



Middle Tennessee

Nursery/Landscape

Purpose

The purpose of the National FFA Nursery/Landscape Career Development Event is to promote career interest, encourage proficiency development and recognize excellence in participants of the event which includes all aspects of the industry to produce, market, utilize and maintain landscape plants (woody and herbaceous plants and turf grasses), as well as related production and landscaping products, equipment and services including design.

Objectives

Participants in the nursery/landscape CDE will be able to utilize the skills specific to each of the following categories:

- **Nursery/Landscape Principles:** Apply nursery and landscape principles and practices as they impact residential, commercial, public and recreational applications.
- **Plant Materials:** Demonstrate the ability to identify, select and utilize nursery and landscape plants (interior/exterior), landscape materials and turf grasses commonly used in the United States.
- **Plant Disorders:** Demonstrate the ability to identify unhealthy plant conditions due to pests, nutritional/physiological disorders and mechanical/chemical injury.
- **Cultural Practices:** Demonstrate knowledge of the principles and skills involved in propagation, growth requirements, growing techniques, harvesting, sustainability, marketing, and maintenance of interior and exterior landscape plants and turf grasses.
- **Design and Construction:** Demonstrate knowledge of the principles and techniques of landscape design, estimating and construction.
- **Supplies and Equipment:** Demonstrate the ability to identify, select, use and maintain appropriate supplies and equipment for nursery and landscape operations, including equipment and procedures in mechanization and automation.
- **Safety:** Demonstrate knowledge of safety practices in nursery and landscape operations.
- **Interpersonal Relations:** Demonstrate skills in oral business communications.
- **Business Management:** Demonstrate an understanding of marketing principles and business management as well as proper sales and service skills.
- **Records and Reports:** Demonstrate the ability to prepare estimates and complete financial statements.

Event Rules

- Official FFA Dress is not required for this event.
- Coaches may accompany participants to the event site but must leave the area at the start of the event. At the conclusion of all event components, the superintendent will announce when participants, visitors and coaches may enter the competition area to review the materials and organization.
- Under no circumstances will any participant be allowed to touch or handle plant materials or other specimens during the event except as expressly permitted in practicums.

Event Format

Each participant must have the following individual tools for the competition:

- A clean clipboard
- At least two No. 2 pencils
- A calculator — Calculators used in this event should be battery-operated, nonprogrammable, and silent with large keys and displays. Calculator functions should be limited to: addition, subtraction, multiplication, division, equals, percent, square root, +/- key and one memory register. No other calculators may be used during the event.
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TEAM INTERACTIVE EVENTS

Phase 1-A: Team Skills Challenge (150-200 team points)

This phase is designed to evaluate the team's ability to apply nursery/landscape knowledge and skills by completing a variety of hands-on and problem-solving activities. **No equipment will be started during the event.** Teams will be given a list of tasks that may be accomplished individually, in pairs or in larger numbers as determined by the team members according to the skills, experience and preferences of each team member. After completing their tasks, team members may then assist other team members as time allows. The number and type of activities will vary from year to year. General topic areas (not actual tasks) will be communicated in the team orientation packet. Both objective questions and qualitative evaluations may be included in the task scoring. Some examples of activities include the following:

- Determine equipment specifications and demonstrate pre-check operations.
- Demonstrate and/or explain lawn care procedures and equipment operation.
- Demonstrate and/or explain preparing service receipts.
- Demonstrate and/or explain plant material quality assessment.
- Demonstrate and/or explain pruning maintenance.
- Demonstrate and/or explain safety practices.
- Asexual propagation

Scoring of the separate tasks will be based on correct answers for objective questions or on criteria appropriate for the task recorded by a judge.

INDIVIDUAL EVENTS

Phase 2: General Knowledge Examination (150 points per contestant)

Objective questions will be prepared on topics reflecting subject areas in the objectives. This phase will evaluate the participant's knowledge and understanding of basic horticultural principles in producing, marketing, using and maintaining landscape plants and turf. Participants will record their answers on a scan form. The questions will be pulled from a test bank from the last five years of National FFA Nursery and Landscape exams.

