



NATIONAL
FFA ORGANIZATION

Nursery/ Landscape Handbook 2017-2021

Purpose

To stimulate career interest, encourage proficiency development, and recognize excellence in students of nursery practices and landscaping through the agricultural education curriculum.

Objectives

- To demonstrate the ability to identify nursery and landscape plant materials and turf grasses commonly used in the United States.
- To demonstrate the ability to identify unhealthy plant conditions due to pests, nutritional or physiological disorders, and mechanical or chemical injury.
- To demonstrate knowledge of the principles and skills involved in propagation, growth requirements, growing techniques, harvesting, marketing and maintenance of nursery plants and landscape turf.
- To demonstrate knowledge of the principles and techniques of landscape design and construction.
- To 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.
- To demonstrate knowledge of safety practices in nursery and landscape operations.
- To demonstrate skills in oral and written business communications.
- To demonstrate understanding of marketing principles and proper sales and service skills.
- To demonstrate the ability to prepare accurate and legible records and reports and to interpret business documents.

General Rules

1. Participants may wear modified official FFA dress for this event (black slacks or jeans for females or black jeans for males and appropriate footwear, appropriate clothing for inclement weather).
2. Four persons will constitute an official team for the Nursery/Landscape Career Development Event. However, only three of the individual scores will be used in the team score tabulation. In addition, no alternates will be allowed in the Nursery/Landscape Event.
3. This State CDE will be conducted by the College of Southern Idaho in conjunction with State FFA Leadership Conference.
4. Materials participants will need to provide:
 - a. Pruning shears
 - b. Pruning knife
 - c. Gloves
 - d. Safety glasses
 - e. Engineers & Architects scale
 - f. Battery operated calculator (scientific calculators not allowed)
5. Entry fees to cover the cost of hosting the event will be assessed.

Event Format

PHASE 1: IDENTIFICATION OF PLANTS, PESTS, DISORDERS, & SUPPLIES (150 POINTS PER CONTESTANT)

Participants will identify 50 items selected from the provided list covering the following categories:

Plant Materials

Plant Pests (Insects, Diseases, Weeds)

Plant Disorders

Equipment & Supplies

Plants to identify will be presented as intact, live specimens. Pest and disorder and equipment & supply items may be presented as an intact specimen, photograph or preserved specimen. When a problem must be presented with an affected plant, a “Disorder” label will be with the item to designate the identification of the problem rather than the plant.

When participants have identified the specimen, the appropriate number of the specimen as listed on attached form is to be written on a scorecard. Three points will be awarded for each specimen correctly identified. Each participant will be allowed 50 minutes to complete this phase of the contest. No specimens may be touched or handled in any way.

PHASE 2: GENERAL KNOWLEDGE EXAMINATION (150 POINTS PER CONTESTANT)

Thirty (30) objective-type multiple-choice questions will be selected from the areas listed below. This phase of the event will test the participant's knowledge and understanding of the basic principles relating to the following areas of horticulture (for example: questions for the plant materials area may deal with such features as anatomy of a flower or leaf, physiology of specific types of plants important to the horticultural industry, etc.) The contents of the exam will be extracted from the previous five (5) years of written exams from the National Nursery and Landscape Career Development Event.

Areas for testing include:

- a. Plant materials
- b. Plant disorders
- c. Cultural practices
- d. Landscape design and construction
- e. Supplies and equipment
- f. Safety
- g. Equipment operation and maintenance
- h. Interpersonal relations (skills)
- i. Salesmanship
- j. Records and reports

Each participant will be allowed fifteen minutes to complete this phase. Each correct answer has a value of five points.

PHASE 3: LANDSCAPE ESTIMATING (150 POINTS PER CONTESTANT)

Participants will be furnished with a landscape drawing and scratch paper. The student will answer fifteen (15) objective questions about the landscape drawing, such as, determine the cost of fencing, cost of patio bricks, or the number of yards of sod required to cover a specific area. Each answer has a value of 10 points. Students should furnish both an architect and engineers scale and a battery-operated electronic calculator (if desired). Fifty minutes will be allowed for this practicum.

PRACTICUMS

All participants will be required to complete the same three practicums selected from those outlined below.

