

# NURSERY/LANDSCAPE

## **Purpose**

The purpose of the Nursery/Landscape Contest is to encourage students to gain knowledge of the production, marketing, utilization, and culture of landscape plants.

## **Objectives**

In preparing for the contest, the student should develop the following skills:

- I. Identification of woody ornamental and turf plants commonly used in Missouri landscapes.
- II. Understanding of the basic principles involved in correct use of plants in the landscape.
- III. Ability to diagnose common problems encountered in the culture of landscape plants and to prescribe methods for preventing or correcting these problems.

### Crosswalk with Show Me Standards

Objectives – Students participating in the Career Development Event should be able to:		Show-Me Standards	
		Knowledge Standards (Content Areas)	Performance Standards (Goals)
1.	Identification of woody ornamental and turf plants commonly used in Missouri landscapes.	CA.5	1.4, 1.5, 1.10
2.	Ability to recognize the characteristics of a given plant which adds to or detracts from its quality or usefulness.	MA.1, MA.2, MA.5 SC.3, SC.4, SC.8	3.1, 3.2, 3.3, 3.5, 3.6, 3.8  4.4, 4.8
3.	Understanding of the basic principles involved in correct use of plants in the landscape.		
4.	Ability to diagnose common problems encountered in the culture of landscape plants and to prescribe methods for preventing or correcting these problems.		

Corresponding Secondary Agriculture Curriculum			
<b>Course and/or Curriculum:</b>	Landscape/Turfgrass Management	<b>Unit(s):</b>	Unit III – Identification Unit IX – Site Analysis and Evaluation Unit X – Selecting and Using Plants in the Landscape Unit XI – Landscape Designing Unit XII – Developing Cost Estimates
	Greenhouse Operation and Management		Unit VI – Plant Health Unit VII – Greenhouse Business Management
	Plant Science		Unit IV – Weeds, Diseases and Insects
	Plant Science Curriculum		Basic Plant Science Basic Soil Science Landscape Management Turfgrass Management

## Event Format

The Nursery/Landscape CDE shall consist of the following four (4) components:

### 1. General Knowledge Examination

This portion of the contest will test the contestant's knowledge and understanding of the production, marketing, utilization, and culture of landscape plants. One (1) hour will be the maximum time allotted for the exam. It will consist of 50 multiple choice questions selected from the following:

- (1) Turf Grasses
- (2) Shrubs
- (3) Trees
- (4) Pests and Pesticides
- (5) Soils
- (6) Planting
- (7) Fertilizers
- (8) Pruning
- (9) Landscaping.

### 2. Practicum - Plant Disorder Diagnosis

This portion of the contest will test the ability of the contestants to identify diseases, insects, weeds, and physiological disorders based on plant systems or on the pests themselves. Contestants will be required to make diagnoses on 20 specimens drawn from the Plant Disorder Diagnosis Scorecard (Form 67). Specimens may be live, preserved, photographs, or symptoms associated with disorders. One (1) minute per sample will be allowed and a 10 minute review period will be allowed at the end. All students will turn in all handouts at the end of each component such as the "Plant Disorder Diagnosis" handout (Form 6).

### 3. Landscape Design Problem

This practicum is designed to evaluate participants' knowledge of and ability in:

- (1) Evaluating a landscape design
- (2) Reading a landscape drawing
- (3) Measuring and calculating materials needed to execute a landscape plan
- (4) Evaluating factors that affect profitability of a landscape business

A landscape drawing and scratch paper will be provided to the participants. Students will not be allowed to bring their own scratch paper – only allowed to used paper provided. There will be 20 objective questions about the landscape plan, and each correct answer has a value of 5 points. The questions may include such areas as determining how accent was provided in the public area, the form and size specified for a certain plant, the cost of fencing, the number of patio pavers required, the area of sod to be installed, the volume of mulch required and the labor cost to install a ground-cover bed. All handout materials must be turned in at the end of each component – landscape drawing and all scratch paper must be turned in. Maximum of one (1) hour to complete this component. \*The design plan scale should be a scale shown on a standard engineer scale.

