest Management                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First eggs are laid at about 10 DD and the first eggs usually hatch after about 120 DD. | Apply insecticides that need to be present before egg laying at about 50-75 DD. Apply insecticides that target early egg laying period at 100-200 DD. <a href="#">Pesticide information</a> |

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.

18. Enter the date of the first trap capture of codling moth and see the pest status and management options

# Current Pest Forecasts

## 17. Interactive Apple Insect Models

- Codling moth
- Oriental fruit moth
- Obliquebanded leafroller
- Plum curculio
- Spotted tentiform leafminer
- Apple maggot

Weather Data Table

Station: VT Weather Station Page

These pest forecasts provide current conditions using actual daily data for this station, as of the last downloaded date and time. For your dates and years, and other locations, choose from Pest Forecasts on the top navigation menu.

**Current, VT Pest Forecasts**

| Pest                        | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
|-----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Codling Moth                | Low      | Low      | Low      | Low      | Low      | Low      | Low      | Low      |
| Oriental Fruit Moth         | Low      | Low      | Low      | Low      | Low      | Low      | Low      | Low      |
| Obliquebanded Leafroller    | Low      | Low      | Low      | Low      | Low      | Low      | Low      | Low      |
| Plum Curculio               | Low      | Low      | Low      | Low      | Low      | Low      | Low      | Low      |
| Spotted Tentiform Leafminer | Low      | Low      | Low      | Low      | Low      | Low      | Low      | Low      |
| Apple Maggot                | Low      | Low      | Low      | Low      | Low      | Low      | Low      | Low      |

Station Location: East Dorset, VT

Last Download: 6/20/2010 7:40 AM

Station Sensors: Temperature, Leaf Wetness, Precipitation, Relative Humidity, Wind Speed, Wind Direction, Solar Radiation

Statewide and Regional Pest Forecasts: [View Statewide Pest Forecasts](#) [View Regional Pest Forecasts](#)

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# Oriental Fruit Moth and Obliquebanded Leafroller Models

NEWA - Apple Insects - Windows Internet Explorer

http://news.cornell.edu/index.php?page=apple-insects

NEWA Apple Insect Models

Select a pest: Oriental Fruit Moth

Weather Station: East Dorset, VT

Accumulation End Date: 05/20/2010

Calculate

**Oriental Fruit Moth Results for East Dorset**

First Trap Catch: Click to enter

Degree day accumulations estimate that first trap catch may not have occurred yet. If it has, enter the actual date for blocks of interest and the model will calculate the protection period more accurately.

Accumulated degree days (base 49°F) 1/1/2010 through 5/20/2010: 342 (132 days missing)

Phenological stage: Pink Bud

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations.

Pest stage: First generation moths emerge

| Pest Status                                                                                                                                      | Pest Management                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First catch of moths from the overwintering generation is expected. Flight of OFM usually begins when trees are in the pink or bloom bud stages. | No insecticides need to be applied until eggs begin to hatch; since OFM flight usually begins at bloom, it is not possible to apply an initial spray to kill adults. |

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19. Enter the date of the first trap capture of OFM or OBLR and the phenological stage of your trees and see the pest status and management options



## Plum Curculio Model

**NEWA Apple Insect Models**

Select a pest: Plum Curculio

Weather Station: East Dorset, VT

Accumulation End Date: 06/12/2010

**Plum Curculio Results for East Dorset**

At petal fall, fruit becomes susceptible to feeding and oviposition injury. Control measures are only needed until 300 degree days have accumulated since petal fall.

Petal Fall 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 protection period after petal fall more accurately.

Accumulated degree days (base 50°F) petal fall through 6/12/2010: 1 (5 days missing)

Pest stage: Adults overwintering

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations.

**Pest Status**

Plum curculio (PC) adults will continue to damage fruit (example 1, example 2) and may be moving among trees. PC activity is highly dependent upon temperatures, particularly at night when adults are most active. PC usually do not feed or oviposit when nighttime temperatures are below 50 deg F. If the weather is extremely warm after petal fall, the oviposition cycle may be completed in 2 weeks. In cooler seasons, PC may continue to oviposit for 4-6 weeks.

**Pest Management**

A petal fall spray should control plum curculio (PC) for about 10-14 days. Incidence of observed PC damage is highly variable among different orchards. PC damage usually occurs primarily along the edges of commercial orchards, and noticeable damage occurs in the same locations in orchards year after year, regardless of treatment levels. Therefore, the potential for damage in any particular orchard can be predicted from past observations. Usually, a post-petal fall spray for control of PC is not necessary in low-pressure orchards in which no damage has been observed in the past. In high-pressure orchards, additional sprays along the perimeter of the orchards should be applied until the oviposition model predicts that control is no longer necessary. [Pesticide information](#)

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20. Enter the date of 90% petal fall on McIntosh and see pest status and management options



## Spotted Tentiform Leafminer Model

**NEWA Apple Insect Models**

Select a pest: Spotted Tentiform Leafminer

Weather Station: East Dorset, VT

Accumulation End Date: 06/28/2010

**Spotted Tentiform Leafminer Results for East Dorset**

Accumulated degree days (base 45°F) 3/3/2010 through 6/28/2010: 300 (112 days missing)

Phenological stage: Pink Bud

The phenological stage above is estimated. Select the actual stage and the model will recalculate recommendations.

Pest stage: Mobile flying and egg laying continues

**Pest Status**

First generation adult STLM are actively flying and laying eggs from light clusters and the end of the pink bud stage.