1. **Potting Nursery Stock (50 points)** - Each participant will be provided with five liner stock plants of 5-7 inches in height. Participants will pot the plants in one-quart nursery containers using standard practices. Label, pencils, soil, containers, and hand pruners will be provided. Ten minutes will be allowed for completion of this practicum. An official will observe and score each participant during this practicum. Scoring criteria are presented on the “Potting Nursery Stock” scorecard.
2. **Measuring Nursery Stock (50 points)** - Each participant will be asked to measure five (5) nursery plants for market size (height, spread or caliper as appropriate) according to the American Standard for Nursery Stock for BR and B&B evergreen and deciduous trees and shrubs. A caliper and measuring rule will be provided. Plants presented in containers will be assumed as growing in the field, and a label will advise on whether it is to be dug BR or B&B. Ten minutes will be allowed for completion of this practicum.
3. **Pruning Nursery Stock (50 points)** - One or more nursery plants will be displayed with ten (10) points marked for possible pruning cuts. No plants will actually be pruned. Participants are to evaluate each labeled point and decide if the plant part should be pruned or not for improvement of the plant's health, form and overall quality. Five (5) positive cuts will be given point values equaling fifty (50). Five (5) negative cuts will be given zero (0) points. Participants will be given points based on the number of positive cuts selected. Ten minutes will be allowed for the completion of this practicum.

4. **Propagating Nursery Stock (50 points)** - Each participant will be furnished a stock plant, rooting flat and media, rooting hormone, and label and a marking pen. Participants are to prepare the designated softwood or hardwood cuttings and place them in the media with a single label. Ten minutes will be allowed for making and sticking up to twenty (20) cuttings. An official will observe and score each participant during this practicum. Scoring criteria are presented on the “Propagating Nursery Stock” scorecard.

Scoring

Participant scores are the sum of the seven individual phases of the event.

Team scores are the sum of all members scores plus the group portion of the team activity and team challenge. Possible points are as follows:

| PHASE | Member | Team |
|-------------------------|------------|--------------|
| 1. Identification | 150 | 450 |
| 2. Landscape Estimating | 150 | 450 |
| 3. General Knowledge | 150 | 450 |
| PRACTICUMS (3 OF THE 4) | Member | Team |
| 1. Practicum 1 | 50 | 150 |
| 2. Practicum 2 | 50 | 150 |
| 3. Practicum 3 | 50 | 150 |
| Individual Total | 600 | |
| TEAM TOTAL | | 1,800 |

TIEBREAKERS

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

1. General Knowledge Exam
2. Identification
3. Landscape Estimating

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

1. Team General Knowledge Exam score
2. Identification
3. Landscape Estimating

Awards

Awards are presented to teams as well as individuals based upon their rankings. The top 10 teams and individuals will be recognized. Individuals from 1st through 5th place will receive medals. Teams from 1st through 5th place will receive plaques.

| No. | Common Name | Botanical Name | No. | Common Name | Botanical Name |
|-----|-------------------------|--|-----|-------------------------|---|
| 167 | Adam's Needle | <i>Yucca filamentosa</i> | 148 | Kentucky Bluegrass | <i>Poa pratensis</i> cv. |
| 161 | American Arborvitae | <i>Thuja occidentalis</i> cv. | 150 | Flowering Cherry | <i>Prunus serrulata</i> , Kwanzan ¹ Jap. |
| 164 | American Cranberry Bush | <i>Viburnum trilobum</i> | 144 | Lily-of-the-Valley-Bush | <i>Pieris japonica</i> |
| 106 | Astilbe | <i>Astilbe</i> hybrid cv. | 109 | Littleleaf Boxwood | <i>Buxus microphylla</i> cv. |
| 115 | Bearberry Cotoneaster | <i>Cotoneaster dammeri</i> | 162 | Littleleaf Linden | <i>Tilia cordata</i> |
| 132 | Bearded Iris | <i>Iris x germanica florentina</i> cv. | 147 | London Planetree | <i>Platanus x acerifolia</i> |
| 110 | Blue Atlas Cedar | <i>Cedrus atlantica</i> 'Glauca' | 155 | Meadow Sage | <i>Salvia nemorosa</i> cv. |
| 123 | Border Forsythia | <i>Forsythia x intermedia</i> cv. | 107 | Mentor Barberry | <i>Berberis x mentorensis</i> |
| 140 | Boston Ivy | <i>Parthenocissus tricuspidata</i> | 131 | Meserve Holly | <i>Ilex x meserveae</i> |
| 158 | Bumalda Spirea | <i>Spirea x bumalda</i> | 145 | Mugo Pine | <i>Pinus mugo</i> |
| 104 | Carpet Bugle | <i>Ajuga reptans</i> cv. | 103 | Norway Maple | <i>Acer platanoides</i> |
| 133 | Chinese Juniper | <i>Juniperus chinensis</i> cv. | 142 | Norway Spruce | <i>Picea abies</i> |
| 166 | Chinese Wisteria | <i>Wisteria sinensis</i> cv. | 135 | Oregon Grape | <i>Mahonia aquifolia</i> cv. |
| 143 | Colorado Blue Spruce | <i>Picea pungens</i> cv. | 139 | Peony | <i>Paeonia</i> hybrid cv. |
| 105 | Columbine | <i>Aquilegia x hybrida</i> cv. | 165 | Periwinkle | <i>Vinca minor</i> cv. |
| 125 | Common Blanketflower | <i>Gallardia aristata</i> cv. | 152 | Pin Oak | <i>Quercus palustris</i> |
| 159 | Common Lilac | <i>Syringa vulgaris</i> cv. | 130 | Plantain Lily | <i>Hosta x hybrida</i> cv. |
| 137 | Daffodil | <i>Narcissus pseudonarcissus</i> cv. | 118 | Purple Coneflower | <i>Echinacea purpurea</i> |
| 129 | Daylily | <i>Hemerocallis</i> spp. and cv. | 153 | Red Oak | <i>Quercus rubra</i> |