### 4. Identification

Each contestant will be required to identify 50 specimens from the Nursery/Landscaping Supplemental Information List (LIST 66). This handout must be turned in at the completion of this component. A specimen may be twigs, foliage, flower, fruit, or an entire plant. Specimens will be identified by number. The contestant will need to match the specimen with the correct name on the answer sheet and write the number of the specimen in the blank next to the name. A plant may be represented by more than one specimen. A maximum of 50 seconds per identification sample will be allowed and a 10-minute review period will be allowed at the end. **Duplicate samples may not be used in any identification portion of the event.**

## Event Scoring

Event	Points	Suggested Time
General Knowledge Exam - 50 questions @ 4 points each	200 points	1 hour
Plant Disorder Practicum - 20 specimens @ 5 points each	100 points	30 minutes
Landscape Design Problem - 20 questions @ 5points each	100 points	1 hour
Identification - 50 specimens @ 4 points each	200 points	1 hour
<b>Total</b>	<b>600 points</b>	

**1. Tie scores among teams in all events should be broken using the high individual team member's score.** In case the scores are tied, the scores of the second high individual on each team should be used.

### Event Rules and Regulations

1. A team will consist of three or four members.
2. The team score will be the total of the 3 highest individual scores for the respective team.
3. Students are allowed to bring their own **engineer's scale** for use in the CDE.
4. Any non-programmable and non-graphing calculator.

## Testing References

Landscaping Principles and Practices – 7<sup>th</sup> Edition. By Jack E. Ingels.

[http://www.delmarlearning.com/browse\\_product\\_detail.aspx?catid=32398&isbn=1428376410](http://www.delmarlearning.com/browse_product_detail.aspx?catid=32398&isbn=1428376410)

Plant Science Curriculum – Basic Plant Science, Basic Soil Science, Landscape Management, Turfgrass Management Units

## Training References

### Identification

Catalogs from mail order seed and nursery companies are an excellent source of information. They can be obtained free of charge from most companies. Farm and garden magazines are full of addresses for these companies in the spring of the year.

Trees of Missouri Field Guide, available from MDC for \$7.50

<http://www.mdcnatureshop.com/mdc.cgi/scan/st=db/co=yes/sf=category/se=Plants/op=eq.html?id=W3s5EDC8>

A Guide to Field Identification--Trees of North America, C. Frank Brockman, Golden Press, New York, 1968.

American Standards for Nursery Stock, American Association of Nurserymen, 230 Southern Building, Washington, DC 20005.

### General

Landscaping and Turf Management (Instructor and Student Reference) (1990). IML available via MCCE website: <http://www.missouricareereducation.org/home.php>

Pesticide Applicators Training Manual, (request MP731), Extension Publications, 2800 Maguire Blvd., University of Missouri, Columbia, MO 65211. Phone: 800-292-0969.

Landscape Design, A Practical Approach 4<sup>th</sup> Edition (1988). Leroy G. Hannebaum. Prentice-Hall, Inc., Englewood Cliffs, NJ.

Ornamental and Turf Pest Control, Missouri Manual 89, Published by MU Extension – Extension Publications, 2800 Maguire Blvd., UMC, Columbia, MO 65211. Phone: 800-292-0969.

Reiley & Shry (1988). Introductory Horticulture, Albany, New York: Delmar Publishers, Inc.

## Forms

See the following: Training Identification List Student Reference, Plant Identification Contestant Reference 1, Plant Disorder Contestant Reference 2

## **Supplemental Information: Identification List**

### **SHADE TREES**

001. Bald Cypress / *Taxodium distichum*
002. Ginkgo / *Ginkgo biloba*
003. Honey Locust / *Gleditsia triacanthos*
004. Japanese Maple / *Acer palmatum*
005. Little Leaf Linden / *Tilia cordata*
006. London Planetree / *Platanus x acerfolia*
007. Northern Red Oak / *Quercus rubra*
008. Norway Maple / *Acer platanoides*
009. Pin Oak / *Quercus palustris*
010. Red Maple / *Acer rubrum*
011. River Birch / *Betula nigra*
012. Sugar Maple / *Acer saccharum*
013. Sweet Gum / *Liquidambar styraciflua*
014. Tulip Tree / *Liriodendron tulipifera*
015. White Oak / *Quercus alba*

