

## CONTENTS

<b>HISTORY OF GINSENG IN BRITISH COLUMBIA .....</b>	1
Historic Plantings in British Columbia .....	1
Recent Plantings in British Columbia .....	1
British Columbia Statistics .....	1
Use of Ginseng .....	1
The Associated Ginseng Growers of British Columbia .....	2
Other Useful Publications .....	2
Panax on Internet .....	2
Regulated Movement of Ginseng .....	2
<b>ANATOMY AND CLASSIFICATION OF AMERICAN GINSENG .....</b>	3
Anatomy .....	3
Plant Characteristics .....	4
<i>First Year Plant</i> .....	4
<i>Second Year Plant</i> .....	4
<i>Third Year Plant</i> .....	4
<i>Fourth Year Plant</i> .....	4
Roots .....	4
Seeds .....	4
Buyer Purchasing Criterion .....	5
Cultural Highlights .....	5
<i>Plant Hardiness</i> .....	5
<i>Dormancy Requirements</i> .....	6
<i>Water Requirements</i> .....	6
<i>Other External Factors</i> .....	6
<i>Light Requirements</i> .....	6
Classification of Ginseng .....	6
<i>Technical nomenclature</i> .....	6
<i>Ginseng Industry Terminology</i> .....	6
<i>Ginseng Types</i> .....	7
<i>Panax Genus Plants</i> .....	7
<i>'Impostors' using the Name Ginseng</i> .....	8
<b>SITE SELECTION FOR GINSENG GROWING .....</b>	9
Selection Considerations .....	9
<i>Soil Physical Properties</i> .....	9
<i>Soil Chemistry</i> .....	9
<i>Soil Depth</i> .....	9
<i>Previous Crops</i> .....	10
<i>Cool Sites</i> .....	10
<i>Frost Pocket Areas</i> .....	10
<i>Slope of Site</i> .....	10
<i>Direction Site is Facing</i> .....	10
<i>Ginseng Replant 'Disorder'</i> .....	10
<i>Leasing Land — A Checklist</i> .....	11
The Physical Nature Of Soils .....	11
<i>Soil Composition and Soil Properties</i> .....	11
<i>Soil Sampling for Laboratory Analysis</i> .....	13
<i>What a Soil Test Can and Cannot Do</i> .....	14
<i>Sample Preparation and Shipping Information</i> .....	14
<i>Soil Testing Procedures</i> .....	14
<i>Plant Tissue Sampling</i> .....	15
The Climate of the Interior of British Columbia .....	17
<i>Precipitation and Other Moisture Related Parameters</i> .....	17
<i>Temperature and Other Parameters Derived from Temperature</i> .....	18

<i>Mesoclimate</i> .....	18
<i>Solar Radiation</i> .....	18
<i>Slope and Aspect</i> .....	19
<i>Elevation</i> .....	19
<i>Wind</i> .....	20
<b>SITE PREPARATION</b> .....	21
<b>Critical Preparation Elements</b> .....	21
<i>Elimination of previous perennial crops and weeds</i> .....	21
<i>Low Organic Matter (OM)</i> .....	21
<i>Soil Testing for Chemistry, Nutrients and Pests</i> .....	21
<i>Rock Removal</i> .....	21
<i>Drainage</i> .....	21
<b>Maintaining Soil Structure And Fertility</b> .....	21
<i>The Formation of Soil Structure</i> .....	22
<i>Plant Roots</i> .....	22
<i>Soil Organisms and Organic Matter</i> .....	22
<i>Soil Texture – Clay</i> .....	22
<i>Soil Water – Wetting and Drying – Freezing and Thawing</i> .....	22
<i>Soil Structure, Degradation and Plant Growth</i> .....	22
<i>Crusting and Puddling</i> .....	23
<i>Soil Compaction</i> .....	23
<i>How To Recognize A Compacted Soil</i> .....	23
<i>Effect of Soil Compaction on Crops</i> .....	24
<i>Factors Influencing Compaction</i> .....	24
<i>The Causes Of Soil Compaction</i> .....	24
<i>Soil Fertility</i> .....	26
<b>Practical Aspects of Soil Management</b> .....	26
<i>Land Clearing and Levelling</i> .....	26
<i>Tillage – Introduction</i> .....	27
<i>Tillage Implements</i> .....	27
<i>Soil Loosening/Subsoiling</i> .....	30
<i>Critical Working Depth</i> .....	31
<i>The Six Cases for Subsoiling</i> .....	31
<i>Implementation of Soil Loosening</i> .....	33
<i>Soil Amendments</i> .....	33
<i>Inorganic Matter</i> .....	36
<b>Fumigation of Ginseng Gardens</b> .....	36
<i>Why do you fumigate or What does fumigation control?</i> .....	37
<i>Three major factors affecting effectiveness of fumigation</i> .....	37
<i>Guidelines For Fumigation</i> .....	37
<i>Re-infection of Gardens</i> .....	37
<i>Fumigation Products</i> .....	37
<b>Nematode Diagnostic Services</b> .....	38
<i>Sampling for Nematode Detection</i> .....	38
<i>Taking a Root Sample</i> .....	38
<i>When to Sample</i> .....	38
<b>NUTRITIONAL REQUIREMENTS FOR GINSENG</b> .....	39
<b>Fertilizer Reactions in Soil</b> .....	39
<b>Nutritional Deficiencies</b> .....	39
<b>Sources of Nutrients</b> .....	40
<i>Soil Testing and Fertilization For Ginseng</i> .....	40
<i>Soil Organic Matter (OM)</i> .....	40
<i>Soil pH</i> .....	40
<i>Salt</i> .....	40
<i>Nitrogen</i> .....	41
<i>Phosphorus</i> .....	41
<i>Potassium</i> .....	42