Phase 3: Identification of Plants, Pests, Disorders, and Beneficial Insect (150 points per contestant)

- Participants will identify items selected from the provided list covering the following categories:
- Plant materials will be presented as intact, live specimens, photos, plant parts or any combination.
- Pests and disorders will be presented as a damaged specimen, photograph or preserved specimen, herbarium sheet, insect mount, etc. A "disorder" label will be with an item to designate identification of a problem rather than the plant.
- Beneficial insects and other organisms that benefit the landscape by feeding on harmful organisms.
- Each specimen will be designated by a station number. When the participant identifies the item, its name is then located on the identification list. The participant then records the number by that name on a scan form at the respective station number.
- Each participant will be provided a copy of the list at the event site. No specimens or items may be touched or handled in any way.

Phase 4: Landscape Estimating (100 points per contestant)

This practicum is designed to evaluate participant knowledge of and ability in the following areas:

- Evaluating a landscape design
- Reading a landscape drawing
- Determining materials needed to execute a landscape plan
- Maintenance, estimating and bidding
- Evaluating factors that affect profitability of a landscape business

A landscape drawing and scratch paper will be provided to the participants. There will be objective questions about the landscape plan. Participants will record their answers using a scan form.

Scoring

Participant scores are the sum of the five individual phases of the event. Team scores are the sum of all members scores plus the group portion of the team skills challenge. Possible points are as follows:

Phase	Individual Points	Team Points
1. General knowledge exam	150	600
2. Identification	150	600
3. Landscape estimating	100	400
4. Team Skills Challenge		150-200
POINT TOTALS	400	1750-1800

TIEBREAKERS

If needed in the case of ties, final placings will be determined by comparing, in order, scores for the following:

Individuals

- General knowledge exam
- Identification
- Landscape estimating

Teams

- Team skills challenge
- Team general knowledge exam score
- Team Identification exam score

Awards

The top 4 teams will qualify for the State Nursery/Landscape CDE.

References

The following list of references is a guide to team training and is not meant to be all-inclusive.

Some content areas have more than one title listed. This reflects the wide array of quality references available for this event. No single reference is recommended as superior over others in that area. Multiple references are desirable as no single source is comprehensive for the entire nursery/landscape CDE. References other than those listed may be equally valuable resources, along with the many video and computer-based training aids available.

- Nursery/Landscape CDE materials, shop.FFA.org
- Past CDE materials and other resources are available on FFA.org.

GENERAL REFERENCES

- Introduction to Horticulture. (Current edition.) Charles B. Schroeder, Eddie Dean Seagle, Lorrie M. Felton, John M. Ruter, William Terry Kell, and Gerard Krewer. Prentice-Hall, Inc., Englewood Cliffs, N.J. ISBN 0130364134
- Introductory Horticulture. (Current edition.) H. Edward Reiley and Carroll L. Shry, Jr. Clifton Park, N.Y.: Delmar Cengage Learning. ISBN 9781435480391
- Ornamental Horticulture. Current edition. Jack Ingels. Delmar Publishers Inc., Albany, N.Y. ISBN-13: 9781435498167
- Introduction to Plant and Soil Science and Technology. (Current edition.) Ronald J. Biondo and Jasper S. Lee. Prentice-Hall, Inc., Englewood Cliffs, N.J. ISBN 0813432162

LANDSCAPE

- Landscaping Principles and Practices. (Current edition.) Jack Ingels. Delmar Publishers Inc., Albany, N.Y. ISBN 13: 9781428376410
- Landscaping Construction. (Current edition.) David Sauter. Delmar Publishers Inc., Albany, N.Y. ISBN 143549718X
- Introduction to Landscaping: Design, Construction, and Maintenance. (Current edition.) Ronald J. Biondo and Charles B. Schroeder. Prentice-Hall, Inc., Englewood Cliffs, N.J. ISBN 0133626385
- Landscape Training Manuals for Installation, Irrigation, and Maintenance Technicians. (Current edition.) National Association of Landscape Professionals, 950 Herndon Pkwy, Suite 450, Herndon, Va. 20170, https://www.landscapeprofessionals.org/LP/Store/AllBooks/SET_0050.aspx

