

Nursery/Landscape Technology Career Development Event

Revised 7/2020

1. This CDE shall consist of four (forty-five minute) rotations having a total score of 860 points.

A. Problem Solving	100 points	Split time with exam and practicums
B. Exam	300 points	45 minutes (50 questions @ 6 pts each)
C. Plant Equipment/Pest Identification	350 points	45 minutes (50 samples @ 7 pts each)
D. Practicums (2)	<u>100 points</u>	45 minutes
Total	850 points	

A. Problem Solving (100 points): 10-20 multiple-choice questions dealing with a given scenario at 5-10 points per question. No more than two questions will be from any of the following areas. Not all areas will be used each year.

- Plant disorders and pest treatments
- Landscape design or plant selection
- Retail Pricing given wholesale information
- Nursery plant production schedule
- Determine equipment specifications, demonstrate pre-check operations.
- Lawn care procedures and equipment operation.
- Chemical handling procedures, e.g., fertilizer or pesticide equipment calibration and application.
- Preparing service receipts.
- Plant material quality assessment.
- Pruning maintenance.
- Safety practices.

Questions may use bare root, container grown, balled and burlapped nursery stock or landscape plans.

One or two Judging Classes (50 points each) could be used instead of problem solving questions.

B. Information and Skills Exam (300 points): 50 objective type questions and specimens for analysis will be selected from the following areas: (6 points/question)

1. Nursery, landscape, gardening industry
2. Plant science
3. Soils & fertilization
4. Plant propagation
5. Landscape design
6. Plant materials
7. Nursery practices
8. Landscape practices
9. Turf & grounds maintenance

C. Plant/Equipment/Pest Identification (350 points): Composed of 50 specimens and/or samples selected from the following areas: (each specimen valued at 7 points):

I. Plant ID (34 specimens)

1. Annuals
2. Deciduous Shrubs
3. Deciduous Trees
4. Evergreen Shrubs
5. Evergreen Trees
6. Other plants-Bulbs, Grasses & Vines
7. Perennials

II. Equipment/Pest ID (16 specimens)

1. Equipment and Supplies
2. Beneficial Insects
3. Pests
4. Plant Diseases
5. Physiological Problems
6. Weeds

D. Practicums (100 points): Two practicums will be selected from the following areas:

- 2021 Volume and area for different plots.
- 2021 Estimate materials for a given landscape plan, use of architects scale.
- 2022 Determine necessary soil amounts for potting.
- 2022 Calculate needed material for patio and sidewalks using pavers and keystone system.
- 2023 Determine materials for retaining wall
- 2023 Pruning nursery stock.
- 2024 Determining material for planting a bed or hedge.
- 2024 Establish a lawn by seeding or sodding.
- 2025 Volume and area for different plots.
- 2025 Estimate materials for a given landscape plan, use of architects scale.

2. Four members constitute a team at the MN FFA Convention. The top three scores will be used to determine the team score.
3. Official Dress or appropriate FFA attire is required. Refer to Rule 1-A-5 on page 1.1.
4. Time: Contestants shall receive 45 minutes to complete each part of the CDE.
5. References: A suggested reference list is included but similar titled references will provide the needed information.
6. Computer scan sheets will be used for this CDE. A sample of the scantron is on the CDE Rules Page
7. Objective questions and specimens for analysis will be developed each year prior to the State FFA Convention by individuals conducting the CDE.
8. Samples may include items, pictures, leaves, twigs, or entire plants. When trees and shrubs are in a dormant or bud stage, leaf samples may be included with the plant or twig. Potted samples should be provided when practical. A picture may be used to supplement the samples.
9. Example practicums are listed on the Minnesota FFA Website.
10. Tiebreakers- If team or individual scores are tied when scores are tabulated, ties will be broken in the following order: Total Identification score, then written exam score, then total practicum score, and finally problem solving score.