**Pest Management**

No insecticidal control sprays are recommended against STLM adults. Control sprays targeted against ovipositing adults of larvae (egg feeding stages) feeding in the leaves can be applied either at pink or shortly after petal fall. To determine whether or not pink sprays are necessary, sample clusters for eggs at pink and if necessary apply insecticides before bloom. [Pesticide information](#)

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21. Enter the phenological stage of your trees and see pest status and management options

## Apple Maggot Model

**NEWA Apple Insect Models**

Select a pest: Apple Maggot

Weather Station: Rutland, VT

Accumulation End Date: 07/24/2010

**Apple Maggot Results for RUTLAND STATE, VT**

First Trap Catch 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 protection period after first trap catch more accurately.

Accumulated degree days (base 50°F) first trap catch through 7/24/2010: 128 (0 days missing)

Pest stage: Sexually immature females

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations.

**Pest Status**

Early emerging AM females are still sexually immature and have not yet started to lay eggs.

**Pest Management**

It is still too early to apply insecticide sprays against AM even if flies have been captured on traps deployed along the edges of commercial apple orchards.

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22. Enter the date of the first apple maggot trap capture and see pest status and management options



## Daily and Hourly Weather Data Summaries

**Weather Data Quick Links**

[Daily Summary](#) | [Hourly Data](#)

**Weather Stations**

[South](#) | [Other Locations](#)

**Weather Data** | **Pest Forecasts** | **Station Page**

**Weather Data Quick Links**

[Daily Summary](#) | [Hourly Data](#)

**Weather Stations**

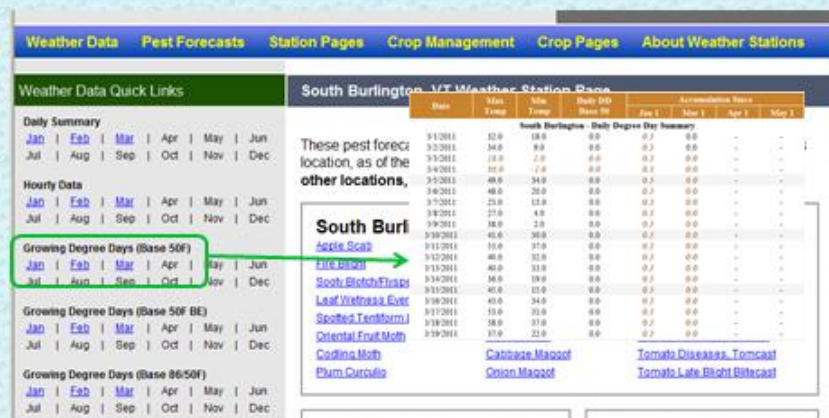
[South](#) | [Other Locations](#)

**Weather Data** | **Pest Forecasts** | **Station Page**

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

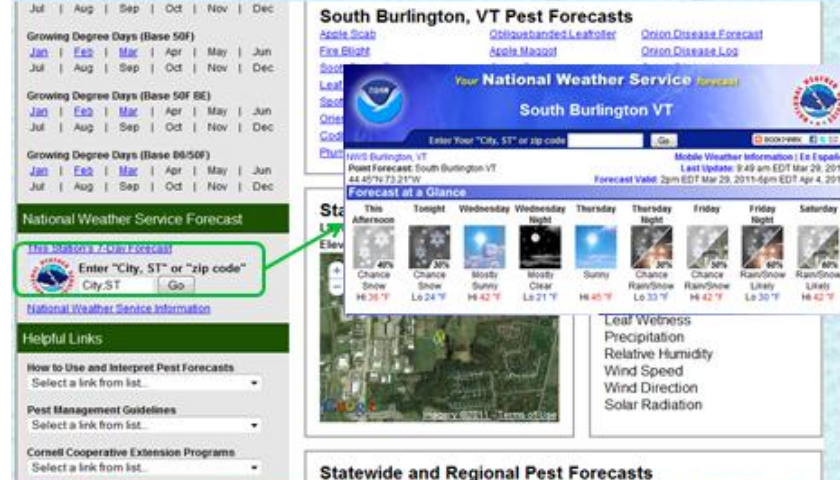


## Growing Degree Day Accumulations



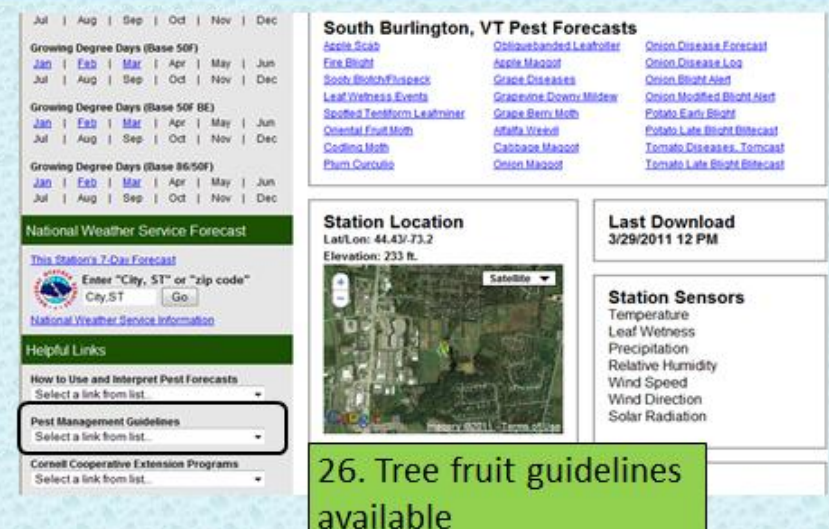
24. Click on a month to see degree day (base 50) accumulations

## Weather Forecast



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

## Management Guidelines



# Learn More!

<http://nwa.cornell.edu>

Explore on your own

Acknowledgements and Graphics Source

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