TURF

- Turfgrass Science and Management. (Current edition.) Robert D. Emmons. Delmar Publishers Inc., Albany, N.Y. ISBN 10: 1418013307
- Turfgrass Management. (Current edition.) A.J. Turgeon. Prentice-Hall, Inc. Boston. ISBN 0137074352

NURSERY

- Plant Propagation: Principles and Practices. (Current edition.) Hudson T. Hartmann, Fred T. Davies, Jr., Dale E. Kester, and Robert L. Genieve. Prentice Hall, Boston. ISBN 0135014492
- American Standard for Nursery Stock. (Current edition.) American Association of Nurserymen, Inc., 1250 I St., NE, Suite 500, Washington, DC. (available as a pdf file free to nonmembers at <https://www.americanhort.org/education/american-nursery-stock-standards/>)

SECONDARY REFERENCES

- Practical Horticulture. (Current edition.) Laura W. Rice and Robert P. Rice. Prentice-Hall, Inc., Englewood Cliffs, N.J. ISBN 0135038669
- Landscape Design: A Practical Approach. (Current edition.) Leroy G. Hannebaum. PrenticeHall, Inc., Upper Saddle River, N.J. ISBN 0130105813
- Manual of Woody Landscape Plants. (Current edition.) Michael A. Dirr. Stipes Publishing Co., Champaign, Ill. ISBN 978-1-58874-868-3

- A Field Guide to Woody Landscape Plants of the Southeast. (Current edition.) Rex Bishop. Tea Olive Productions. Marietta, Ga. ISBN 097253430X
- Nursery Management: Administration and Culture. (Current edition.) Harold Davidson, Roy Mecklenburg, and Curtis Peterson. Prentice-Hall, Upper Saddle River, N.J. ISBN 0138579962
- Landscape Plants, Their Identification, Culture, and Use. (Current edition.) Ferrell M. Bridwell. Delmar Thomson Learning, Albany, N.Y. ISBN 0766836347
- Know It and Grow It III: A Guide to the Identification and Use of Landscape Plants. (Current edition.) Carl E. Whitcomb. Lacebark, Inc. Stillwater, Okla. ISBN 0961310910
- Manual of Herbaceous Ornamental Plants. (Current edition.) Steven M. Still. Stipes Publishing Co., Champaign, Ill. ISBN 0-87563-433-8.
- Herbaceous Perennial Plants: A Treatise on Their Identification, Culture, and Garden Attributes. (Current edition.) Allan M. Armitage, Stipes Publishing Co., Champaign, Ill. ISBN 978-1-58874-868-3.
- Landscape Construction Procedures, Techniques, and Design. (Current edition.) Floyd Giles. Stipes Publishing Co., Champaign, Ill. ISBN 0875638848
- The Turf Problem Solver: Case Studies and Solutions for Environmental, Cultural, and Pest Problems. (Current edition.) A.J. Turgeon and J.M. Vargas, Jr. J. Wiley, Hoboken, N.J. ISBN 9780471736196.

TRADE PERIODICALS

1. American Nurseryman. American Nurserymen Publishing Co., Chicago, Ill., <http://www.amerinursery.com/>
2. Turf Magazine plus several other on-line titles. Moose River Media LLC., www.turfmagazine.com/

INDUSTRY CATALOGS

1. Many horticultural supply company catalogs can be utilized for reference support on tools, equipment and supplies that may not be illustrated in other sources.
2. A.M. Leonard, Inc., 665 Spiker Road, Piqua, OH 45356 (513/773-2697 or <https://www.amleo.com/>)
3. Hummert International, 4500 Earth City Expressway, Earth City, Mo. 63045, 800-325-3055, <https://www.hummert.com>

WEBSITES AND PROBLEM SAMPLES

Visit the National FFA website at FFA.org for information on career development events, access to prior-year event materials and links to additional study aids. Additional links and resources will be included as they are developed or identified, along with the following links of the CDE sponsors:

- 101 <http://www.stihlusa.com/information/>
- 102 <http://www.kubota.com>
- 103 <http://www.arysta-na.com>
- 104 <http://www.treefund.org>
- 105 <https://www.landscapeprofessionals.org/>