| | | | | | |
|-----|-----------------------------|--------------------------------|-----|-----------------------|-----------------------------------|
| 128 | English Ivy | Hedera helix cv. | 111 | Redbud | Cercis canadensis |
| 121 | European Beech | Fagus sylvatica cv. | 108 | River Birch | Betula nigra |
| 157 | European Mountain Ash | Sorbus aucuparia | 146 | Scotch Pine | Pinus sylvestris |
| 122 | Fescue | Festuca spp. And cv. | 156 | Sedum | Sedum spurium cv. |
| 151 | Firethorn | Pyracantha coccinea cv. | 113 | Shasta Daisy | Chrysanthemum x superbum cv. |
| 136 | Flowering Crabapple | Malus spp. And cv. | 149 | Shrubby Cinquefoil | Potentilla fruticosa cv. |
| 114 | Flowering Dogwood | Cornus florida cv. | 116 | Spreading Cotoneaster | Cotoneaster divaricatus |
| 141 | Fountain Grass | Pennisetum ruppelia | 127 | Thornless Honeylocust | Gleditsia triacanthos inermis cv. |
| 126 | Ginkgo, Maidenhair Tree | Ginkgo biloba | 163 | Tulip | Tulipa spp. Cv. |
| 134 | Hall's Japanese Honeysuckle | Lonicera japonica 'Halliana' | 117 | Washington Hawthorn | Crataegus phaenopyrum |
| 154 | Hybrid Tea Rose | Rosa spp. Class Hybrid Tea cv. | 124 | White Ash | Fraxinus americana cv. |
| 138 | Japanese Spurge | Pachysandra terminalis | 101 | White Fir | Abies concolor |
| 112 | Japanese (Flowering) Quince | Chaenomeles speciosa cv. | 119 | Winged Euonymus | Euonymus alatus |
| 102 | Japanese Maple | Acer palmatum | 120 | Wintercreeper | Euonymus fortunei cv. |
| | | | 160 | Yew | Taxus spp. And cv. |

Pests and Disorders Identification

| No. | Item Name |
|-----------------|------------------|
| Pests | |
| 168 | Aphid |
| 169 | Bagworm |
| 170 | Borer |
| 171 | Leafhopper |
| 172 | Leaf Miner |
| 173 | Scale |
| 174 | Spider Mite |
| 175 | Snail/Slug |
| 176 | Whitefly |
| 177 | White Grub |
| Diseases | |
| 178 | Anthracnose |
| 179 | Apple Scab |
| 180 | Black Spot |
| 181 | Botrytis |
| 182 | Canker |
| 183 | Cedar-Apple Rust |
| 184 | Crown Gall |
| 185 | Fireblight |
| 186 | Powdery Mildew |

| | |
|-----|----------|
| 187 | Root Rot |
|-----|----------|

| No. | Item Name |
|-------------------------------|-----------------------------------|
| Weeds | |
| 188 | Annual Bluegrass |
| 189 | Broadleaf Plantain |
| 190 | Buckhorn Plantain |
| 191 | Chickweed |
| 192 | Crabgrass |
| 193 | Dandelion |
| 194 | Henbit |
| 195 | Nutsedge |
| 196 | Oxalis |
| 197 | Purslane |
| 198 | Clovers |
| Physiological Problems | |
| 199 | Frost/Freeze Injury |
| 200 | Iron Deficiency |
| 201 | Leaf Scorch (drought/winter burn) |
| 202 | Nitrogen Deficiency |
| 203 | Pot-Bound roots |
| 204 | String Trimmer Injury |
| 205 | 2,4-D Injury |