Calcium .....	43
Magnesium .....	43
Sodium .....	43
Sulphur .....	43
Boron .....	44
Zinc .....	44
Calculation of Fertilizer Rates .....	45
Methods of Fertilizer Application (terms defined) .....	45
Nutrient Deficiency Symptoms .....	46

## **WATER AVAILABILITY AND WATER QUALITY** ..... 49

Water Availability .....	49
<i>Water Demand for Site Preparation</i> .....	49
<i>Water for Ginseng Irrigation</i> .....	49
<i>Water for Heat Stress Cooling</i> .....	49
<i>Water for Spraying Pesticides</i> .....	50
Water Quality .....	50
<i>pH Requirements of some Spray Tank Solutions</i> .....	51
<i>Hard or Soft Water</i> .....	51
<i>Sources of Pathogen Infection</i> .....	51

## **WATER MANAGEMENT AND IRRIGATION SYSTEMS** ..... 53

Water Management .....	53
<i>General Irrigation Comments</i> .....	53
<i>Maximum Soil Water Deficit</i> .....	53
<i>Effective Rooting Depth</i> .....	53
<i>Available Water Storage Capacity</i> .....	53
<i>Availability Coefficient of Crop</i> .....	53
<i>Maximum Irrigation System Application Rate</i> .....	54
<i>Maximum Irrigation Interval</i> .....	54
<i>Evapotranspiration Rates</i> .....	54
Irrigation Application Systems .....	54
<i>Irrigation System Types</i> .....	55
<i>Irrigation Scheduling</i> .....	55
<i>Backflow Prevention Valve</i> .....	56
<i>Fertigation/Chemigation With Irrigation System</i> .....	56
<i>Trickle Irrigation</i> .....	56

## **GINSENG GARDEN PLANNING** ..... 57

Introduction .....	57
Wood Lath Gardens .....	57
Garden Design and Choices .....	58
<i>Shade Cloth</i> .....	58
<i>Shade Cloth Types</i> .....	58
<i>Importing Shade Cloth</i> .....	59
<i>Quality of Shade Cloth</i> .....	59
<i>Number of Grommets</i> .....	59
<i>Cloth Colour</i> .....	59
<i>Problems and Considerations with Shade Materials</i> .....	59
<i>Post Placement for Various Widths of Shade Cloth</i> .....	60
<i>Post Types for Garden Construction</i> .....	61
<i>Anchors</i> .....	61
<i>Assorted Hardware for Building Ginseng Gardens</i> .....	61
<i>Cable for Garden Construction</i> .....	61
<i>Side Shade and End Shade</i> .....	62
<i>Bed Formation</i> .....	62
<i>Erosion Control</i> .....	62

## **SEED SELECTION, PRE-PLANT HANDLING AND SEEDING PROCEDURES .....** 63

Seed Viability/Quality .....	63
Seed Purchasing — Types .....	63
Sources of Seed .....	63
Multiple Seed Sources .....	63
Importing Regulations for Seed .....	64
Storing Seed After Purchasing .....	64
Seeding Ginseng Gardens .....	64
Seeder Types .....	64
Seeding Rate/Density .....	64
Germination Percentage .....	65
Seeding — Timing .....	65
Seeding Pattern .....	65
Seed Treatments for Seeding Ease .....	65
Seed Stratification Procedures .....	65