Nursery/Landscape Plant Identification

No.	Botanical Name	Common Name
101	<i>Abelia x grandiflora</i> cv.	Glossy Abelia
102	<i>Acer palmatum</i> cv.	Japanese Maple
103	<i>Acer rubrum</i> cv.	Red Maple
104	<i>Acer saccharum</i> cv.	Sugar Maple
105	<i>Aglaonema commutatum</i>	'Chinese Evergreen'
106	<i>Ajuga reptans</i> cv.	Carpet Bugle
107	<i>Amelanchier arborea</i>	Downy Serviceberry
108	<i>Aquilegia x hybrida</i> cv.	Columbine
109	<i>Astilbe hybrid</i> cv.	Astilbe
110	<i>Begonia semperflorens-cultorum</i>	Wax Begonia
111	<i>Berberis x mentorensis</i>	Mentor Barberry
112	<i>Betula nigra</i>	River Birch
113	<i>Buddleia davidii</i> cv.	Butterfly Bush
114	<i>Buxus microphylla</i> cv.	Littleleaf Boxwood
115	<i>Camellia japonica</i> cv.	Common Camellia
116	<i>Cedrus atlantica</i> 'Glauca'	Blue Atlas Cedar
117	<i>Cercis canadensis</i>	Redbud
118	<i>Chaenomeles speciosa</i> cv.	Japanese (Flowering) Quince
119	<i>Clematis hybrid</i>	Clematis
120	<i>Cornus florida</i> cv.	Flowering Dogwood
121	<i>Cotoneaster dammeri</i>	Bearberry Cotoneaster
122	<i>Crataegus phaenopyrum</i>	Washington Hawthorn
123	<i>Cynodon dactylon</i> cv	Bermudagrass
124	<i>Dieffenbachia maculata</i> cv.	Spotted Dumb Cane
125	<i>Dracaena deremensis</i> 'Warneckii'	Striped Dracaena
126	<i>Dracaena fragrans</i> 'Massangeana'	Corn Plant
127	<i>Echinacea purpurea</i>	Purple Coneflower
128	<i>Epipremnum</i> spp.	Pothos
129	<i>Euonymus alatus</i>	Winged Euonymus
130	<i>Euonymus fortunei</i> cv.	Wintercreeper
131	<i>Festuca</i> spp. and cv.	Fescue
132	<i>Ficus benjamina</i>	Benjamin Fig
133	<i>Ficus elastica</i> 'Decora'	Decora Rubber Plant
134	<i>Forsythia x intermedia</i> cv.	Border Forsythia

No.	Botanical Name	Common Name
135	<i>Fraxinus American</i> cv.	White Ash
136	<i>Gaillardia aristata</i> cv.	Common Blanketflower
137	<i>Gardenia jasminoides</i> cv.	Gardenia
138	<i>Ginkgo biloba</i>	Ginkgo, Maidenhair Tree
139	<i>Gleditsia triacanthos inermis</i> cv.	Thornless Honeylocust
140	<i>Hedera helix</i> cv.	English Ivy
141	<i>Helleborus orientalis</i> cv.	Lenten Rose
142	<i>Heemerocallis</i> spp. and cv.	Day lily
143	<i>Heptapleurum actinophylla</i>	Schefflera, Octopus Tree
144	<i>Heptapleurum arborescens</i>	Dwarf Schefflera
145	<i>Heuchera</i> cv.	Coral Bells, Alumroot
146	<i>Hibiscus syriacus</i> cv	Rose of Sharon
147	<i>Hosta x hybrida</i> cv.	Plantain Lily
148	<i>Hydrangea macrophylla</i>	Bigleaf Hydrangea
149	<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea
150	<i>Ilex cornuta</i> cv.	Chinese Holly
151	<i>Ilex crenata</i> cv.	Japanese Holly
152	<i>Ilex x meserveae</i> cv.	Meserve Holly
153	<i>Impatiens hybrid</i> cv.	Impatiens
154	<i>Itea virginica</i>	Sweetspire
155	<i>Juniperus chinensis</i> cv.	Chinese Juniper
156	<i>Juniperus horizontalis</i> cv.	Creeping Juniper
157	<i>Lagerstroemia indica</i> cv.	Crape Myrtle
158	<i>Leucanthemum x superbum</i> cv.	Shasta Daisy
159	<i>Liquidambar styraciflua</i>	Sweet Gum
160	<i>Liriodendron tulipifera</i>	Tuliptree
161	<i>Liriope</i> spp. cv.	Lilyturf
162	<i>Lonicera japonica</i> 'Halliana'	Hall's Japanese Honeysuckle
163	<i>Magnolia grandiflora</i> cv.	Southern Magnolia
164	<i>Magnolia x soulangeana</i> cv.	Chinese (Saucer) Magnolia
165	<i>Mahonia aquifolia</i> cv.	Oregon Grape
166	<i>Malus</i> spp. and cv.	Flowering Crabapple
167	<i>Miscanthus sinensis</i> cv.	Miscanthus grass
168	<i>Myrica pensylvanica</i>	Bayberry

