

Workshop on Pest models – Missoula, MT, Feb. 16, 2011. Len Coop, Oregon State University

Basic Features of USPEST.ORG/WEA - Quick Reference Summary

Introduction. This is a quick reference to several basic features of the <http://uspest.org/wea> website. The purpose of the site is to provide access to numerous **degree-day models** (insects, weeds, plant diseases, and crops, including P-days models), hourly weather-driven **plant disease models**, and publicly shared weather data (over 15,000 stations), for agricultural pest management decision support. Note most features of this website have evolved due to **feedback** from growers, consultants, and others who have used the site for up to 10 years or more. Feedback and ideas are always welcomed!

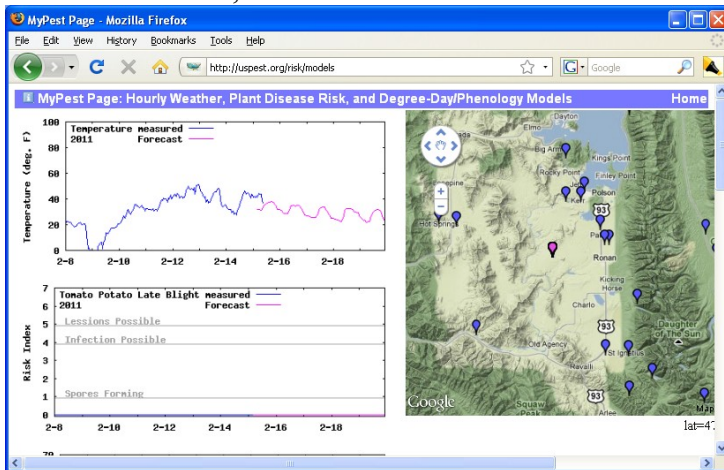
1. Home page at <http://uspest.org/wea>: Note the simple tab bar near the top.

2. Quick Start Tab – a new feature at <http://uspest.org/wea> click on the

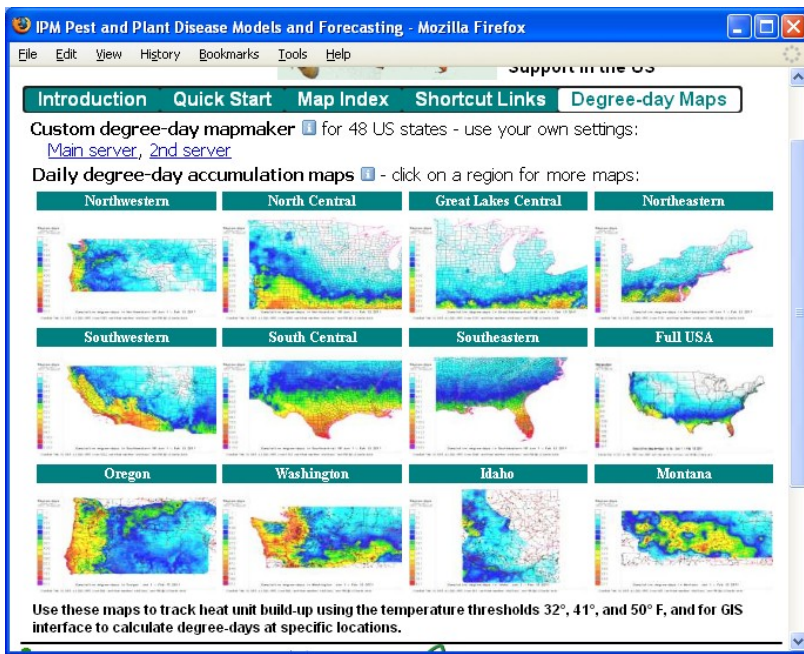
“Quick Start” tab.

This page allows you to select crops of interest which will pre-select certain models that tend to be associated with those crops. If you do not enter a **Zipcode** the program will use your internet provider location. Either way the program will usually select a METAR or AGRIMET

station nearby. Select **“GO”**. The **risk/models** page consists of 1) weather and pest model charts, 2) Google maps for site selection, and 3) Custom settings. Note that most settings will be stored on your computer as **“cookies”**; which are a standard used by many web sites. Notice that the first chart shown here is temperature, and that measured (observed) weather is in blue, and forecast data is shown in red. We will return to this page in a moment.