## **MULCHING FOR GINSENG BEDS .....** 67

Introduction .....	67
Mulching Beds .....	67
Straw Type .....	67
Mulch Security .....	67
Weeds in Straw Mulch .....	67
Value of Mulch .....	67
Mulch Facts .....	68
Sawdust Mulches .....	68
Sources of Straw .....	68

## **GENERAL GARDEN MAINTENANCE .....** 69

Weeding .....	69
Straw Maintenance .....	69
Garden Walking .....	69
Subsoiling for Water Control .....	69
Seed Head Removal .....	69
Mechanical Maintenance .....	70

## **GENERAL PESTICIDES AND SAFETY .....** 71

Legislation .....	71
Canadian Laws .....	71
<i>Pest Control Products (PCP) Act and Regulations .....</i>	71
<i>The Food and Drugs Act .....</i>	71
<i>The Fisheries Act and Migratory Birds Regulations .....</i>	71
<i>Transportation of Dangerous Goods Act .....</i>	71
British Columbia Laws .....	71
<i>Pesticide Control Act and Regulations .....</i>	71
<i>Workers' Compensation Board .....</i>	71
Toxicity .....	72
<i>Hazard Shapes and Symbols .....</i>	72
<i>Exposure .....</i>	73
<i>Hazard .....</i>	73
Poisoning and First Aid .....	73
<i>Symptoms of Pesticide Poisoning .....</i>	73
<i>Poison Control Centres .....</i>	73
<i>First Aid .....</i>	73
<i>Protective Clothing and Equipment .....</i>	73
<i>Cleaning Protective Clothing and Equipment .....</i>	74

Personal and Environmental Safety Guidelines .....	75
<i>Buying Pesticides</i> .....	75
<i>Transporting Pesticides</i> .....	75
<i>Storing Pesticides and Shelf Life</i> .....	75
<i>Mixing and Loading Pesticides</i> .....	75
<i>Applying Pesticides</i> .....	75
<i>After Applying Pesticides</i> .....	76
<i>Disposal of Unwanted Pesticides</i> .....	76
<i>Disposal of Containers</i> .....	76
<i>Re-entry Restrictions</i> .....	76
<i>Harvesting Restrictions</i> .....	76
Special Environmental Precautions .....	77
<i>Protecting Fish and Other Wildlife</i> .....	77
<i>Protecting Bees and Beneficial Insects</i> .....	77
<i>Protecting Groundwater</i> .....	77
<i>Emergency Response</i> .....	77
<i>Spills</i> .....	77
<i>Fires</i> .....	78
Pesticide Application Equipment .....	78
<i>Operation and Calibration of Sprayers</i> .....	78
<i>Power Source</i> .....	78
<i>Pumps</i> .....	78
<i>Tanks</i> .....	78
<i>Nozzles</i> .....	79
<i>Nozzle sizes</i> .....	80
<i>Nozzle Tip Materials</i> .....	80
<i>Screens</i> .....	80
<i>Spray Volume</i> .....	81
<i>Recommended Pressures</i> .....	81
<i>Sprayer Swath Width</i> .....	82
<i>Sprayer Boom</i> .....	82
Calibrating Equipment .....	82
<i>Calibrating Boom Sprayers</i> .....	82
<i>Calibrating Granular Applicators</i> .....	84
<i>Calibrating Hand-operated Sprayers</i> .....	85
Cleaning of Spraying Equipment .....	86
<i>Sprayer Cleaning (Interior)</i> .....	86
<i>Sprayer Cleaning (Exterior)</i> .....	86
Tips on Spraying Equipment .....	87
Pesticide Toxicity .....	87
<b>PEST MANAGEMENT</b> .....	89
General Information .....	89
<i>Integrated Pest Management</i> .....	89
<i>Beneficial Insects</i> .....	89
<i>Insect Management</i> .....	89
<i>Disease Management</i> .....	89
<i>Weed Management</i> .....	90
<i>Crop Injury From Herbicide Residues</i> .....	90
<i>Spreader/Wetting Agents</i> .....	90
General Pests .....	90
<i>Cutworms</i> .....	90
<i>Grasshoppers (Interior only)</i> .....	90
<i>Wireworms</i> .....	91
<i>Other Insects</i> .....	92
<i>Slugs</i> .....	92
Animals and Animal Damage .....	92
<i>Field Mice (Voles)</i> .....	92
<i>Pocket gophers (Interior only)</i> .....	92