### **FLOWERING TREES**

016. Downy Serviceberry / *Amelanchier arborea*
017. Eastern Redbud / *Cercis canadensis*
018. Flowering Crabapple / *Malus* spp.
019. Flowering Dogwood / *Cornus florida*
020. Golden Rain Tree / *Koelreuteria paniculata*
021. Saucer Magnolia / *Magnolia soulangeana*
022. Sweet magnolia / *Magnolia virginiana*
023. Washington Hawthorn / *Crataegus phaenopyrum*
024. White Fringe tree / *Chionanthus virginicus*

### **EVERGREEN TREES**

025. American Holly / *Ilex opaca*
026. Austrian Pine / *Pinus nigra*
027. Blue Spruce / *Picea pungens*
028. Green Giant Arborvitae / *Thuja* x 'Green Giant'
029. Hemlock / *Tsuga canadensis*
030. Norway Spruce / *Picea abies*
031. Southern Magnolia / *Magnolia grandiflora*
032. White Pine / *Pinus strobus*

### **PERENNIALS**

- 033. Astilbe / Astilbe hybrid
- 034. Black Eyed Susan / Rudbeckia fulgida
- 035. Columbine / Aquilegia x hybrida
- 036. Coral Bells/Heuchera
- 037. Day Lily / Hemerocallis spp.
- 038. Fountain Grass / Pennisetum alopecuroides
- 039. Gaillardia /Blanketflower/ Gaillardia x grandiflora
- 040. Hosta Lily / Hosta spp.
- 041. Iris/ Iris spp.
- 042. Jonquil / Daffodil /Narcissus spp.
- 043. Maiden Grass/Miscanthus spp.
- 044. Mums /Chrysanthemum/ Dendranthema x morifolium
- 045. Peony / Paeonia hybrid
- 046. Purple Cone Flower / Echinacea purpurea
- 047. Shasta Daisy / Chrysanthemum x superbum
- 048. Tulip / Tulipa spp.

#### **EVERGREEN SHRUBS**

- 049. Arbor Vitae / Thuja orientalis
- 050. Blue Holly / Ilex meserveae
- 051. Chinese Juniper / Juniperus chinensis
- 052. Common Boxwood / Buxus sempervirens
- 053. Grey Owl Juniper / Juniperus virginiana 'Grey Owl'
- 054. Inkberry / Ilex glabra
- 055. Leatherleaf Viburnum / Viburnum rhytidophyllum
- 056. Mugo Pine / Pinus mugo
- 057. Oregon Holly-grape / Mahonia aquifolium
- 058. Rhododendron / Rhododendron spp.
- 059. Yew / Taxus spp.

#### **VINES AND GROUND COVERS**

- 060. Ajuga / Ajuga reptans
- 061. Bigleaf Wintercreeper / Euonymus fortunei 'Vegetus'
- 062. Creeping Juniper / Juniperus horizontalis
- 063. Creeping Lily Turf / Liriope spicata
- 064. English Ivy / Hedera helix
- 065. Honeysuckle / Lonicera spp.
- 066. Periwinkle /Perennial Vinca/ Vinca minor

#### **TURF**

- 067. Bermuda Grass / Cynodon dactylon

- 068. Bluegrass / *Poa pratensis*
- 069. Red Fescue / *Festuca rubra*
- 070. Rye Grass / *Lolium perenne*
- 071. Tall Fescue / *Festuca elatior*
- 072. Zoysia Grass / *Zoysia japonica*

### **FLOWERING SHRUBS**

- 073. Bearberry Cotoneaster / *Cotoneaster dammeri*
- 074. Common Lilac / *Syringa vulgaris*
- 075. Doublefile Viburnum / *plicatum* f. *tomentosum*
- 076. Dwarf Korean Lilac / *Syringa meyeri*
- 077. Flowering Quince / *Chanomeles speciosa*
- 078. Forsythia / *Forsythia intermedia*
- 079. Japanese Barberry / *Berberis thunbergii*
- 080. Nine Bark/ *Physocarpus opulifolius*
- 081. Oakleaf Hydrangea / *Hydrangea quercifolia*
- 082. Privet / *Ligustrum* spp.
- 083. Pyracantha / *Pyracantha coccinea*
- 084. Redoiser Dogwood / *Cornus sericea*
- 085. Rose of Sharon / *Hibiscus syriacus*
- 086. Spirea/ *Spirea* spp.
- 087. Virginia Sweetspire / *Itea virginica*
- 088. Winged Euonymus/Burning Bush / *Euonymus alatus*



