Blight Management in California Walnut Orchards

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Plant Pathologist

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UCCE Sutter/Yuba/Colusa, Tulare/Kings, Yolo/Solano/Sacramento, Butte/Glenn, &

Tehama counties, respectively
Effect of other diseases: walnut blight
Is walnut blight an entry for Botryosphaeria infections?

<table>
<thead>
<tr>
<th>Orchard</th>
<th>Collection</th>
<th>Walnut blight (%)</th>
<th>Botryosph. &amp; Phomopsis (%)</th>
<th>Other fungi (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tree</td>
<td>+20</td>
<td>10</td>
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<tr>
<td>2</td>
<td>Tree</td>
<td>+10</td>
<td>10</td>
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<td>3</td>
<td>Tree</td>
<td>+10</td>
<td>20</td>
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<tr>
<td>4</td>
<td>Tree</td>
<td>+20</td>
<td>30</td>
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<tr>
<td>5</td>
<td>Tree</td>
<td>–</td>
<td>50</td>
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<tr>
<td>6</td>
<td>Tree</td>
<td>–</td>
<td>0</td>
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<tr>
<td>7</td>
<td>Tree</td>
<td>+</td>
<td>0</td>
<td>**Fusarium ***</td>
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<td>**Alternaria ***</td>
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<td>**Gloeosporium *</td>
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<td><strong>Aspergillus niger</strong></td>
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<td><strong>Epicoccum</strong></td>
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<td><strong>Colletotrichum</strong></td>
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<td><strong>Cladosporium</strong></td>
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<td></td>
<td><strong>Penicillium</strong></td>
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<td><strong>Trichoderma</strong></td>
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</table>
Effect of walnut blight on development of *Neofusicoccum* & *Botryosphaeria*

**Neofusicoccum parvum**

**Botryosphaeria dothidea**
Walnut Blight Biology and Management

- Richard P. Buchner and Themis J. Michailides
- University of California Cooperative Extension Farm Advisor, Tehama, Glenn and Butte Counties
- University of California, Davis/ Kearney Agric. Research and Extension Center
• **Bacterial Disease** *Xanthomonas arboricola pv juglandis* (*Xaj*)

• All green tissues are susceptible: flowers, catkins, leaves, nuts, and young shoots.

• Nut infections are the most economically damaging.
  – Early infections invade and kill the developing kernel.
  – Late infections don’t always kill the kernel but may aggravate navel orange worm damage; and lead to Brown Apical Necrosis (BAN).

• Prefers warm wet weather.
Walnut Blight Infections
Walnut blight symptoms
Xanthomonas arboricola pv. Juglandis (petiole plating)
Cultivar susceptibility

Highly susceptible: Ashley, Payne, Vina

Moderately susceptible: Tulare

Low susceptible: Chandler, (<) Howard
The same fungicides applied 3 times in a row.

Efficacy* of treatments against **Walnut Blight** of fruit (San Benito County 2016) cv. Serr

- **Luna E 10 oz + Serenade Opti 20 oz**
- **Badge+ 4 # + Manzate 2.4#**
- **Kenja 17 oz**
- **Luna Exp 10 oz + Movento 9 oz**
- **Ph-D 6.2 oz**
- **Ph-D 6.2 oz + Tebucon 45 4 oz**
- **Merivon 6.5 oz**
- **Quash 3.5 oz**
- **Luna Experience 10 oz**
- **Quadris Top 14 oz**
- **Pristine 14.5 oz**
- **Untreated**

**Applications**
- April 5
- April 28
- June 1

% fruit with walnut blight lesions
FUNGICIDES, BACTERICIDES, AND BIOLOGICALS
FOR
DECIDUOUS TREE FRUIT, NUT, STRAWBERRY, AND VINE CROPS

ALMOND
APPLE/PEAR
APRICOT
CHERRY
GRAPE
KIWIFRUIT

PEACH/NECTARINE
PISTACHIO
PLUM
PRUNE
STRAWBERRY
WALNUT

Jim Adaskaveg, Professor
University of California, Riverside

Doug Gubler, Extension Plant Pathologist
University of California Davis

Themis Michailides, Plant Pathologist
University of California, Davis/Kearney Agricultural Center

http://www.ipm.ucdavis.edu
1) First application at 40% prayer stage
   Second 7-10 days later.

2) Watch weather and treat accordingly.
   Full label rates of copper plus an EBDC.

3) Any good quality copper will work.

4) Full coverage for the first and second.
   Watch weather and treat accordingly.

5) Use judgment based upon location and disease severity.

6) Mixing fungicides with biologicals very promising!
Acknowledgments

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• Ryan Puckett
• Juan Moral

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Thank you