Knowledge List

1. Problem solving: The questions will be based on Knowledge or specimens selected from the exam topics or the identification lists below.
2. Information and Skills Exam: 50 objective type questions and specimens for analysis will be selected from the following areas:
 - a. Nursery, landscape, & gardening industry
 - geographical location
 - occupations/opportunities
 - industry scope
 - b. Plant science
 - classification
 - plant parts
 - plant growth principles

- c. Soils and fertilization
 - soil texture and structure
 - water holding capacity
 - aeration
 - soil pH
 - soil management and testing
 - nutrients/nutrient balance
 - chemical fertilizers
 - fertilizer application
 - artificial soils
- d. Plant propagation
 - seeding
 - transplanting/potting
 - cuttings, rhizomes, and corms
 - budding and grafting
- e. Landscape design
 - basic principles of design
 - reading and interpreting plans and scales
- f. Plant materials (for plants listed in plant ID)
 - water and soil needs
 - light requirement
 - use in the landscape
 - pest problems
 - maintenance needs
- g. Nursery practices
 - harvest stock (bare root, B & B, tree spade)
 - store stock (cold storage, healing in)
 - prune stock
 - control pests
- h. Landscape practices
 - selection
 - planting
 - stake and wrap trees
 - install edging and mulches
 - water and fertilize new plantings
- i. Turf and grounds maintenance
 - seeding
 - sodding
 - renovation and aeration
 - mowing

3. Plant Identification- See Identification Sheet #1 (Page 4)

4. Equipment, Pests, Disorders, and Insects Identification- See Identification Sheet # 2 (Page 5)

5. References: Suggested Books and Publications

- o Landscaping Principles and Practices, Ingels- Delmar
- o Introductory to Plant Science, Rick Parker- Delmar
- o Manual of Woody Landscape Plants, Michael Dirr
- o Trees of Minnesota- Field Guide, Tekiela
- o Weeds of the Northern US and Canada, Royer and Dickinson

Other references are listed in the National FFA Nursery/Landscape CDE Rules

Nursery/Landscape Plant Identification

Use top portion of the back side of scantron

1. Annuals

_____	101	Begonia (wax/fibrous) (<i>Begonia x semperflorens</i>)
_____	102	Coleus (<i>Coleus spp.</i>)
_____	103	Dusty Miller (<i>Senecio cineraria</i>)
_____	104	Garden Verbena (<i>Verbena x hybrida</i>)
_____	105	Gerbera Daisy (<i>Gerbera spp.</i>)
_____	106	Impatiens (<i>Impatiens wallerana</i>)
_____	107	Marigold (<i>Tagetes spp.</i>)
_____	108	Ornamental Kale (<i>Brassica oleracea</i>)
_____	109	Pansy (<i>Viola x wittrockiana</i>)
_____	110	Petunia (<i>Petunia x hybrida</i>)
_____	111	Snapdragon (<i>Antirrhinum majus</i>)
_____	112	Sweet Alyssum (<i>Lobularia maritima</i>)
_____	113	Zonal Geranium (<i>Pelargonium spp.</i>)

2. Deciduous Shrubs

_____	201	American Highbush Cranberry (<i>Viburnum triobum</i>)
_____	202	Amur Maple (<i>Acer ginnala</i>)
_____	203	Annabelle Hydrangea (<i>Hydrangea arborescens</i>)
_____	204	Azalea (<i>Rhododendron spp.</i>)
_____	205	Common Lilac (<i>Syringa vulgaris</i>)
_____	206	Common Ninebark (<i>Physocarpus opulifolius</i>)
_____	207	Dwarf Bush Honeysuckle (<i>Diervilla lonicera</i>)
_____	208	Dwarf Korean Lilac (<i>Syringa meyeri</i> 'Palibin')
_____	209	Forsythia (<i>Forsythia spp.</i>)
_____	210	Fragrant Sumac (<i>Rhus aromatica</i>)
_____	211	Honeysuckle (<i>Lonicera spp.</i>)
_____	212	Japanese Barberry (<i>Barberis thunbergii</i>)
_____	213	Nannyberry Viburnum (<i>Viburnum lentago</i>)
_____	214	PeeGee Hydrangea (<i>Hydrangea paniculata</i>)
_____	215	Peking Cotoneaster (<i>Cotoneaster acutifolius</i>)
_____	216	Red Twigged Dogwood (<i>Cornus sericea</i>)
_____	217	Rose (<i>Rosa spp.</i>)
_____	218	Spirea (<i>Spiraea spp.</i>)
_____	219	Weigela (<i>Weigela florida</i>)
_____	220	Winged Euonymus (<i>Euonymus alatus</i>)