<i>Snakes — Venomous and non-venomous</i> .....	93
<i>Deer and Bear</i> .....	93
<i>Pheasants</i> .....	93
<i>Starlings and White Crowned Sparrow</i> .....	93
Weeds .....	93
<i>Preplow Cleanup of Perennial Weeds</i> .....	93
General Ginseng Disease Management .....	93
<i>Disease Prevention Measures</i> .....	94
<i>Site Selection</i> .....	94
<i>Purchasing Seed</i> .....	94
<i>Seed Treatments</i> .....	94
<i>Disease Identification</i> .....	95
Occurrence of Ginseng Diseases .....	98
Disease Prediction Systems .....	99
Types and Timing of Fungicides .....	99
<i>Protectant Fungicides</i> .....	99
<i>Systemic Fungicides</i> .....	99
Tips on Applying Fungicides .....	99
Sample Fungicide Spray Schedule .....	100

## SPECIFIC DISEASES OF GINSENG .....

### 101

Alternaria Blight .....	101
<i>Symptoms of Alternaria</i> .....	101
<i>Disease Cycle</i> .....	101
Control of Alternaria Blight .....	102
Botrytis Blight .....	103
<i>Symptoms</i> .....	103
<i>Disease Cycle</i> .....	103
<i>Contributing Factors</i> .....	103
<i>Disease Control</i> .....	103
Damping-off of Seeds and Young Seedlings .....	105
<i>Symptoms</i> .....	105
<i>Disease Cycle</i> .....	105
<i>Contributing Factors</i> .....	105
<i>Management and Establishment Practices to Reduce Damping-off</i> .....	106
<i>Prevention of Damping-off with Fungicides</i> .....	106
<i>Disease Identification and Treatment</i> .....	107
Disappearing Root Rot .....	108
<i>Symptoms</i> .....	108
<i>Disease Cycle</i> .....	108
<i>Control</i> .....	108
Nematodes .....	108
Phytophthora Foliar Blight .....	109
<i>Symptoms of Phytophthora Foliar Blight</i> .....	109
<i>Disease Cycle</i> .....	109
<i>Management Practices to Prevent Phytophthora Foliar Blight</i> .....	109
<i>Control of Phytophthora Foliar Blight</i> .....	110
Phytophthora Root Rot .....	109
<i>Symptoms of Phytophthora Root Rot</i> .....	110
<i>Disease Cycle</i> .....	110
<i>Management Practices to Prevent Phytophthora Root Rot</i> .....	110
<i>Control of Phytophthora Root Rot</i> .....	110
<i>Fungicide Recommendations for Phytophthora Control</i> .....	111
Powdery Mildew of Ginseng .....	112
Rhizoctonia Disease of Ginseng .....	112
<i>Symptoms of Rhizoctonia</i> .....	112
<i>Disease Cycle</i> .....	112
<i>Control of Rhizoctonia Root Rot</i> .....	111

Rusty Root .....	113
<i>Symptoms of Rusty Root</i> .....	113
<i>Control of Rusty Root</i> .....	113
Sclerotinia White Mold .....	113
Slime Mold .....	113
Stromatinia Rot .....	113
<i>Disease Control</i> .....	113
Verticillium Wilt .....	114
<i>Disease Cycle</i> .....	114
Ginseng Viruses .....	114
Pesticide Use for Disease Control .....	114
<b>PHYSIOLOGICAL DISORDERS OF GINSENG PLANTS</b> .....	117
Chemical Injury .....	117
Cold Injury and Frost .....	117
Genetics .....	117
Heat Stress Injury .....	117
<i>Recommendations</i> .....	118
High Salts (Electrical Conductivity) .....	118
Mechanical Injury .....	118
Nutrient Deficiency/Excesses (Imbalances) .....	118
Relative Humidity (Rh) .....	118
Rusty Root .....	118
Soil Problems .....	119
Sun Scorch (Sun Scald) .....	119
Water Stress .....	119
Wind Injury .....	120
Winter Injury .....	120
Premature Bud Development (Late Fall) .....	120
<b>HARVESTING SEED</b> .....	121
Timing of Seed Harvest .....	121
Labour Requirements .....	121
Flower Removal Vs Seed Production .....	121
Stratification of Seed .....	121
Purchasing Ginseng Seed .....	122
Seed Stratification Procedures .....	122
Cold Storage Stratification .....	123
Checklist of Concerns .....	123
<b>HARVESTING GINSENG ROOT AND POST HARVEST HANDLING</b> .....	125
Timing of Ginseng Harvest .....	125
Removal of Post, Cable and Mulch .....	125
Digging Process .....	125
Labour .....	126
Digger Types .....	126
Yields/Volume .....	126
Cold Storage .....	126
Washing .....	127
Drying .....	127
Ginseng Quality .....	129
Ginseng Storage .....	129
Cleanliness of Root Storage Buildings Bins and Containers .....	129

