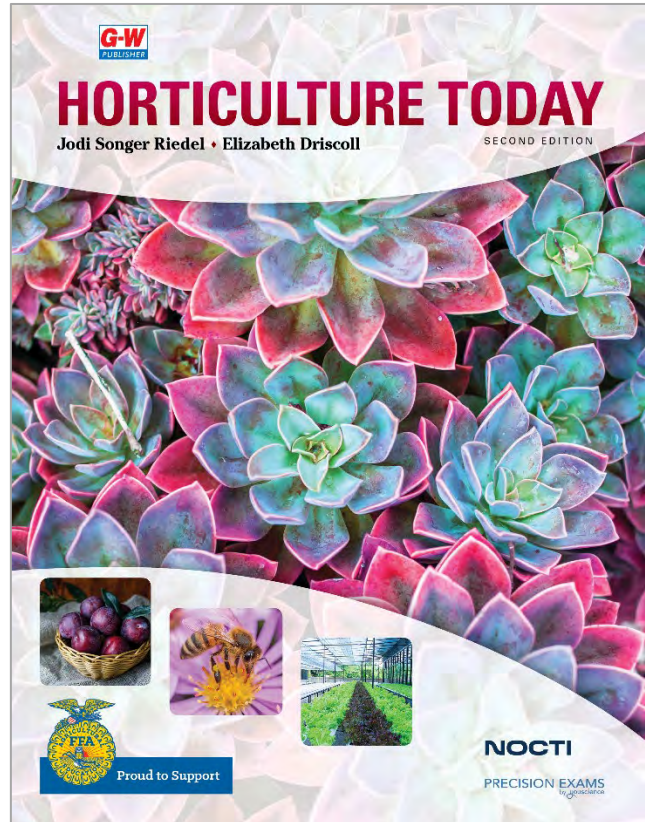


**Correlation of
Horticulture Today, Jodie Songer Riedel and Elizabeth Driscoll
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**to
Plant and Soil Science II, Exam 143.18
Precision Exams by YouScience**

Goodheart-Willcox is pleased to partner with Precision Exams by YouScience by correlating *Horticulture Today* to their Small and Companion Animal Science standards. Precision Exams standards and Career Skills Exams were created in concert with industry and subject matter experts to match real-world job skills and marketplace demands. Students that pass the exam and performance portion of the exam can earn a Career Skills Certification. The correlation chart below lists the standards, objectives, and indicators for the Plant and Soil Science exam 143.18 in the left column. Corresponding content from *Horticulture Today* that can be used by a student to help achieve the standard, objective, or indicator is listed in the right column.

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Standards / Objectives / Indicators	Textbook Pages
STANDARD 1 Students will develop personal, leadership, and career skills through student organization participation.	
<p>Objective 1 Assess the role of student organization participation in developing personal and leadership skills.</p>	<p>CH 1 Agricultural Leadership 2-27 Agricultural Leadership Organizations for Youth 8-10 Leadership Development in FFA 12-15</p>

Standards / Objectives / Indicators	Textbook Pages
<p>1. Identify important personal skills and the strategies used in developing the skills.</p>	<p>Leadership Characteristics 4-5 Develop a Leadership Path 5-8 Hands-On Leadership: Shipwrecked 33 Ownership/Entrepreneurship SAE (paragraph 5-6) 36 SAE OP #1 p55 Written Communication 59-65 Critical Thinking and Research 66-70 SAE OP #4 p143 ST #5 p261 CA #1 p290 SAE OP #1 p290; SAE OP #1, #2, #3, #5 p321; SAE OP #1 p348; SAE OP #1 p374; SAE OP #1 and #3 p395; SAE OP#1 and #3 p417; SAE OP #1 p441; SAE OP #1 p487 SAE OPs Many more of these discuss personal skills and strategies used in developing these skills.</p>
<p>2. Identify important leadership skills and the role of student organization participation in developing the skills.</p>	<p>CH 1 Agricultural Leadership pp. 2-27 Agricultural Leadership Organizations for Youth 8-10 Leadership Development in FFA 12-15 ST #4 p26 SAE OP #5 p27</p>
<p>Objective 2 Assess the role of student organization participation in developing career skills.</p>	<p>Agricultural Leadership Organizations for Youth 8-10 National FFA Organization 10-20</p>
<p>1. List and describe proficiency awards appropriate for horticulture.</p>	<p>Agricultural Proficiency Awards 47-49</p>
<p>2. List and describe career development events appropriate for horticulture.</p>	<p>Career Development Events 19 Leadership Development Events 20</p>
<p>3. Relate the importance of supervised agricultural experience to student organization achievement.</p>	<p>Supervised Agricultural Experience 20-21 CH 2 Experiential Learning: SAE 28-55 SAE and Agricultural Education 30-33 The SAE Program Process 41-47</p>
<p>4. Utilize student organization and supervised agricultural experience participation to gain advanced degrees of student organization membership.</p>	<p>SAE Awards and Recognitions 47-49 SAE for ALL Opportunities are included at the end of each chapter.</p>
<p>STANDARD 2 Students will explain the maintenance and expansion of supervised agricultural experience programs.</p>	
<p>Objective 1 Maintain and use agricultural experience records.</p>	<p>Supervised Agricultural Experience 20-21 Coordinate 45 Keep Records 46</p>
<p>1. Explain how agricultural experience records are maintained from year to year.</p>	<p>Keep Records 46</p>

