

# TABLE OF CONTENTS

## 1. Introduction and Policies

Introduction .....	1
Purpose .....	2
Program Administration.....	2
University of Idaho Extension .....	2
Funding .....	2
Personnel .....	2
Training and Certification Policies .....	2
Initial Training and Certification.....	2
Continuing Certification.....	3
Time Away From Recertification .....	3
Transferring Master Gardener Status.....	3
Idaho Master Gardener Emeritus.....	3
Training of Trade-Related Professionals .....	4
Application and Training Procedures .....	5
Application and Volunteer Position Description .....	5
Fees.....	5
Training Dates and Locations .....	5
Master Gardener Training Outside the County of Residence .....	5
College Credit .....	5
Additional Program Policies .....	5
Volunteer Activity Record.....	5
Impact and Accountability.....	5
Reimbursement for Expenses .....	5
Liability Coverage.....	5
Workers' Compensation Coverage .....	6
Vehicle Coverage .....	6
Working with Youth.....	6
Civil Rights and Diversity.....	7
Making Recommendations – Providing Accurate Information .....	7
Making Pest Management Recommendations.....	7
Making Fertilizer Recommendations.....	9
Use of Title and Logo .....	9
Idaho Master Gardener Associations .....	9

Being an Idaho Master Gardener Volunteer .....	11
Volunteer Service Opportunities.....	11
Volunteer Service Guidelines .....	11
Termination of Volunteer Services .....	12
Volunteer Benefits .....	12
Importance of Volunteers.....	12
Idaho Master Gardener Program Forms .....	13
Authorized Volunteer Position Description.....	13
Application .....	14
Opportunity Contract.....	16
Volunteer Activity Record .....	18
Tax Records for Volunteer Service.....	19
Emergency Contact Form .....	20
Pest Management Agreement .....	21
Acknowledgment of Risk and Waiver of Liability .....	22

## 2. Introduction to Horticulture and Plant Physiology

Horticulture Defined.....	1
Climate in Horticulture.....	2
Macroclimate.....	2
Microclimate.....	2
Role of Temperature in Horticulture .....	3
High Temperatures .....	4
Low Temperatures.....	5
Temperature Modification.....	6
Role of Light in Horticulture.....	6
Light Quality .....	6
Light Intensity .....	7
Light Duration .....	8
Further Reading and Resources .....	8
Books .....	8
Booklets and Pamphlets.....	8

## 3. Basic Botany

Introduction .....	1
Plant Nomenclature and Classification .....	2
Family .....	3
Genus.....	3
Species .....	3
Variety and Cultivar .....	3
Plant Life Cycles.....	5
Annuals.....	5
Biennials.....	6
Perennials.....	6
Plant Parts and Their Function.....	6
Vegetative Parts: Leaves, Stems, and Roots .....	6
Vascular System .....	8
Reproductive Parts: Flowers, Fruits, and Seeds.....	9
Plant Development.....	13
Seed Germination.....	13
Vegetative Growth Stage .....	13
Reproductive Growth Stage.....	14
Senescence.....	14
Further Reading and Resources .....	14

## 4. Plant Propagation

Sexual Propagation.....	1
Seed .....	1
Germination .....	2
Methods of Breaking Dormancy.....	3
Starting Seeds.....	4
Transplanting and Handling.....	6
Asexual Propagation .....	7
Cuttings .....	7
Layering.....	11
Division.....	12
Grafting.....	13
Budding .....	14
Plant Tissue Culture .....	15
Further Reading .....	15
Books .....	15
Booklets and Pamphlets.....	15

