

Landscape Management

Exam Information	Description
Exam number 133 Items 48 National Career Cluster Agriculture Certification available Yes	The Landscape Management industry certification exam assesses learners' knowledge and skills in nursery operation and landscape management practices. Learners demonstrate their ability to select appropriate plant materials, design, install, and maintain interior and exterior plantings and hardscapes. They also show their competence in maintaining the facilities and equipment associated with this industry.

Exam Blueprint and Performance Skills

Standard	Percentage of exam score
1. Agricultural Education*	3%
2. Supervised Agricultural Experience*	11%
3. Equipment Maintenance & Operation*	3%
4. Installation & Maintenance*	8%
5. Integrated Pest Management & Irrigation*	24%
6. Landscape Design Components*	51%

*Includes performance skill evaluation

Standard 1 - Agricultural Education (3% of exam score)

Candidates will participate in personal and leadership development activities through the FFA.

Objective 1 Candidates will use communication skills to effectively communicate with others:

1. Understand when it is appropriate to listen and to speak.
2. Understand and follow verbal and written instructions for classroom and laboratory activities.
3. Will practice communication skills through public speaking using one or more of the following activities: memorized speech, prepared speech, extemporaneous speech, parliamentary practice, group presentation, or serving in a leadership capacity.

Objective 2 Candidates will effectively use teamwork to respectfully work with others.

1. Identify and understand different roles in working with a team.
2. Lead a group discussion or serve in a leadership capacity.

Objective 3 Candidates will use critical thinking and problem-solving skills.

1. Analyze the cause of the problem.
2. Develop a solution to address the problem.
3. Implement the plan.
4. Evaluate the effectiveness of the plan.

Objective 4 Candidates will be dependable, reliable, steady, trustworthy, and consistent in performance and behavior.

1. Set and meet goals on attendance and punctuality.
2. Prioritize, plan, and manage work to complete assignments and projects on time.

Objective 5 Candidates will be accountable for results.

1. Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
2. Use reflection to describe what was learned, what went well, what could have been improved, and what are the implications to the learning process.
3. Track and communicate progress toward completion of assignments and projects

Objective 6 Be familiar with the legal requirements and expectations of the course.

1. Be familiar with the course disclosure statement and all requirements for successful completion of the course.
2. Demonstrate workplace ethics, e.g., fair, honest, disciplined.

Optional: Standard performance evaluations on the final page of this document

Standard 2 - Supervised Agricultural Experience (11%)

Candidates will explain the maintenance and expansion of supervised agricultural experience programs.

Objective 1 Maintain and use agricultural experience records.

1. Explain how agricultural experience records are maintained from year to year.
2. Explain how to summarize and analyze agricultural experience records.

Objective 2 Devise long-range plans for expanding agricultural experience programs.

1. Evaluate the overall quality of a current agricultural experience and determine how to make it more productive or profitable.
2. Explain factors that should be considered in expanding an agricultural experience program.
3. Explain how placement agricultural experience and ownership agricultural experience programs may be expanded.

Optional: Standard performance evaluations on the final page of this document

Standard 3 - Equipment Maintenance & Operation (3%)

Candidates will demonstrate landscape equipment maintenance and operation.

Objective 1 Demonstrate the use of equipment in landscape maintenance.

1. Identify common equipment and its use in landscape maintenance.
2. Explain the meaning and importance of the operator's manual.
3. Identify the location and use of controls on equipment.
4. Follow safe practices in the use of landscape maintenance equipment.

Objective 2 Properly maintain equipment used in landscape maintenance.

1. Complete basic tire inspections and perform maintenance for safe tire performance.
2. Check the oil level and add oil if necessary.
3. Check the fuel level and add fuel if necessary.
4. Service the air cleaner.

Optional: Standard performance evaluations on the final page of this document

Standard 4 - Installation & Maintenance (8%)

Candidates will demonstrate landscape plant installation and maintenance practices.

Objective 1 Install a landscape area based on a landscape design.

1. Read a landscape plan and locate plant and hardscape placement.
2. Plant seeds, bulbs, ground covers, annuals, perennials, and woody plants according to instructions.
3. Provide post-planting care, such as appropriate watering, bracing, and mulching.

Objective 2 Explain turfgrass installation and maintenance methods.

1. Identify methods of turfgrass establishment and the advantages and disadvantages of each method.
2. Interpret a seed label.
3. Explain proper turfgrass watering practices.
4. Identify and explain the use of equipment for installing and maintaining turfgrass.
5. Explain the reason for, and the process of, aerating turfgrass.
6. Describe mowing procedures.
7. Explain the purpose of and procedure for top dressing turfgrass.
8. Explain over seeding of turfgrass.
9. Interpret fertilizer bag labels.
10. Calculate the quantity of fertilizer needed for turfgrass.
11. Apply fertilizers as needed to maintain nutrient levels.

Objective 3 Describe proper tree and shrub maintenance practices and procedures.

1. Identify symptoms of water stress in trees and shrubs.
2. Explain recommended watering practices for trees and shrubs.
3. Identify symptoms of nutrient deficiency in trees and shrubs.
4. Explain guidelines for fertilizing trees and shrubs.
5. Describe how to select and apply mulches to the landscape.
6. Identify tools used for pruning trees and shrubs.
7. Demonstrate various techniques for pruning trees and shrubs.