Standards / Objectives / Indicators	Textbook Pages
2. Explain how to summarize and analyze agricultural experience records	Supervised Agricultural Experience 20-21 Coordinate 45 Keep Records 46
Objective 2 Devise long-range plans for expanding agricultural experience programs.	Goals 45
1. Evaluate the overall quality of a current agricultural experience and determine how to make it more productive or profitable.	SAE OP #6 291 ST #3 374 SAE OP #5 375 SAE OP #4 441
2. Explain factors that should be considered in expanding an agricultural experience program.	CH 2 Experiential Learning: SAE 28-55
3. Explain how placement agricultural experience and ownership agricultural experience programs may be expanded.	Placement/Internship SAE 36-38 SAE OP #6 291
STANDARD 3 Students will describe plant physiology concepts.	
Objective 1 Explain plant physiology concepts and energy conversion in plants.	CH 8 Plant Biology 212-237 CH 9 Plant Growth and Development 238-
1. Explain cell differentiation and the functions of the major types of plant cells.	Plant Cells 215-218
2. Relate the active and passive transport of minerals into and through the root system.	Roots 222
3. Describe the processes of translocation.	Translocation of Sugars through Phloem 249
4. Explain the process of secondary plant growth.	Plant Tissues 218-221
5. Explain the light-dependent and light-independent reactions that occur during photosynthesis and apply the knowledge to plant management.	Photosynthesis 240-244 Light-Dependent Reaction 242-243 Light-Independent Reaction 243-244 ST #1 p261 ST #2 p290
6. Explain the four stages of aerobic respiration and relate cellular respiration to plant growth, crop management, and post-harvest handling.	Respiration 244-245 ST #1 p84 TC #1 p261 ST #1-2 p261
STANDARD 4 Students will explain range resources and management practices.	
Objective 1 Describe practices associated with range management.	
1. Evaluate range management systems, economics, and improvement techniques.	
2. Determine livestock and wildlife use on rangeland.	
3. Describe range management practices related to plant growth and development.	

Standards / Objectives / Indicators	Textbook Pages
4. Establish a range transect and use it to evaluate a specific location.	
Objective 2 Collect and prepare plant tissue and soil samples for analysis and interpret test results.	Plant Tissues 218-221 Hands-On Horticulture: Taking a Soil Test and Reading a Soil Report 304 STEM Connection: Using the Soil Triangle 308
1. Explain the reasons for analyzing plant tissue and soil samples.	Plant Tissues 218-221 TC #1-3 p320
2. Describe the procedures in collecting and preparing plant tissue and soil samples for analysis.	Hands-On Horticulture: Taking a Soil Test and Reading a Soil Report 304 STEM Connection: Using the Soil Triangle 308
3. Test soil samples for nutrient content.	Hands-On Horticulture: Taking a Soil Test and Reading a Soil Report 304
4. Interpret test results from plant tissue and soil samples.	Hands-On Horticulture: Taking a Soil Test and Reading a Soil Report 304
STANDARD 5 Students will describe integrated pest management.	
Objective 1 Describe the principles of integrated pest management (IPM).	CH 29 Integrated Pest Management 774-801
1. Explain IPM.	Introduction 776 Creating an IPM 776-777
2. Identify benefits of IPM.	Introduction 776 SAE OP #6 p880
3. Describe pest control strategies associated with IPM.	Control Measures 781-782 Inspection and Monitoring 782-786 Corrective Actions 787-791
Objective 2 Identify and manage plant pests and diseases.	Pests 777-781 Pest Identification 786 Pest identification glossary (illustrated) 799-801 CH 30 Insects 802-829 CH 31 Disease Management 830-861 Disease identification glossary (illustrated) 857-861 CH 32 Weeds 862-883 Weed identification glossary (illustrated) 881-883