No.	Botanical Name	Common Name
169	<i>Nandina domestica</i>	Heavenly Bamboo
170	<i>Nyssa sylvatica</i>	Sour (Black) Gum
171	<i>Pachysandra terminalis</i>	Japanese Spurge
172	<i>Paeonia hybrid cv.</i>	Peony
173	<i>Parthenocissus tricuspidata</i>	Boston Ivy
174	<i>Pelargonium x hortorum cv.</i>	Zonal Geranium
175	<i>Pennisetum ruppelia</i>	Fountain Grass
176	<i>Petunia x hybrida cv.</i>	Petunia
177	<i>Philodendron scandens oxycardium</i>	Heartleaf Philodendron
178	<i>Phlox paniculate</i>	Garden Phlox
179	<i>Phlox sublata cv.</i>	Moss Pink
180	<i>Picea abies</i>	Norway Spruce
181	<i>Picea pungens cv.</i>	Colorado (Blue) Spruce
182	<i>Pieris japonica</i>	Lily-of-the-Valley Bush
183	<i>Pinus mugo</i>	Mugo Pine
184	<i>Pinus strobus</i>	Eastern White Pine
185	<i>Pinus thunbergiana</i>	Japanese Black Pine
186	<i>Platanus x acerifolia</i>	London Planetree
187	<i>Poa pratensis cv.</i>	Kentucky Bluegrass
188	<i>Podocarpus macrophyllus</i>	Southern Yew
189	<i>Potentilla fruticosa cv.</i>	Shrubby Cinquefoil
190	<i>Prunus laurocerasus cv.</i>	Cherry Laurel
191	<i>Prunus serrulata</i>	Kwanzan Japanese Flowering Cherry
192	<i>Pyracantha coccinea cv.</i>	Firethorn

No.	Botanical Name	Common Name
193	<i>Quercus alba</i>	White Oak
194	<i>Quercus palustris</i>	Pin Oak
195	<i>Quercus rubra</i>	Red Oak
196	<i>Rhododendron Hybrid</i>	Exbury Hybrid Azalea
197	<i>Rhododendron x catawbiense</i>	Catawba Hybrid Rhododendron
198	<i>Rosa spp.</i>	Landscape/Shrub Rose cv.
199	<i>Rudbeckia fulgida</i>	Black-eyed Susan
200	<i>Salvia nemorosa cv.</i>	Meadow Sage
201	<i>Sedum spp.</i>	Sedum
202	<i>Spiraea x bumalda</i>	Bumalda Spirea
203	<i>Syringa vulgaris cv.</i>	Common Lilac
204	<i>Taxodium distichum</i>	Bald Cypress
205	<i>Taxus spp. and cv.</i>	Yew
206	<i>Thuja occidentalis cv.</i>	American Arborvitae
207	<i>Tilia cordata</i>	Littleleaf Linden
208	<i>Tsuga canadensis</i>	Canadian Hemlock
209	<i>Verbena x hybrida cv.</i>	Garden Verbena
210	<i>Viburnum trilobum</i>	American Cranberrybush Viburnum
211	<i>Viburnum x burkwoodii</i>	Burkwood Viburnum
212	<i>Vinca minor cv.</i>	Periwinkle
213	<i>Viola x wittrockiana cv.</i>	Pansy
214	<i>Weigela florida</i>	Weigelia
215	<i>Wisteria sinensis cv.</i>	Chinese Wisteria
216	<i>Yucca filamentosa</i>	Adam's Needle