| <u>No.</u> | <u>Item Name</u> | <u>No.</u> | <u>Item Name</u> | <u>No.</u> | <u>Item Name</u> |
|------------|--------------------------|------------|-------------------------|------------|------------------------|
| 206 | anvil-and-blade pruner | 226 | edger (power or hand) | 247 | hose-end sprayer |
| 207 | architect's scale | 227 | edging | 248 | hose-end washer |
| 208 | ball cart (B&B truck) | 228 | engineer's scale | 249 | hose repair coupling |
| 209 | bark mulch | 229 | erosion netting | 250 | impulse sprinklers |
| 210 | bark medium | 230 | fertilizer tablet | 251 | landscape fabric |
| 211 | bow saw | 231 | galvanized pipe | 252 | leaf rake |
| 212 | brick paver | 232 | garden (spading) fork | 253 | loppers |
| 213 | broadcast spreader | 234 | garden (bow) rake | 254 | mattock |
| 214 | bubbler head, irrigation | 235 | gas mask | 255 | measuring wheel |
| 215 | bulb planter | 236 | grafting band | 256 | mist nozzle (mist bed) |
| 216 | burlap | 237 | grafting tool | 257 | mower blade balancer |
| 217 | chaps | 238 | granular fertilizer | 258 | nursery container |
| 218 | compressed air sprayer | 239 | gravity (drop) spreader | 259 | oscillating sprinkler |
| 219 | core aerifier | 240 | grass shears | 260 | peat moss |
| 220 | chain saw | 241 | ground limestone | 261 | pick axe |
| 221 | cut-off machine | 242 | hearing protection | 262 | soil auger |
| 222 | drip emitter, irrigation | 243 | hedge shears | 263 | planting bar |
| 223 | dry-lock wall block | 244 | Hoe | 264 | pole pruner |
| 224 | duster | 245 | hook-and-blade pruners | 265 | polyethylene film |
| 225 | dust mask | 246 | hose-end repair fitting | 266 | polyethylene pipe |
| 267 | pop-up irrigation head | 280 | round point shovel | 293 | spray suit |

| | | | | | |
|-----|-------------------------|-----|----------------------|-----|---------------------|
| 268 | post-hole digger | 281 | safety goggles | 294 | square point shovel |
| 269 | power blower | 282 | Sand | 295 | string trimmer |
| 270 | power hedge trimmer | 283 | scoop shovel | 296 | tape measure |
| 271 | pot-in-pot units | 284 | shade fabric | 297 | topsoil |
| 272 | propagation mat | 285 | sharpening stone | 298 | tree caliper |
| 273 | pruning saw | 286 | siphon proportioner | 299 | tree wrap |
| 274 | PVC pipe | 287 | soaker hose | 300 | trowel |
| 275 | reel mower | 288 | soil sampling tube | 301 | T-square |
| 276 | Resin-coated fertilizer | 289 | solenoid valve | 302 | vermiculite |
| 277 | respirator | 290 | Spade | 303 | vertical mower |
| 278 | rotary mower | 291 | spark plug gap gauge | 304 | water breaker |
| 279 | rototiller | 292 | sphagnum moss | 305 | wire tree basket |

Nursery/Landscape CDE Identification and Equipment Scorecards

150 points

Participant Name _____ Number _____ Chapter _____

Directions: Identify plant specimens, insect pests, diseases, weed pests, equipment and supplies by writing the correct sample number from list provided to the sample spaces below.

| | |
|-----|-----|
| 1. | 26. |
| 2. | 27. |
| 3. | 28. |
| 4. | 29. |
| 5. | 30. |
| 6. | 31. |
| 7. | 32. |
| 8. | 33. |
| 9. | 34. |
| 10. | 35. |
| 11. | 36. |
| 12. | 37. |
| 13. | 38. |
| 14. | 39. |
| 15. | 40. |
| 16. | 41. |
| 17. | 42. |
| 18. | 43. |
| 19. | 44. |
| 20. | 45. |
| 21. | 46. |
| 22. | 47. |
| 23. | 48. |
| 24. | 49. |
| 25. | 50. |

SCORING DIRECTIONS: Each plant, insect pest, disease, weeds pests, equipment and supplies identification is worth 3 points. Deduct total incorrect from 150 points possible and record score at the bottom of the card.