3. Degree-day Maps Tab – Access to cumulative DD maps for Montana, NW US, 48-state US, and other regions. Click on Montana then “new googlemaps interface” for a Google Maps interface to Montana DDs (base 32) (this feature still under development):



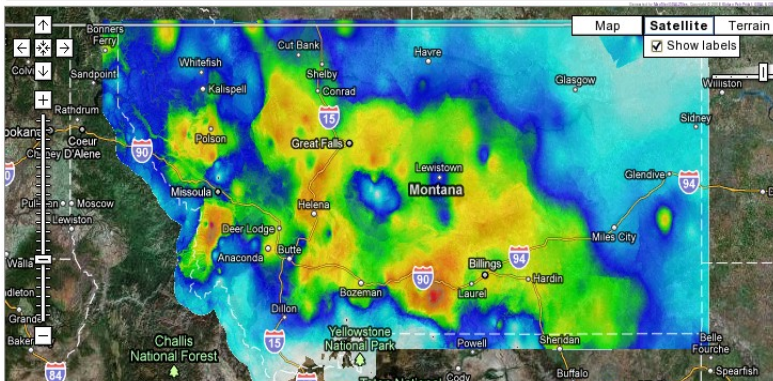
Query Results
 Latitude: 47.63578
 Longitude: -114.2139
Degree-days: 135

Montana degree-days 1-1 to 2-13 2011 (32 F threshold)

1	30	60	90	120	150
10	40	70	100	130	160
20	50	80	110	140	180

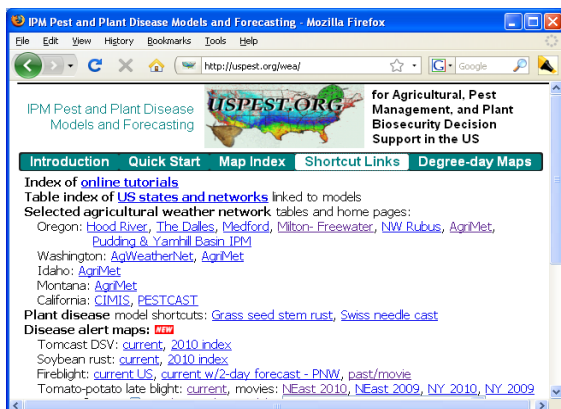
[home](#)

Then click in the map to query cumulative degree-days. For example, clicking on “Polson” (Jan 1 – Feb 13, 2011 32F threshold temperature) resulting in 135 DDs.



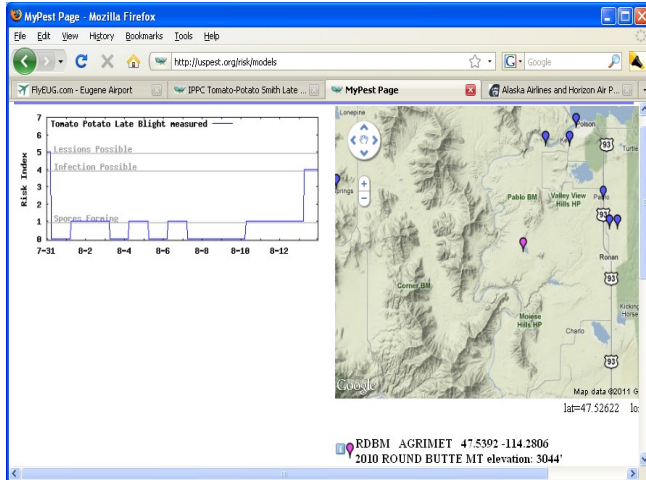
4. Using Disease Alert Maps – from “Shortcut Links” Tab

Disease alert maps show the current or archived infection risk, based on weather for all available public weather stations in the region. The Tomato-Potato Late Blight map is updated daily for the full US. Use the Google maps interface to navigate to your region. Green pins denote “low conditions for disease”,

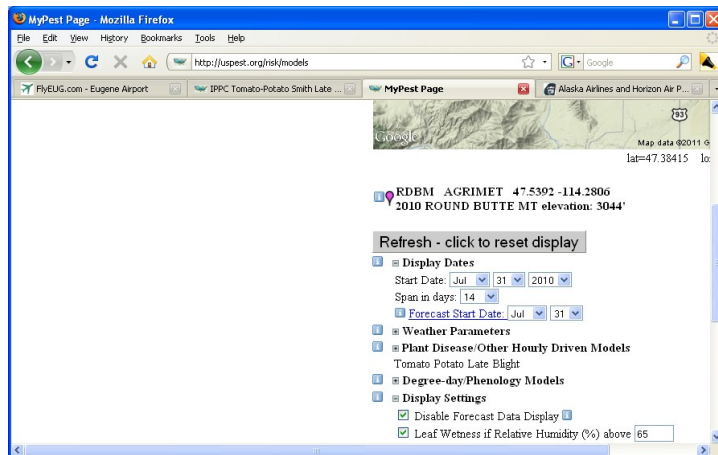


orange pins “infection spores forming”, and red pins “infection possible”.