## 5. Soils and Fertilizers

The Five Soil-Forming Factors .....	1
Parent Material.....	1
Climate.....	2

Topography .....	2
Living Organisms (Biota).....	2
Time.....	2
Major Components of a Mineral Soil .....	2
Soil Texture.....	3
Sand.....	3
Silt.....	3
Clay.....	3
Texture and Soil Management .....	3
Soil Structure.....	4
Organic Matter .....	5
Carbon:Nitrogen (C:N) Ratio .....	5
Soil/Water Relationships.....	6
Water-Holding Capacity.....	6
Water Infiltration Rate .....	6
Permeability Rate .....	6
Soil Compaction.....	6
Water and Air.....	6
Nutrient Leaching.....	7
Soluble Salts .....	7
pH .....	7
Plant Nutrients.....	7
Essential Nutrients .....	7
Functions of Macronutrients.....	8
Functions of Micronutrients.....	8
General Nutrient Deficiency Symptoms .....	9
Mulches.....	9
Organic Mulches.....	9
Inorganic Mulches.....	10
Seasonal Mulches .....	10
Problems with Mulches.....	10
Fertilizers.....	10
Fertilizer Terminology.....	10
Nutrient Sources and Fertilizer Types.....	10
Fertilizer Application and Timing.....	12
Green Manure and Cover Crops .....	12
Organic Fertilizers.....	13
Further Reading and Resources .....	13
Books .....	13
Booklets and Pamphlets.....	14
Videos.....	14
Websites.....	14
Instructor Resources.....	14

## 6. Horticultural Equipment Management

<b>Equipment Selection</b> .....	1
Hand Tools for Cultivation.....	1
Power Tools for Cultivation.....	3
Wheelbarrow or Cart.....	4
Watering Equipment.....	4
Seedling and Planting Tools .....	5
Environmental Monitoring Equipment .....	5
Trellises and Cages.....	5
Harvesting Equipment.....	6
<b>Equipment Purchases and Maintenance</b> .....	6
Equipment Purchases.....	6
Equipment Maintenance.....	6
<b>Cultivation Practices</b> .....	6
Types of Soil Cultivation .....	6
Cultivation Time .....	6
Cultivation Requirements.....	7
<b>Further Reading</b> .....	7
University of Idaho Extension .....	7

## 7. Plant Management

<b>Introduction</b> .....	1
<b>Plant Selection</b> .....	1
Light Requirement .....	2
Climate.....	2
Avoiding Weeds and Poisonous Plants.....	3
<b>Site Preparation</b> .....	3
<b>Planting</b> .....	3
Seeds.....	3
Bareroot Plants.....	3
Balled-and-Burlapped Stock.....	4
Containerized Stock .....	5
<b>Fertilizing</b> .....	5
<b>Irrigation</b> .....	5
Factors Affecting Irrigation.....	6
Irrigation Scheduling .....	9
Irrigating Sections of the Landscape .....	10
<b>Further Reading and Resources</b> .....	11
Websites.....	12

## 8. Backyard Composting

<b>Introduction</b> .....	1
<b>The Composting Process</b> .....	2
What Materials Are Used in Composting.....	2
How Much Organic Matter Do I Use?.....	3
<b>Creating a Simple Compost Pile</b> .....	4
Meet the Decomposers .....	5
Microbes and Temperature.....	5
Hot Composting .....	6
Activators.....	7
Placing a Compost Pile .....	7
<b>Maintaining a Compost Pile</b> .....	7
Moisture.....	7
Oxygen .....	8
Degradability, Particle Size, and Porosity.....	8
Turning the Pile .....	8
Odors .....	9
Safety Hazards.....	9
Troubleshooting .....	10
<b>Containing the Compost</b> .....	11
Stationary and Movable Bins.....	11
Rotating Barrels and Drums.....	12
When Is Compost Finished? .....	13
<b>Benefits of Compost</b> .....	13
<b>How to Use Compost</b> .....	13
Mulch.....	13
Soil Amendment .....	14
Top-Dressing .....	14
<b>Other Methods of Composting</b> .....	14
Sheet, Pit, and Trench Composting.....	14
Hügelkultur .....	15
Bokashi.....	15
Vermiculture (Worm Composting) .....	15
<b>Further Reading</b> .....	17
Books .....	17
Booklets and Pamphlets.....	17

## 9. Using Pesticides Safely

Introduction .....	1
Pesticide Use .....	1
Law and Regulation .....	1
Pest Management .....	2
Pesticide Product Types .....	2
Active Ingredients .....	4
Resistance .....	4
Formulations .....	4
Biopesticides .....	5
Pest Control for Organic Systems .....	5
Safety .....	6
Hazards and Health .....	6
Pesticide Labels .....	6
Pesticide Exposure Guidelines .....	8
Stewardship .....	8
Handling .....	8
Handling PPE .....	9
Pesticide Properties and Movement .....	9
Water-Quality Impacts on Pesticide Performance .....	10
Setting Up the Application Equipment .....	10
Calibration .....	11
Pesticide Application Math .....	11
Storage .....	13
Disposal .....	13
Pesticide Spills .....	13
How to Hire a Professional .....	13
Important Numbers and Information .....	14
Resources.....	14
Further Reading.....	15
Acronyms.....	15
Glossary.....	15
Important Numbers and Information.....	16

