Contents

Part I. Diseases and Disorders Affecting Several Nut Crops

- 1 Diseases Caused by Fungi
- 1 Armillaria Root Disease
- 2 Cotton Root Rot
- 2 Kernel Decay
- 3 Phytophthora Diseases
- 6 Powdery Mildew
- 6 Rosellinia Root Rot
- 7 Verticillium Wilt
- 9 Wood Decay
- 10 Disease Caused by a Bacterium
- 10 Crown Gall
- 11 Diseases Caused by Nematodes
- 12 Dagger Nematodes (Xiphinema spp.)
- 13 Ring Nematodes (Mesocriconema spp.)
- 13 Root-Knot Nematodes (Meloidogyne spp.)
- 14 Root-Lesion Nematodes (Pratylenchus spp.)
- 15 Noninfectious Disorders
- 15 Cold Injury and Heat Injury
- 15 Nutritional Disorders

Part II. Almond Diseases

- 18 Introduction
- 19 Diseases Caused by Fungi
- 19 Alternaria Leaf Spot
- 20 Anthracnose
- 21 Armillaria Root Diseases
- 21 Band Canker
- 21 Brown Rot
- 22 Ceratocystis Canker
- 24 Green Fruit Rot
- 24 Hull Rot
- 25 Kernel Decay
- 25 Leaf Blight
- 26 Leaf Curl
- 26 Leucostoma Canker
- 27 Phomopsis Canker and Fruit Rot
- 28 Phytophthora Diseases
- 28 Powdery Mildew
- 28 Red Leaf Blotch
- 29 Rosellinia Root Rot
- 29 Rust
- 29 Scab
- 30 Shot Hole
- 31 Verticillium Wilt
- 31 Wood Decay
- 31 Diseases Caused by Bacteria
- 31 Almond Leaf Scorch
- 32 Bacterial Canker

- 33 Bacterial Hyperplastic Canker
- 34 Bacterial Spot
- 34 Crown Gall
- 34 Diseases Caused by Phytoplasmas
- 34 Almond Brown Line and Decline and Almond Kernel Shrivel
- 35 European Stone Fruit Yellows
- 35 X-Disease
- 36 Diseases Caused by Viruses
- 36 Calico
- 36 Mediterranean Almond Viruses
- 37 Peach Mosaic
- 38 Peach Yellow Bud Mosaic
- 38 Diseases Caused by Nematodes
- 38 Disorders of Uncertain Cause
- 38 Almond Stem Pitting
- 39 Foamy Canker
- 39 Noninfectious Disorders
- 39 Cold Injury and Heat Injury
- 39 Corky Spot
- 40 Kernel Defects
- 40 Noninfectious Bud Failure
- 41 Nonproductive Syndrome
- 41 Nutritional Disorders
- 41 Union Mild Etch

Part III. Hazelnut Diseases

- 43 Introduction
- 44 Diseases Caused by Fungi
- 44 Armillaria Root Disease
- 44 Eastern Filbert Blight
- 46 Kernel Decay
- 46 Leaf Spots and Bud Diseases
- 46 Powdery Mildew
- 46 Wood Decay
- 47 Diseases Caused by Bacteria
- 47 Bacterial Blight
- 47 Bacterial Canker
- 48 Crown Gall
- 48 Disease Caused by a Phytoplasma
- 48 Hazelnut Yellows
- 49 Disease Caused by Viruses
- 49 Hazelnut Mosaic
- 49 Diseases Caused by Nematodes
- 50 Disorder of Uncertain Cause
- 50 Filbert Stunt Syndrome
- 50 Noninfectious Disorders
- 50 Blanks, Brown Stain, and Catkin Blast
- 50 Cold Injury and Heat Injury
- 50 Nutritional Disorders

Part IV. Pecan Diseases

- Introduction
- Diseases Caused by Fungi 52
- 52 Anthracnose
- Armillaria Root Disease 53
- 53 Brown Leaf Spot
- Cotton Root Rot 53
- Downy Spot 53
- Kernel Decay 54
- 54 Minor Foliar Diseases
- 54 Phytophthora Shuck and Kernel Rot
- 55 Powdery Mildew
- 55 Scab
- 57 Vein Spot
- 57 Verticillium Wilt
- 57
- Zonate Leaf Spot 58
- 58 **Diseases Caused by Bacteria**
- 58 Crown Rot
- Pecan Bacterial Leaf Scorch 58
- Disease Caused by a Phytoplasma 59
- 59 **Bunch Disease**
- 60 **Diseases Caused by Nematodes**
- Disorders of Uncertain Cause 60
- Mouse Ear 60
- Shuck Disorders 60
- **Noninfectious Disorders** 61
- Cold Injury and Heat Injury 61
- 61 Fruit Split
- 62 Lightning Injury
- 62
- Nutritional Disorders 62 Premature Germination
- Sooty Mold

Part V. Pistachio Diseases

- Introduction
- Diseases Caused by Fungi 65
- Alternaria Late Blight 65
- 66 Armillaria Root Disease
- 66 Aspergillus Fruit Rot
- 66 Blossom and Shoot Blight
- 67 Cotton Root Rot
- Eutypa Dieback 67
- Gum Canker 67
- Kernel Decay 68
- Panicle and Shoot Blight 68
- 69 Phomopsis Blight
- Phytophthora Diseases 69
- Powdery Mildew 69
- Rosellinia Root Rot 69
- 69 Rust
- 70 Sclerotinia Blight
- Seedling Blight 70
- Septoria Leaf Spot

- Stem Canker
- 72 Stigmatomycosis
- Verticillium Wilt 73
- 73 Wood Decay
- 73 **Diseases Caused by Nematodes**
- 73 **Disorders of Uncertain Cause**
- 73 Bacterial Dieback
- Damage by Other Means 73
- 73 Dieback and Canker
- 74 Peters Scorch
- 74 Pin-Sized Lesion
- Noninfectious Disorders 74
- Cold Injury and Heat Injury 74
- 74 Epicarp Lesion and Kernel Necrosis
- 75 **Hull Rupture**
- 75 **Nutritional Disorders**
- Shell Staining

Part VI. Walnut Diseases

- Introduction
- Diseases Caused by Fungi
- Alternaria Leaf Spot
- 77 Anthracnose
- Armillaria Root Disease 78
- Branch Wilt 78
- Cotton Root Rot 78
- 78 Cylindrocarpon Dieback
- Downy Leaf Spot
 Kernel Decay 79
- 79 Kernel Decay
- Melanconium Dieback 79
- Other Fungal Diseases 80
- Diseases Caused by Bacteria 80
- 80 Crown Rot
- Deep Bark Canker 80
- Shallow Bark Canker 81
- 81 Walnut Blight
- Disease Caused by a Virus 82
- 82 Blackline
- 84 **Diseases Caused by Nematodes**
- Disorders of Uncertain Cause 84
- Brown Apical Necrosis
- 84 Stem Canker
- **Noninfectious Disorders** 84
- 84 Apoplexy
- 84 Cold Injury and Heat Injury
- Mesophyll Collapse
- 85 **Nutritional Disorders**
- 85 Oilless Nuts
- Pistillate Flower Abscission

Color Plates (following page 42)