<b>EXPORT AND MARKETING OF GINSENG .....</b>	131
Endangered Species .....	131
Market Areas .....	131
<i>South East Asia</i> .....	131
<i>Europe</i> .....	131
<i>Domestic</i> .....	131
Marketing Forms .....	132
<i>Field Run</i> .....	132
<i>Graded</i> .....	132
<i>Ginsenocide Tested</i> .....	132
<i>Fresh</i> .....	132
Value Added Products .....	132
Exporting Procedures .....	132
<b>APPENDICES .....</b>	135
Planning for Profit — Ginseng Southern Interior, Spring 2002 .....	135
Farm Management Factsheet — Ginseng Leasing .....	139
Panax Internet Discussion Group .....	141
CITES form .....	142
Pesticide Residue Monitoring in British Columbia .....	143
The Metric System .....	144
Ginseng Grower Spray Records .....	146
Pesticide Application Options .....	149
Spray Volume .....	149
Pesticide Application Rate .....	150
Individual Pesticide Data Sheets .....	151
ALIETTE® WDG (fosetyl AL) for Ginseng .....	151
BRAVO® 500 (chlorothalonil)—for Ginseng .....	152
DIPEL® 2X DF .....	153A
DITHANE (mancozeb)—for Ginseng .....	153
DYRENE® 50% WP (amilazine )—for Ginseng .....	154
FORMALDEHYDE SOLUTION 37% WP (formalin)—for soil treatment and general disinfection .....	155
RIDOMIL® 2G (metalaxyl)—for Ginseng .....	156
RIDOMIL® 240EC (metalaxyl)—for Ginseng .....	157
ROVRAL® (iprodione)—for Ginseng .....	158
QUADRIS® (azoxystrobin)—for Ginseng .....	159
POUNCE® (Permethrin)—for Ginseng .....	161
ROUNDUP TRANSORB® .....	162
VENTURE L® (fluazifop-P-butyl)—for Ginseng .....	163
TOUCHDOWN® 480 (glyphosate)—for Ginseng .....	165
Laboratories .....	165
British Columbia Ministry of Agriculture, Food and Fisheries Office Locations .....	166
Chemical Company Addresses and Phone Numbers .....	167
Calibration Worksheets .....	169

## LIST OF TABLES

<b>TABLE 1 .....</b>	<b>11</b>
The four main soil types	
<b>TABLE 2 .....</b>	<b>12</b>
Soil particle size and characteristics	
<b>TABLE 3 .....</b>	<b>13</b>
Physical characteristics of soil textural groups	
<b>TABLE 4 .....</b>	<b>16</b>
Instructional diagram for texturing by feel	
<b>TABLE 5 .....</b>	<b>19</b>
Effect of soil surface cover on temperature within a crop	
<b>TABLE 6 .....</b>	<b>20</b>
Summary of climatological data for some representative atmospheric environment service stations in the interior of British Columbia	
<b>TABLE 7 .....</b>	<b>23</b>
Examples of average mineral soil bulk densities	
<b>TABLE 8 .....</b>	<b>34</b>
Typical nutrient contents of various manures	
<b>TABLE 9 .....</b>	<b>35</b>
Cover crop species, seeding rates and seeding times	
<b>TABLE 10 .....</b>	<b>38</b>
Fumigation products available for soil fumigation	
<b>TABLE 11 .....</b>	<b>39</b>
Ranges for levels of micronutrients in soil (ug/ml)	
<b>TABLE 12 .....</b>	<b>42</b>
Relationship between phosphorus and potassium	
<b>TABLE 13 .....</b>	<b>46</b>
Symptoms of foliar nutrient deficiencies and corrective treatments	
<b>TABLE 14 .....</b>	<b>47</b>
Soil laboratory report interpretation –example	
<b>TABLE 15 .....</b>	<b>50</b>
Guidelines for irrigation water quality	
<b>TABLE 16 .....</b>	<b>51</b>
Water pH scale showing ideal pH for spraying chemicals	