## 10. Basic Entomology

Introduction .....	1
Insect Anatomy .....	2
Insect Development .....	2
Insect Classification .....	2
Major Orders of Insects.....	3
Beetles and Weevils — Coleoptera.....	3
Moths and Butterflies — Lepidoptera.....	4
Flies, Mosquitoes, Gnats, Midges — Diptera .....	5

Bees, Wasps, Ants, Sawflies, etc. — Hymenoptera.....	5
True Bugs — Hemiptera .....	6
Aphids, Scales, Leafhoppers, Cicadas — Homoptera.....	6
Grasshoppers, Crickets, Cockroaches, Camel Crickets — Orthoptera .....	7
Termites — Isoptera.....	7
Earwigs — Dermaptera.....	8
Thrips — Thysanoptera.....	8
Silverfish and Firebrats — Thysanura .....	8
Springtails — Collembola.....	8
Other Orders.....	8
Other Insect-Like Creatures .....	9
Spider Mites, Spiders, Ticks, and Scorpions — Arachnida.....	9
Millipedes — Diplopoda.....	9
Centipedes — Chilopoda.....	9
Sow bugs and Pill bugs — Crustacea.....	10
Garden Centipede or Symphylan — Symphyla .....	10
Further Reading.....	10
CDs, booklets, and pamphlets.....	10

## 11. Insect Management

Terms and Definitions.....	1
Why Worry About Insect Control?.....	1
Methods of Insect Control Available to Homeowners.....	2
Mechanical Insect Control.....	2
Chemical Insect Control .....	2
Biological Insect Control .....	2
Cultural Insect Control.....	2
Regulatory Insect Control (Quarantines).....	3
Integrated Insect Control .....	3
Specific Pests.....	4
Ornamental Pests.....	4
Lawn Pests .....	5
Houseplant Pests .....	5
Tree Fruit Pests.....	6
Garden Pests.....	7
Household Pests.....	8
Spiders.....	9
Further Reading.....	9
Books .....	9
Booklets and Pamphlets.....	9
Acknowledgment.....	10

# 12. Rodents, Birds, and Other Pests

- Introduction ..... 1
- Safety in Handling..... 1
- Identification..... 2
- Vertebrate Pests — Rodents..... 2
  - General Rodent Information..... 2
  - Ground Squirrels, Chipmunks, and Chucks ..... 2
  - Pocket Gophers and Voles..... 3
  - Mice and Rats..... 3
  - Rabbits ..... 3
  - Bats ..... 4
- Vertebrate Pests — Other Mammals ..... 5
  - Raccoon..... 5
  - Deer..... 5
  - Skunk..... 5
  - Dogs and Cats..... 6
- Vertebrate Pests — Birds..... 6
  - General Bird Information..... 6
  - Yellow-Bellied Sapsucker ..... 7
  - Starlings..... 7
- Invertebrates and Arthropods of the Home Yard and Garden..... 7
  - Nematodes..... 7
  - Slugs and Snails..... 8
  - Earthworms or Night Crawlers ..... 8
- Further Reading ..... 9
  - Books..... 9
  - Booklets and Pamphlets..... 9

# 13. Plant Disease

- Introduction ..... 1
- History of Plant Disease ..... 1
  - Significance of Plant Disease in the United States..... 2
- Disease Concepts..... 2
  - What Is a Disease? ..... 2
  - Causal Agents of Disease ..... 2
  - Signs of Disease..... 3
  - Symptoms of Disease ..... 3
- The Disease Cycle ..... 3
  - Inoculation..... 3
  - Penetration..... 3
  - Infection..... 3
  - Dissemination..... 4

- Diseases Caused by Biotic Agents..... 4
  - Fungi..... 4
  - Bacteria and Phytoplasmas..... 4
  - Viruses ..... 5
  - Nematodes ..... 5
  - Parasitic Plants (Flowering) ..... 5
- Diseases Caused By Abiotic Agents ..... 5
  - High or Low Temperatures ..... 6
  - High or Low Soil Moisture..... 6
  - High or Low Light Intensity..... 6
  - Soil Oxygen..... 6
  - Air Pollution ..... 6
  - Nutrient Deficiencies ..... 6
  - Mineral Toxicity ..... 6
  - Unfavorable Soil pH..... 7
  - Improper Cultural Practices..... 7
- Further Reading and Resources ..... 7
  - Books..... 7
  - Websites..... 7