3. Deciduous Trees

_____	301	American Basswood (<i>Tilia americana</i>)
_____	302	American Elm (<i>Ulmus americana</i>)
_____	303	Bur Oak (<i>Quercus macrocarpa</i>)
_____	304	European Mountain Ash (<i>Sorbus aucupaia</i>)
_____	305	Flowering Crabapple (<i>Malus species</i>)
_____	306	Ginkgo (<i>Ginkgo biloba</i>)
_____	307	Green Ash (<i>Fraxinus pennsylvanica</i>)
_____	308	Hackberry (<i>Celtis occidentalis</i>)
_____	309	Hawthorn (<i>Crataegus spp.</i>)
_____	310	Japanese Tree Lilac (<i>Syringa reticulata</i>)
_____	311	Kentucky Coffee Tree (<i>Gymnocladus dioica</i>)
_____	312	Little Leaf Linden (<i>Tilia cordata</i>)
_____	313	Northern Pin Oak (<i>Quercus ellipsoidalis</i>)
_____	314	Norway Maple (<i>Acer platanoides</i>)
_____	315	Paper Birch (<i>Betula papyrifera</i>)
_____	316	Red Maple (<i>Acer rubrum</i>)
_____	317	Red Oak (<i>Quercus rubra</i>)
_____	318	River Birch (<i>Betula nigra</i>)

3. Deciduous Trees (continued)

_____	322	Serviceberry (<i>Ameianchier x grandiflora</i>)
_____	323	Silver Maple (<i>Acer saccharinum</i>)
_____	324	Sugar Maple (<i>Acer saccharum</i>)
_____	325	Swamp White Oak (<i>Quercus bicolor</i>)
_____	326	Thornless Honeylocust (<i>Gleditsia triacanthos</i>)
_____	327	Weeping Willow (<i>Salix alba</i>)
_____	328	White Ash (<i>Fraxinus americana</i>)
_____	329	White Oak (<i>Quercus alba</i>)

4. Evergreen shrubs

_____	401	Arborvitae (<i>Thuja occidentalis</i>)
_____	402	Juniper (<i>Juniperus spp.</i>)
_____	403	Mugo Pine (<i>Pinus mugo</i>)
_____	404	Rhododendron (<i>Rhododendron spp.</i>)
_____	405	Yew (<i>Taxus spp.</i>)

5. Evergreen trees

_____	421	Austrian Pine (<i>Pinus nigra</i>)
_____	422	Balsam Fir (<i>Abies balsamea</i>)
_____	423	Black Hills Spruce (<i>Picea glauca densata</i>)
_____	424	Colorado Spruce (<i>Picea pungens</i>)
_____	425	Eastern White Pine (<i>Pinus strobus</i>)
_____	426	Red Pine (<i>Pinus resinosa</i>)
_____	427	Scots Pine (<i>Pinus sylvestris</i>)
_____	428	White Fir (<i>Abies concolor</i>)

6. Other Plants- Bulbs, Grasses, & Vines

_____	441	Boston Ivy (<i>Parthenocissus tricuspidata</i>)
_____	442	Clematis (<i>Clematis spp.</i>)
_____	443	Crocuses (<i>Crocus spp.</i>)
_____	444	Daffodil (<i>Narcissus spp.</i>)
_____	445	Dropmore Honeysuckle (<i>Lonicera x brownii</i>)
_____	446	Feather Reed Grass (<i>Calamagrostis x acutiflora</i>)
_____	447	Fescue (<i>Festuca spp. and cv.</i>)
_____	448	Kentucky Bluegrass (<i>Poa pratensis cv.</i>)
_____	449	Prairie Dropseed (<i>Sporobolus heterolepis</i>)
_____	450	Switchgrass (<i>Panicum virginicum</i>)
_____	451	Tulip (<i>Tulipa spp.</i>)