Standards / Objectives / Indicators	Textbook Pages
1. Identify types of plant pests and disorders.	Pests 777-781 Pest Identification 786 Pest identification glossary (illustrated) 799-801 CH 30 Insects 802-829 CH 31 Disease Management 830-861 Disease identification glossary (illustrated) 857-861 CH 32 Weeds 862-883 Weed Identification 869-871 Weed identification glossary (illustrated) 881-883
2. Describe the classification of weeds.	CH 32 Weeds 862-883 Weed Identification 869-871 Weed identification glossary (illustrated) 881-883
3. Explain the classification of insects and nematodes.	Pests 777-781 Taxonomy 814-816
4. Explain the classification of plant diseases.	Organisms That Cause Disease 835-837 Types of Diseases 837-838
5. Identify weeds, insect pests, and infectious and noninfectious plant diseases.	Pest Identification 786 Pest identification glossary (illustrated) 799-801 Signs and Symptoms of Disease 840-842 Disease identification glossary (illustrated) 857-861 Weed Identification 869-871 Weed identification glossary (illustrated) 881-883
6. Explain scouting of field crops for pests	Weed Counts p785
Objective 3 Explain procedures for the safe handling, use, and storage of pesticides.	CH 33 Pesticide Management and Safety 894-907
1. Explain risks and benefits associated with the materials and methods used in plant pest management.	Introduction 776 Selecting Personal Protective Equipment 895 SAE OP #6 p828
2. Interpret pesticide labels.	Pesticide Labels 891-894 Figure 33-10 (pesticide label example) 892 Activity in Lab Workbook, CH 33
3. Explain procedures for mixing and storing pesticides.	Mixing a Pesticide 896-897 Storage and Disposal 894 Storage and Disposal 900-901
4. Describe types of pesticide controls and formulations.	Types of Pesticides 886-890 Pesticide Formulations 890-891
5. Explain the safety practices in applying pesticides.	Pesticide Application 894-897 Hands-On Horticulture: Biopesticide Application 896
6. Calibrate equipment used in applying pesticides.	

Standards / Objectives / Indicators	Textbook Pages
7. Describe the proper disposal of surplus pesticides and empty containers.	Storage and Disposal 894 Storage and Disposal 900-901
8. Evaluate environmental and consumer concerns regarding pest management strategies.	Recordkeeping and Evaluation 786 Managing Plant Diseases 842-843
STANDARD 6 Students will investigate principles of biotechnology as related to plant science.	
Objective 1 Explain biotechnology.	CH 20 Alternative Growing Methods 516-541
1. Define biotechnology and explore its historic impact on agriculture.	History of Hydroponics 519-520
2. Describe current applications of biotechnology in agriculture.	CH 17 Tissue Culture: Micropropagation 442-459 Crops (biopharming) 525 STEM Connection: Induced Mutations in Plant Breeding 255 USDA's Agriculture Research Service (ARS) National Center for Genetic Resources Preservation (NCGRP) 455 Plant Material 782
3. Describe the role of agencies that regulate biotechnology.	
4. Identify examples of ethical, legal, social, and cultural biotechnology issues.	Advantages and Disadvantages 446-447 TC #1-2 p458
5. Describe benefits and risks associated with biotechnology.	Advantages and Disadvantages 446-447
Objective 2 Explain selective plant breeding.	Reproduction 249-250 Plant Breeding Principles 253-255
1. Describe the selective plant breeding process.	Plant Breeding Principles 253-255 Hands-On Horticulture: Crossbreeding Petunias 253
2. Explain how to estimate the heritability of certain traits.	Plant Breeding Principles 253-255
3. Predict the genotypes and phenotypes from monohybrid and dihybrid crosses by using the Punnett square.	Plant Breeding Principles 253-255
4. Describe sex determination, linkage, crossover, and mutation.	Plant Breeding Principles 253-255
5. Describe how biotechnology tools are used to monitor and direct plant breeding.	Plant Breeding Principles 253-255 Stages of Micropropagation 448-452
Objective 3 Examine genetic engineering of plants.	CH 17 Tissue Culture: Micropropagation 442-459

Standards / Objectives / Indicators	Textbook Pages
1. Explain the reasons for genetic modification of plants.	Hybrids 366 Plant Material 782 STEM Connection: Papaya Ringspot Virus 843
2. Identify transgenic plants on the market.	Transgenic Cultivars 367 Plant Incorporated Protectants (PIPs) 888
3. Describe the processes and techniques used to produce transgenic plants.	Transgenic Cultivars 367 RQ #19 p373
4. Describe how biotechnology can be used to evaluate existing transgenic plants.	Transgenic Cultivars 367 Plant Incorporated Protectants (PIPs) 888
Objective 4 Describe micropropagation techniques.	CH 17 Tissue Culture: Micropropagation 442-
1. Define micropropagation and its importance.	Introduction (CH 17) 444 Advantages and Disadvantages 446-447 CA #1 p459
2. Explain applications of micropropagation.	Introduction (CH 17) 444 The Future of Tissue Culture and Micropropagation 452-454 ST #4 p459
3. Describe procedures used in micropropagation.	Environmental Requirements 447-448 Growth Media 448 Stages of Micropropagation 448-452