# 14. Weeds

- Introduction ..... 1
- Weed Biology and Classification ..... 2
  - Annual Weeds ..... 2
  - Biennial Weeds ..... 3
  - Perennial Weeds ..... 3
- Identification..... 3
  - Flower..... 3
  - Leaves and Stem..... 3
  - Weed Structure ..... 3
  - Roots..... 3
- Weed-Control Methods..... 4
  - Prevention..... 4
  - Biological Control ..... 4
  - Cultural Control..... 4
  - Mulches ..... 5
  - Mechanical Control..... 6
  - Chemical Control ..... 7
- Herbicide-Application Equipment ..... 9
  - Hand-Spray Bottles ..... 9
  - Hose-End Sprayers..... 9
  - Compressed Air Canister Sprayers..... 9
  - Backpack Sprayers..... 9
  - Power Sprayers ..... 9
  - Wick Wipers..... 9
  - Granular Applicators..... 9

<b>Sprayer Calibration</b> .....	10
Calculating Your Sprayer .....	10
Granular Applicators.....	10
<b>Tree Stump Removal</b> .....	11
Mechanical Removal .....	11
Chemical Treatments.....	11
<b>Noxious Weeds</b> .....	12
<b>Further Reading</b> .....	12
Books.....	12
Booklets and Pamphlets.....	12

Irrigation.....	12
Fertilizing.....	13
Core Aeration .....	15
Weed Control.....	16
Turf Renovation .....	16
<b>Turf Problems</b> .....	17
Common Problems.....	17
Insects.....	17
Diseases .....	18
<b>Further Reading and Resources</b> .....	18
Books.....	18
Websites.....	18

## 15. Turfgrass Establishment and Management

<b>Introduction</b> .....	1
<b>Soil and Site Considerations</b> .....	2
Evaluating the Site.....	2
Soil Texture and Structure.....	2
Soil pH and Fertility.....	2
<b>Choosing a Turfgrass</b> .....	2
Kentucky Bluegrass.....	3
Tall and Fine Fescues.....	3
Perennial Ryegrass.....	4
<b>Site Preparation</b> .....	5
Preplant Weed Control .....	5
Soil Preparation.....	5
Installing a Sprinkler System .....	5
<b>Establishing a Lawn by Seeding</b> .....	5
Seed Selection.....	5
Seeding Rate.....	6
When to Sow.....	6
Seeding Methods.....	7
Top-Dressing Seeded Areas .....	7
Watering and Fertilizing.....	7
Mowing .....	7
Weed Control.....	8
Overseeding.....	8
<b>Establishing a Lawn by Sodding</b> .....	8
Benefits of Sod .....	8
Purchasing Sod .....	8
Preparing for Sod Delivery .....	8
Sod Installation.....	9
Rolling and Watering.....	9
Mowing and Fertilizing.....	9
<b>Turf Maintenance</b> .....	9
Mowing .....	10
Thatch Management .....	11

## 16. Landscaping

<b>Introduction</b> .....	1
<b>Definitions</b> .....	2
<b>Creating a Plan</b> .....	2
Define Your Goals and Objectives.....	2
Do a Thorough Site Analysis.....	2
Define Use Areas .....	4
Define Planting Areas.....	4
Principles of Design.....	4
Elements of Design .....	5
Plant Selection .....	6
Other Considerations When Buying Plants .....	6
<b>Installation and Renovation</b> .....	6
<b>Maintenance and Irrigation</b> .....	7
Maintenance .....	7
Water Management .....	7
<b>Further Reading</b> .....	7
Books.....	7
Booklets and Pamphlets.....	7

## 17. Landscape Plants

<b>Why Ornamental Plants?</b> .....	1
<b>Soils and Water Considerations</b> .....	2
Soil Composition.....	2
Water Status Definitions.....	2
Water Movement.....	2
Soil Structure (Aggregate Size) .....	2
Drainage Problems.....	2
Overcoming Drainage Problems.....	2
<b>Planting and Site Preparation</b> .....	3
Types of Plant Materials .....	3
Planting.....	3
Pruning After Planting.....	3
Staking.....	4
<b>Plant Problems</b> .....	4