<b>TABLE 18</b>	.....	87
List of pesticide common names, trade names and relative toxicity		
<b>TABLE 20</b>	.....	96
Diagnostic key of ginseng diseases		
<b>TABLE 21</b>	.....	98
Occurrence of diseases and disorders during the growing season and dormant period		
<b>TABLE 21A</b>	.....	100
Sample ginseng spray schedule		
<b>TABLE 22</b>	.....	102
Pest control products for <i>Alternaria</i> control on ginseng		
<b>TABLE 23</b>	.....	103
Pest control guidelines for control of <i>Botrytis</i> disease on ginseng		
<b>TABLE 24</b>	.....	107
Pest control chemicals for crown rot and damping-off diseases on ginseng		
<b>TABLE 24A</b>	.....	109
Nematode and fumigation recommendations		
<b>TABLE 25</b>	.....	111
Fungicides for <i>Phytophthora</i> control on ginseng		
<b>TABLE 26</b>	.....	133
Export requirements — ginseng seed/roots/products		

## LIST OF FIGURES

<b>FIGURE 1 .....</b>	<b>3</b>
The American ginseng plant—botanical terminologies	
<b>FIGURE 2 .....</b>	<b>5</b>
Diagram showing plant developmental changes from 1-4 year old plants	
<b>FIGURE 3 .....</b>	<b>8</b>
Line diagram of <i>Aralia Nudicaulis</i>	
<b>FIGURE 4 .....</b>	<b>11</b>
Composition of typical silt loam soil	
<b>FIGURE 5 .....</b>	<b>12</b>
Soil textures	
<b>FIGURE 6 .....</b>	<b>12</b>
Well-structures versus poorly structured soils	
<b>FIGURE 7 .....</b>	<b>17</b>
Typical winter weather patterns in southern British Columbia	
<b>FIGURE 8 .....</b>	<b>18</b>
Typical summer weather patterns in southern British Columbia	
<b>FIGURE 9 .....</b>	<b>25</b>
Puddling of soil particles	
<b>FIGURE 10 .....</b>	<b>25</b>
Effects of wheel traffic on soil	
<b>FIGURE 11 .....</b>	<b>25</b>
Schematic diagram of the effect of tillage practices on soil	
<b>FIGURE 12 .....</b>	<b>28</b>
Schematic drawing of the action of rotary cultivation	
<b>FIGURE 13 .....</b>	<b>28</b>
Rotary spade	
<b>FIGURE 14 .....</b>	<b>29</b>
Schematic drawing comparing the effect of shovel and chisel cultivation on soil	
<b>FIGURE 15 .....</b>	<b>29</b>
Schematic drawing of the action of disc implements	
<b>FIGURE 16 .....</b>	<b>30</b>
Schematic drawing of the effect of plowing on soil	

<b>FIGURE 17</b>	.....	31
Cross section showing soil disturbances caused by subsoilers just above and just below the critical depth		
<b>FIGURE 18</b>	.....	56
Diagram of tank filling system		
<b>FIGURE 19</b>	.....	58
Requirements for post placement		
<b>FIGURE 20</b>	.....	58
General layout of a ginseng garden		
<b>FIGURE 21</b>	.....	58
Lath weave construction shade cloth		
<b>FIGURE 22</b>	.....	59
Typical weave pattern for side panels		
<b>FIGURE 23</b>	.....	60
Post placement requirements for various widths of shade cloth		
<b>FIGURE 24</b>	.....	72
Pesticide warning symbols		
<b>FIGURE 25</b>	.....	79
Components of field spraying equipment		
<b>FIGURE 26</b>	.....	79
Flat nozzle spray pattern		
<b>FIGURE 27</b>	.....	80
Even spray nozzle spray pattern		
<b>FIGURE 28</b>	.....	80
Assembly of disc-core cone nozzles		
<b>FIGURE 29</b>	.....	81
Nozzle screens and strainers		
<b>FIGURE 30</b>	.....	81
Boom sprayer with drop-pendants		
<b>FIGURE 31</b>	.....	82
Broadcast swath width		
<b>FIGURE 32</b>	.....	82
Ginseng swath width		