**PLANT IDENTIFICATION LIST**

**Contestant Reference 1**

<u>SHADE TREES</u>	<u>PERENNIALS</u>	<u>TURF</u>
001. Bald Cypress	033. Astilbe	067. Bermuda Grass
002. Ginkgo	034. Black Eyed Susan	068. Bluegrass
003. Honey Locust	035. Columbine	069. Red Fescue
004. Japanese Maple	036. Coral Bells/Heuchera	070. Rye Grass
005. Little Leaf Linden	037. Day Lily	071. Tall Fescue
006. London Planetree	038. Fountain Grass	072. Zoysia Grass
007. Northern Red Oak	039. Gaillardia/Blanketflower	
008. Norway Maple	040. Hosta Lily	<b><u>FLOWERING SHRUBS</u></b>
009. Pin Oak	041. Iris	
010. Red Maple	042. Jonquil/Daffodil	073. Bearberry Cotoneaster
011. River Birch	043. Maiden Grass	074. Common Lilac
012. Sugar Maple	044. Mums/Chrysanthemum	075. Doublefile Viburnum
013. Sweet Gum	045. Peony	076. Dwarf Korean Lilac
014. Tulip Tree	046. Purple Cone Flower	077. Flowering Quince
015. White Oak	047. Shasta Daisy	078. Forsythia
	048. Tulip	079. Japanese Barberry
<b><u>FLOWERING TREES</u></b>	<b><u>EVERGREEN SHRUBS</u></b>	080. Nine Bark
016. Downy Serviceberry		081. Oakleaf Hydrangea
017. Eastern Redbud	049. Arbor Vitae	082. Privet
018. Flowering Crabapple	050. Blue Holly	083. Pyracantha
019. Flowering Dogwood	051. Chinese Juniper	084. Redoiser Dogwood
020. Golden Rain Tree	052. Common Boxwood	085. Rose of Sharon
021. Saucer Magnolia	053. Grey Owl Juniper	086. Spirea
022. Sweet magnolia	054. Inkberry	087. Viginia Sweetspire
023. Washington Hawthorn	055. Leatherleaf Viburnum	088. Winged Euonymus
024. White Fringe tree	056. Mugo Pine	
	057. Oregon Holly-grape	
<b><u>EVERGREEN TREES</u></b>	058. Rhododendron	
025. American Holly	059. Yew	
026. Austrian Pine		
027. Blue Spruce	<b><u>VINES AND GROUND COVERS</u></b>	
028. Green Giant Arborvitae	060. Ajuga	
029. Hemlock	061. Bigleaf Wintercreeper	
030. Norway Spruce	062. Creeping Juniper	
031. Southern Magnolia	063. Creeping Lily Turf	
032. White Pine	064. English Ivy	
	065. Honeysuckle	
	066. Periwinkle/Perennial Vinca	

**PLANT DISORDER DIAGNOSIS Reference Sheet  
Nursery/Landscape**

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
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**Insects**

- 01. Aphid
- 02. Bagworm
- 03. Borer
- 04. Emerald Ash Borer
- 05. Japanese Beetle
- 06. Leafhopper
- 07. Leaf Miner
- 08. Scale
- 09. Spider Mite
- 10. Snail/Slug
- 11. Tent Caterpillar
- 12. Whitefly
- 13. White Grub

**Diseases**

- 14. Anthracnose
- 15. Apple Scab
- 16. Black Spot
- 17. Botrytis
- 18. Cedar-Apple Rust
- 19. Crown Gall
- 20. Fireblight
- 21. Pine Wilt
- 22. Powdery Mildew
- 23. Rose Rosette Virus

**Weeds**

- 24. Annual Bluegrass
- 25. Broadleaf Plantain
- 26. Buckhorn Plantain
- 27. Bull Thistle
- 28. Chickweed
- 29. Crabgrass
- 30. Dandelion
- 31. Field Bindweed
- 32. Henbit
- 33. Knotweed
- 34. Nimblewill
- 35. Nutsedge
- 36. Oxalis
- 37. Prickly Lettuce
- 38. Purslane
- 39. White Clover

**Physiological Problems**

- 40. Iron Deficiency
- 41. Leaf Scorch  
(drought/winter burn)
- 42. Nitrogen Deficiency
- 43. 2,4-D Injury