Circling Roots/Potbound .....	4
Girdling Roots .....	4
Kinked Roots/One-Sided Root System.....	4
Root Rots.....	4
Changing Soil Grades.....	4
Trenching/Cutting Roots .....	5
Compaction .....	5
<b>Stem Problems.....</b>	<b>5</b>
Heart Rot.....	5
Stem Wounds .....	5
Sunscald or Southwest Disease.....	5
Branch Rots and Infections.....	5
Damage to Crotch Areas.....	5
Freeze Damage.....	6
Graft Incompatibility .....	6
<b>Leaf Problems .....</b>	<b>6</b>
Drought.....	6
Frost Damage.....	6
Root Injury .....	6
Vascular System Injury .....	6
Salt Damage .....	7
Leaf Chlorosis and Nutrient Deficiencies.....	7
Herbicide Damage.....	7
Insecticide Injury.....	8
<b>Further Reading.....</b>	<b>8</b>
Books.....	8

## 18. Woody Landscape Plants

Introduction .....	1
<b>The Art of Designing Landscapes with Woody Plants.....</b>	<b>2</b>
Which Woody Plants to Install and Where .....	2
<b>Getting Started With Woody Plants.....</b>	<b>6</b>
Purchasing Woody Plants .....	6
Planting Woody Shrubs and Trees .....	6
First-Year Care .....	7
<b>Maintenance of Woody Landscape Plants.....</b>	<b>8</b>
Irrigation.....	8
Mulching.....	8
Symbiotic Relationships .....	9
Fertilizing .....	9
<b>Pruning.....</b>	<b>9</b>
The Basics.....	9
Reasons for Pruning .....	9
Early Training of Trees and Shrubs.....	14

Pruning Mature Trees and Shrubs.....	17
Renovation and Rejuvenation Pruning.....	22
<b>Protecting Trees and Shrubs During Construction .....</b>	<b>23</b>
<b>Woody Landscape Plants for Idaho.....</b>	<b>24</b>
<b>Further Reading and Resources .....</b>	<b>35</b>
Books .....	35
Booklets and Pamphlets.....	35
University of Idaho Extension Publications.....	35
Websites.....	35
Maps.....	35
<b>Acknowledgments .....</b>	<b>35</b>

## 19. Herbaceous Ornamentals

Introduction .....	1
<b>The Art of Design.....</b>	<b>1</b>
Color.....	1
Texture .....	2
Shape and Size.....	2
<b>What to Plant.....</b>	<b>3</b>
Exposure .....	3
Season of Flowering.....	3
Cut and Dried Flowers .....	3
Herbaceous Ornamentals That Naturalize .....	3
Special-Use Gardens .....	3
<b>How to Plant (Design) .....</b>	<b>3</b>
Formal and Informal .....	3
Beds and Borders .....	3
Plant Choice.....	3
<b>Gardening in Containers.....</b>	<b>4</b>
Containers .....	4
Soil.....	4
Planting.....	4
Watering.....	4
Maintenance .....	4
<b>Getting Started with Annuals.....</b>	<b>4</b>
Propagation.....	4
Growing, Culture, and Maintenance .....	5
Description of Selected Annuals.....	7
<b>Getting Started with Biennials.....</b>	<b>9</b>
<b>Getting Started with Perennials .....</b>	<b>9</b>
The Purpose of a Perennial Garden .....	9
Sexual Propagation by Seed.....	10
Vegetative Propagation by Division, Stem Cuttings, Root Cuttings, Layering, Grafting, or Tissue Culture.....	10

Vegetative Propagation by Specialized Stems and Roots.....	11
Growing, Culture, and Maintenance .....	12
<b>A Selection of Perennials for Idaho.....</b>	<b>15</b>
Common Name .....	15
Scientific Name.....	15
Height.....	15
Bloom Time .....	15
Flower Color.....	15
Light Needed.....	15
Landscape Use .....	15
<b>Further Reading .....</b>	<b>26</b>
Books.....	26
For More Information .....	26
Booklets and Pamphlets.....	26