Score _____

Potting Nursery Stock Practicum Scorecard

50 points

| | | |
|---------|-------|---------------|
| NAME | | MEMBER NUMBER |
| CHAPTER | STATE | TEAM NUMBER |

| | Possible Points | Points Earned |
|--|-----------------|---------------|
| Potting Process (35 points) | | |
| Preparation of Plants <ul style="list-style-type: none"> Plants selected for quality and uniformity Inspects/prunes/grooms damaged parts Prunes excess root length Handles plants properly, applies Vit B | 10 | |
| Placement of Plants in Containers <ul style="list-style-type: none"> Plant centered and vertical Roots carefully and properly spread Plant at proper depth Plant roots covered | 10 | |
| Media Filling and Settling <ul style="list-style-type: none"> Sufficient media added Media settled by bumping or hand firming Plant remains stable | 10 | |
| Labeling of Completed Units <ul style="list-style-type: none"> Plant (variety) name and date Legible | 2 | |
| Safety Practices Applied <ul style="list-style-type: none"> Proper cutting technique Tool closed when finished Minimal clutter/good organization in work area | 3 | |
| Potting Product (15 points) | | |
| Number of Units Completed | 10 | |
| Quality of Units Completed <ul style="list-style-type: none"> Overall quality and uniformity of lot | 5 | |
| TOTAL POINTS | 50 | |

| | | |
|--------------|-------------------|------|
| JUDGE'S NAME | JUDGE'S SIGNATURE | DATE |
|--------------|-------------------|------|

Nursery/Landscape Measuring Nursery Stock Scorecard

50 points

Participant Name _____ Number _____ Chapter _____

| | <u>Possible points</u> | <u>Participant</u> |
|-----------------------------------|------------------------|--------------------|
| A. Correct Minimum Interval _____ | (10) | _____ |
| B. Correct Minimum Interval _____ | (10) | _____ |
| C. Correct Minimum Interval _____ | (10) | _____ |
| D. Correct Minimum Interval _____ | (10) | _____ |
| E. Correct Minimum Interval _____ | (10) | _____ |
| TOTAL POINTS | (50) | _____ |

Nursery/Landscape Propagating Nursery Stock Practicum Scorecard

50 points

| | | |
|---------|-------|---------------|
| NAME | | MEMBER NUMBER |
| CHAPTER | STATE | TEAM NUMBER |

| | Possible Points | Points Earned |
|---|-----------------|---------------|
| Propagation Process (35 points) | | |
| Removal of Cuttings <ul style="list-style-type: none"> • Selects best quality uniform stock • Cuts at appropriate lengths • Makes clean cuts | 5 | |
| Preparation of Cuttings <ul style="list-style-type: none"> • Leaves stripped/trimmed/groomed as needed • Proximity of cuts to nodes • Angled or wounded basal cut • Cutting/buds not damaged | 10 | |
| Application of Proper Hormone <ul style="list-style-type: none"> • Sufficient applied and excess removed • Hormone kept clean | 7 | |
| Placement of Cuttings in Media <ul style="list-style-type: none"> • Proper medium depth, as applicable • Media furrow cut and closed • Proper sticking depth • Efficient row and cutting spacing | 8 | |
| Labeling of Completed Units <ul style="list-style-type: none"> • Plant (variety) name, date, treatment • Legible | 2 | |
| Safety Practices Applied <ul style="list-style-type: none"> • Proper cutting technique • Tool closed when finished • Minimal clutter in work area | 3 | |
| Propagation Productivity (15 points) | | |
| <ul style="list-style-type: none"> • Number of Units Completed | 10 | |
| Quality of Units Completed <ul style="list-style-type: none"> • Uniform size and placement • Cutting stable in media | 5 | |
| TOTAL POINTS | 50 | |

| | | |
|--------------|-------------------|------|
| JUDGE'S NAME | JUDGE'S SIGNATURE | DATE |
|--------------|-------------------|------|

Nursery/Landscape Pruning Nursery Stock Practicum Scorecard

50 points

| | | |
|---------|-------|---------------|
| NAME | | MEMBER NUMBER |
| CHAPTER | STATE | TEAM NUMBER |

Directions: Select the five (5) pruning cuts you feel would most improve the plant's health, form and overall quality. Mark your selections with a "X" next to the number.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____