

Field Guide for Integrated Pest Management in Pacific Northwest Vineyards

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Washington State University • Oregon State University • University of Idaho

Field Guide for Integrated Pest Management in Pacific Northwest Vineyards

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Use pesticides with care. Apply them only to plants, animals, or sites as listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

Pacific Northwest Extension publications are produced cooperatively by the three Pacific Northwest land-grant universities: Washington State University, Oregon State University, and the University of Idaho. Similar crops, climate, and topography create a natural geographic unit that crosses state lines. Since 1949, the PNW program has published more than 600 titles, preventing duplication of effort, broadening the availability of faculty specialists, and substantially reducing costs for the participating states.

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Introduction

How to Use This Guide • Principles of IPM • Pesticide Safety

How to Use This Guide

Sally O'Neal, David Gent, Doug Walsh

Effective pest management is required for the production of high-quality wine and juice grapes. A wide range of plant pathogens and arthropods (invertebrate animals with an exoskeleton) have been documented as pests of grape in the Pacific Northwest (PNW) region of the United States. Also many broadleaf, grass, and other plants have the potential to become weed pests in vineyards. The damage from these pests can range from insignificant to devastating, depending on their ultimate impact on quantity or quality of the fruit.

The goal of the *Field Guide for Integrated Pest Management in Pacific Northwest Vineyards* is to provide commercial growers, consultants, field personnel, extension personnel, and other pest managers with straightforward, science-based information on identification and management of insect and mite pests, beneficial arthropods, diseases, and weeds affecting wine and juice grapes in the PNW. Correct identification of problems, whether created by biotic (living) pests or abiotic stresses (weather, nutrient, physiological, or herbicide damage), is the first step in integrated pest management (IPM). Color images have been included in this field guide as diagnostic aids wherever possible.

Information is also provided on the lifecycle and biology of the primary PNW grape pests, as well as common symptoms and diagnostic information on abiotic disorders, in an effort to provide the key concepts underlying management recommendations.

The heart of this guide is the descriptions of individual pests (insects/mites, diseases, nematodes, and weeds) and disorders, as well as recommendations for their management. Users will find themselves turning frequently to the color images and descriptions, but the guide also provides a context for integrating management with other vineyard tasks. Users should familiarize themselves with the principles of IPM in the next section, and then read the sections on pesticide safety, resistance management, and viticulture practices, many of which may exacerbate or suppress pests. A section on beneficial insects and arachnids (arthropods with eight legs, such as spiders and mites) is also provided so that users can develop or enhance their understanding of the role these play in IPM. Each of these sections, along with a guide to identifying and managing abiotic stresses, nutrient deficiencies,

and vertebrate damage, is part of the overall picture of IPM.

Information on current pesticide registrations for grapes is available in the Pacific Northwest Pest Management Handbooks, which are revised annually: Pacific Northwest Insect Management Handbook at <http://pnwpest.org/pnw/insects>; Pacific Northwest Plant Disease Management Handbook at <http://plant-disease.ippc.orst.edu/>; and Pacific Northwest Weed Management Handbook at <http://pnwpest.org/pnw/weeds>.

The *Field Guide for Integrated Pest Management in Pacific Northwest Vineyards* is a collaborative effort by Washington State University (WSU), Oregon State University (OSU), the University of Idaho (UI), and the USDA Agriculture Research Service (USDA-ARS).

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