7. Perennials

_____	501	Astilbe (<i>Astilbe spp.</i>)
_____	502	Iris (<i>Iris spp.</i>)
_____	503	Black Eyed Susan (<i>Rudbeckia fulgida</i>)
_____	504	Columbine (<i>Aquilegia spp.</i>)
_____	505	Coral Bells (<i>Heuchera spp.</i>)
_____	506	Daylily (<i>Hemerocallis spp.</i>)
_____	507	Gaillardia (<i>Gaillardia grandiflora</i>)
_____	508	Garden Mum (<i>Chrysanthemum spp.</i>)
_____	509	Hosta (<i>Hosta spp.</i>)
_____	510	Liatris (<i>Liatris spicata</i>)
_____	511	Pachysandra (<i>Pachysandra terminalis</i>)
_____	512	Peony (<i>Paeonia spp.</i>)
_____	513	Purple Coneflower (<i>Echinacea purpurea</i>)
_____	514	Sedum (<i>Sedum spurium</i>)
_____	515	Shasta Daisy (<i>Leucanthemum x superbum</i>)
_____	516	Wintercreeper Euonymus (<i>Euonymus fortunei</i>)

Nursery/Landscape Equipment, Pests, Disorders, Insects & Weeds Identification

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A. Equipment and Supplies

- 701 Anvil and Blade Pruner
- 702 Bow Saw
- 703 Broadcast (cyclone spreader)
- 704 Bulb Planter
- 705 Bunker Rake
- 706 Chain saw
- 707 Core aerifier
- 708 Drop Spreader
- 709 Edger (power or hand)
- 710 Edging
- 711 Erosion Netting
- 712 Fertilizer injector
- 713 Fertilizer tablet
- 714 Garden (bow) Rake
- 715 Garden (spading) Fork
- 716 Grafting Band
- 717 Grafting Knife
- 718 Hedge Shears
- 719 Hoe
- 720 Hook and Blade Pruner (Bypass)
- 721 Hose-end Sprayer
- 722 Impact Sprinkler
- 723 Landscape fabric
- 724 Leaf Rake
- 725 Loppers
- 726 Mattock
- 727 Measuring Wheel
- 728 Mist Nozzle (mist bed)
- 729 Mower blade balancer
- 730 Oscillating sprinkler
- 731 Peat moss
- 732 Pick axe
- 733 Pole Pruner
- 734 Pop-up irrigation head
- 735 Post-hole digger
- 736 Power auger
- 737 Power Blower
- 738 Power Hedge trimmer
- 739 Pruning saw
- 740 Pump Sprayer
- 741 Quick Coupler
- 742 Reel Mower
- 743 Rotary Mower
- 744 Rototiller
- 745 Round Point Shovel
- 746 Scoop Shovel
- 747 Shade Fabric
- 748 Siphon Proportioner
- 749 Soil Sampling Probe
- 750 Spade
- 751 Sphagnum moss
- 752 Square point (flat shovel)
- 753 String trimmer
- 754 Thatch Rake
- 755 Tree Wrap
- 756 Vertical Mower

B. Beneficial Insects & Pests

- 801 Lacewing
- 802 Lady Beetle
- 803 Paper Wasp
- 804 Praying Mantis
- 805 Spider
- 806 Aphid
- 807 Birch borer
- 808 Cankerworm
- 809 Emerald ash borer
- 810 Leafhopper
- 811 Leaf Miner
- 812 Scale
- 813 Spider Mites
- 814 Snail/Slug
- 815 Tent caterpillar
- 816 Whitefly
- 817 White Grub

D. Plant diseases

- 821 Anthracnose
- 822 Apple scab
- 823 Black knot disease
- 824 Black spot
- 835 Botrytis
- 826 Canker
- 827 Cedar-Apple Rust
- 828 Crown Gall
- 829 Dollar spot
- 830 Dutch elm disease
- 831 Fireblight
- 832 Leaf galls
- 833 Powdery Mildew
- 834 Root Rot
- 835 Rust
- 836 Snow Mold
- 837 White pine blister rust

E. Physiological Problems

- 851 2,4-D Injury
- 852 Frost/Freeze injury
- 853 Iron Deficiency
- 854 Leaf Scorch (drought/winter burn)
- 855 Nitrogen Deficiency
- 856 Planting Depth Problem
- 857 Pot-Bound Roots
- 858 Stem Girdling Roots
- 859 String Trimmer Injury

F. Weeds

- 901 Chickweed
- 902 Crabgrass
- 903 Creeping Charlie
- 904 Dandelion
- 905 Foxtail
- 906 Knotweed
- 907 Nutsedge
- 908 Oxalis
- 909 Plantain
- 910 Purslane
- 911 Quackgrass
- 912 Clover