## 20. Principles of Vegetable Culture

<b>Introduction .....</b>	<b>1</b>
<b>Planning the Garden .....</b>	<b>1</b>
Garden Design .....	2
Annual Planning.....	4
<b>Vegetable Production Systems.....</b>	<b>5</b>
Victory Garden Designs .....	5
Intensive Garden Designs.....	5
<b>Buying, Saving, and Storing Seed .....</b>	<b>11</b>
Buying Seed.....	11
Saving Your Own Seed .....	11
Storing Seed.....	12
<b>Preparing the Soil.....</b>	<b>13</b>
Testing the Soil.....	13
Adding Organic Matter .....	13
Fertilizing .....	14
Tillage.....	15
<b>Planting.....</b>	<b>15</b>
Planting Vegetable Seeds Outdoors .....	15
Producing and Establishing Transplants .....	17
<b>Caring for Your Garden .....</b>	<b>20</b>
Irrigating.....	20
Controlling Weeds.....	20
Controlling Pests .....	21
Controlling Plant Diseases .....	23
<b>Further Reading and Resources .....</b>	<b>23</b>
Websites.....	23

## 21. Vegetable Crop Recommendations

<b>Introduction .....</b>	<b>1</b>
Fertilizer Recommendations.....	1
Consumptive Yield.....	2
Nutrition .....	2
Soil Temperatures.....	2
<b>Beans.....</b>	<b>3</b>
<b>Beets.....</b>	<b>4</b>
<b>Broccoli.....</b>	<b>6</b>
<b>Brussels Sprouts .....</b>	<b>7</b>
<b>Cabbage.....</b>	<b>9</b>
<b>Cantaloupes.....</b>	<b>10</b>
<b>Carrots.....</b>	<b>12</b>
<b>Cauliflower .....</b>	<b>14</b>
<b>Cucumbers.....</b>	<b>15</b>
<b>Eggplant .....</b>	<b>17</b>
<b>Kohlrabi.....</b>	<b>19</b>
<b>Lettuce .....</b>	<b>20</b>
<b>Onions.....</b>	<b>21</b>
<b>Peas.....</b>	<b>23</b>
<b>Peppers.....</b>	<b>25</b>
<b>Potatoes.....</b>	<b>27</b>
<b>Pumpkins and Winter Squash .....</b>	<b>29</b>
<b>Radishes .....</b>	<b>31</b>
<b>Summer Squash .....</b>	<b>32</b>
<b>Sweet Corn.....</b>	<b>33</b>
<b>Swiss Chard .....</b>	<b>34</b>
<b>Tomatoes .....</b>	<b>35</b>
<b>Watermelons.....</b>	<b>38</b>
<b>Further Reading and Resources .....</b>	<b>40</b>
University of Idaho Extension Publications .....	40

## 22. Fruit Trees

<b>Introduction .....</b>	<b>1</b>
<b>Site Selection .....</b>	<b>1</b>
Without Frost Pockets.....	1
In Full Sun.....	2
In Well-Drained but not Droughty Soil.....	2
<b>Fruit and Nut Cultivars for Idaho .....</b>	<b>2</b>
<b>Types of Tree Fruits .....</b>	<b>2</b>
Pome Fruits (Apples and Pears) .....	2
Stone Fruits.....	3
Nuts.....	4

<b>Rootstock .....</b>	<b>4</b>
Apples .....	4
Pears .....	5
Stone Fruits.....	5
<b>Cultural Practices and Problems.....</b>	<b>5</b>
Planting.....	5
Training and Pruning.....	5
Water Management (Irrigation).....	6
Fertilization .....	7
Insect and Disease Control.....	7
Rodent and Deer Damage .....	8
Vegetative Management Due to Weed and Herbicide Injury .....	8
Preventing Winter Injury.....	9
Cropping Problems .....	9
<b>Further Reading.....</b>	<b>10</b>
Books .....	10
Booklets and Pamphlets.....	10