Objective 4 Examine the physical and chemical properties of growing media in landscape applications.

1. Describe the components of growing media.
2. Describe the functions of growing media.
3. Determine desirable properties of growing media.
4. Evaluate the advantages and disadvantages of soilless media.
5. Demonstrate proper techniques for sampling growing media.
6. Test and determine pH level of various growing media.
7. Interpret pH test results of a growing medium sample.
8. Describe pH and how it is modified.

Optional: Standard performance evaluations on the final page of this document

Standard 5 - Integrated Pest Management & Irrigation (24%)

Candidates will describe integrated pest management and will demonstrate the installation and maintenance of irrigation systems.

Objective 1 Describe the principles of integrated pest management.

1. Explain integrated pest management (IPM).
2. Identify benefits of IPM.
3. Describe pest control strategies associated with IPM.

Objective 2 Identify plant pests and diseases and their causes.

1. Identify types of plant pests and disorders.
2. Identify weed, insect, rodent, and fungi pests.
3. Identify infectious and noninfectious plant diseases.

Objective 3 Explain procedures for the safe handling, use, and storage of pesticides.

1. Explain risks and benefits associated with the materials and methods used in plant pest management.
2. Interpret pesticide labels.
3. Explain procedures for mixing and storing pesticides.
4. Describe types of pesticide controls and formulations.
5. Explain the safety practices that should be followed when applying pesticides.
6. Describe the proper disposal of surplus pesticides and empty containers.
7. Evaluate environmental and consumer concerns regarding pest management strategies.

Objective 4 Prepare for installation of a sprinkler system.

1. Analyze site conditions.
2. Calculate area coverage dimensions.
3. Calculate water flow in gallons per minute (GPM).
4. Identify components of irrigation systems, including pipes and joints.

Objective 5 Plan and install a sprinkler system.

1. Plan and illustrate a distribution system.
2. Select components for the irrigation system.
3. Calculate the number of heads, valves, and drains and the length of pipe needed.
4. Calculate the cost of the parts, supplies, and labor for system installation.
5. Identify factors involved in the bidding process.
6. Cut, fit, and install PVC pipes and fittings.
7. Install valves and faucets.
8. Perform an irrigation system test.

Objective 6 Maintain a sprinkler system.

1. Check for leaks or broken heads.
2. Replace or repair heads.
3. Replace or repair pipe.
4. Adjust sprinkler head height.

Optional: Standard performance evaluations on the final page of this document

Standard 6 - Landscape Design Components (51%)

Candidates will demonstrate an understanding of landscape design components.

Objective 1 Identify and categorize landscape plants.

1. Explain systems used to classify plants.
2. Classify landscape plants according to the hierarchical classification system, life cycles, plant use, and status as monocotyledons or dicotyledons.
3. Identify woody landscape plants.
4. Identify annuals, biennials, and herbaceous perennials used in the landscape.
5. Identify turfgrass species.
6. Explain the use of a USDA plant hardiness zone map and plant heat zone maps in the selection of landscaping plants.

Objective 2 Compile information in preparation for landscape design work.

1. Determine the client's needs and desires.
2. Analyze the site conditions and prepare a site analysis plan.
3. Identify drafting equipment and demonstrate its proper use.

Objective 3 Create a functional and aesthetically pleasing landscape plan.

1. Create a base plan to scale.
2. Identify and draw landscape symbols on the landscape plan.
3. Identify and design the major areas of a residential landscape (e.g., public, outdoor living, service).
4. Organize the location of activities within the landscape plan.
5. Apply the principles and elements of design to the landscape.
6. Select plant materials for the landscape.
7. Select hard-scape materials for the landscape.
8. Plan for xeriscaping and soil erosion control.
9. Develop bed patterns for the landscape.
10. Locate trees in the landscape plan.
11. Label the landscape plan.

Objective 4 Explain landscape design business concepts.

1. Differentiate between an estimate and a bid.
2. Describe landscape specifications.
3. Calculate common landscape measurements.
4. Prepare a cost estimate for a landscape plan.
5. Prepare a bid for a landscape design and installation project.

Optional: Standard performance evaluations on the final page of this document

Performance Skills Evaluation

Exam name: Landscape Management

Candidate Name: _____

Performance assessments may be completed and evaluated any time before the certification is issued. The following performance skills can be used in connection with the associated standards and exam. The evaluator will function as the subject matter expert to determine if the candidate meets the skills requirements with a Yes/No for passing.

Standard 1 – Leadership Development Candidates will practice communication skills through public speaking using one or more of the following activities: memorized speech, prepared speech, extemporaneous speech, parliamentary practice, group presentation, or serving in a leadership capacity.	Pass:
Standard 2 – Work-Based Learning Candidates will use the approved record book to record financial transactions and activities on an agricultural experience	Pass:
Standard 3 – Landscape Design Component - Demonstrate safe use of equipment - Perform vehicle maintenance	Pass:
Standard 4 – Landscape Installation & Maintenance Display proper tree, shrub, and turn maintenance practices and procedures	Pass:
Standard 5 – Integrated Pest Management Properly install and maintain an irrigation system	Pass:
Standard 6 – Equipment Maintenance & Operation - Candidates will design a landscape area demonstrating landscape design components - Develop leadership and personal development goals	Pass:

Evaluator Name: _____

Date: _____