

2007 ARS/NGWI Field Tour



Grape Pest Management

Researchers in the Pacific Northwest are working together to develop knowledge of pest biology and sustainable methods for their management that can be integrated into economically and environmentally sustainable programs while maintaining the exceptional wine quality of the region.

Weather data, acquisition, analysis, and distribution.

Weather is the ultimate integrator since it controls all aspects of viticulture. Thus access to high quality, site-specific historical, real-time, and predicted weather data combined with models to predict how pests and vines are developing will greatly enhance a viticulturist's ability to manage the crop.

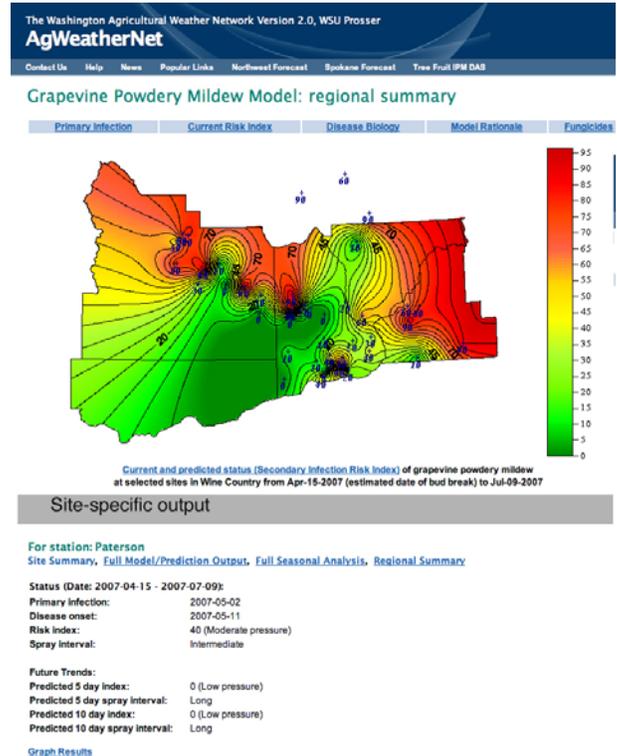
Gary Grove directs the development of AgWeatherNet (<http://www.weather.wsu.edu>).

This site is cutting edge in the delivery of weather data and products derived from that data for use by viticulturists. He is also involved in the Western IPM Weather Workgroup, which is composed of meteorologists, entomologists, pathologists, and climatologists from California, Oregon, Washington, and lead by **Walter Mahaffee**. This group is developing methodology for creation of virtual weather stations with custom weather forecasts every ½ mile and using climatology to enhance weather forecasting.

Disease Management Research Projects

The major diseases in PNW are powdery mildew and Botrytis. **Gary Grove**, **Walter Mahaffee**, and **Jay Pscheidt** are collaborating with **Doug Gubler** – Univ. California, Davis, and **Wayne Wilcox**, Cornell Univ. to further enhance disease management options. Projects include:

- Improvement, and Distribution of Precision Grapevine Powdery Mildew Models



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- Development, Distribution, and Implementation of Detection Based Management Programs for Grapevine Powdery Mildew
- Effects of UV-A and UV-B on the Epidemiology of Grapevine Powdery Mildew
- Estimating DMI Resistance using real-time PCR
- Field Validation of the Broome Bunch Rot Model
- Economic Aspects of Grape Disease Management
- Understanding factors influencing inoculum availability for powdery mildew
- Epidemiology of Botrytis Bunch Rot



Arthropod Management Research Projects

Arthropod pest complex in PNW grapes is relatively small. The leafhoppers, mealybugs (as virus vectors), cutworms, and mites are the most common concerns.

David James and **Vaughn Walton** are developing knowledge of arthropod biology and novel methods for their management.

- Determining the role of mites in 'short shoot syndrome'
- Monitoring for and addressing reemerging pests due to adoption of low-input, selective, targeted and sustainable strategies instead of broad-spectrum insecticides
- Improving conservation biological control through the use of HIPPO (Herbivore-Induced Plant Protection Odors), ground covers and the use of natural enemy-friendly pesticides.
- Integrating disease and arthropod management strategies.

Cooperators

- Drs. Leonard Coop, Chris Daly, Paul Jepson, George Taylor - OSU
- Dr. Allan Fox - FoxWeather Inc.;
- Drs. David Gent and William Pfender - USDA ARS, Corvallis, OR;
- Drs. Doug Gubler and Carla Thomas - University California, Davis.

Team Members:

Gary Grove – WSU, IAREC, Prosser, WA, Epidemiology, forecasting, and sustainable management of fungal diseases; developing new forms and means of electronic outreach, grove@wsu.edu, 509-786-9283

David James – WSU, IAREC, Prosser, WA, Biological control and integrated pest management in irrigated horticultural cropping systems, david_james@wsu.edu, 509-786-9280

Walter Mahaffee – USDA-ARS, HCRL, Corvallis, OR. Epidemiology, forecasting, and biological control of foliar and fruit diseases, mahaffew@science.oregonstate.edu, 541-738-4036

Jay Pscheidt – OSU, Corvallis, OR, Develop applied diagnostic and control programs for diseases of tree fruits, nuts, berries, grapes, ornamentals/nursery, Christmas trees and turf, pscheidj@science.oregonstate.edu, 541-754-7119

Vaughn Walton – OSU, Corvallis, OR, Biology and management of arthropod pests affecting Horticultural crops, waltonv@hort.oregonstate.edu, 541-740-4149