## 23. Small Fruits

<b>Strawberries .....</b>	<b>1</b>
Botany .....	1
Cultivars in Idaho (in order of ripening) .....	2
Culture .....	2
Common Plant Problems – Diagnosis and Control .....	3
<b>Red Raspberries.....</b>	<b>4</b>
Botany .....	4
Cultivars in Idaho .....	4
Culture .....	5
Common Plant Problems – Diagnosis and Control .....	6
<b>Black and Purple Raspberries.....</b>	<b>7</b>
Botany .....	7
Cultivars in Idaho .....	7
Culture .....	7
Common Plant Problems – Diagnosis and Control .....	7
<b>Trailing Berries (Blackberries) .....</b>	<b>7</b>
Botany .....	8
Cultivars In Idaho .....	8
Culture .....	8
Common Plant Problems – Diagnosis and Control .....	8

<b>Blueberries.....</b>	<b>9</b>
Botany .....	9
Cultivars in Idaho (listed in order of ripening dates) .....	9
Culture .....	9
Common Plant Problems – Diagnosis and Control .....	9
<b>Hardy Kiwi .....</b>	<b>10</b>
Botany .....	10
Cultivars in Idaho .....	10
Culture .....	10
Common Plant Problems – Diagnosis and Control .....	11
<b>Black Currants .....</b>	<b>11</b>
Botany .....	11
Cultivars in Idaho .....	11
Culture .....	11
Common Plant Problems – Diagnosis and Control .....	12
<b>Red and White Currants.....</b>	<b>12</b>
Botany .....	12
Cultivars in Idaho .....	12
Culture .....	12
Common Plant Problems – Diagnosis and Control .....	12
<b>Gooseberries .....</b>	<b>12</b>
Botany .....	12
Cultivars in Idaho .....	13
Culture .....	13
Common Plant Problems – Diagnosis and Control .....	13
<b>Elderberries .....</b>	<b>14</b>
Botany .....	14
Cultivars in Idaho .....	14
Culture .....	14
Common Plant Problems – Diagnosis and Control .....	14
<b>Grapes .....</b>	<b>14</b>
Botany .....	14
Cultivars in Idaho .....	14
Culture .....	15
Common Plant Problems – Diagnosis and Control .....	16
<b>Further Reading.....</b>	<b>17</b>
Books .....	17
Booklets and Pamphlets.....	17

## 24. Houseplants and Home Greenhouses

<b>Environmental Conditions and Requirements</b> .....	1
Plant Needs.....	1
Light .....	1
Temperature .....	2
Humidity .....	2
Irrigation.....	3
Fertilization .....	4
Salt Damage .....	4
Overall Environmental Factors Affecting Plant Growth.....	4
<b>Media, Containers, and Potting</b> .....	5
Root Media .....	5
Container Choice .....	5
Repotting Houseplants .....	5
<b>Controlling Size and Shape</b> .....	6
Phototropism .....	6
Pinch .....	6
<b>Diagnosis of Problems</b> .....	6
Be Observant.....	6
<b>Insect Pests</b> .....	6
Major Insect Pests.....	6
Insect Control.....	7
<b>Plant Diseases</b> .....	7
Common Diseases .....	7
Disease Control .....	7
<b>Propagation</b> .....	8
Clone.....	8
Uniqueness.....	8
<b>Greenhouses</b> .....	8
Types of Greenhouses .....	8
Location and Orientation .....	9
Design and Construction .....	9
<b>Small Beds for Growing Plants</b> .....	12
Cold Frames.....	12
Hotbeds.....	12
Cloches .....	12
<b>Further Reading</b> .....	12
Books .....	12
Booklets and Pamphlets.....	13
Videos.....	13
Slide Sets.....	13

## 25. Organic Gardening

<b>Organic Gardening Overview</b> .....	1
Definitions.....	2
Organic Pesticides .....	2
Site Selection.....	2
<b>Soil Fertility and Amendments</b> .....	2
<b>Dealing with Pests</b> .....	4
<b>Pest Control Strategies (Idaho Information)</b> .....	5
<b>Weed Control</b> .....	5
Vinegar.....	5
Corn Gluten.....	5
Cultivation.....	5
Mulching.....	5
Thermal Weeding, Flaming.....	6
Soil Solarization .....	6
Soap-Based and Oil-Based Herbicides .....	6
Other Methods.....	6
<b>Insect Control</b> .....	6
Mechanical Control.....	7
Biological Control .....	7
Chemical Control.....	8
<b>Disease Control</b> .....	10
Popular Fungicides .....	11
<b>Summary</b> .....	12
<b>Further Reading</b> .....	12
Booklets and Pamphlets.....	12
Books .....	12
Websites.....	12

## Glossary