Pests, Disorders and Beneficial Insects Identification

No.	Item Name
Pests	
217	Aphid
218	Bagworm
219	Borer
220	Leafhopper
221	Leaf Miner
222	Scale
223	Spider Mite
224	Snail/Slug
225	Whitefly
226	White Grub
Diseases	
227	Anthrachnose
228	Apple Scab
229	Black Spot
230	Botrytis
231	Canker
232	Cedar-Apple Rust
233	Crown Gall
234	Fire blight
235	Powdery Mildew
236	Root Rot

No.	Item Name
Weeds	
237	Annual Bluegrass
238	Broadleaf Plantain
239	Buckhorn Plantain
240	Chickweed
241	Crabgrass
242	Dandelion
243	Henbit
244	Nutsedge
245	Oxalis
246	Purslane
247	Clovers
Physiological Problems	
248	Frost/Freeze Injury
249	Iron Deficiency
250	Leaf Scorch (drought/winter burn)
251	Nitrogen Deficiency
252	Pot-Bound Roots
253	String Trimmer Injury
254	2,4-D Injury
Beneficial Insects	
255	Praying Mantis
256	Lady Beetle
257	Paper Wasp
258	Lacewing
259	Spider

Nursery/Landscape Team Skills Challenge

150-200 POINTS

The Team Skills Challenge has two rotations of 20 minutes each valued at 150-200 points. Each skill may take up to 20 minutes to complete. It is the responsibility of the team to determine how to split their team to complete the challenges presented within the rotation.

Skill Number	Skill Title	Points
1	Plant Layout	100
19	Service Receipt	50
21	Shrub/Perennial Installation	100

Skills Event 1

PLANT LAYOUT SCORECARD

Name(s) _____ State _____ Team Number _____

Criteria	Points Possible	Points Deducted	Points Earned
Placement of Plant Material			
Plant placed within 6 inches +/- of correct placement (5 points each)	20		
Facing of Plant Material			
Plant faced properly (5 points each)	20		
Handling of Plant Material			
Plant handled properly (5 points each)	10		
Correct Viewpoint	5		
Explain Plant Care	5		
Safety Procedures			
Safely and properly followed lifting procedures (5 pts per student)	10		
Safety glasses worn (5 pts per student)	10		
Gloves worn	10		
Completed Design	10		
TOTAL POINTS EARNED OUT OF 100 POSSIBLE			

Judge's Comments

Judge's Name

Judge's Signature

Date

Skills Event 19

SERVICE RECEIPT SCORECARD

Name(s)

State

Team Number

Criteria	Points Possible	Points Earned
Recorded crew time properly per scenario provided	10	
Checked off all services rendered	5	
Recorded actual pre-emergent herbicide and fertilizer calculations	5	
Recorded actual mulch calculation (<i>in cubic yards</i>)	5	
Recorded actual flats installed	5	
Recorded comments about irrigation head	5	
Explained annual care to client	10	
Crew leader signed off on service receipt	5	
TOTAL POINTS EARNED OUT OF 50 POSSIBLE		

Judge's Comments

Judge's Name

Judge's Signature

Date

Skills Event 21

PERENNIAL INSTALLATION SCORECARD

Name(s)

State

Team Number

Criteria	Points Possible	Points Deducted	Points Earned
Placement of Plant Material			
Plants placed within 2" +/- of correct placement (5 points each)	15		
Facing of Plant Material			
Plants faced properly to a maximum of 15 points (5 points each)	15		
Handling of Plant Material			
Plant handled properly to a maximum of 15 points (5 points each)	15		
Correct viewpoint	5		
Explained proper plant care (watering- 5 points and pruning - 5 points)	10		
Mulch applied properly	10		
Safety Procedures and Proper Lifting of Plants			
Safely and properly followed lifting procedures	10		
Safety glasses and gloves used	10		
Finished planting per design	10		
TOTAL POINTS EARNED OUT OF 100 POSSIBLE			

Judge's Comments

Judge's Name

Judge's Signature

Date