

## 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

- A team is comprised of 4 members. All 4 scores count toward the team total.
- It is highly recommended that participants wear **official dress**.
- 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 ball-point or felt-tip pen
- 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.
- An architect's scale
- An engineer's scale

## INDIVIDUAL EVENTS

### Phase 1: 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.

### Phase 2: Identification of Plants, Pests, Disorders, and Beneficial Insect (140 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 3: 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 individual phases of the event. Team scores are the sum of all members' scores plus the group portion of the team skills challenge.

Phase	Individual Points	Team Points
1. General knowledge exam	150	600
2. Identification	140	560
3. Landscape estimating	100	400
<b>POINT TOTALS</b>	390	1560

## Tiebreakers

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

### Individuals

1. General knowledge exam
2. Identification
3. Landscape estimating

### Teams

1. Team general knowledge exam score
2. Team Identification score
3. Team landscaping estimating scores

## Awards

Awards will be presented to individuals and teams at the awards ceremony based on their rankings.

## 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](http://shop.FFA.org)
- Past CDE materials and other resources are available on [FFA.org](http://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](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.amerinnursery.com/>
2. Turf Magazine plus several other on-line titles. Moose River Media LLC.,  
[www.turfmagazine.com/](http://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  
<http://www.amleo.com/>)
3. Hummert International, 4500 Earth City Expressway, Earth City, Mo. 63045, 800-325-3055,  
<http://www.hummert.com>

## **WEBSITES AND PROBLEM SAMPLES**

Additional links and resources will be included as they are developed or identified, along with the following links of the CDE sponsors:

- <http://www.stihlusa.com/information/>
- <http://www.kubota.com>
- <http://www.arysta-na.com>
- <http://www.treefund.org>
- <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>Echinaceae purpurea</i>	Purple Coneflower
128	<i>Epipremnum spp.</i>	Pothos
129	<i>Euonymus alatus</i>	Winged Euonymus
130	<i>Euonymus fortunei</i> cv.	Wintercreeper

131	<i>Festuca spp. and cv.</i>	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
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 spp. and cv.</i>	Day lily
143	<i>Heptapleurum actinophylla</i>	Schefflera, Octopus Tree
144	<i>Heptapleurum arbuticola</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 spp. cv.</i>	Lilyturf
162	<i>Lonicera japonica</i> 'Halliana'	Hall's Japanese Honeysuckle

163	<i>Magnolia grandiflora</i> cv.	Southern Magnolia
164	<i>Magnolia x soulangiana</i> cv.	Chinese (Saucer) Magnolia
165	<i>Mahonia aquifolia</i> cv.	Oregon Grape
166	<i>Malus spp. and cv.</i>	Flowering Crabapple
167	<i>Miscanthus sinensis</i> cv.	Miscanthus grass
168	<i>Myrica pensylvanica</i>	Bayberry
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</i> cv.	Peony
173	<i>Parthenocissus tricuspidata</i>	Boston Ivy
174	<i>Pelargonium x hortorum</i> cv.	Zonal Geranium
175	<i>Pennisetum ruppelia</i>	Fountain Grass
176	<i>Petunia x hybrida</i> cv.	Petunia
177	<i>Philodendron scandens oxycardium</i>	Heartleaf Philodendron
178	<i>Phlox paniculate</i>	Garden Phlox
179	<i>Phlox sublata</i> cv.	Moss Pink
180	<i>Picea abies</i>	Norway Spruce
181	<i>Picea pungens</i> cv.	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</i> cv.	Kentucky Bluegrass
188	<i>Podocarpus macrophyllus</i>	Southern Yew
189	<i>Potentilla fruticosa</i> cv.	Shrubby Cinquefoil
190	<i>Prunus laurocerasus</i> cv.	Cherry Laurel
191	<i>Prunus serrulata</i>	Kwanzan Japanese Flowering Cherry
192	<i>Pyracantha coccinea</i> cv.	Firethorn
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.	Landscape/Shrub Rose
199	<i>Rudbeckia fulgida</i>	Black-eyed Susan
200	<i>Salvia nemorosa</i> cv.	Meadow Sage
201	<i>Sedum spp.</i>	Sedum
202	<i>Spiraea x bumalda</i>	Bumalda Spirea
203	<i>Syringa vulgaris</i> cv.	Common Lilac
204	<i>Taxodium distichum</i>	Bald Cypress
205	<i>Taxus spp. and cv.</i>	Yew
206	<i>Thuja occidentalis</i> cv.	American Arborvitae
207	<i>Tilia cordata</i>	Littleleaf Linden
208	<i>Tsuga canadensis</i>	Canadian Hemlock
209	<i>Verbena x hybrida</i> cv.	Garden Verbena
210	<i>Viburnum trilobum</i>	American Cranberrybush Viburnum
211	<i>Viburnum x burkwoodii</i>	Burkwood Viburnum
212	<i>Vinca minor</i> cv.	Periwinkle
213	<i>Viola x wittrockiana</i> cv.	Pansy
214	<i>Weigela florida</i>	Weigelia
215	<i>Wisteria sinensis</i> cv.	Chinese Wisteria
216	<i>Yucca filamentosa</i>	Adam's Needle

## Pests, Disorders and Beneficial Insects Identification

No.	Category	Item Name
217	Pest	Aphid
218	Pest	Bagworm
219	Pest	Borer
220	Pest	Leafhopper
221	Pest	Leaf Miner
222	Pest	Scale
223	Pest	Spider Mite
224	Pest	Snail/Slug
225	Pest	Tick
226	Pest	Whitefly
227	Pest	White Grub
228	Disease	Anthraxnose
229	Disease	Apple Scab
230	Disease	Black Spot
231	Disease	Botrytis
232	Disease	Canker
233	Disease	Cedar-Apple Rust
234	Disease	Crown Gall
235	Disease	Fire blight
236	Disease	Powdery Mildew
237	Disease	Root Rot
238	Weed	Annual Bluegrass
239	Weed	Broadleaf Plantain
240	Weed	Buckhorn Plantain

241	Weed	Chickweed
242	Weed	Crabgrass
243	Weed	Dandelion
244	Weed	Henbit
245	Weed	Nutsedge
246	Weed	Oxalis
247	Weed	Purslane
248	Weed	Clovers
249	Physiological Problem	Frost/Freeze Injury
250	Physiological Problem	Iron Deficiency
251	Physiological Problem	Leaf Scorch (drought/winter burn)
252	Physiological Problem	Nitrogen Deficiency
253	Physiological Problem	Pot-Bound Roots
254	Physiological Problem	String Trimmer Injury
255	Physiological Problem	2,4-D Injury
256	Beneficial Insect	Lacewing
257	Beneficial Insect	Lady Beetle
258	Beneficial Insect	Paper Wasp
259	Beneficial Insect	Praying Mantis
260	Beneficial Insect	Spider