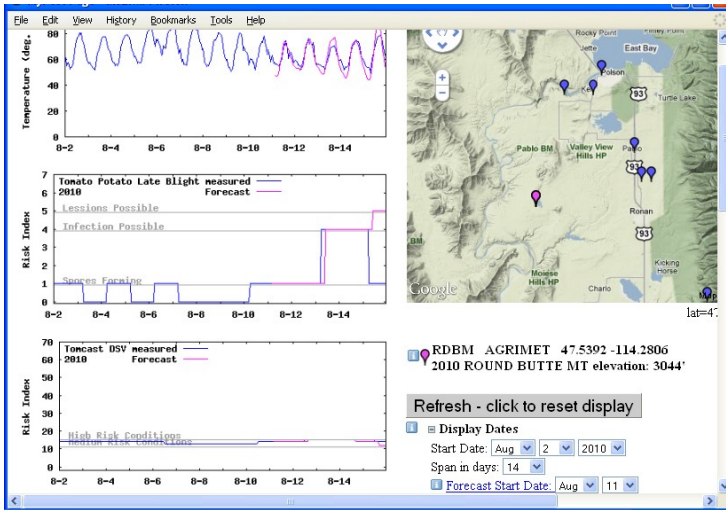
Click on a pin to go to the /risk/models page (with late blight model selected) for that station (here w/historical 2010 settings described below): With the overly conservative RH threshold as a surrogate for leaf wetness, the late blight risk index rises to “4” or “infection possible” by Aug. 14.



5. Historical Model Analysis. In order to perform a historical analysis of 2010 late blight, and to see “lesions forming” in the chart (note these are public, non-irrigated weather stations), we open up “**Display Settings**”, change the **Start Date** and **Span in Days**, and check “**Leaf Wetness if Relative Humidity (%) above XX**”. I set this value to an overly conservative value of 65%, which resulted in the above chart. Also note that it usually helps to turn off the forecast when viewing historical data.

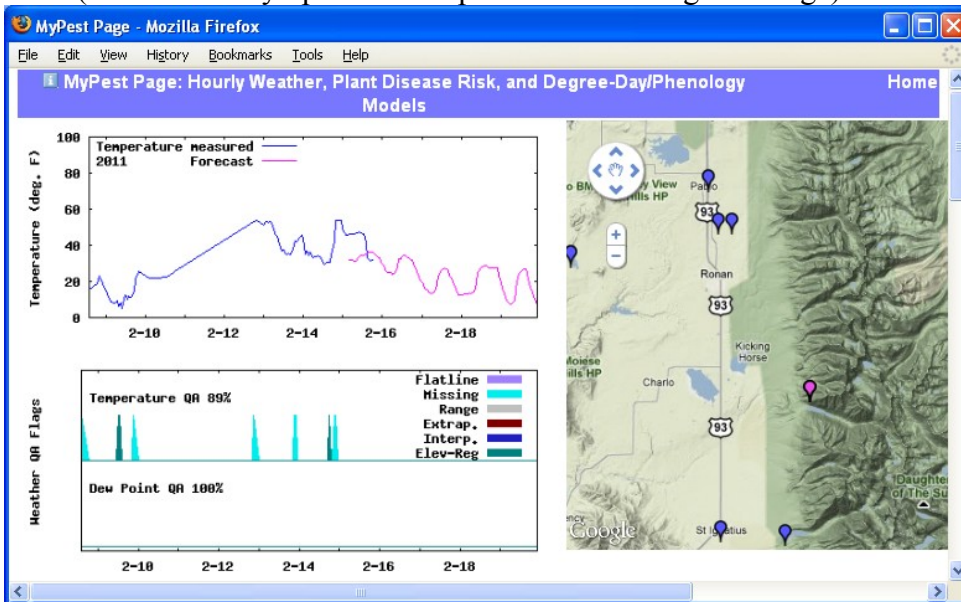


6. Historical Analysis of the Forecast. As an alternative to compare forecast vs. actual weather and model results, try also setting the forecast start date to within the same time span, e.g. Aug. 11.



We see the Aug 11 forecast overlaid on top of temperature and late blight data, showing approximate agreement except perhaps for the last day of the forecast. This forecast is from Fox Weather, LLC, a rapidly evolving system, so past performance may not reflect current forecast skill.

7) **Watch for missing and bad weather data.** Models are only as good as the input data. Many stations have bad sensors, poor siting, and frequent outages. Always scrutinize the weather data used to run your models. In “Display settings” we turned on “QA Chart” to help reveal that this RAWS station has had frequent missing data and other problems, which is also readily apparent from the temperature chart (note flatline symptom of temperature indicating an outage):



To summarize, we have seen examples of 1) Various features of uspest.org/wea accessed via the tab bar on the home page, 2) The “Quick Start” access to /risk/models for crops and models of interest, 3) The Degree-day maps along with a new feature that uses a Google Maps interface to query cumulative degree-days anywhere in the map. 4) Disease alert maps that display infection risk over large regions, with pins also linked to /risk/models, 5-6) Historical analysis with and without display of past forecast data, and 7) A warning about ways to detect bad weather data. There are many other features of the website that will be demonstrated today, and still others you can explore on your own.